

The Case for  
**BUSINESS**  
INVESTMENT  
in High-Speed and  
Intercity Passenger Rail



# INTRODUCTION

**This report focuses on key issues critical to private investors as they consider investments or future expansion into business serving growing passenger rail markets. It highlights national and international trends, the market potential in the U.S. future funding sources, and the need for public support.**

**Intercity rail services in the United States are provided by the National Railroad Passenger Corporation, better known as Amtrak. Amtrak operates a national network of routes that serve all regions of the country. The Federal Railroad Administration has identified additional corridors where travel markets are ripe for high-speed corridor services to be managed by states or teams of states. These corridors are at the core of President Obama's vision for high-speed rail in America. Many believe this vision will be a legacy of his Administration, and provides a forward looking transportation vision similar to the Interstate Highway system in the 1950s. These designated high-speed rail corridors, to be augmented over time, will complement and connect to the national system.**

**High-speed and intercity passenger rail services are part of a U.S. rail market that also includes commuter railroads, rail transit systems, and the freight rail industry.**

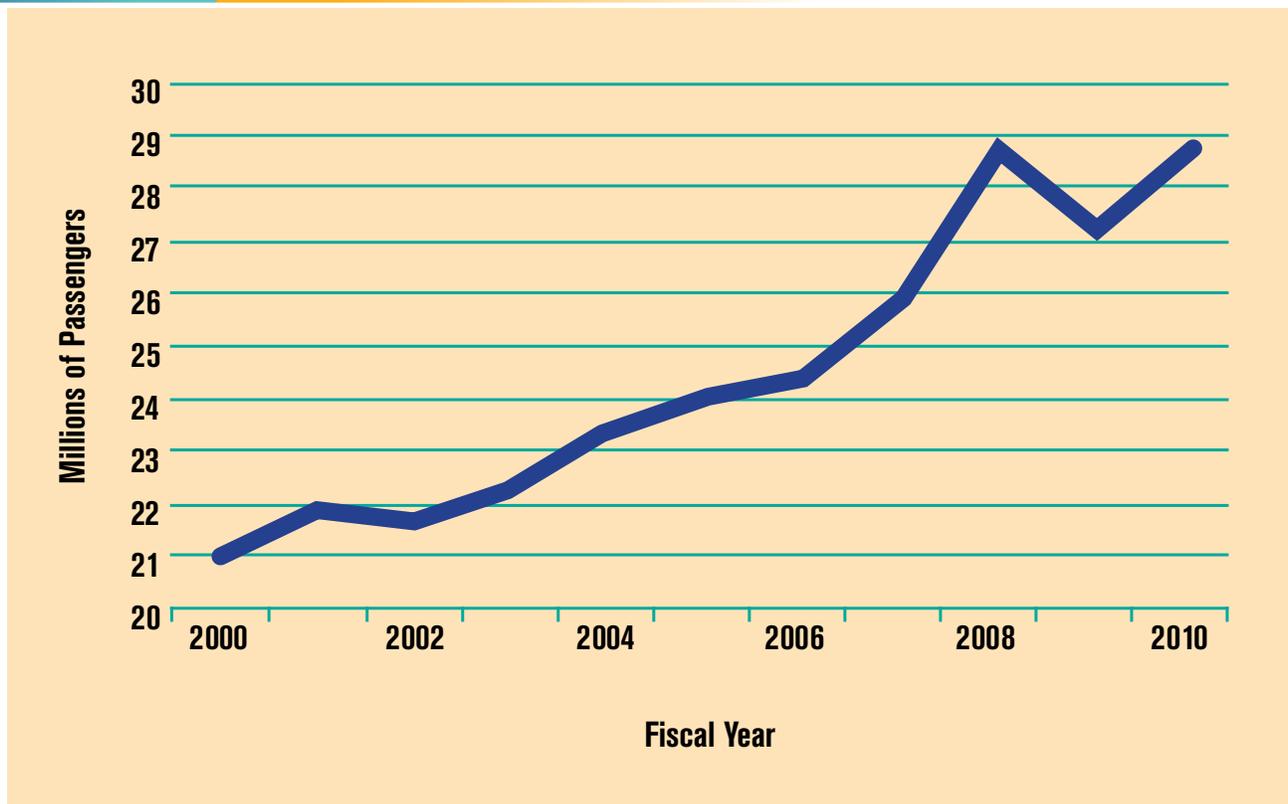
## A Growing Rail Passenger Base-Market:

The overall rail passenger market in the United States is growing at an impressive rate, sustained by a multi-decade trend. The scale of this growing market is reaching the critical mass that will make the market for vehicle procurements and state-of-good-repair investments strong and consistent year in and year out.

