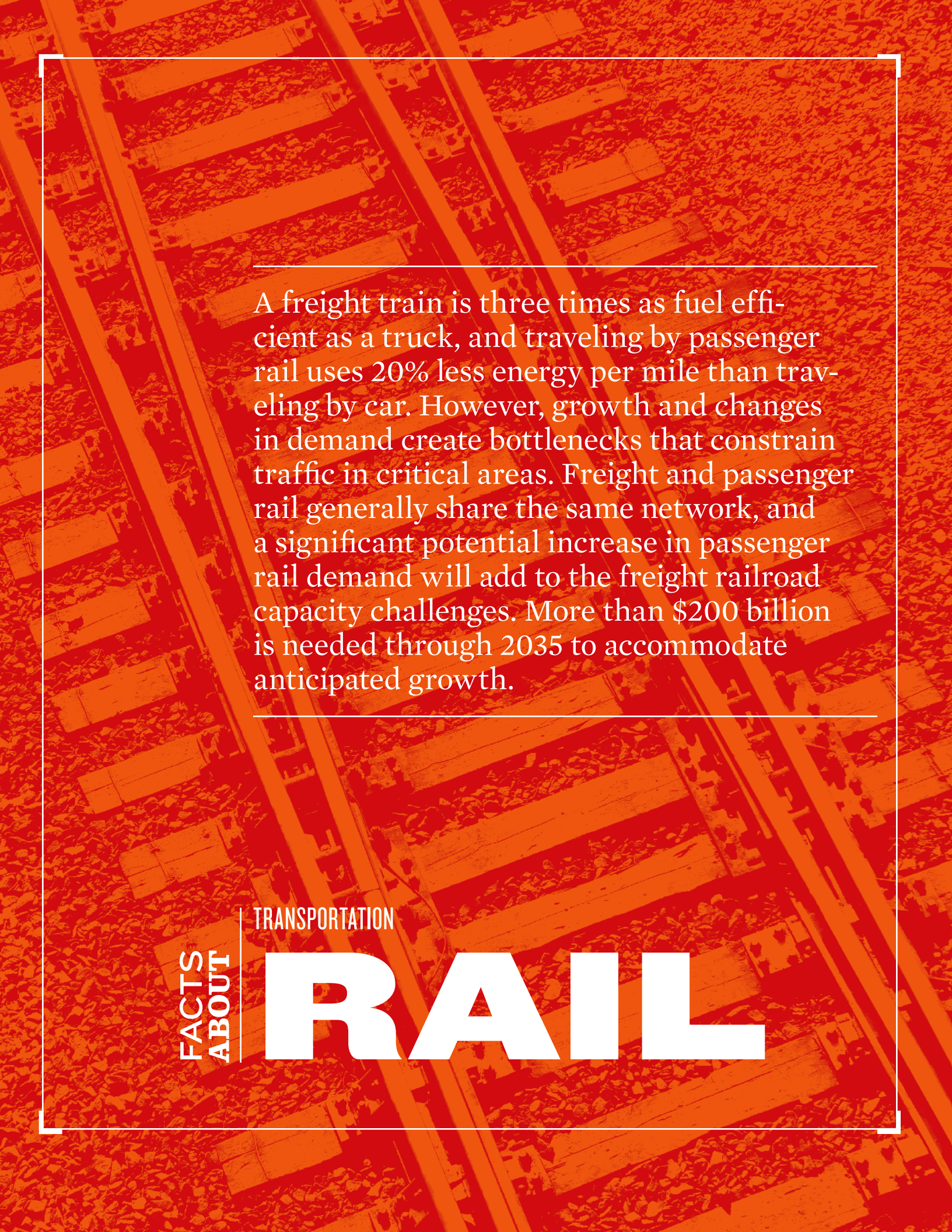
2009

INFRASTRUCTURE FACT SHEET

ASCE American Society of Civil Engineers



A freight train is three times as fuel efficient as a truck, and traveling by passenger rail uses 20% less energy per mile than traveling by car. However, growth and changes in demand create bottlenecks that constrain traffic in critical areas. Freight and passenger rail generally share the same network, and a significant potential increase in passenger rail demand will add to the freight railroad capacity challenges. More than $200 billion is needed through 2035 to accommodate anticipated growth.

FACTS ABOUT

TRANSPORTATION

RAIL

TRANSPORTATION

RAIL

2009 GRADE

C-

RAISING THE GRADES

SOLUTIONS

THAT WILL WORK **NOW**

- ★ **INTEGRATE** rail into a national multimodal transportation policy that recognizes and takes advantage of efficiencies;
- ★ **IMPROVE** passenger rail as an alternative to air and automobile travel;
- ★ **INCREASE** and expand Amtrak's corridor services linking major cities less than 500 miles apart.

