Connecting the Midwest

How a Faster Passenger Rail Network Could Speed Travel and Boost the Economy

Illinois PIRG Education Fund

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Summer 2010

Acknowledgments

The authors thank the following individuals for their review of this report: Lynne Bly, Transportation Policy Director, Fresh Energy; Richard Harnish, Executive Director, Midwest High Speed Rail Association; Ken Prendergast, Executive Director, All Aboard Ohio; Devan Willemsen, Director of Air and Land Use Special Projects, Ohio Environmental Council. The authors would also like to thank Tony Dutzik of Frontier Group for his extensive assistance with the maps. Thanks also to Phineas Baxandall of U.S. PIRG Education Fund and Travis Madsen of Frontier Group for their editorial assistance.

This report is made possible with funding from the Patrick and Anna M. Cudahy Fund, RE-AMP, the Rockefeller Foundation, and the Surdna Foundation.

The opinions expressed in this report are those of the authors and do not necessarily reflect the views of our funders or those who provided editorial review. Any factual errors are strictly the responsibility of the authors.

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Layout: Harriet Eckstein Graphic Design

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Executive Summary

In building a 21st century economy, the Midwest is hampered by an outdated transportation system. Congested airports and crammed highways hinder travel around the region. As the main source of our dependence on oil, our transportation system leaves us vulnerable to oil price spikes and pollution.

Intercity passenger rail in the Midwest can be part of the solution. The Midwestern states have put forward a bold vision for efficient, rapid passenger rail service linking the entire region. The federal government is allocating more than $2.7 billion in funds from the American Reinvestment and Recovery Act to bring that vision closer to reality with rail projects in six Midwestern states.

Completing the Midwest's regional rail system should be a priority for addressing many of the region's toughest transportation challenges, while delivering badly needed economic activity.

Passenger rail can help address the Midwest's toughest transportation challenges.

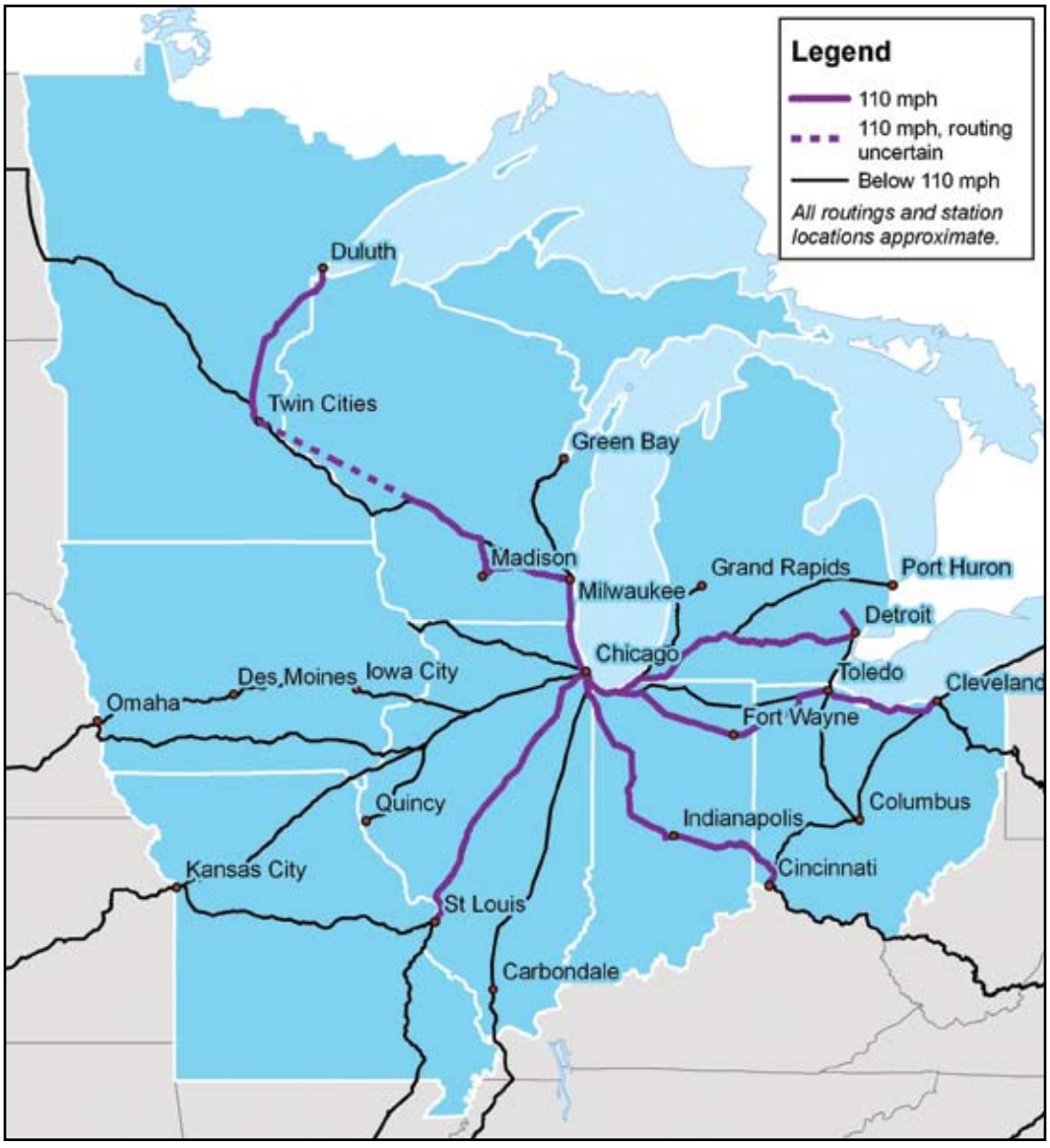
- Passenger rail **curbs congestion** on highways and in airports. Traffic congestion costs major Midwest metropolitan areas more than $10 billion each year in lost economic output. Construction of a regional rail network for the Midwest is projected to avoid 1.3 million plane trips and 5.1 million car trips per year by 2020, curbing congestion. Also, an improved passenger rail system will run on a significantly improved freight rail network. This means additional cost savings and lower congestion for some portion of freight shipments that can travel more efficiently by rail.

- Passenger rail **reduces our dependence on oil**. On average, an Amtrak passenger uses 30 percent less energy per mile than a car passenger. Compared to airplanes, European high-speed trains consume approximately one-third the amount of fuel per passenger. Newer locomotives are becoming even more efficient, and switching rail lines from diesel to electric power can curb America's oil dependence even further.

- Passenger rail can **boost the Midwest's economy** by making travel easier between cities, fostering regional business connections. Constructing a Midwestern passenger rail system will create more than 57,000 permanent jobs in the Midwest, and also support 15,200 jobs during the 10 years that the system would be under construction. Developing the system would give Midwestern railroad equipment manufacturers an initial foothold in a growing worldwide industry.

- Passenger rail can provide **convenient, efficient travel**, where riders can work, relax, enjoy greater legroom, and travel directly from downtown to downtown, even in inclement weather—avoiding the need to drive to outlying airports, wait in long security lines, or jostle for parking in congested center cities.

Figure ES-1: What the Midwestern High-Speed Rail Network Could Look Like



- Passenger rail **protects the environment**. A study undertaken by the Center for Clean Air Policy and the Center for Neighborhood Technology found that a Midwestern high speed rail system would prevent 188,000 tons of carbon dioxide emissions each year by diverting passengers from car and plane travel, equal to the annual emissions of 34,000 cars. Savings could be higher if the benefits of improved freight and conventional rail networks are included.

A Midwestern rail network would reach all of the region's major centers of population and employment—touching the lives of most residents of the region.

- Region-wide, 58 percent of Midwesterners—35 million people—would have access to a high-speed rail station within 15 miles of their homes. A total of 17 million people would live within five miles of a station.

- More than one out of every four jobs in the region would be within five miles of a high-speed rail station, meaning that high-speed rail could play a critical role in facilitating the connectivity that can improve the region's economy.

Every Midwestern state stands to gain from the construction of high-speed rail.

- **Illinois** would be the hub of the new system, with two out of every three jobs in the state located within 15 miles of a high-speed rail stop. Improvements on the Chicago-St. Louis line are projected to draw 1.2 million passengers in the first year of service.

- In **Missouri**, St. Louis would benefit from a faster connection to Chicago and improved rail service between St. Louis and Kansas City. Improved service would provide a convenient alternative to travel along I-70.

- **Iowa** would have restored service to Iowa City and Des Moines and an 80 mph line extending across the state. The Iowa City-Chicago line is projected to reduce car travel by 345,000 trips per year, saving 1.5 million gallons of gasoline.

- In **Wisconsin**, the popular route from Chicago to Milwaukee would be extended to Madison, connecting the state's two largest cities. With a completed regional high speed rail network, most major Wisconsin cities and economic centers would be connected to Chicago, the Twin Cities and the entire Great Lakes region by rail.

- **Minnesota** would see new high-speed service to the Twin Cities. Traveling to Chicago on the new line would be at least an hour faster than driving.

- In **Michigan**, upgraded service would provide a faster connection for economically battered cities like Detroit and Flint to Chicago, creating new possibilities for economic development and recovery.

- In **Indiana**, Indianapolis would sit directly between Cincinnati and Chicago on a new high-speed line, with multiple trains leaving daily in both directions.

- In **Ohio**, the "3 Cs"—Cleveland, Columbus, and Cincinnati—are not currently connected by a rail line. A regional rail network could include a high-speed line across the state connecting the three cities, and linking Cleveland and Cincinnati to Chicago.

Recent investments in passenger rail have already paid off in higher ridership.

- Faster service along the Chicago to Detroit corridor has led to a 24 percent increase in ridership over the past five years, despite the region's severe economic downturn.

- Similarly, increases in frequency of service along the Chicago to St. Louis line led to a 56 percent increase in ridership.

- Americans are hungry for access to more and better rail service. A 2009 survey found that if the cost and travel time were equal, 54 percent of Americans would prefer to travel to cities in their region by high-speed rail, with only 33 percent preferring car travel and 13 percent preferring air travel. Of Americans who had actually ridden high-speed rail, an overwhelming 82 percent preferred it to air travel.

Building the infrastructure to ease congestion will require a large investment whether we upgrade railroads or expand roads and airports.

- Illinois expects to spend $1.1 billion to upgrade rail service on the roughly 200-mile route from Dwight, Illinois, to Alton, Illinois, or $5.5 million per mile. A highway expansion project can cost from less than $10 million to more than $70 million per mile of additional lanes.

- Adding airport capacity, especially at the region's busiest airports, is extremely expensive. For example, reconfiguring runways and adding one terminal at Chicago's O'Hare Airport will cost $6.6 billion. Building 16 new gates at the Minneapolis-St. Paul Airport is expected to cost $400 million.

The Midwest should develop a high-speed rail network that fits together with other modes of transportation to knit the region together. To that end, Midwestern states should:

- **Continue to back a regional vision**. High-speed rail can only deliver its promise to the region if state and federal agencies fully commit to developing a functional interstate rail network. Each Midwestern state should recognize that its own transportation network will realize its full value only if coordinated with developments in other states, and push for federal investment across the region. So far, the Midwestern states have coordinated their efforts more successfully than states in other regions, and the region's governors should maintain their leadership in this regard.

- **Maximize "bang for the buck"** by investing in lines with the greatest ridership potential, using incremental improvements in passenger rail to help lay the groundwork for faster high-speed service, and allocating transit funds to achieve the greatest overall environmental and economic benefit. States should advocate for federal transportation policy to treat all modes of transportation equally rather than prioritizing highway spending, so that states can invest money where it will do most good.

- **Balance private investment with public safeguards.** The Midwest contains a large share of the nation's freight rail infrastructure and traffic, which presents both opportunities and potential conflicts for a passenger rail system. Midwestern states should work with freight rail companies where possible, but above all ensure that passenger trains will be given

priority on tracks—either through enforceable agreements or public ownership of infrastructure.

- **Encourage domestic manufacturing** to create jobs and develop a new industry as the rail system is developed. Midwestern states are home to dozens of manufacturing facilities that make rail-related equipment. Those facilities would hire more employees and produce more if they were assured of a local market for their products.

- **Measure progress against a vision.** Progress on a regional rail system should be measured against specific short-term and long-term goals, including building at least one Midwest rail line to operate at speeds of 220 miles per hour by 2020.

Introduction

For decades, the Midwest has relied extensively on two pillars of its transportation network, while neglecting a valuable third. Transportation policy in the region has lavished billions of dollars on highways and airports while allowing passenger rail to languish. As a consequence of that decision, travel times by rail are longer along many routes today than they were at the middle of the century, and cities as large as Des Moines, Madison, and Columbus are entirely without passenger rail service.

Midwestern cities and states lose billions of dollars of economic output every year to traffic congestion, and travelers waste billions of hours stuck in traffic. Every minute that commuters spend sitting in gridlock, airplane passengers wait on the tarmac, and long-haul truckers plod along crowded highways, costs the region money—not to mention stressing, annoying and inconveniencing travelers. A Midwestern rail system can attract millions of travelers every year away from car and plane travel, easing the burden on the region's airports and highways.

The region's existing passenger rail network, despite its age and service limitations, continues to attract millions of passengers every year, and saw the highest ridership in recent history in 2009. Seeing the potential benefits of rail service, the Midwestern states have worked together to lay out a plan for a network of trains running at up to 110 mph, pulling all the region's major cities together around a hub in Chicago. By rebuilding the region's rail network to modern performance standards, the Midwestern states can create a more robust transportation system, spark new economic opportunities, and create manufacturing jobs building passenger rail equipment.

A high-speed passenger rail network in the Midwest is a reasonable goal. The region has one of the nation's strongest freight rail networks—more freight cars pass through Chicago than any other American city—and existing tracks can be repaired and upgraded to carry 110 mph passenger trains. In fact, construction is underway on projects funded by the American Recovery and Reinvestment Act, restoring service to cities that had lost it and speeding trains along crucial corridors. With continued commitment from the Midwestern states, those projects

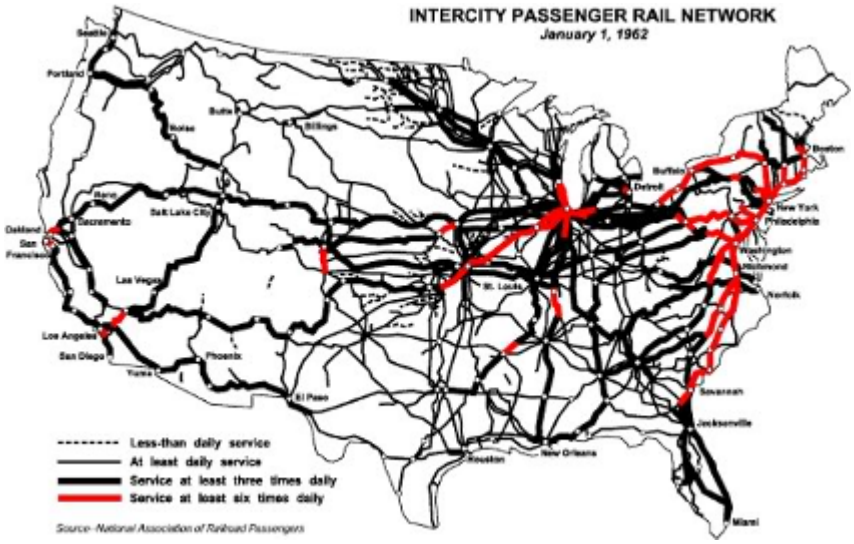
can be the jumping-off point that leads to a revitalized regional rail network by the middle of this decade.