Market growth can be measured in a number of ways. Of the 35 light rail systems in existence today, only seven were present in 1980. Of the 28 commuter rail systems today, only 10 were in operation in 1980. Ridership on commuter rail, light rail, and heavy rail grew from 2.627 billion trips in 1995 to 4.513 billion trips in 2008, an increase of 72 percent.

Despite chronic underinvestment, annual passenger trips aboard Amtrak have risen from 21 million in 2000 to 28.7 million in 2010, a 37 percent increase. In 2010, annual passenger trips were at their highest level ever.<sup>1</sup>

**FIGURE 1** Amtrak Annual Ridership Trend



Source: Amtrak



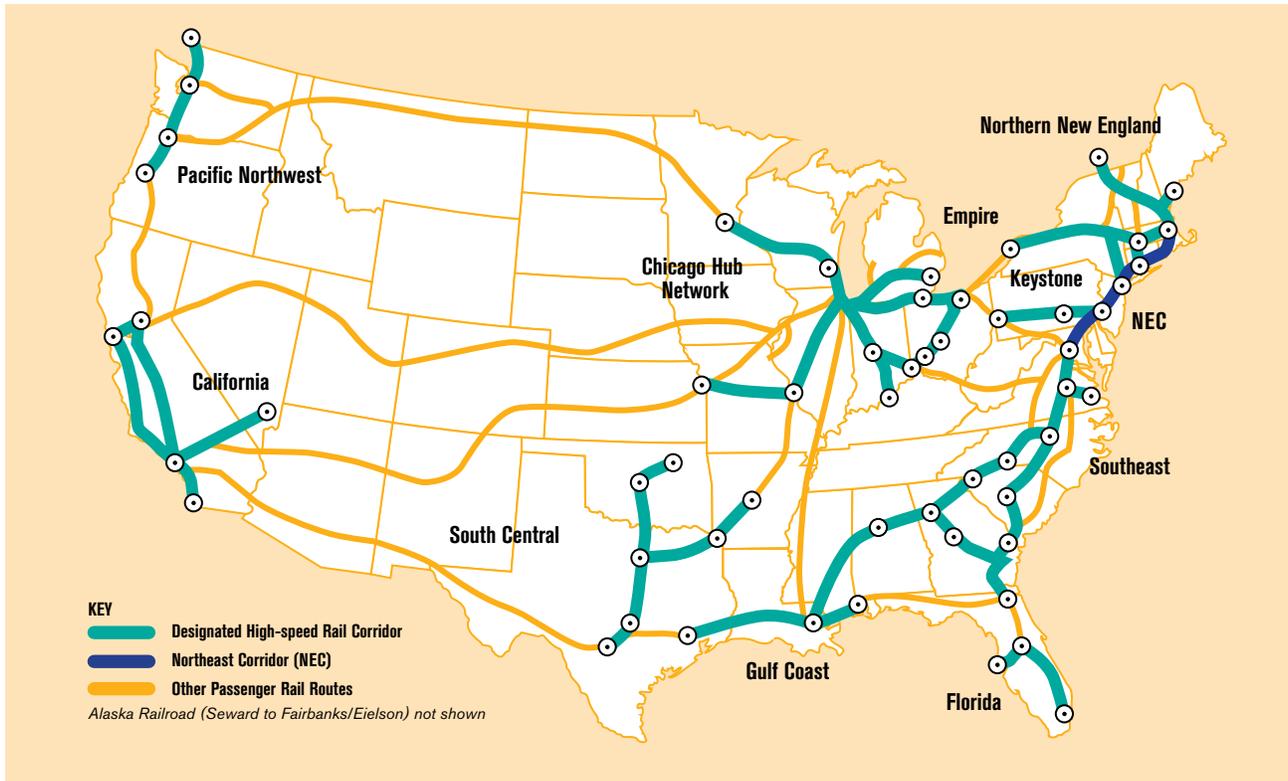
Amtrak has proposed the development of Next Generation High-Speed Rail service for the Northeast Corridor.<sup>2</sup> As demand for travel in this corridor is projected to grow, congestion levels will increase to the point of corridor gridlock by 2035. Neither highway expansion nor increased air travel are practical responses to the problem. Amtrak's proposal calls for a \$52 billion investment to the existing Northeast Corridor rail system to handle a projected 60 percent increase in intercity and commuter rail trips. Preliminary studies indicate that a dedicated high-speed rail alignment would require approximately \$117 billion in construction investment. High-speed rail ridership would increase five-fold and the project would have a high benefit-to-cost ratio.