A = Exceptional
B = Good
C = Mediocre
D = Poor
F = Failing

AMERICA'S INFRASTRUCTURE G.P.A. **D**

ESTIMATED 5-YEAR FUNDING REQUIREMENTS FOR **RAIL**

Total investment needs
$63 BILLION

Estimated spending
$51.3 BILLION

Projected shortfall
$11.7 BILLION

CONDITION

Freight Rail

The U.S. freight rail system is comprised of three classes of railroad companies based on annual operating revenues: 8 Class I freight railroad systems; 30 Class II regional or short-line railroads; and 320 Class III or local line-haul carriers.[1]

Approximately 42% of all intercity freight in the United States travels via rail, including 70% of domestically manufactured automobiles and 70% of coal delivered to power plants.[2] As of 2006, Class I railroads owned and operated 140,249 miles of track.[3] However, most traffic travels on approximately one-third of the total network, which totals 52,340 miles.

After years of shedding excess capacity, railroads have been increasing infrastructure investment and spending in recent years. In 2006, overall spending on rail infrastructure was $8 billion, a 21% increase from 2005.[2] More specifically, spending on construction of new roadway and structures increased from $1.5 billion in 2005 to $1.9 billion in 2007.[4] Increased spending on maintenance of railroad networks and systems has become necessary as investments are made in more costly signaling technology, heavier rail, and the improved substructure necessary to accommodate heavier trains.[3]

Demand for freight transportation is projected to nearly double by 2035—from 19.3 billion tons in 2007 to 37.2 billion tons in 2035.[4] If current market shares are maintained, railroads will be expected to handle an 88% increase in tonnage by 2035.[4] However, as many look to rail as a more efficient and environmentally friendly freight shipper, rail's market share could increase and lead to additional increases in freight rail tonnage.

An estimated $148 billion in improvements will be needed to accommodate the projected rail freight demand in 2035.[4] Class I freight railroads' share of this cost is estimated at $135 billion.[4] Through productivity and efficiency gains, railroads hope to reduce the required investment from $148 billion to $121 billion over the period 2007 through 2035.[4]

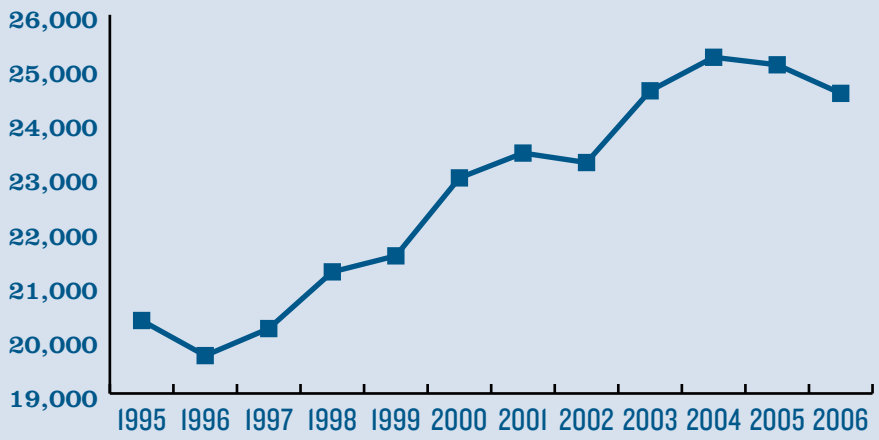
Passenger Rail

Amtrak, the nation's only intercity passenger rail provider, carried 28.7 million riders in fiscal year 2008, an 11.1% increase from fiscal year 2007.[5] Further, the 2007 ridership represented a 20% increase from the previous five years.[5] Corridor services linking major cities less than 500 miles apart, such as Milwaukee-Chicago, Sacramento-San Francisco-San Jose and the Northeast Corridor, are experiencing the fastest growth.[5]

Increased ridership has led to increased revenue, and Amtrak received $1.355 billion in federal investment in fiscal year 2008. However, an additional $410 million in immediate capital needs have been identified, including acquiring new cars to add capacity. In addition, upgrades to comply with the Americans with Disabilities Act (ADA) and improve overall conditions of the 481 stations in its network are estimated at $1.5 billion.[6]

While electrical power in the Northeast Corridor cushioned some of the blow of

FIGURE 10.1 ★ Number of Amtrak Passengers (in thousands): 1995–2006



SOURCE *Transportation Statistics Annual Report: 2007,* U.S. Department of Transportation, Bureau of Transportation Statistics, 2008

increased fuel prices in 2008, it also represents a major infrastructure challenge for Amtrak. Upgrading the electrical system in the Northeast Corridor, parts of which were installed in the 1930s, is among the immediate needs identified. Failure of these critical systems could bring the entire line to a halt, which would impact not only Amtrak, but also the 8 commuter railroads that share the Northeast Corridor.[6]

Amtrak anticipates reaching and exceeding capacity in the near future on some routes. For example, approximately half of trains traveling on one northeast regional line were 85% full and 62% were at least 75% full during one week in July 2008. Even though the current economic downturn has dampened growth, trains will soon reach capacity as the economy

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rebounds and the growth patterns of recent years are reestablished, and the fleet of cars and locomotives continues to age.[6]