Like the development of the Interstate highway system—a multi-decade effort requiring hundreds of billions of dollars—building a high-speed rail system in the Midwest will be a serious commitment, one that leads to serious rewards. The region has taken the first steps towards the economic opportunities that high-speed rail provides; now its political leaders need to show the commitment it will take to finish the job.

Why Intercity Passenger Rail for the Midwest?

The Midwest's intercity transportation system has three main components: airlines, trains and highways (including car and bus travel). For decades, the region has invested lavishly on highways and airports, while passenger rail service has languished. Since the creation of the Interstate highway system in the 1950s, over 9,700 miles of interstate have been constructed in the Midwestern states.[1] Meanwhile, passenger rail service has been cut back dramatically, with many cities that once had regular rail service now without it. Figure 1 shows how extensive the Midwest's rail system was in the 1960s; few of these lines carry passengers today.

Figure 1. Intercity Passenger Rail Network, 1962[2]



Why 110 MPH Service?

The upgrades to train service currently being proposed for the Midwest would allow trains to travel at speeds up to 110 mph, rather than at speeds of 200 mph or more that bullet trains can reach. (The Chicago-St. Louis route is an exception, where planners are moving more quickly toward a long-term goal of having infrastructure where trains could travel up to 220 mph.) The reason for the focus on 110 mph service is that the region could have such a system operational sooner and at a much lower cost than a system with bullet trains. Even at 110 mph, trains will provide faster travel than driving and will be competitive with air travel for trips within the Midwest. Once a network of 110 mph trains is in place, the region can use these initial improvements to make it easier to upgrade service in heavily traveled corridors to allow faster trains and shorter trip times. Upgrading conventional rail lines in this fashion has the additional advantage of improving the region's freight rail system.

At one time, gleaming new Interstate highways and massive modern airports were considered the solution to our transportation problems. But with growing congestion on highways and airports, concerns about oil dependence and the environment, and a convincing and mounting track record of successful high-speed rail lines around the globe, states in the Midwest and elsewhere are giving passenger rail service a fresh look—seeing it as an essential facet of an integrated multi-modal transportation system, and essential to the region's economic competitiveness.

Passenger rail service can help solve many of the problems that afflict our current transportation network. Rail can provide safer, more comfortable, and often faster travel for many trips. In the Midwest, passenger rail can be a double boon for the economy: creating new manufacturing and service jobs to support a new high-speed rail system, and binding the region's cities more closely together.

Reducing Congestion

America relies almost entirely on airplanes and roads for intercity transportation, including trips that could be better served by rail. The lack of efficient passenger rail service in much of the country adds to congestion on our roads and in our airports—leading to frustration, delay and large losses to the economy.

Over the past three decades, the number of miles driven on roads in the Midwest has increased by 70 percent.[3] Over the same period, traffic congestion has skyrocketed. In 2007, major cities' traffic congestion cost the Midwest $10.8 billion in lost economic output (see Table 1), and travelers in the region's most congested cities wasted a total of 502 million hours (57,000 person-years) sitting in traffic.[4] While much of this congestion results from commutes and trips around town, long-distance trips add to this congestion: the U.S. Department of Transportation estimates that Americans take more than 2 billion trips by car of 50 miles or more annually.[5]

Table 1. The Cost of Congestion in Major Midwest Metropolitan Areas, 2007[6]

Location	Total Hours	Gallons of Fuel Wasted Annually	Total Economic Cost of Congestion
Chicago IL-IN	189,201,000	129,365,000	$4,207,000,000
Cincinnati OH-KY-IN	23,832,000	17,307,000	$508,000,000
Cleveland OH	12,037,000	8,166,000	$241,000,000
Columbus OH	20,428,000	14,519,000	$424,000,000
Detroit MI	116,981,000	76,425,000	$2,472,000,000
Indianapolis IN	23,505,000	16,135,000	$522,000,000
Kansas City MO-KS	12,703,000	8,085,000	$267,000,000
Milwaukee WI	14,860,000	10,651,000	$307,000,000
Minneapolis-St. Paul MN	55,287,000	38,534,000	$1,184,000,000
St. Louis MO-IL	32,863,000	20,660,000	$697,000,000

Similarly, the number of miles Americans travel by plane has more than tripled in the past three decades.[7] The resulting crowding of airports and airspace has led to more delays, lower reliability, and increasingly frustrated passengers. Chicago's O'Hare Airport, a hub of Midwestern travel, is one of the nation's most notoriously congested airports. In 2008, O'Hare placed 29th out of 31 major airports for on-time performance, with 32 percent of flights arriving late.[8] (See Table 2 for 2009 delays at other airports.)

Passenger rail can alleviate congestion on highways and in airports—making all aspects of the transportation system more efficient. More than 30 percent of all flights departing from O'Hare and Midway airports in Chicago—144,000 of them each year—serve other airports in the Midwest.[10] (See Table 3.) Shifting even a small number of these intra-regional flights to rail would play an important role in curbing airport congestion for longer distance trips that can't be completed by rail.

Table 2. Flight Delay Frequency and Duration for Midwestern Metropolitan Areas, July 2008 to June 2009[9]

Metropolitan Area	Average Percent of Flights Arriving Late	Minutes of Delay for Delayed Arrivals
Akron, OH	24%	58
Chicago, IL	22%	66
Cincinnati	18%	58
Cleveland	19%	57
Columbus	21%	54
Dayton	22%	54
Des Moines	22%	52
Detroit	17%	56
Grand Rapids	21%	52
Indianapolis	18%	53
Kansas City	19%	51
Milwaukee	20%	54
Minn.-St. Paul	18%	54
St. Louis	18%	54
Toledo	21%	51

Table 3. Heavily Traveled Flight Routes between Chicago and Other Midwestern Cities[11]

Airport	Annual Number of Passengers
Minneapolis-St. Paul	2,030,439
Detroit	1,820,948
St. Louis	1,645,483
Kansas City	1,520,651

The Center for Clean Air Policy and the Center for Neighborhood Technology estimate that building out a regional high-speed rail network would reduce car travel by 5 million trips and air travel by more than 28,000 flights each year.[12]

Well-designed high-speed rail service can appeal to travelers who would otherwise decide to fly for a short trip between major cities in the same region. When the near-high-speed Acela service was introduced in 2000, passenger rail's share of the travel between Boston, New York and Washington, D.C., rose dramatically while airlines' portion fell. In 1999, 18 percent of travelers in the air/rail market between Boston and New York took the train; by 2008, this had risen to 47 percent, with only 53 percent flying.[13] While the East Coast is often thought of as uniquely suitable for train service—and does have a denser cluster of major cities than any other region—every major Midwestern city is closer to Chicago than Boston is to Washington.[14]

Creating a rail network to ease congestion will require a large investment. But solving our infrastructure problems will be expensive regardless of what types of travel are prioritized. Expanding highways can range from under $10 million to over $70 million per mile of additional lanes, and often is only a temporary fix for congestion.[15] Moreover, in some of the most densely developed regions, expanding highways is even more expensive. Rebuilding the 7.44 miles of Chicago's Dan Ryan Expressway, a project initially projected to cost $550 million, eventually cost taxpayers $975 million, or $131 million per mile.[16]

Expanding airports is also very expensive, particularly at the region's busiest airports, which suffer the most from overcrowding. A program to reconfigure runways and add one terminal at Chicago's O'Hare Airport, for example, will cost $6.6 billion.[17] At the Minneapolis-St. Paul Airport, where 8 percent of passengers passing through the airport travel to Chicago, a 20-year expansion plan could cost $2.4 billion, beginning with $400 million by 2015 to build 16 new gates.[18]

Curbing Oil Dependence

Cars and airplanes are almost exclusively powered by oil—increasing America's dependence on a limited supply of fossil fuel largely controlled by other nations. Spikes in oil prices in recent years have had dramatic affects on Americans' willingness to drive or fly to their destinations. Expanding and improving passenger rail service can reduce the nation's dependence on oil and insulate travelers from the impact of fuel price spikes.

Intercity passenger rail—even when powered by diesel-electric locomotives—is more fuel-efficient than car or air travel, particularly for trips in the 100 to 500-mile range. On average, an Amtrak passenger uses 30 percent less energy per mile than a car passenger, and 34 percent less than a passenger in an SUV or pickup truck.[19] In Europe, high speed trains consume approximately one-third the amount of fuel per passenger as airplanes.[20] Fuel use per passenger for trains and airplanes depends on how full the vehicle is. The figures here are based on historic ridership rates; higher ridership would result in lower per-passenger energy use.

Passenger rail is an energy-efficient mode of travel, with Amtrak trains consuming less energy per passenger-mile than airplanes or cars. Credit: Jim Frazier, jimfrazier.com

These numbers underestimate rail's oil savings compared with airplanes. Rail is most competitive against oil-intensive short airplane flights with trip distances of 500 miles or less—a traveler is much more likely to choose rail over air travel from Chicago to Minneapolis than from Chicago to Miami. (For instance, trains capture 99 percent of the air/rail share of travel between Chicago and Milwaukee.[21]) Short flights use more fuel per mile than longer flights, since a plane uses much of its fuel in takeoff.

A modernized passenger rail network in the future will also likely use less oil than American passenger rail service does today. The Midwest High Speed Rail Association estimates that a Midwestern rail network would reduce dependence on oil by 40 million barrels annually, or the amount of oil consumed by 2.9 million cars in a year.[22] Moreover, a Midwestern rail system will save even more oil in coming decades as targeted portions of the network are converted to carry electric-powered trains. Currently, about 40 percent of American intercity passenger rail is powered by electricity, while 80 percent of European rail service is electric.[23] As the Midwestern rail system develops, plans call for electrifying key segments of the track, such as the proposed 220 mph route between Chicago and St. Louis.[24]

As train service becomes faster, more reliable and more frequent it will also draw more passengers, further lowering per-passenger fuel usage. The more seats on a train are filled, the less fuel is used per passenger. Amtrak trains are typically about 50 percent full, compared with 70 percent for European high-speed trains.[25] As rail travel in America is improved and draws more passengers, it is likely they will be carrying larger loads of travelers, raising the fuel efficiency of a trip on a train.

Finally, the location of passenger rail hubs in downtown areas can encourage and support land-use patterns that reduce the need to drive, further curbing oil use. In Chicago, Milwaukee, St. Louis, Indianapolis, and elsewhere, train stations are centrally located near downtown business districts. A passenger rail station in a downtown area provides an inducement for businesses to locate nearby—just as airports spur development of office parks for businesses seeking close proximity to transportation and the construction of hotels and other traveler services.

Boosting the Economy

Building a modern passenger rail network will be a boost to the Midwest's economy. Making connections between our cities quicker and more convenient will better equip the region for the 21st century economy, and upgrading our railways will create tens of thousands of jobs.

The 19th century was characterized by the phenomenal growth of the Midwest's cities. Chicago, a town of less than a thousand people in the 1830s, grew to be the fifth-largest city in the world by 1900.[26] Other cities, such as St. Louis, experienced

similar meteoric rises. The 20th century, on the other hand, was characterized by the growth of suburbia and the development of metropolitan areas, knitted together by mass transit and, later, by highways. Today, many Midwestern metropolitan areas have far more people living in their suburbs than in the central city.

Some analysts see the 21st century as being the era of the "megaregion"—areas of the country in which formerly distinct metropolitan areas are now merging into contiguous zones of integrated economic activity. One such megaregion is the "Great Lakes" region, comprising much of the Midwest.[27]

The development of economically successful regions depends upon the ability to share information and insights quickly and conveniently. The growth of the Internet and other forms of telecommunication has not replaced the vital role of face-to-face interactions in generating new ideas and increasing economic productivity. In-person business and technology meetings are considered essential for building relationships and trust. Consider the benefits gained by students in Cleveland who come to hear a lecture from a university professor in Chicago, or of employees from throughout the Midwest called in for a one-day sales training in Indianapolis.

Companies could also take advantage of the new convenient travel option to locate back-office support staff outside a major city, where office rents and costs of living are lower, while keeping them closely connected to staff at a front office in a busy downtown. This kind of regional integration benefits companies, residents of outlying areas, and cities and towns that can develop new connections to urban economic engines.

Our current transportation system, unfortunately, does a poor job of connecting residents and workers in the region. The main highways linking cities within megaregions tend to be congested—think of I-71 and I-75 in Ohio, or I-90 and I-94 between Chicago and Madison. Air travel for short trips within the Midwest can be challenging as well. For many short flights, the amount of time that it takes to travel to the airport and go through security can be greater than the amount of time actually spent in flight.

Passenger rail—particularly high-speed rail—has the potential to link cities within the Great Lakes megaregion together in a faster and more efficient way. Easier travel within Midwestern states means that businesses and organizations will effectively be closer together, making it easier to travel between branches, meet with potential employees and clients, and make the other connections that strengthen an economy. It will also make the Midwest a more attractive location internationally, attracting potential economic boosts such as tourism and international meetings.

Building a high-speed rail network will also boost the economy by creating construction, manufacturing and operations jobs. The Midwest is well positioned to see growth in rail-related manufacturing capacity.

The region already has a well-established railroad equipment manufacturing industry. Those manufacturers are focused on the production of diesel locomotives and freight cars because, currently, almost all demand for rail equipment in North America is for diesel- and freight-related equipment.[28] More than 29,000 workers are directly employed in the manufacturing of railroad rolling stock in the United States, with thousands of others in the supply chains that provide parts and services to those manufacturers.[29] Two of the five states with the largest number of workers in the railroad manufacturing sector are Midwestern states: Illinois and Indiana.[30]

Illinois and Ohio both have large numbers of rail equipment manufacturers. Illinois has 23 facilities that manufacture or assemble passenger and transit rail systems

and components, while Ohio has 13.[31]

If demand for passenger rail equipment increases, Midwestern manufacturers would likely expand production beyond the freight equipment they currently make. In December 2009, Transportation Secretary Ray LaHood announced that 30 firms had committed to expanding their operations in the United States if they receive contracts for high-speed rail projects funded under the American Reinvestment and Recovery Act. Among those firms are Ohio-based Columbus Steel, Missouri-based American Railcar Industries, and other Midwestern firms.[32] Yet, many firms will be reluctant to build plants in the United States without evidence of a sustained commitment to high-speed rail.

Streetcar manufacturing illustrates how domestic markets can support local businesses. In recent years, several American cities, including Seattle, Washington, and Portland, Oregon, have implemented modern streetcar systems, using streetcars manufactured abroad. In fact, no streetcars had been made in America since 1952.[33] However, sensing the presence of a growing market, an American firm, Oregon Iron Works, formed a streetcar subsidiary and has won contracts to produce streetcars for Portland and Tucson, with 70 percent of the components to be made in the United States and components coming from 20 U.S. states.[34]

Establishing a passenger rail manufacturing industry in the Midwest could restore some of the manufacturing jobs that the region has lost. If Midwestern manufacturing is to achieve a sustained employment recovery, manufacturers will need to begin selling to new markets, and passenger rail can be just such a market, requiring a variety of skilled workers. The production of complex products like locomotives and passenger train cars involves not only the manufacturing of numerous components, but also maintenance, testing and other services.

Beyond the employees of the rolling stock companies themselves, jobs in other industries are supported by the railroad manufacturing industry. In 2006, the American rolling stock manufacturing industry, beyond employing more than tens of thousands of people, paid out close to $7 billion to purchase parts and equipment.[35] A revived passenger rail industry in the Midwest would need to purchase glass, seats, and other components from other firms, creating a new outlet and source of revenue for other industries.