The current fleet of rolling stock owned by Amtrak has an average age in excess of 25 years. Amtrak has announced a new fleet improvement strategy designed to meet future travel demands, simplify fleet maintenance, provide the best service for passengers, and renew the vehicle fleet in an organized manner over time while creating a constant demand to support a competitive supplier base. Amtrak projects that the desirable procurement program would each year acquire 65 single level passenger cars, 35 bi-level cars, a total of 70 electric locomotives, 25 high-speed diesel locomotives, and the expansion and replacement of the existing high-speed Acela fleet.<sup>3</sup>

### **A National Vision for High-Speed Rail Corridors:**

On February 17, 2009 the American Recovery and Reinvestment Act (ARRA) was signed into law. As part of this legislation, \$8 billion was provided for intercity and high-speed rail projects. On July 10, the Federal Railroad Administration (FRA) received pre-applications from 40 states totaling \$103 billion. The FRA is implementing these passenger rail programs through the statutory program structure of the Passenger Rail Investment and Improvement Act of 2008, signed into law by President Bush. Congress has supplemented the initial \$8 billion with additional appropriations of \$2.5 billion in FY 2010. The Administration has proposed an authorization of \$53 billion for high-speed rail over the six years from FY 2012 through 2017. This is a high priority program in the FY 2012 budget that highlights the importance of transportation infrastructure for jobs, economic growth, and international competition. This has been presented by the White House as a down payment on future investment. A U.S. Department of Treasury report found this to be an ideal time for such investment given the low cost of capital, low construction costs, and high levels of unemployment in the construction industry.<sup>4</sup>

The FRA has identified corridors as the initial recipients of funds, based on states services those states would help support. The identified corridors, including all proposed routes, are shown in Figure 2.<sup>5</sup>



Source: Federal Railroad Administration

In funding projects in these corridors, much of the country has been immediately engaged in the new federal program. In addition to the corridors that are receiving immediate funding, there is a much larger pipeline of projects. America 2050, the Regional Plan Association’s national infrastructure planning and policy initiative, looked at city-pairs in corridors of 200–600 miles, and identified a phased program which, when complete, would enhance mobility options for the 440 million Americans who will live in the United States by the mid-century.<sup>6</sup>

Duke University looked at this growing market in its report *U.S. Manufacture of Rail Vehicles for Intercity Passenger Rail and Urban Transit*.<sup>7</sup> It found that an extensive supply chain for rail manufacturing already exists in large part, and that this geographically diverse network stands ready to respond to a spark in demand. America has a multiple market tailor-made for high-speed rail. This supply chain includes at least 249 U.S. manufacturing locations in 35 states. The report identified a total of 15 railcar builders, 5 locomotive builders, and 159 component suppliers. These ranged from small firms with fewer than 20 employees and only one manufacturing site, to large, diverse firms with thousands of employees and several relevant U.S. manufacturing locations. The report also noted that the U.S. value chain includes several gaps – specific manufacturing activities that are not typically performed in the United States.

The White House and the U.S. Department of Transportation consider passenger rail to be central to an economic strategy that will lead to hundreds of thousands of forward looking clean energy jobs.



## International Trends Could Influence the Pace for U.S. Investments:

The United States has a long way to go to catch up with high-speed rail investment levels in other developed nations. The U.S. ranks 8<sup>th</sup> in miles of high-speed rail in operation, 8<sup>th</sup> in miles under construction, 6<sup>th</sup> in miles planned, and 9<sup>th</sup> in total miles according to data reported by the International Union of Railways (UIC) in 2011 and shown in the table below.<sup>8</sup>