In the long term, the Passenger Rail Working Group (PRWG), which was formed as part of the National Surface Transportation Policy and Revenue Study Commission, determined that an annual investment of $7.4 billion through 2016, totaling $66.3 billion, is needed to address the total capital cost of a proposed intercity rail network. It is further estimated that an additional $158.6 billion is needed between 2016 and 2030 and an additional $132.3 billion must be invested between 2031 and 2050 to achieve the ideal intercity network proposed by the PRWG.[5] These costs do not include the mandated safety upgrades for freight rail lines that carry both passenger as well as freight traffic and for those routes that carry toxic chemicals as required by the Rail Safety Improvement Act of 2008.[7]

While the investments set forth by the PRWG are significant, the benefits would be significant as well. The PRWG estimated a net fuel savings of nearly $4 billion per year by diverting passengers to rail if the proposed vision was adopted.[5] In addition, the investments would reduce the need for even greater capacity investments in other modes.

Intercity passenger rail faces particular concerns not faced by other modes of transportation, such as the lack of a dedicated revenue source. Amtrak owns and/or operates 656 miles of track that are maintained and upgraded using funds from its general operating budget, impacting its ability to fund other projects. The annual congressional appropriations process has provided minimal funding in recent years, leading to a major backlog of deferred track maintenance on the track that Amtrak owns and operates, more than half of which is shared with commuter and freight railroads. For the remainder of its 21,095-mile network, Amtrak relies on freight rail lines that make maintenance and upgrade decisions on the basis of their own business models and shareholders' interests while preserving Amtrak's statutory rights for access. Freight and passenger rail interests are becoming more aligned as both require increases in rail network capacity, but successful alignment of interests will require both a public and private investment.[1]

RESILIENCE

Because of its efficiency and reduced energy consumption, rail is an important component of the nation's transportation network, supporting the economy through both commerce and tourism. But due to a lack of adequate investment, limited redundancy, intermodal constraints, and energy system interdependencies, the rail system is not resilient. Current rail security strategies are risk-based as determined by corridor assessments, corporate security reviews, intelligence analyses, and objectively measured risk metrics. To improve resilience, future investments must address life-cycle maintenance, rapid recovery, multihazard threats and vulnerabilities, and technological innovations.

RAISING THE GRADES
CASE STUDIES

CHICAGO, IL ★ Chicago Region Environmental and Transportation Efficiency Program

The Chicago Region Environmental and Transportation Efficiency Program (CREATE) is a joint effort between freight and passenger railroads and city and state governments to improve the movement of goods and people through the area. Chicago's role not only as a population center but also as a major freight processing area—approximately one-fourth of U.S. freight rail traffic originates in, terminates in, or travels through the Chicago area—means that improvements will impact shipments to the entire country. Billions of dollars will be invested in critical capital improvement projects to increase the efficiency of the region's railroads.[9]

It is estimated that new overpasses and underpasses at railroad crossings will save motorists 3,000 hours per day.[9] Additional funding is required to complete this plan, which will provide both public and private benefits to the economy, environmental benefits, and significant congestion relief. CREATE projects will free up needed capacity, reduce pollution from both locomotives and highway vehicles, increase reliability and reduce conflicts between passenger and freight rail. *Photos courtesy of the CREATE partners.*

RAISING THE GRADES
CASE STUDIES

LOS ANGELES / LONG BEACH, CA ★ Alameda Corridor

Completed in 2002, the Alameda Corridor is a 20-mile-long rail cargo expressway that links the ports of Long Beach and Los Angeles—the two busiest container ports in the country—to the transcontinental rail network near downtown Los Angeles.[8] A series of bridges, underpasses, overpasses, and street improvements separates freight trains from passenger rail and automobile traffic, facilitating a more efficient transportation network.[8] In addition, the elimination of at-grade crossings reduces traffic congestion, time lost by local drivers and air and noise pollution created by idling trains and automobiles. *Photo courtesy of AECOM.*

BOSTON, MA / WASHINGTON, D.C. ★ Amtrak's Northeast Corridor

Amtrak's Northeast Corridor continues to set the standard for providing a viable intercity transportation alternative to congested highways and airways. In addition to Amtrak passenger service, 8 transportation or commuter agencies use the Corridor through contract agreements with Amtrak.[10]

Ridership on the Acela Express grew 20% from fiscal year 2006 to fiscal year 2007.[10, 12] In addition, Amtrak's share of the New York–Washington air and rail travel market was 56% in fiscal year 2007.[11] *Photo courtesy of Amtrak.*

CONCLUSION

Rail is increasingly seen as a way to alleviate growing freight and passenger congestion experienced by other modes of transportation. In addition, rail is a fuel efficient alternative for moving freight long distances.

Anticipated growth over the coming decades, as well as demographic shifts, will tax a rail system that is already reaching capacity in some critical bottlenecks. A substantial investment in rail infrastructure will maximize efficiencies and ultimately reap broad benefits for passengers, shippers, and the general public. ★

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