A high-speed rail system could create hundreds of thousands of jobs. Building a Midwestern rail system according to a plan articulated by the U.S. Department of Transportation—which calls for 2,250 miles of track in the Midwest—would create close to 58,000 permanent jobs and approximately 15,200 construction jobs during a 10-year development phase. The overall boost to the economy is estimated at $23 billion.[36] Building this better passenger rail network would create more jobs than if the same amount of money were spent on highway construction.[37]

Increasing Transportation Options

Americans are eager for alternatives to driving and flying. The dramatic growth of ridership on Amtrak illustrates the demand for intercity rail service. Over the last decade, Amtrak ridership has increased by 26 percent, with an additional 5.6 million passengers per year riding intercity rail.[38] Despite the economic downturn, Amtrak served a record number of riders in the last three months of 2009 and first three months of 2010, up 4.3 percent from the same period a year earlier.[39]

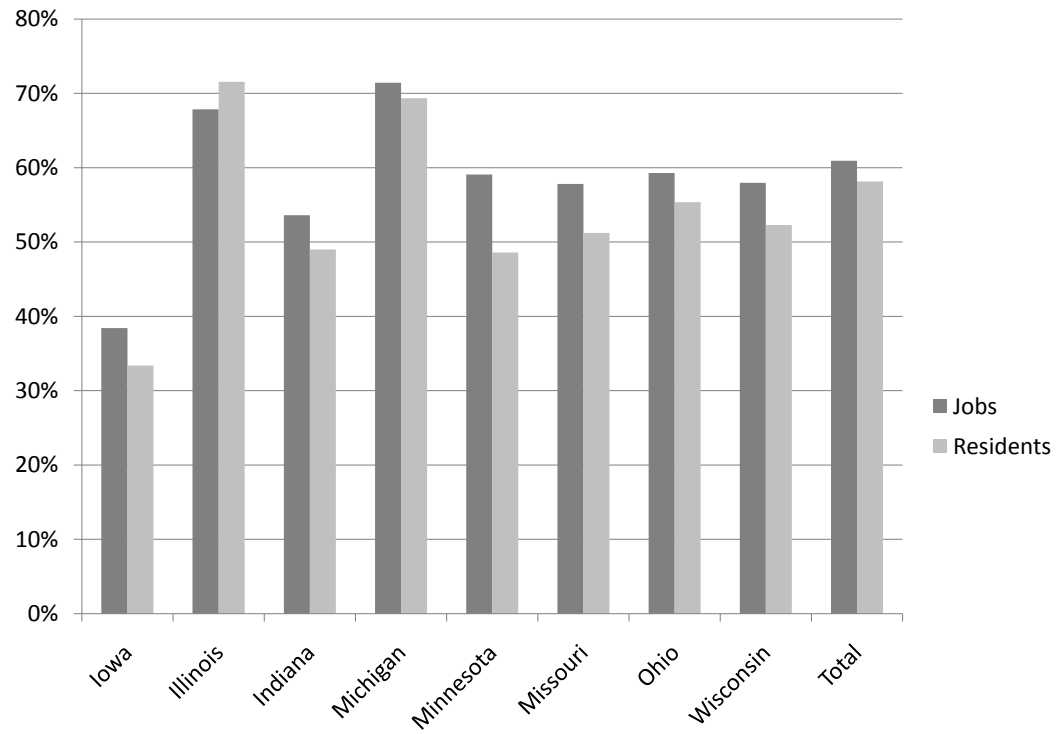
This trend has been particularly strong in the Midwest, where ridership on short-

distance routes has increased 63 percent since 2004. Every single Midwestern Amtrak route carried more riders in 2008 than in 2004, and a few key corridors that would be upgraded in the high-speed rail plan performed particularly well. Ridership between Chicago and St. Louis has more than doubled since 2004, as has ridership between Chicago and Carbondale. Nearly 750,000 passengers travelled between Milwaukee and Chicago in 2008—up from 460,000 four years earlier.[40]

But for many residents of smaller cities around the Midwest, there is only one practical way to get from city to city: driving. Since deregulation of the airline industry in the 1970s, and especially since the terrorist attacks of 2001, regional air service to smaller cities has fallen sharply.[41] Residents of smaller cities seeking to make long-distance flights must now often drive longer distances to major regional airports instead of hopping on a plane closer to home. A similar trend has taken place with intercity bus service, with Greyhound cutting service to hundreds of communities during the past decade. Between 1960 and 2002, the number of buses leaving Chicago every weekday declined by 67 percent; in Kansas City, the number declined by 77 percent. Rural communities suffered particularly heavily from this decline in service, as bus lines often saved money by eliminating entire routes rather than decreasing the frequency of service across the board.[42]

Passenger rail service can provide a new transportation option to residents of smaller cities and towns, linking them with

Figure 2: Percentage of Jobs and Residents Within 15 Miles of High-Speed Rail Stations in Midwestern States



58 percent of Midwesterners would live within 15 miles of a rail station, and 61 percent would work within that same distance of a station, if a Midwestern rail system were fully constructed.

regional centers. And by creating air-rail links at major airports, passenger rail can reduce the need for inefficient short-haul flights while, at the same time, providing a better option for getting to the airport for those residents of small cities that have lost regularly scheduled air service. The proposed Midwestern passenger rail system would pass through a number of smaller cities and towns, and provide either direct links to airports—as in Gary, Indiana, and Milwaukee, Wisconsin—or place passengers a short trip by city transit away from an airport in larger cities. In Illinois in particular, a number of small cities like Quincy and Decatur that are currently served by air travel only because of the federally subsidized Essential Air Service program would be directly on or a reasonable drive away from a high-speed rail stop, offering their residents a competitive travel alternative.[43]

The Midwest Regional Rail Initiative, a cooperative effort of nine state governments and Amtrak, estimates that a Midwestern rail and bus system would put 80 percent of the region's population within one hour of a train or bus station.[44] Even more impressive, a majority of the Midwestern states' residents would live and work within just 15 miles of a high-speed rail station.[45] More than 15 million of the region's 25 million jobs—61 percent of the total—would be located within 15 miles of a station. Similarly, of the region's approximately 60 million residents, over 35 million—58 percent—would live within 15 miles of a station on the new system.[46] These figures speak to the remarkable degree of interconnection that a Midwestern rail system could bring to the region. The millions of Midwesterners living or working near train stops would have a new option to quickly and conveniently travel to meetings, sales visits and conferences, while residents would have an easy way to access metropolitan attractions or travel between cities.

Providing Comfortable, Efficient Travel

Americans' growing frustration with driving and flying are so prevalent that our culture has even coined names to describe them: "road rage" and "air rage." Long-distance highway travel can be exhausting, frustrating, and subject to unanticipated delays due to weather, construction or accidents. Air travel can be just as frustrating, with delays, crowded planes and airports, and new fees on everything from blankets to luggage adding to travelers' ire—as anyone who has passed through O'Hare airport during peak travel seasons can attest. Passenger rail service is certainly not perfect—particularly given the region's antiquated rail infrastructure and unresolved conflicts between passenger and freight rail. But rail travel does have several inherent advantages over flying and driving.

Work while you ride – Unlike time spent driving, time spent on a train can safely be used for productive work or for relaxing. Unlike airplanes, trains can operate without requiring passengers to shut down electronic devices at any point, are frequently equipped with electrical outlets at every seat, and are increasingly likely to have on-board wireless internet. As a result, rail passengers can stay in touch with the outside world.

Creature comforts – Trains generally have more leg room than airplanes and allow passengers to walk around during the entire trip. Rail travelers don't worry about dehydrating air, their ears "popping" from pressure, restricted access to bathrooms during take-off and landing, or seizure of shampoo bottles and nail clippers. Riders can spend time in lounge cars or dining cars for a change of scenery during the ride and generally have access to a wider range of food and beverage options.

Downtown-to-downtown travel – Traveling to and from the airport can be an ordeal in and of itself for air travelers. Most airports are located far from city centers, requiring an extra drive or taxi ride, and passengers must check in at least one hour before takeoff. Trains, on the other hand, go from downtown to downtown and generally require passengers to arrive a half-hour or less before departure.

All-weather, reliable transportation – Severe storms can disrupt the entire air passenger network for days—affecting even travelers in cities where the weather has been perfect—while also making driving time-consuming, dangerous or impossible. Passenger rail service is not immune from weather-related delays, but trains generally operate in a wider variety of weather conditions than airplanes or cars. Weather accounted for only 1.4 percent of the delays reported by Amtrak during its 2007 fiscal year.[47] Currently, much more important factors reducing the reliability of passenger rail service in the Midwest are conflicts with freight service and inadequate track capacity. The line from Kansas City to St. Louis, for example, is on time only 20 percent of the time, and congested tracks leading out from Chicago account for many of the delays on trains to Illinois, Missouri, and Michigan.[48] The good news is that fairly simple track improvements can remedy many of the worst problems that cause passenger trains to fall behind schedule. Missouri's proposed improvements to the line between Kansas City and St. Louis, for instance, are expected to improve on-time performance to above 80 percent.[49] Improvements to the crowded tracks around Chicago would also produce dramatic improvements.[50]

Trains are often a preferred mode of travel, especially for distances between 100 and 500 miles. A 2009 survey found

Passengers disembarking in Chicago's Union Station are just a short walk from the city's downtown businesses and attractions. Photo by Michael Kappel.

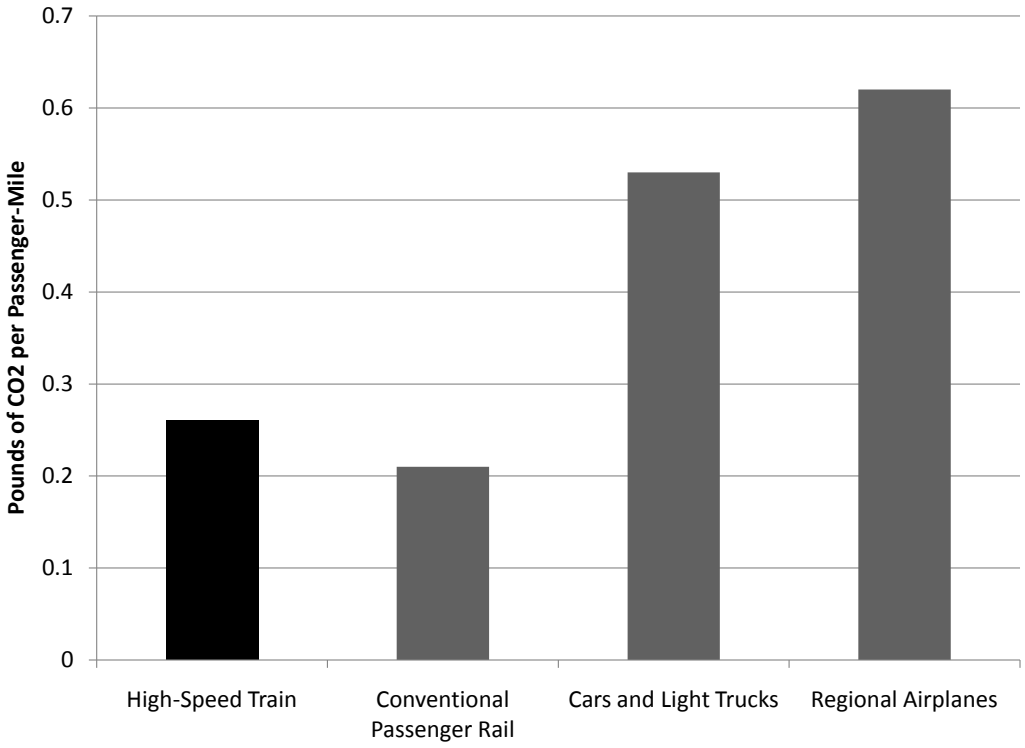
that if fare and travel time were equal, 54 percent of Americans would prefer to travel to cities in their region by high-speed rail, with only 33 percent preferring car travel and 13 preferring air travel. Of Americans who had actually ridden high-speed rail, an overwhelming 82 percent preferred it to air travel.[51]

Protecting the Environment

Passenger rail is a cleaner form of transportation than car or air travel, emitting less global warming pollution and less health-threatening air pollution. Building a high-speed rail network in the Midwest would attract passengers who otherwise would have taken cars or planes, thereby reducing global warming emissions and cleaning up our air. Modernizing our tracks would also benefit freight trains, taking large trucks off of highways and adding to the environmental and health benefits of investment in rail.

Passenger rail already emits less global warming pollution than cars or planes, and these savings will increase as the United States develops a high-speed rail network. A Center for Clean Air Policy (CCAP)/ Center for Neighborhood Technology (CNT) study showed that today, passenger rail travel emits 60 percent less carbon dioxide per passenger mile then cars and 66 percent less than planes. The faster diesel trains that would likely be used to upgrade

Figure 3. Carbon Dioxide Emissions per Passenger-Mile by Travel Mode[55]



Note: Data assumes 70 percent capacity for all modes except cars and light trucks. High-speed train emissions assume diesel-powered vehicles. To the extent that high-speed trains are powered by electric locomotives using low-carbon electricity, emissions will be lower.

current service would emit slightly more emissions, but would still emit much less than cars and planes and would draw more passengers than current passenger rail.[52] (See Figure 3.)

Electric trains show the most potential for global warming emission reductions, even using today's carbon-intensive electricity grid. For example, a passenger on an electric train in Germany produces about 93 percent less air pollution than someone traveling by car, and 91 percent less than someone making the same trip by plane.[53] The CCAP/CNT study surveyed the technology used on three different popular electric train lines, in France, Germany, and Japan, and found that all would produce lower carbon dioxide emissions per passenger-mile than a fast diesel train when powered by the U.S. electric grid. One especially efficient train, used on the German ICE line, would produce about half the emissions of America's current passenger rail system.[54] Electric trains are not only more energy efficient, but they are faster, and could eventually be powered at least partially with emission-free renewable energy. Currently, the Midwest's electric grid is heavily dependent on coal, which makes electric rail less advantageous here than in many other places around the world, but as renewable electricity is increasingly incorporated into that grid, electric trains will offer greater advantages in terms of pollution reduction.

By attracting travelers who otherwise would have taken cars or planes, building a high-speed rail network would be much more effective at reducing global warming emissions than our current passenger rail system. A study undertaken for the Midwest Regional Rail Initiative found that 5.1 million car trips and 1.3 million airplane trips would be replaced by rail trips every year if the full Midwestern rail system is constructed. Once the system is operating at full capacity, the Center for Clean Air Policy and the Center for Neighborhood Technology estimate that it will reduce carbon dioxide by 188,000 tons of carbon dioxide annually.[56] That is equal to the annual pollution produced by 33,700 cars.[57]

Savings could be greater. Improvements to and expansion of intrastate conventional rail networks that benefit other rail and freight operations would further reduce emissions. For example, the Minnesota Department of Transportation, using this broader approach to estimating emissions, calculates an annual greenhouse gas reduction of between 318,000 and 526,000 tons from improvements planned over the next 20 years.[58]

When tracks are upgraded for better passenger rail service, freight traffic needs are considered as well, allowing freight trains to travel faster, more frequently and with fewer delays. Rail transport is much more fuel-efficient than truck transport for freight—various studies estimate that train transport is three to nine times as efficient as truck transport for the same amount of freight.[59] The resulting fuel savings add to the emissions reductions from improving passenger rail. Already, federal funding allocated through the Recovery Act will allow for the construction of a new railroad bridge for westbound trains out of Chicago, adding capacity at a critical chokepoint in the city's rail network.[60] Chicago is the nation's largest freight rail hub—40 percent of the nation's freight passes through Chicago at some point in its voyage—but also the nation's most congested rail hub, with freight trains sometimes requiring two days to pass through the city.[61] Relieving that extreme congestion with track improvements will offer serious environmental and economic benefits.