**TABLE 1 Miles of High-Speed Rail Lines by Country May 2010**

| Miles of High-Speed Passenger Railway Lines |           |                  |                         |                    |                  |         |                  |        |                  |
|---|-----------|------------------|-------------------------|--------------------|------------------|---------|------------------|--------|------------------|
| Country                                     | Operating |                  |                         | Under Construction |                  | Planned |                  | Total  |                  |
|   | Miles     | Percent of Total | Highest Speed (mph) (a) | Miles              | Percent of Total | Miles   | Percent of Total | Miles  | Percent of Total |
| China                                       | 2,609     | 28.4%            | 219                     | 3,786              | 58.5%            | 1,813   | 16.5%            | 8,208  | 30.8%            |
| France                                      | 1,185     | 12.9%            | 200                     | 131                | 2.0%             | 1,635   | 14.9%            | 2,951  | 11.1%            |
| Germany                                     | 803       | 8.7%             | 188                     | 236                | 3.6%             | 419     | 3.8%             | 1,458  | 5.5%             |
| Italy                                       | 577       | 6.3%             | 188                     | 0                  | 0.0%             | 247     | 2.2%             | 824    | 3.1%             |
| Japan                                       | 1,584     | 17.2%            | 188                     | 318                | 4.9%             | 364     | 3.3%             | 2,266  | 8.5%             |
| Portugal                                    | 0         | 0.0%             | ---                     | 0                  | 0.0%             | 629     | 5.7%             | 629    | 2.4%             |
| Russia                                      | 0         | 0.0%             | ---                     | 406                | 6.3%             | 406     | 3.7%             | 812    | 3.0%             |
| South Korea                                 | 258       | 2.8%             | 188                     | 0                  | 0.0%             | 0       | 0.0%             | 258    | 1.0%             |
| Spain                                       | 1,285     | 14.0%            | 188                     | 1,104              | 17.1%            | 1,064   | 9.7%             | 3,453  | 13.0%            |
| Taiwan-China                                | 216       | 2.4%             | 188                     | 0                  | 0.0%             | 0       | 0.0%             | 216    | 0.8%             |
| Turkey                                      | 147       | 1.6%             | 156                     | 319                | 4.9%             | 1,049   | 9.5%             | 1,515  | 5.7%             |
| USA   | 226       | 2.5%             | 150                     | 0                  | 0.0%             | 563     | 5.1%             | 789    | 3.0%             |
| World Total                                 | 9,188     | 100.0%           | ---                     | 6,471              | 100.0%           | 10,996  | 100.0%           | 26,655 | 100.0%           |

(a) Highest speed of any line currently in operation. Includes only selected countries. Source: International Union of Railways, 2011.

At its December 2010 High-Speed Rail World Congress in Beijing, UIC announced it will hold its next High-Speed Rail World Congress in the United States. This July 2012 event will help focus United States decisionmakers on the international success stories in the development of high-speed rail.

## High-Speed Rail Development is In-Step with All Long-Term U.S. Trends and Market Directions:

**The Need for Jobs and Economic Development:** High-speed rail has arrived just in time for America to incorporate it into a forward-looking economic policy. Its economic returns are demonstrated in numerous national and international studies.

Expenditures for high-speed rail construction are estimated to support 24,000 jobs for each billion dollars of investment.<sup>9</sup> The California High-Speed Rail Authority projects 600,000 full time construction jobs will be created over the course of building their project and 450,000 permanent new jobs will result from high-speed rail related economic growth over the next 25 years.<sup>10</sup>

The Economic Development Research Group for the U.S. Conference of Mayor’s studied the economic impact of high-speed rail on four different urban regions. The results focused on five factors. High-speed-rail service can help drive higher density, mixed use development at train stations; increase business productivity through travel efficiency gains; help expand visitor markets and generate additional spending; broaden regional labor markets; and support the growth of technology clusters.<sup>11</sup>

The impacts calculated are shown in the table below:

**Impacts of High-Speed Rail for Four Urban Regions, U.S. Conference of Mayors**

**TABLE 2**

| Urban Region    | Projected Annual Total Economic Impact of HSR Service in 2035 (2009 \$) |                |   |                |
|-----------------|---|----------------|---|----------------|
|                 | Employment<br>(Number of Jobs)  | Output (Sales) | Value-Added<br>(Gross Regional Product) | Wages          |
| Los Angeles, CA | 55,000  | \$ 7.6 Billion | \$ 4.3 Billion                          | \$ 3.0 Billion |
| Chicago, IL-IN  | 42,000  | \$ 6.1 Billion | \$ 3.5 Billion                          | \$ 2.5 Billion |
| Orlando, FL     | 27,500  | \$ 2.9 Billion | \$ 1.7 Billion                          | \$ 1.2 Billion |
| Albany, NY      | 21,000  | \$ 2.5 Billion | \$ 1.4 Billion                          | \$ 1.1 Billion |

Source: U.S. Conference of Mayors/Economic Development Research Group, 2010.