The Midwestern Rail Network

Rail is a critical element of the Midwest's transportation network. Every day, 1,200 freight trains pass through the regional hub at Chicago, while passenger trains carry millions of Midwesterners each year around and beyond the region.[62] Chicago, the center of the region's rail network, is the fourth busiest rail hub in the country; more than 3 million passengers arrived or departed from the city's Union Station in 2009.[63] In 2008, the region's short distance routes alone—those that travel exclusively between Midwestern cities—carried 2.6 million passengers.[64]

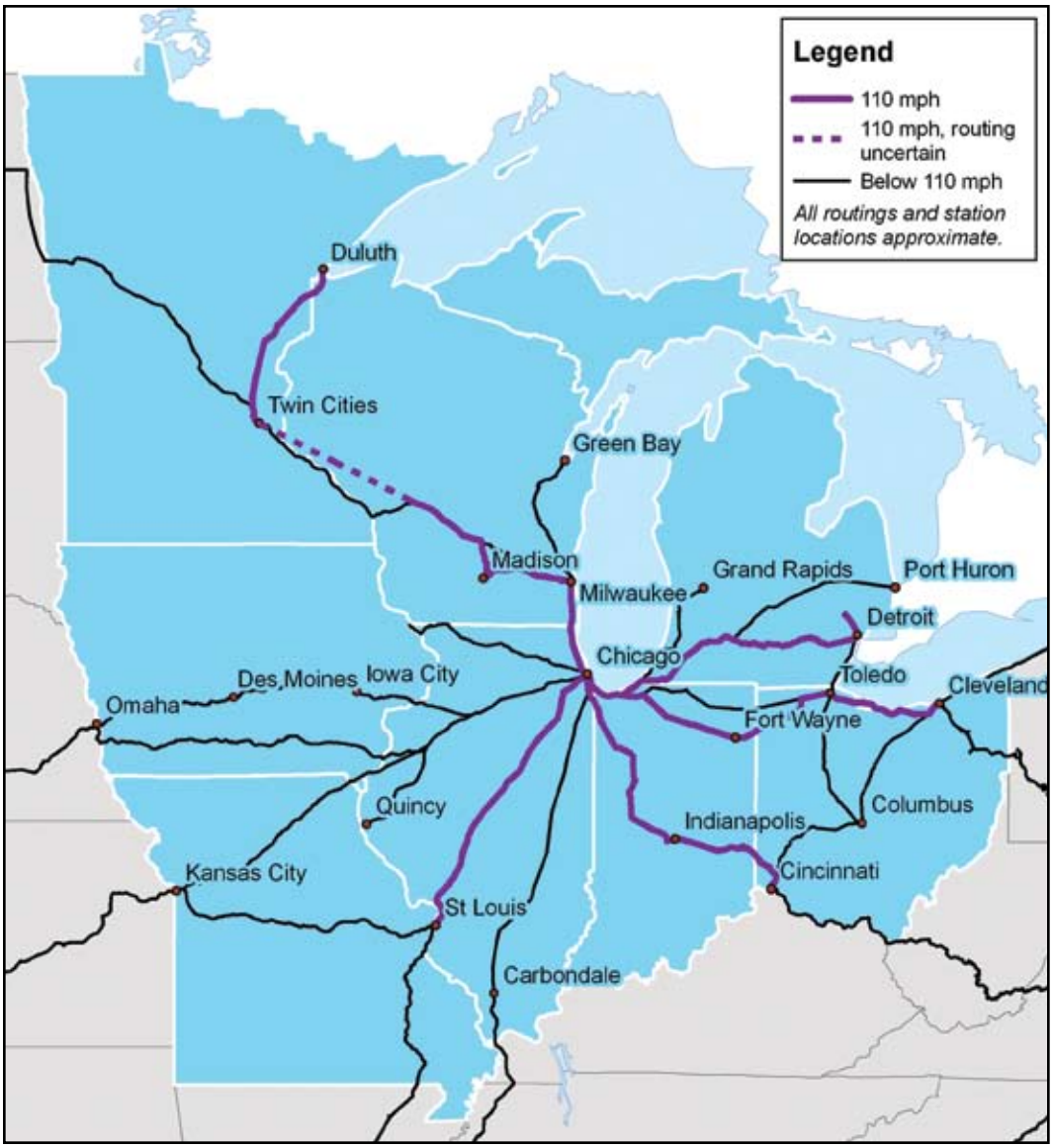
Those 2.6 million passengers represent a remarkable increase over just the past several years, but are far from the full potential of a Midwestern passenger rail system. In fact, a completed regional rail system, integrated with other modes of transportation, could attract 13.6 million passengers annually.[65]

For years, the solution to congestion on highways and in airports has been expensive expansion schemes for those two modes of transportation. In recent years, however, Midwestern states have turned their attention to the benefits that high-speed rail could bring to the region's economy, and put forward a plan.

In 2004, the Midwestern states, working together in the Midwestern Regional Rail Initiative, finalized a plan for a Midwest Regional Rail System that would serve the region's travel needs in the 21st century. By repairing and upgrading service on current lines, and restoring lines out of use for decades, the system would provide every major city in the Midwest with fast, frequent and reliable passenger rail service on seven major branches joining in the Chicago hub. With funding from the American Recovery and Reinvestment Act, the construction of this system will soon begin in Illinois, Wisconsin, Ohio and other states.

Since the Midwest Regional Rail System was initially proposed, states have further developed their proposals for high speed rail. The lines discussed in this report include all the routes incorporated into the Midwest Regional Rail System, plus two others—a line connecting Cleveland, Columbus and Cincinnati, and the Northern Lights Express in Minnesota from the Twin Cities to Duluth—as well as the continuation of existing Amtrak service.

The Midwest system would give the

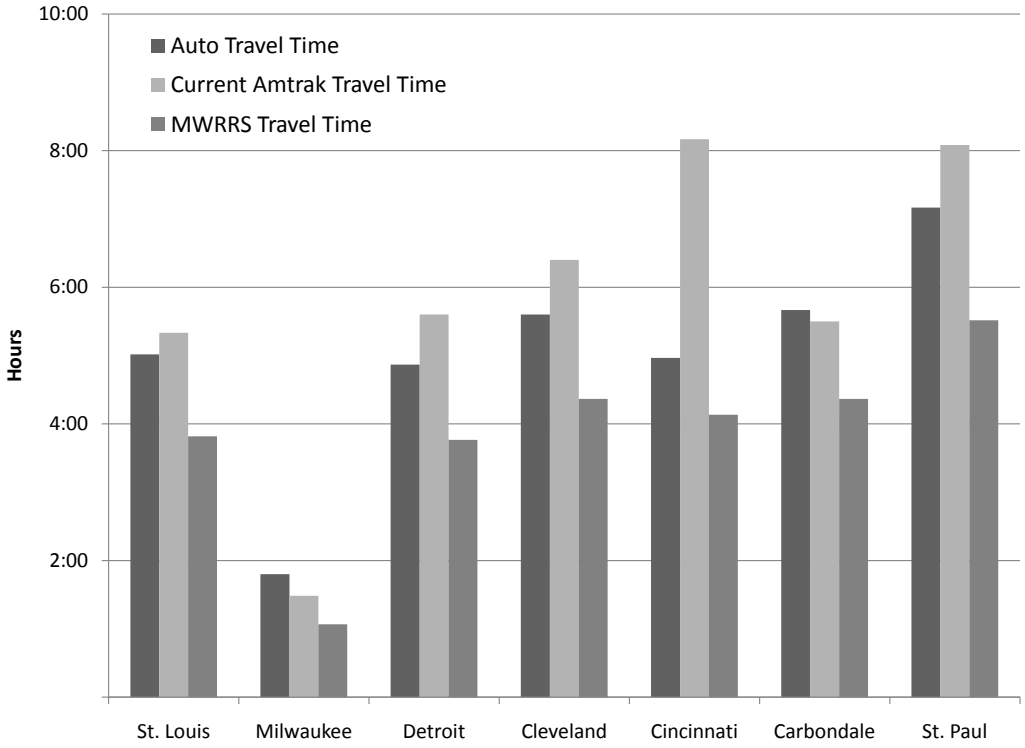


region's residents a travel option competitive with cars and planes. Travel times between major cities would be cut by 30 to 50 percent from current rail service, and would be faster than car travel. (See Figure 4.) Fares and travel times would also be competitive with air travel. The rail system would also reach all of the Midwest's major population centers—80 percent of the population of the Midwest would be within a one-hour drive or bus ride from a train station.[66]

Because of this increased convenience, ridership on the Midwest Regional Rail System is projected to be 13.6 million passengers a year by 2025. Ridership projections are inherently uncertain, but ridership of 13.6 million passengers would be four times the level of ridership if Amtrak were to continue its current level of service, suggesting the potential for substantial ridership growth, even if the projection is overly optimistic.[68]

Building a new rail system will offer significant economic benefits to the Midwest, and strengthen the region's

Figure 4. Travel Time from Chicago to Midwestern Cities by Car, Current Amtrak Service, and the Proposed Midwest Regional Rail System[67]

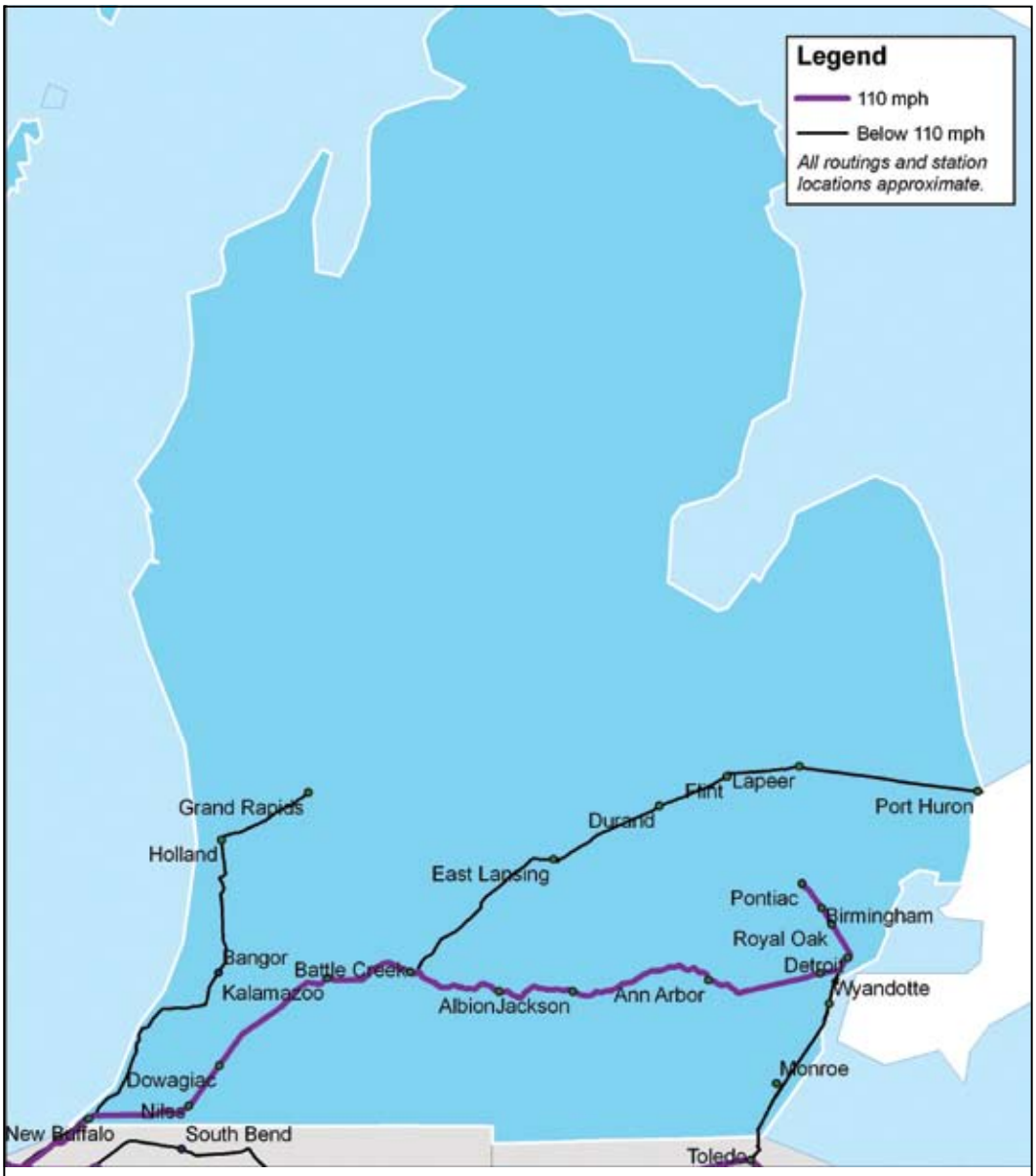


transportation infrastructure as a whole. According to a study conducted for the Illinois Department of Transportation, the project would deliver benefits equal to more than one-and-a-half times its cost, generating $23 billion in benefits, including money saved from lowered highway and rail congestion, shorter travel times for riders, lower costs for airlines, and reduced emissions. By 2020, the system would divert about 1.3 million trips from air travel, and 5.1 million trips that would have been taken by car.[69] Removing passenger vehicles from highways will make road-based freight movement faster.

In addition to these benefits, building the Midwest Regional Rail System would create tens of thousands of jobs, both directly in building and running the system, and indirectly through development around train stations and other economic growth fueled by the system. One study estimated that 152,000 person-years of work would be created during the construction period, and that building the system would add more than 57,000 permanent jobs in the Midwest.[70] The Midwest's manufacturing base, which has been battered by international competition, is perfectly situated to serve the need for high-speed rail equipment, both within the region and nationally.

With investments from the American Reinvestment and Recovery Act, this system is moving quickly from theory to reality. By 2012, trains will be running from Cincinnati to Cleveland, while new rail service from Milwaukee to Madison is slated to begin as early as 2013.[71] Recovery Act funds will also flow to Missouri, Illinois and Michigan, giving the region a crucial push towards a 21st century passenger rail system. With continued commitment and investment, every state in the Midwest can draw on the benefits of such a system.

Michigan



- The centerpiece of Michigan's improved rail network will be 10 daily trains traveling between Detroit and Chicago in 3 hours and 46 minutes.
- Stations and facilities in towns like Dearborn, Battle Creek and Ann Arbor will be upgraded, and connections to buses and local transit will be improved throughout the system.
- Four daily trains apiece will reach Grand Rapids and Port Huron, helping to give the vast majority of the state's residents easy access to the rail system.

Improved passenger rail service could provide an important shot in the arm to Michigan's tattered economy by making the state a more attractive place to live and do business and by tapping the state's manufacturing base to supply equipment for high-speed rail.

Michigan has already begun to see the benefits of investment in improved passenger rail service. Improved controls installed along the Detroit-Chicago corridor allowed Amtrak to increase speeds to 90 mph along parts of the line in 2002 and to 95 mph in 2005.[72] Between fiscal year 2004 and fiscal year 2009, ridership on Amtrak's Michigan trains increased by 24 percent, despite the economic downturn.[73]

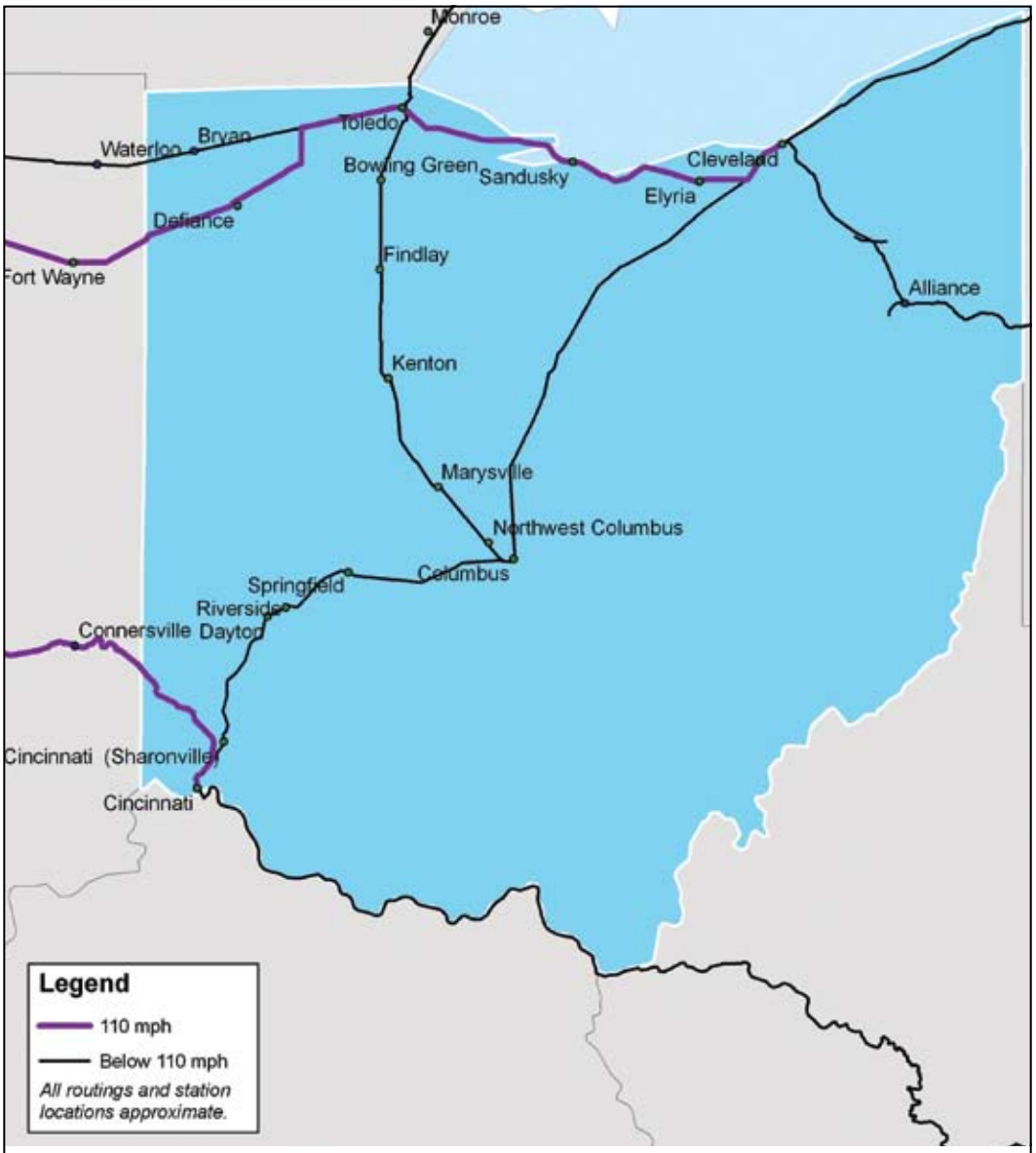
The planned Midwest rail system would give businesspeople in Detroit and other cities, college students in Ann Arbor and Lansing, and residents in many of the state's largest towns and cities a direct and convenient connection with Chicago and the rest of the Midwest. The full plan for the Michigan lines would lower travel time between downtown Detroit and downtown Chicago to 3 hours and 46 minutes—faster than driving and competitive with flying (with its required waiting at the airport)—and vastly increase the number of roundtrips and the reliability of all train routes in Michigan.[74]

Michigan has applied for funds to make track improvements that would allow trains between Pontiac, Detroit and Chicago to travel at speeds up to 110 mph, with on-time performance eventually rising to 90 percent from today's 26 percent. This route also serves cities such as Ann Arbor, Dearborn, Battle Creek and Kalamazoo.[75]

Upgraded stations are planned for Dearborn, Troy/Birmingham, Ann Arbor, Battle Creek and New Buffalo, which will be located within walking distance of downtowns or other important local destinations, and serve tens of thousands of college students. Several of those stations—in Dearborn, Troy and Battle Creek—will be constructed using Michigan's share of a $244 million Recovery Act grant, which will also pay for track improvements.[76] Many stations will connect to local bus systems, and the track improvements on this line will also assist proposed commuter rail lines between Ann Arbor, Detroit and Howell.[77]

The full Midwest regional rail plan for Michigan greatly increases the number of daily roundtrips and speed of the service. Eventually, 14 daily trains will stop in Kalamazoo, with 10 continuing on to Ann Arbor and Detroit and four breaking off at Battle Creek to reach Port Huron. Travel time between Detroit and Chicago will be under four hours, and about 3 hours between Holland and Chicago.[78] Once the full regional network is constructed, Michigan workers and residents would enjoy some of the best ease of access to high-speed rail of any state. Fully 69 percent of Michigan residents would be able to access a high-speed rail station within 15 miles of their home, and an even higher portion of the state's workforce—71 percent—would be employed within 15 miles of a station.[79]

Ohio



- Ohio's new "3C" line connecting Cleveland, Columbus and Cincinnati received a $400 million Recovery Act grant and will be operating at speeds up to 79 mph by 2012.
- The new rail service is projected to attract 478,000 passengers a year, and save up to 15,000 gallons of fuel a day by reducing automobile use.
- Over time, Ohio could become an interregional rail hub connecting the Midwest and Northeast, which would generate $3 billion worth of economic development and support 16,700 jobs.

Ohio is currently served by two east-west passenger rail lines—the Lake Shore Limited route along the state's northern tier, linking Cleveland and Toledo to Chicago, Buffalo and Pittsburgh—and a second through Cincinnati and southwestern Ohio. However, there is currently no passenger rail line that links Ohio's three biggest cities—Cleveland, Columbus and Cincinnati—and the level of service on existing passenger rail lines fails to take advantage of Ohio's potential as the gateway from the Midwest to the East.

The first step to building the Ohio passenger rail hub is the reconnecting of the state's major cities by rail. Ohio's three largest cities—Cincinnati, Columbus and Cleveland—are arrayed in a line across the state, each under 150 miles apart from the next. Ohio's priority is to connect these cities with each other with a new passenger rail service, the "3C" line. The line would then connect with the Midwest regional rail system in Cleveland and Cincinnati, and to other planned regional passenger rail networks.[80]

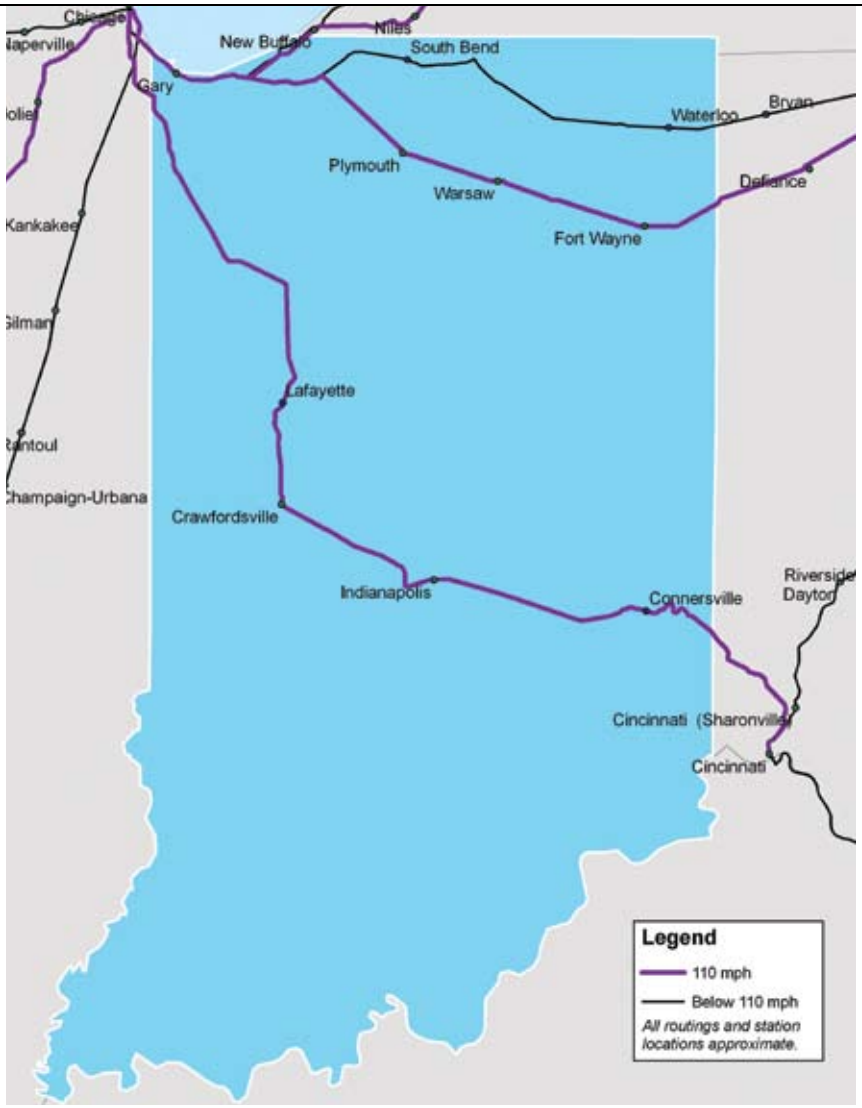
The full plan for Ohio's 3C rail line would have eight daily roundtrips between Cincinnati, Columbus and Cleveland, stopping in between in cities such as Dayton and Springfield. Traveling from one end of the line to the other would take about three and a half hours, faster than car travel, and would be cheaper than flying.[81] Ohio has received $400 million of ARRA funding to get trains running quickly, with four roundtrips a day going at top speeds of 79 mph by 2012.[82] This first stage is projected to attract 478,000 passengers a year, reducing car traffic on Ohio's highways by nearly 320,000 vehicle miles of travel and potentially saving up to 15,000 gallons of fuel a day.[83]

In time, this new rail corridor can be connected to improved Chicago service at both ends of the line. Indiana has proposed a plan to connect Chicago and Cleveland with 110 mph service, and though that proposal was not funded in the most recent round of Recovery Act funding, it remains a strong candidate for future investment.[84] The Midwestern states' full plan for rail also calls for connecting Chicago and Cincinnati with a high-speed line across Indiana. Ohio is also just beginning to study the possibility of building a line to provide 110 mph service from Detroit to Toledo and on to Columbus.[85]

More than any other state in the Midwestern rail system, Ohio has the potential to host further high-speed links to other regions. Cleveland sits about two hours from Detroit, Buffalo and Pittsburgh. Buffalo and Pittsburgh are candidates for high-speed rail construction as part of a Northeastern network.[86] Building these links would make Cleveland a critical crossroads in an inter-regional network, and give Ohioans quick and convenient access to cities both on the Eastern seaboard and throughout the Midwest. By 2025, if these interregional connections are developed, the high-speed rail lines running to and from Cleveland could attract 3.2 million riders every year.[87]

It would also generate an enormous amount of economic activity. Building the main lines of the system, from Cleveland to Cincinnati, Toronto, Detroit, Pittsburgh and Buffalo, would boost the region's economy enough to create 16,700 permanent jobs, generate more than $3 billion of development near stations, and increase annual average household income by $90. It would also save about 9.4 million gallons of fuel a year.[88]

Indiana



- A new rail stop at Gary International Airport would attract passengers away from overcrowded O'Hare, and offer Indianans a new option for long-distance travel.

- Cities such as Fort Wayne and Indianapolis will be connected to both Chicago and cities in Ohio by the proposed rail lines, offering opportunities for new economic ties in both directions.

- Recovery Act funds are paying for improvements to tracks leading out of Chicago in northwestern Indiana, the nation's most congested stretch of tracks, and paving the way for future high-speed service through that corridor.

Indiana has close economic ties to the states that border it—so close as to keep the state in perpetual flux over how to align its time zones with its neighbors. It also has cities like Indianapolis that stand to attract significant economic investment if improved transportation links them more closely to regional economic engines.[89]

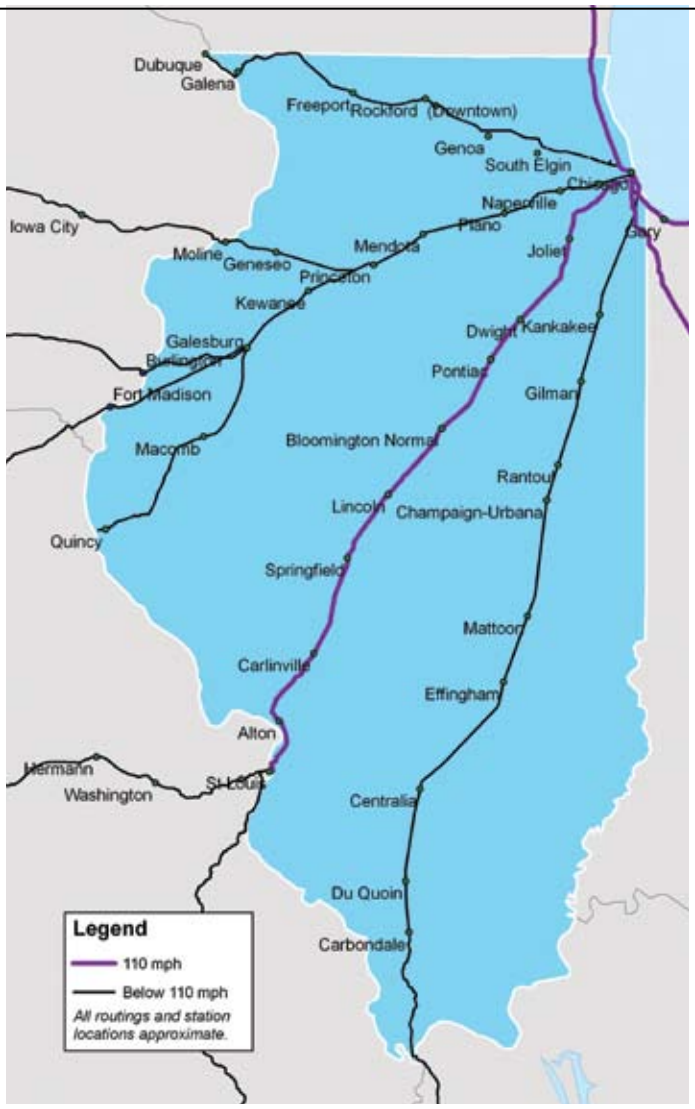
Two major branches of the proposed Midwest rail system will connect Indiana's cities to Chicago and Ohio. Cities in the northern half of the state would gain an improved connection to both Chicago and Cleveland, while Indianapolis and other central cities would sit astride a line from Chicago to Cincinnati. A designated federal high-speed rail corridor also exists between Indianapolis and Louisville, Kentucky, which could then connect with proposed rail service to Nashville and Atlanta, linking Indiana to the growing economies of the Southeast.