In its 2010 publication, *High-Speed Rail: The Fast Track to Economic Development?*, the World Bank explained the contributions that high-speed rail makes to economic prosperity: “In operational terms a high-speed line will naturally provide valuable travel time savings to its users but it may also free up capacity on existing lines for other transport users, and enable performance improvements on those lines due to lower congestion.”<sup>12</sup>

***The Need to Connect America’s Economic Engines:*** Population growth in the United States has and will continue to concentrate in areas of economic opportunity. Several parts of the United States have seen the emergence of very high population clustering, accompanied by integrated regional labor markets, infrastructure, cultural and land-use patterns. Economically, these mega-regions have become the engines of American prosperity. Connecting these regions to one another has become a key objective for our transportation system.

The Urban Land Institute’s *Infrastructure 2010: Investment Imperative* asserts that failure to invest could delay economic recovery and put the United States at increased disadvantages in the global marketplace. The report clarifies the need for infrastructure investment including investment in high-speed rail to modernize America’s rail transportation system. High-speed rail is seen as the solution for taking pressure off airports and highways in regional intercity markets as travel demand increases. The report states that: “Car dependence and ever-escalating driving delays in most large American cities have exposed the need for more passenger rail service to take the pressure off crowded interstates and clogged airports, which struggle to handle current traffic volumes. The urgency of addressing the issue becomes more apparent since the country’s population will increase by 120 million over the next 40 years, with growth concentrated in the nation’s primary urban centers and surrounding suburbs. All these people will want to move around and current systems won’t be able to handle prospective volumes.”<sup>13</sup>

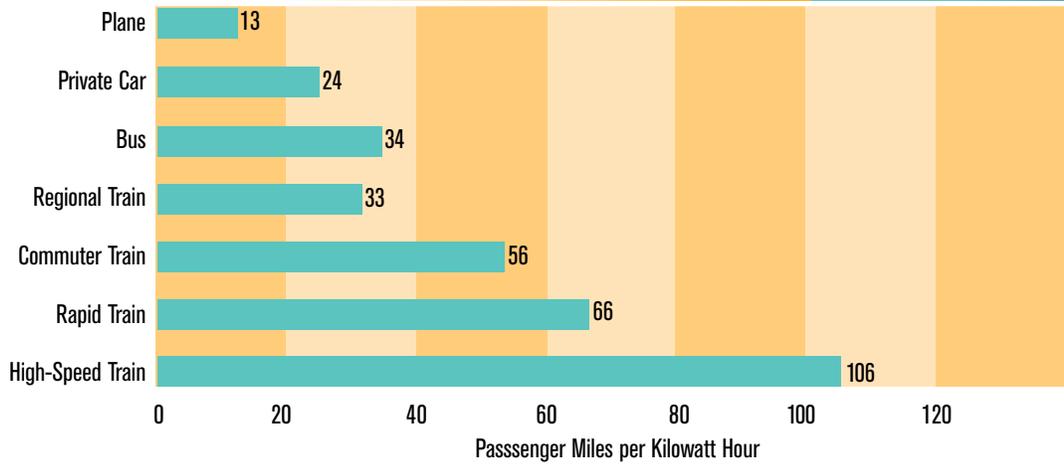
***The Need for Transportation Investments that are Consistent with Energy and Environmental Policies:*** Looking long term, it will be both economically prudent and politically necessary to justify transportation investments with energy and environmental trends. Just ask Warren Buffett, who last year invested more than 26 billion in the BNSF Railroad, in recognition of this bright future. In his Annual Report to Berkshire Hathaway shareholders, Mr. Buffett wrote, “The highlight of 2010 was our acquisition of Burlington Northern Santa Fe, a purchase that’s working out even better than I expected.”<sup>14</sup>

Numerous studies have shown high-speed rail to be the route of energy and carbon savings. Figure 3 shows energy efficiency among intercity travel modes determined by the International Union of Railways. For the same energy use, high-speed rail provides eight times the passenger travel as aircraft and four times that of private cars.<sup>15</sup>

The Center for Neighborhood Technology found that high-speed rail cuts CO<sub>2</sub> emissions nationwide and in every corridor where it is proposed to be built. It projected total emissions savings of 6 billion pounds of CO<sub>2</sub> per year if all proposed high-speed rail systems studied are built. Their results are summarized on Figure 4. In all cases, high-speed rail creates lower emissions than air or auto travel.<sup>16</sup>