Current service from Chicago to Cleveland across northern Indiana is inadequate. Two daily roundtrips serve this corridor, and only 45 percent of trains arrive on time. Indiana applied for ARRA funds to improve service in this corridor, which would add stops at Gary Airport, Plymouth, Warsaw, and Fort Wayne on a route south of existing service. To increase speeds to 110 mph, trains would use modern "tilting train" technology to keep trips comfortable at the high speeds. Service would become more frequent, with hourly trains during rush hour, including four express trips and four local trips. Travel from Cleveland to Chicago would take 4 hours and 22 minutes on express trains, meaning that trips from Fort Wayne to Chicago could be roughly 2 hours. Local service would be only half an hour longer. Track work to increase capacity and solve other issues would make the train line much more reliable, with 95 percent of trains arriving on time.[90] Though Indiana's initial request for funding on this route was not approved, the state will continue to seek federal funds.

The proposed link to Gary-Chicago International Airport would allow for direct, high-speed connections with downtown Chicago, creating another practical alternative for travel to and from the Windy City that avoids the congestion of O'Hare and expands transportation options throughout the region.

Indiana has received a $71 million Recovery Act grant for one critical set of improvements, the "Indiana Gateway" project. These funds will make it possible for more trains to travel through the crowded tracks entering Chicago in the northwest corner of Indiana. This congested segment of track is the "single most delay-prone intercity passenger rail corridor in the country," according to the Indiana Department of Transportation. Fourteen passenger trains already come through this area daily, in addition to a commuter rail line and almost 90 freight trains.[91] The Indiana Gateway project will solve many of today's congestion problems by making changes that allow trains to pass each other more easily, such as adding tracks for passing and improving signals. This will reduce the total amount of time per week that trains are delayed on this route from 2.3 hours to 0.9 hours. The project is an important step towards upgrading the corridor to meet the needs of the Midwest regional passenger—and freight—rail system, and will complement other improvements being made to rail service between Chicago and Detroit.[92]

Illinois



- As the Midwestern network's hub, Illinois would have better access to rail than any other state. Nearly 70 percent of jobs in Illinois would be located within 15 miles of a high-speed rail station.

- Upgrades to the regional rail network would make a trip to Chicago faster by train than by car from St. Louis, Minneapolis, Detroit, Cleveland and Indianapolis.

- The trip from St. Louis to Chicago is the only Midwestern rail route that is currently under study for "true" high-speed rail, running at speeds of up to 220 mph on a different track alignment than the current line.

Chicago grew to prominence as an American city in the 19th century for one main reason: it was the hub through which much of America's rail traffic flowed. To this day Chicago has more lines of track radiating from its center than any other city in North America.[93] It is also the nation's fourth largest passenger rail hub, serving over 3 million passengers in 2009.[94]

As the center of the entire Midwestern regional network, Chicago obviously has much to gain from high-speed rail development. Connections to Indiana, Ohio, Michigan, Wisconsin and Minnesota will all pay dividends for the city's economy. At the same time, other segments of the proposed Midwestern system will specifically promote connections within Illinois. Proposed lines running to Missouri and Iowa, as well as the two lines that would terminate inside Illinois, would touch a number of the state's cities, making it the most densely connected state of any in the Midwest. With the complete network in place, a trip to Chicago would be faster by train than by car from St. Louis, Minneapolis, Detroit, Cleveland, Indianapolis and other cities.[95]

The passenger rail line between Chicago and St. Louis has grown to be one of the most popular lines in the country, with the number of riders more than doubling as Illinois has sped up service and added daily frequencies over the past five years.[96] Currently, more than 500,000 riders per year take Amtrak's Lincoln service between the two cities.[97] Hundreds of thousands more ride trains on other Amtrak routes within Illinois, connecting Chicago with Galesburg, Quincy, Carbondale, Champaign and other cities and towns.

The arrival of Recovery Act grants will allow the state to begin investing in rail improvements to provide even better service to passengers on the Chicago-St. Louis line and to other communities around the state.

Illinois has received $1.1 billion to upgrade service on the Dwight to Alton section of the Chicago to St. Louis line to provide 110 mph service.[98] Currently, trains between Chicago and St. Louis never go faster than 79 mph, averaging just 50 mph, and only 73 percent of trains arrive on time.[99] Eventually, further improvements could increase top speeds to 110 mph over the entire line, raising the average speed to 73 mph and allowing 90 percent of trains to arrive on time. [100] Another $133 million will allow the state to build a new overpass that will ease congestion and delays on one of the nation's most crowded sections of railroad in Chicago.[101] The state has also committed $550 million in state funds to rail improvements.[102]

Once improvements have been made along the length of the Chicago to St. Louis route, train service could be increased to eight roundtrips daily, with express trip times under four hours. This improved trip time would attract 1.2 million passengers in its first year of service. In fact, commuters traveling between the two cities' downtowns would be able to reach their destination more quickly by rail than by any other means. When the time spent traveling to and from stations or airports, clearing security, and parking cars is taken into account, the four and a half hours that an entire train trip would take is more than 20 minutes faster than flying, and half an hour to an hour and a half faster than driving.[103] Even better, train riders would be able to work and use the Internet the entire time they were on a train.

The long term vision is for an even faster rail connection between St. Louis and Chicago, the Midwestern rail route that is currently under study as the vanguard for conversion to "true" high-speed rail, running at speeds of up to 220 mph. The proposed line would bring passengers from Chicago to St. Louis in less than two hours.[104] The express high-speed line, which would be electrified, would run on

a different alignment than Amtrak's current service, traveling through Kankakee, Champaign, Decatur and Springfield.[105]

To the south of Chicago, Illinois plans to increase the speed of passenger service to Carbondale to 90 mph.

Elsewhere in the state, Illinois is working with Iowa on a plan to rebuild a former passenger train line from Chicago to Rockford and Dubuque. Rockford is the largest city in Illinois that does not have passenger rail service.[106] The train would also stop in Freeport and Galena, a big tourist destination, and the train station in Dubuque has been built into plans to redevelop the downtown area along the Mississippi.[107] Initial service would provide one daily roundtrip between the cities, with a total travel time of just over five hours.[108] Other population centers in Iowa could be connected to Chicago by a 79 mph line through Quincy.

The extensive network of high-speed rail stations that would crisscross Illinois under this plan would extend easy access to a vast number of Illinois residents. More than two out of every three Illinois residents—72 percent—would live less than 15 miles from a high-speed rail station if the full network is constructed. Nearly 70 percent of workers in the state would have access to a high-speed rail station less than 15 miles from their workplace.[109] Given Chicago's centrality as a business and tourist hub, the easy access to the Windy City this would provide would simplify business and pleasure trips for hundreds of thousands of Illinoisans.

Missouri

- Missouri has received a $31 million grant to improve rail service between St. Louis and Kansas City to operate at 90 to 110 mph.
- Upgrading service on the St. Louis to Chicago route would shorten travel time to under four hours. This improved trip time would attract 1.2 million passengers in its first year of service.

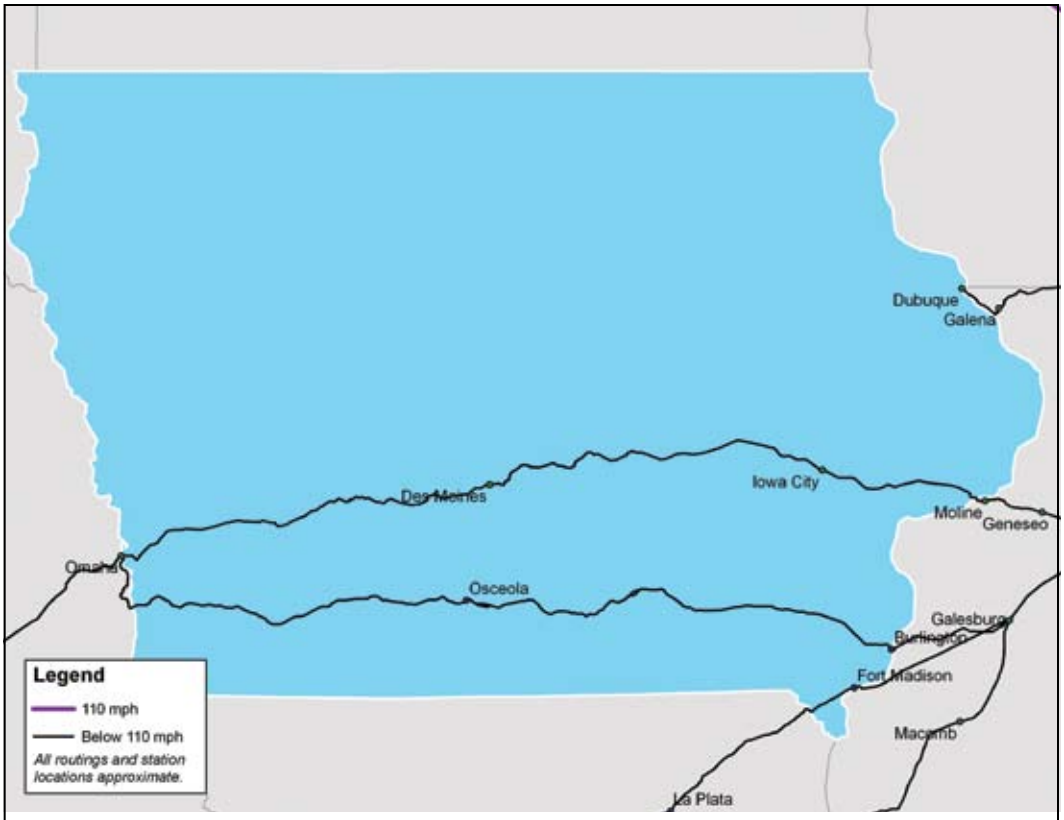
Interstate 70 stretches across Missouri, linking the state's two biggest population centers, and is very heavily traveled. However, I-70 in Missouri is also the nation's oldest section of interstate, built for the travel demands of a very different time.

Improved rail service from St. Louis to Kansas City will offer a new transportation alternative to residents throughout the I-70 corridor, connecting workers, college students, and residents to a convenient regional transportation network.

Missouri has received a $31 million grant to improve the existing rail service between St. Louis and Kansas City, paving the way for faster and more reliable service. Improved service will operate at 90 to 110 mph, and trains should arrive on time more often. The corridor has historically been plagued by delays, but service has improved in recent years. As recently as 2007, only 63 percent of trains arrived on time, but recent infrastructure improvements allowed the number to climb to 92 percent in 2009.[110] The improvements supported by the Recovery Act will build on these gains, while paving the way for increased operating speeds. Under the full Midwest regional rail plan, trains would run six daily roundtrips between the cities, with a travel time of 4 hours 14 minutes end to end.[111]

Trains in the I-70 corridor would be linked into the broader regional rail network. From St. Louis, riders could continue to Chicago on the 110 mph line. At the other end of the state, the rail line could eventually connect through Kansas to Oklahoma and Texas through Oklahoma's planned high-speed line.

Iowa



- Trains operating at top speeds of 79 mph in Iowa and 90 mph in Illinois would enable passengers to travel from Omaha to Chicago in seven hours, faster than driving.
- Convenient rail service from Iowa City to Chicago could help avoid 345,000 trips by car annually, saving 1.5 million gallons of gas and reducing global warming emissions by over 6,000 tons per year.
- Once the Iowa City line is extended on to Omaha, one third of Iowans will have a high-speed rail station within 15 miles of their home and 38 percent will have one within 15 miles of their workplace.

Today, Iowa's largest cities have no access to passenger rail—only one train passes through Iowa, operating to the south of all the major population centers on its way to California from Chicago. At the same time, the state has strong economic ties to Chicago, particularly through its agricultural exports. Restoring passenger rail service would give business travelers a convenient way to travel back and forth between Chicago and cities like Des Moines and Iowa City.

Iowa's Midwest regional rail line would restore passenger rail service across the Mississippi at Rock Island, initially reaching the Quad Cities, Iowa City, and Des Moines. Eventually, this line would be extended to Omaha through Des Moines, giving Iowa's largest cities regular and convenient passenger rail connections with each other and to Chicago and beyond.

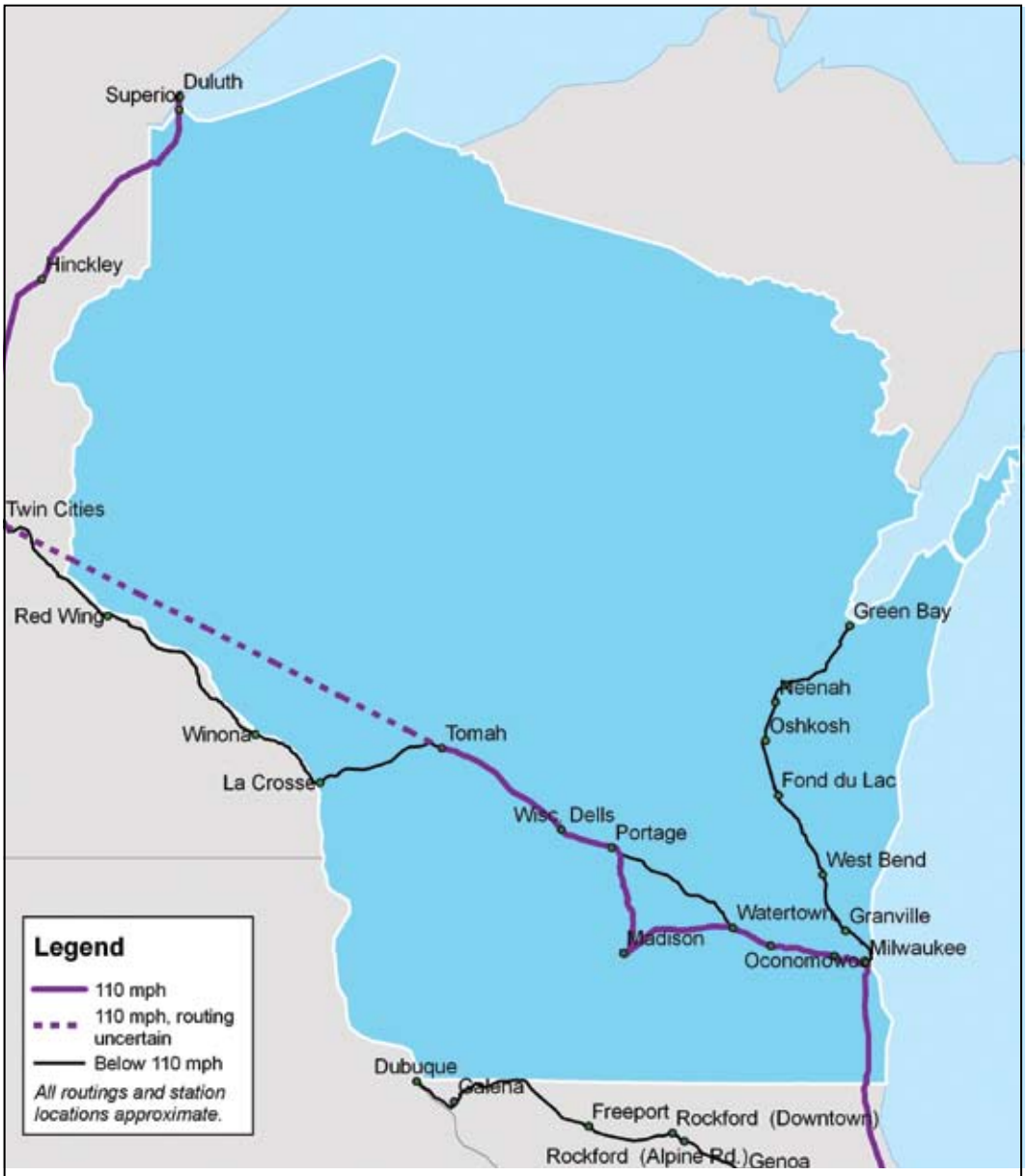
The full Midwest regional rail plan has five daily roundtrips to the Quad Cities and Iowa City from Chicago, and four continuing on to Omaha at top speeds of 79 mph in Iowa and 90 mph for much of the Illinois route.[112] Iowa and Illinois have applied for funds to establish 79 mph service to Iowa City, on tracks currently used by freight trains, and Iowa applied for funding to plan the route continuing on to Des Moines and Omaha. Though this application was not funded, Iowa can continue to seek funding in the future.[113]

The line would help revitalize downtown areas in the cities it serves. In the Quad Cities, Rock Island County and the city of Moline are planning to build a train station for the line near downtown Moline's local bus station, as part of a development that includes new downtown apartments, retail shops, and bike trails along the Mississippi River.[114] Iowa City is considering remodeling its former passenger rail station for the line.[115]

The fully developed line is expected to attract more than 500,000 passengers a year. This will reduce car travel on highways between Iowa City and Chicago by approximately 345,000 trips per year, saving 1.5 million gallons of gas and reducing global warming emissions by over 6,000 tons.[116] Once the Iowa City line is extended on to Omaha, one third of Iowans will have a high-speed rail station within 15 miles of their home; 38 percent will have one within 15 miles of their workplace.[117] This dramatic turnaround will turn a severely underserved state into one in which a great number of residents can use convenient and fast public transportation to reach Chicago and other Midwestern destinations.

In the future, Iowa has plans for a much more extensive passenger rail network, with another east-west line continuing from Dubuque to Iowa Falls and Nebraska, and a north-south line from Kansas City to Minneapolis through Des Moines, Ames and Iowa Falls.[118]

Wisconsin



- Rail service will be restored from Milwaukee to Madison, connecting the state's two largest cities.
- Constructing the full proposed 110 mph system will generate economic benefits including 13,000 new jobs in the state.
- Once the full planned system is in place, it will eliminate 780,000 car trips every year, saving 2.76 million gallons of gas per year.

Wisconsin has already experienced the benefit of modern passenger rail service, with its immensely popular Hiawatha line. The Hiawatha brings commuters and other passengers from Milwaukee to Chicago in an hour and a half, as fast as driving in good traffic conditions, with seven roundtrips a day—and no need to battle traffic or look for parking in downtown Chicago.[119] Partly in response to service improvements, this line saw a 63 percent increase in ridership from 2004 to 2008, when more than 766,000 passengers rode the line.[120]

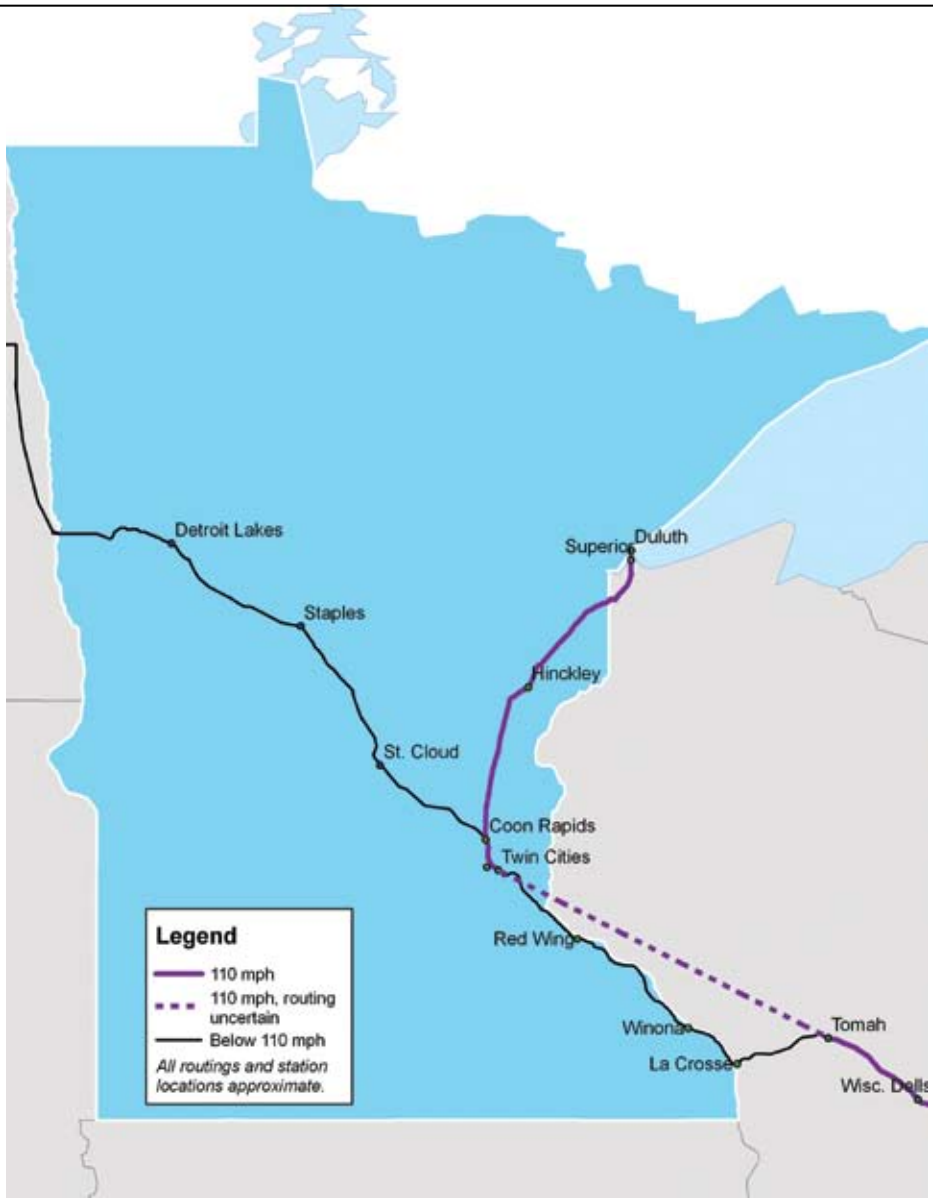
Wisconsin's Midwest regional rail line would speed this service up to 110 mph, reducing trip time to about an hour, and extend it to Madison, La Crosse or Eau Claire, and the Twin Cities. Another proposed branch would eventually reach Oshkosh and Green Bay. Daily roundtrips would be more than doubled, with 17 trains a day reaching Milwaukee, 10 continuing on to Madison, and six to the Twin Cities in Minnesota.[121] The new high-speed service created under the plan would place stations within 15 miles of 52 percent of Wisconsinites' homes; 58 percent of the state's workers would have a station within 15 miles of their workplace.

Wisconsin's legislature has already allocated funds to buy new trains for the Hiawatha line, two new "tilting train" sets that can travel at high speeds and tilt to allow trains to take corners quickly.[122] The state has also received ARRA grants totaling $810 million to initiate passenger service between Madison and Milwaukee and $12 million to make track and signal improvements between Milwaukee and Chicago.[123]

This extension would connect the state's two largest cities, and extend the benefits of the Hiawatha line to government workers, businesses and tens of thousands of college students in the state's capital. The full 110 mph line between the cities would boost Wisconsin's economy enough to create nearly 13,000 jobs in the state by 2013, and would eliminate approximately 780,000 car trips per year over a 10-year period, saving 2.76 million gallons of gas per year.[124] Today, travelers from Madison can choose between the bus, car, and plane to travel, but each of these either requires dealing with Chicago's traffic or the crowded O'Hare International Airport. High-speed rail would avoid both of these obstacles, allow passengers to work while they travel, and deliver them directly from downtown to downtown at least 12 minutes faster than driving, and more than 20 minutes faster than flying.[125]

The benefits of the new line to Madison would be amplified by the commitment that city has made to local public transit and transit-oriented development. In Milwaukee, the train would continue to stop in the newly renovated Milwaukee Intermodal Station, where passengers can transfer to local transit to reach their final destinations. A planned downtown streetcar line would also stop in this station.[126]

Minnesota



- Approximately 59 percent of Minnesota's workforce would be within 15 miles of a high-speed rail station.
- Trains would make the roundtrip between Chicago and the Twin Cities six times a day.
- A trip from the Twin Cities to Chicago on high-speed rail service would be faster than driving.

A Midwestern high-speed rail network would link Minnesota more closely with cities in Wisconsin and points to the south through a rail line originating in Chicago. As discussed above, rail service to the Twin Cities would provide six roundtrips daily to Chicago.

To make this service as useful as possible, Minnesota has received federal funds to construct a multimodal transit hub at St. Paul Union Depot, which would connect to the planned Central Corridor light rail line between Minneapolis and St. Paul. With this investment and the construction of a line from the Twin Cities to Duluth, 59 percent of Minnesota's workforce would be within 15 miles of a high-speed rail station, making business trips to Chicago much easier for many of the state's workers. Service extension to Minneapolis multimodal transportation interchange facility is also being planned for.

Minnesota is also seeking federal funds for rail service itself. The state has received funding for preliminary planning studies and will soon be in a position to apply for funding to begin engineering and design for its share of the Twin Cities to Chicago route in the next round of ARRA high-speed rail funding later in 2010. At the same time, Minnesota plans to submit applications for extension of Northstar rail service westward from Big Lake to St. Cloud. Environmental studies and preliminary engineering are also underway for the Northern Lights Express rail connection between the Twin Cities and Duluth.[127]

Under the Midwestern states' plan for rail, service from Minnesota through La Crosse or Eau Claire, Wisconsin, to points south would operate at 110 mph and would deliver passengers from the Twin Cities to Chicago in 5 hours and 31 minutes—as compared to 6 hours and 36 minutes to drive between the two cities, and 8 hours and 5 minutes on existing rail service.[128]

Minnesota has completed a Comprehensive Statewide Freight and Passenger Rail plan which calls for both completion of investments in the Midwest Regional Rail Initiative, Northern Lights Express and Northstar service as well as reintroduction of conventional passenger rail service to most major cities across the state.[129] Over the next 20 years, the plan provides for access to passenger rail service for over 85 percent of the state's residents, either within their home county or an adjoining one.

High-Speed Passenger Rail in the Midwest: Going from Vision to Reality

The successful development of a Midwestern regional rail system will require participation by multiple levels of government. In particular, states and the federal government will each have a significant role in the process. As with the highway system, federal funding will be required to make a high-speed rail network possible. Beyond providing these funds, the federal government will need to hold their recipients accountable, and tie the Midwest's actions into a broader national strategy for rail. States, meanwhile, will have primary responsibility for developing and implementing the plan for the rail system.

Guidelines for State Action

The Midwestern states have already begun, on their own initiative, to develop the plan for the Midwest Regional Rail System.

Build It Right

If a Midwestern rail system is to realize its full potential, it will need to be well designed. Planners should play to rail's strengths and keep their eyes on future development as they lay out new facilities.

Passenger rail stations should be located in areas that are reachable by various forms of transportation (including public transit) and that support transit-oriented development in existing centers of commerce and population. Development of rail stations in existing downtowns or in intermodal terminals (such as airports) should be preferred over new "green field" development or "park-and-ride" station areas. Consideration should also be given to how the placement and design of the rail station can spur and strengthen economic development in the surrounding area.

Encourage Private Investment, but With Strong Public Protections

The private sector will play a crucial role in building out the Midwest's passenger rail system. Privately owned freight railroads already control the vast majority of tracks in the region, including nearly all those over which passenger service currently operates. The private sector could also

bring necessary capital and experience to the project of building the rails, trains, stations and other pieces of infrastructure that make up a high-speed rail network. In the past, however, Midwestern freight and passenger rail have come into conflict over rights of way.

Currently, Amtrak owns only a small portion of the tracks over which its trains operate. Most Amtrak trains travel over, and are dispatched by, the freight railroads that own the tracks. Federal law guarantees Amtrak preference over freight traffic on these railways, but the difference in on-time performance between service on Amtrak-owned rails and those owned by freight railways is stark: on-time performance on the Amtrak-owned Northeast Corridor exceeded 80 percent in fiscal year 2007, compared to 65 percent for other corridor trains and 42 percent on long-distance trains.[130] A Federal Railroad Administration study found that certain dispatching practices by freight railroads appear to violate Amtrak's right of preference and that Amtrak's preference rights are virtually unenforceable.[131] Recent improvements in service in the Midwest, meanwhile, have come in part through better coordination between states and freight rail companies—the Missouri River Runner train, for instance, has boosted its on-time performance significantly in large part through coordination between the state of Missouri and Union Pacific.[132]

States should use their investments in high-speed rail to ensure that the public interest is factored into the operation of the nation's rail network. One way to achieve this goal is by locating new high-speed rail lines along publicly owned right-of-way, in the same way we do highways. In cases where expanding or improving existing freight rail tracks will be more cost-effective than laying new tracks, the prospect of government investment should be used as leverage to ensure that the promise of passenger rail priority on freight tracks is finally reflected in reality. New legislation (one option for enforcing Amtrak priority) could prove unnecessary if states are able to negotiate enforceable agreements in return for their investments. Investments such as the Recovery Act projects aimed at decongesting rail junctions around Chicago should be accompanied by enforceable agreements ensuring that the public receives the benefits of its investments.

A coordinated effort to improve freight rail capacity at the same time as passenger rail is upgraded will provide immense savings compared to improving the two networks separately.[133] A public-private partnership might be the fastest way to install train control technology on all tracks, providing faster and safer service for both freight and passenger trains.

Private-sector investment can play an important role in getting high-speed rail off the ground, particularly in areas such as developing vehicles, investing in stations, and providing amenities such as food, wireless internet, and nearby parking. In some cases, state or federal governments may consider public-private partnerships for the financing or construction of high-speed rail lines themselves. In those cases, it is critical that government evaluate such potential agreements against the potential value of public-sector financing, construction and operation. In other words, private sector participation should be evaluated based on the concrete value that it adds, rather than the expediency it might afford by avoiding more politically difficult revenue raising. Moreover, governments should not make promises to private sector entities that constrain the government's ability to improve service on "competing" routes or to otherwise act in the public interest. All documents related to private participation should be public record; important documents should be promptly posted online for easy accessibility; and only minimal information should be considered proprietary, such as bank account numbers.

Continue Collaboration Among States

The Midwestern Regional Rail Initiative proposal exists largely because of successful collaboration among Midwestern states, coordination that has been more effective than in any other region of the nation. Continued coordinated and complimentary effort will be necessary for the proposal to succeed. States that have received funding under the Recovery Act should recognize that their own rail investments will not realize their full value unless other states are able to construct their own sections of the regional network. States that have not yet found funding to begin their projects should recognize that, for the first time, concrete steps towards the creation of a new regional passenger network are underway, and continue to advocate for their own segments of that network. In some cases, such as the rail line from Madison to the Twin Cities—which will be built in Wisconsin but provide a benefit to Minnesota—cost and revenue sharing between states may be necessary.

No one state in the Midwest is capable of developing a high-speed rail network alone. The potential of such a network lies in its ability to link together an entire region, following economic ties rather than state boundaries and producing a system in which the whole is much greater than the sum of its parts. The governors of the Midwestern states have shown strong leadership on the issue of building a regional rail network. Strong public support by the Midwest Governors Association has helped push an integrated regional vision that has drawn federal financial support.

Midwestern states and governors and the Midwestern Interstate Passenger Rail Commission should continue to collaborate closely in planning and constructing a rail system, ensuring that their investments are complementary and build towards an integrated regional network.

Lay Out Steps and Priorities

The Midwestern states' proposals for ARRA grants identified specific projects, ready for construction, that would contribute to immediate and long-term rail service improvements. The relative importance of each new station and track improvement should be clear so that each step in the development of the system results in steady improvement of rail service and builds on those before it. Because states do not have the funds to undertake the construction of a regional rail system themselves, they should continue to refine their plans to present the most compelling case for additional federal funds.

Foster Transparency and Accountability

A large-scale investment in passenger rail should include unprecedented levels of transparency regarding how projects are evaluated, how decisions are made, and how funds are allocated and spent. Transparency efforts should foster close public scrutiny, including prompt disclosure of performance data, budgets, bids, route choices, conflict-of-interest statements, and links to campaign finance data. Programs should be audited annually and overseen by an independently governed and financed public body with subpoena power. All audits should be posted publicly and all board meetings should be public meetings. Potential conflicts of interest, such as those involving contracts and land ownership, should be identified and eliminated where possible.

Once the system is constructed, the public should be given the information necessary to evaluate its performance. Today, details on the performance of Amtrak and other passenger rail lines can be difficult to locate and hard to interpret. A renewed federal commitment to passenger rail should bring with it a new commitment to collecting and disseminating data on

the performance of passenger rail and to managing the implementation of projects to maximize performance.

The public should have access to comprehensive performance measures for the high-speed rail program, with those measures tracked regularly using nationally standardized methodology. Among the information that should be collected and made available to the public are statistics on on-time arrivals, ridership, safety, and energy consumption. Various routes and route sections should be benchmarked and compared with one another to identify best practices, underperforming routes, and areas requiring investment. Data should be archived for comparison across time. Public agencies and private contractors should be held accountable for delivering projects on time and within budget. Private contracts should be subject to clawback provisions to recapture public funds in the event of underperformance.

Develop Local Manufacturing

Construction of high-speed rail represents a golden opportunity to rebuild the Midwest's manufacturing base. By establishing a lasting market for passenger rail companies, helping firms from the region acquire technology and expertise, and helping workers develop the skills to enter this new industry, Midwestern states can develop a new foothold in an international manufacturing industry.

The single most important step that policymakers can take to build a domestic passenger rail manufacturing base is to commit adequate funding to high-speed rail over the long term. Midwestern firms will only invest in new production facilities and product lines if they are confident that there will be sustained demand for their products. By demonstrating an ongoing commitment to building and operating a high quality passenger rail system, the Midwestern states can create an environment in which local manufacturers have a dependable base of demand from which to build. As discussed below, this will require a commitment from state and federal government to provide stable funding for high speed rail operations and construction.

Ultimately, the full economic benefit of a revived passenger rail industry lies in Midwestern firms producing not just for the region's own needs, but also for the world market in passenger rail equipment. To that end, the Midwest should devise and implement a long-term strategy for building a vibrant, globally competitive passenger rail industry. Local manufacturers are likely capable of producing the equipment needed for a 110 mph network, but for higher speed trains, of the sort that are under consideration the route between St. Louis and Chicago, foreign expertise will likely be required at first. As the Midwestern states look towards further upgrading their rail network in the future, they should consider how they can create a domestic manufacturing base for the high-tech equipment necessary. For example, South Korea licensed the technology for its high-speed rail system from a French company, with the first trains manufactured in Europe and the rest domestically.[134] Over time, Korean companies developed their own high-speed rail technology, which they now hope to export to other nations building high-speed rail networks.[135]

Guidelines for Federal Action

The federal government will necessarily be the largest source of financing for high-speed rail construction. In filling that role, federal policymakers should aim to bind state and regional projects together as pieces of a national vision for transportation, and also take advantage of their position to ensure that investments in high-speed rail result in the highest

quality system possible. Midwestern leaders—whether at the state level, or as members of Congress—should push the federal government to hold to these principles, and where appropriate commit their own states to corresponding actions.

Invest Adequate Resources

America's passenger rail system is in its current sorry shape largely because of the failure to adequately invest in maintaining and upgrading the system over the last half century. During a postwar period in which America built tens of thousands of miles of gleaming new expressways and hundreds of airports, our rail system was allowed to deteriorate such that today, at the beginning of the 21st century, we still rely, in some places, on infrastructure dating from before the Civil War. Trips can take far longer today than they did in the past; in 1950 travelers from Chicago to Minneapolis would arrive in four hours aboard the Olympian Hiawatha, but today the same trip takes eight and a half hours on Amtrak's Empire Builder.[136]

The worst, most costly mistake America can make going into the 21st century is to not invest adequate resources in upgrading and expanding our passenger rail network. Failing to invest will necessitate even greater spending on highways and airports, deepen our costly dependence on foreign oil, and forestall the economic growth that can result from improved connections among people, businesses and institutions. The first step in determining an adequate level of investment is to recognize that America is digging out of a very deep hole when it comes to our nation's rail infrastructure. If the federal government had invested the same amount of money over the last half-century in rail as it had in aviation, roughly $400 billion worth of upgrades would have been possible. That amount of money would have been more than enough to build a high-speed rail network worthy of the world's most economically advanced nation.

To begin to dig out of that hole, the federal government should invest steadily increasing levels of funding in passenger rail. We probably cannot hope to match the $300 billion China will be investing in its high-speed rail system between now and 2020, but we should endeavor to match the level of investment provided by other industrialized nations, as a share of GDP, in their rail networks. To prompt that commitment, meanwhile, states should demonstrate a willingness to fund rail operations within their borders at an appropriate level, recognizing that the economic benefits of doing so well outweigh the costs.

Currently, America's public investment in inter-city rail is far lower than that of other industrialized countries. Even with the unprecedented investments in passenger rail included in the American Recovery and Reinvestment Act, the U.S. government investment in the national rail system is far below that of many European countries per capita and as a share of GDP. (See Figure 5.) These figures do not include investments made by private U.S. freight railroads, but in any case, to create a truly world-class passenger rail system, the United States will need to invest far more than it has historically.

As imporant as the lack of funding has been the instability of funding for passenger rail in the United States, which has made it difficult to to undertake long-term capital planning and to build the investor confidence necessary to establish vibrant domestic industries to supply rail equipment.

To ensure stable, continuing funding for high-speed rail, the next federal transportation bill should include a dedicated allocation of funds for passenger rail and the federal government should match state investments in rail at no less than the same 80:20 ratio it does for highways. By financing transportation projects equitably, states will be able to make rational transportation

decisions based on the needs of their residents, rather than on the chances of securing a lucrative federal match. State leaders need to recognize the perverse effects that existing imbalances in federal allocations have had, and advocate for funding mechanisms that will allow their states to weigh costs and benefits evenhandedly.

Funding could come from a variety of sources, including a national infrastructure bank, "value capture" mechanisms to share windfalls from increased land values near rail stations, revenues from cap-and-trade programs for carbon dioxide emissions, airport surcharges, or an enhanced highway trust fund augmented through higher fuel taxes or vehicle mileage fees.

Set Standards

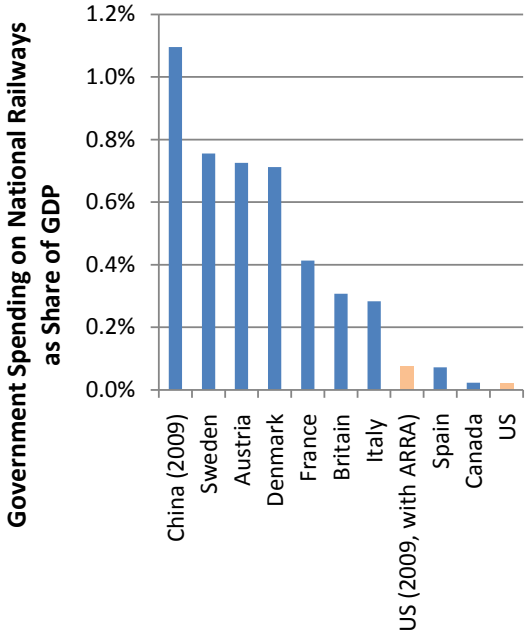
The federal government should play a central role in developing standards for high-speed rail technology and infrastructure in an effort to reduce the cost of high-speed rail, improve replicability of successful projects, and maximize the efficiency of manufacturers. Ideally, the federal government would set technological standards for projects receiving federal funding that are specific enough to allow for the development of economies of scale, yet broad enough to allow for competition among various potential suppliers.

Ensure Accountability for Performance

As referenced in the discussion about public-private coordination, actions by freight railroads can have a large impact on the performance of passenger rail service. As the federal government issues financial grants to states for high speed rail, the Federal Railroad Administration has developed guidelines to ensure that federal funds will benefit passenger service and not just freight service.

Most of the initial high speed rail improvements that states are planning on undertaking will involve upgrades to

Figure 5. Estimated Government Capital and Operating Support for National Railways (Passenger and Freight) as Share of Gross Domestic Product (2007 Unless Otherwise Noted)[137]



infrastructure owned by freight railroads. The Federal Railroad Administration is requiring that railroads commit to specific travel time improvements for passenger rail and to invest additional funds if those service outcomes are not met.[138] In addition, excess track capacity that is not needed immediately for passenger rail service must remain available for future passenger rail use, even if that excess capacity was built with a mix of federal and private funds.

While working cooperatively with private freight railroads, the Federal Railroad Administration should continue its efforts to hold those entities accountable if their activities hinder expansion and successful operation of faster passenger rail service.

Articulate a National Vision

Finally, the nation needs to articulate a vision for the future of America's rail network and measure progress toward the achievement of that vision. The Obama administration's efforts begin fleshing out

a vision for high-speed rail in America, but a fully developed vision would include a compelling national goal—for example, linking all major cities within 500 miles of one another with high-speed rail by mid-century. In the Midwest, at least one 220-mph train route should be completed by 2020 to demonstrate the effectiveness and ridership appeal of such a line. In addition, existing Amtrak service should be upgraded by 2020 to operate at speeds of at least 90 miles per hour. Once such a goal has been articulated, state and federal leaders should measure progress toward it, so that the public can gauge the success of the effort.

Methodology

This report describes a future vision for passenger rail service in the Midwest. The lines and services highlighted in this report are based mainly on states' submissions for high-speed rail funding under the American Recovery and Reinvestment Act (ARRA) in 2009 and early 2010, lines for which states are expected to request federal funding in the near future, and the presumed continuation of existing Amtrak service along other corridors.

The location of all lines and stations is approximate and subject to change. In most cases, the locations of lines and stations were based either on the documentation included with states' requests for ARRA funding, or on documents from the Midwest Regional Rail Initiative or individual state departments of transportation. In many cases, planning for new passenger rail service is at a very early stage and routing and station location decisions have not been made. The maps included in this report—and the data analysis based on those maps—generally presume that new passenger rail routes will follow existing rail corridors and that stations will be located either in the same locations as existing passenger rail stations or in close proximity to downtown areas. The specific location of a rail line or station on the maps included in this report should not be taken as a recommendation of one route or station location over another.

Estimates of the population and number of jobs in proximity to passenger rail stations are based on station locations as illustrated in this report and include both current Amtrak passenger rail stations and proposed new stations in the Midwest regional rail network. Estimates of the population or number of jobs within a 5, 10 or 15 mile radius of a station are based on the number of residents or total employment in Zip codes within that radius, as calculated using ArcGIS 9.2 software. This method likely captures some population and employment outside the specified radius, due to the irregular nature of Zip code boundaries.

Sources of geographic information are as follows:

- **Locations of existing passenger rail stations and rail services:** U.S. Department of Transportation, *National*

Transportation Atlas Database 2009, downloaded from www.bts.gov/publications/national_transportation_atlas_database/2009/.

- **Employment:** Employment by Zip code was based on U.S. Census Bureau, *Zip Code Business Patterns: 2007*, downloaded from www.census.gov/econ/cbp/download/index.htm. State totals for employment were based on *U.S. Census Bureau*, *County Business Patterns: 2007*, downloaded from www.census.gov/econ/cbp/download/index.htm.

- **Population:** Based on 2004 Census data by Zip code included in ArcGIS 9.2.

Appendix A: Percent of State Residents and Workers Near High-Speed Rail Stations

Table 1. Number of Residents Living Near a High-Speed Rail Station

State	Population			
	Total	Within 5 miles of station	Within 10 miles of station	Within 15 miles of station
Iowa	2,984,951	604,543	876,536	996,170
Illinois	12,802,169	3,717,279	7,093,252	9,159,171
Indiana	6,286,463	1,323,667	2,122,523	3,080,271
Michigan	10,203,775	3,776,478	5,560,501	7,075,062
Minnesota	5,214,616	1,224,264	2,003,408	2,533,911
Missouri	5,778,797	1,277,529	2,292,938	2,959,771
Ohio	11,473,286	3,135,172	5,224,072	6,352,413
Wisconsin	5,553,446	1,994,526	2,687,295	2,903,698
Total	**60,297,503**	**17,053,458**	**27,860,525**	**35,060,467**

Table 2. Percentage of Residents Living Near a High-Speed Rail Station

State	Population		
	Percent Within 5 miles of station	Percent Within 10 miles of station	Percent Within 15 miles of station
Iowa	20%	29%	33%
Illinois	29%	55%	72%
Indiana	21%	34%	49%
Michigan	37%	54%	69%
Minnesota	23%	38%	49%
Missouri	22%	40%	51%
Ohio	27%	46%	55%
Wisconsin	36%	48%	52%
Total	**28%**	**46%**	**58%**

Table 3. Number of Workers Near a High-Speed Rail Station

State	Workforce			
	Total	Within 5 miles of station	Within 10 miles of station	Within 15 miles of station
Iowa	1,303,436	311,018	464,206	500,804
Illinois	5,398,634	1,994,236	2,920,771	3,663,682
Indiana	2,648,219	666,014	993,204	1,419,385
Michigan	3,687,441	1,565,075	2,167,140	2,634,248
Minnesota	2,525,900	748,000	1,224,771	1,492,306
Missouri	2,457,827	720,301	1,141,542	1,420,978
Ohio	4,782,141	1,643,883	2,415,915	2,834,784
Wisconsin	2,484,051	1,114,163	1,396,188	1,440,185
Total	**25,287,649**	**8,762,690**	**12,723,737**	**15,406,372**

Table 4. Percentage of Workers Near a High-Speed Rail Station

State	Workforce		
	Percent Within 5 miles of station	Percent Within 10 miles of station	Percent Within 15 miles of station
Iowa	24%	36%	38%
Illinois	37%	54%	68%
Indiana	25%	38%	54%
Michigan	42%	59%	71%
Minnesota	30%	48%	59%
Missouri	29%	46%	58%
Ohio	34%	51%	59%
Wisconsin	45%	56%	58%
Total	**35%**	**50%**	**61%**

Endnotes

1 U.S. Department of Transportation, Federal Highway Administration, "Public Road Length—2008 Miles by Functional System" in *Highway Statistics 2008*, October 2009.

2 National Association of Railroad Passengers, *U.S. Passenger Rail System Maps*, undated.

3 Vehicle miles traveled in 1980 and 2008 (the latest year for which annual data is available): U.S. Department of Transportation, Federal Highway Administration, *Annual Vehicle-Miles of Travel, 1980-2007*, January 2010.

4 David Schrank and Tim Lomax, Texas Transportation Institute, *2009 Annual Urban Mobility Report,* July 2009.

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