**Energy Efficiency: Passenger Miles per Kilowatt Hour**

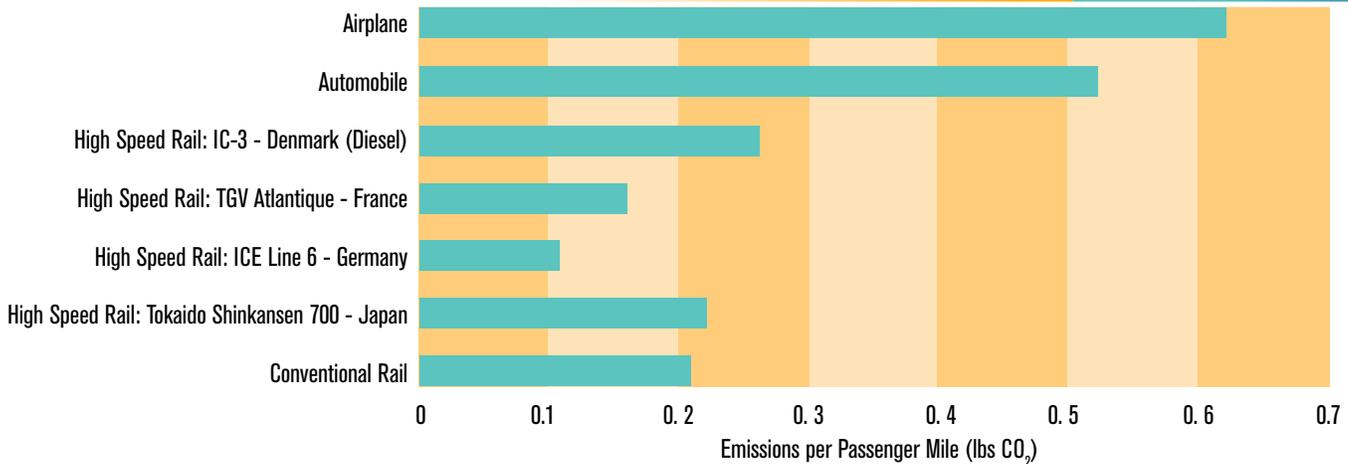
**FIGURE 3**



Source: International Union of Railways

**CO<sub>2</sub> Emissions per Passenger Mile**

**FIGURE 4**



Source: Center for Neighborhood Technology

***The Need for a Balanced Transportation System with Options:*** International examples show that given good travel options, people will use high-speed rail systems in large numbers. In Japan, their high-speed train, the Shinkansen, has been a very effective competitor with air transportation. In the market between Tokyo and Osaka (the two major metropolitan areas in Japan), the Shinkansen accounts for about 88 percent of the market share.<sup>17</sup>



An International Union of Railways report provides two comparisons of the percentage of traffic carried by rail in a corridor before and after high-speed rail was introduced. Rail travel between Paris and Brussels as a percentage of travel by all modes increased 108 percent, from 24 percent of travel before the introduction of high-speed rail to 50 percent after whereas between Madrid and Seville, rail travel went from 33 percent of rail and air travel only to 84 percent, a 155 percent increase.<sup>18</sup>

**TABLE 3** Rail Use Change After Introduction of High-Speed Rail in Two Corridors

| Corridor                                     | Percent Trips on Train Before High-Speed Rail | Percent Trips on Train Now | Percent Change in Train Share of Trips |
|--|---|----------------------------|--|
| Paris - Brussels (All Travel Modes)          | 24 %  | 50 %                       | 108 %                                  |
| Madrid - Seville (Train and Air Travel Only) | 33 %  | 84 %                       | 155 %                                  |

Source: International Union of Railways, 2008

According to CALPRIG, “even in the northeastern U.S., where Amtrak Acela Express service is slow by international standards, rail service accounts for 62 percent of the air/rail market on trips between New York and Washington, D.C., and 47 percent of the air/rail market on trips between Boston and New York.”<sup>19</sup>

**A Spark for Economic Growth:** In a study of high-speed rail investment financing mechanisms, Mercator Advisors and Vantage Point Associates found that: “Investment in a regional rail corridors program...will result in the creation of both direct jobs related to the construction and operation of the system and additional jobs due to the regional benefits and economic activity over the long-term operating period.”<sup>20</sup>

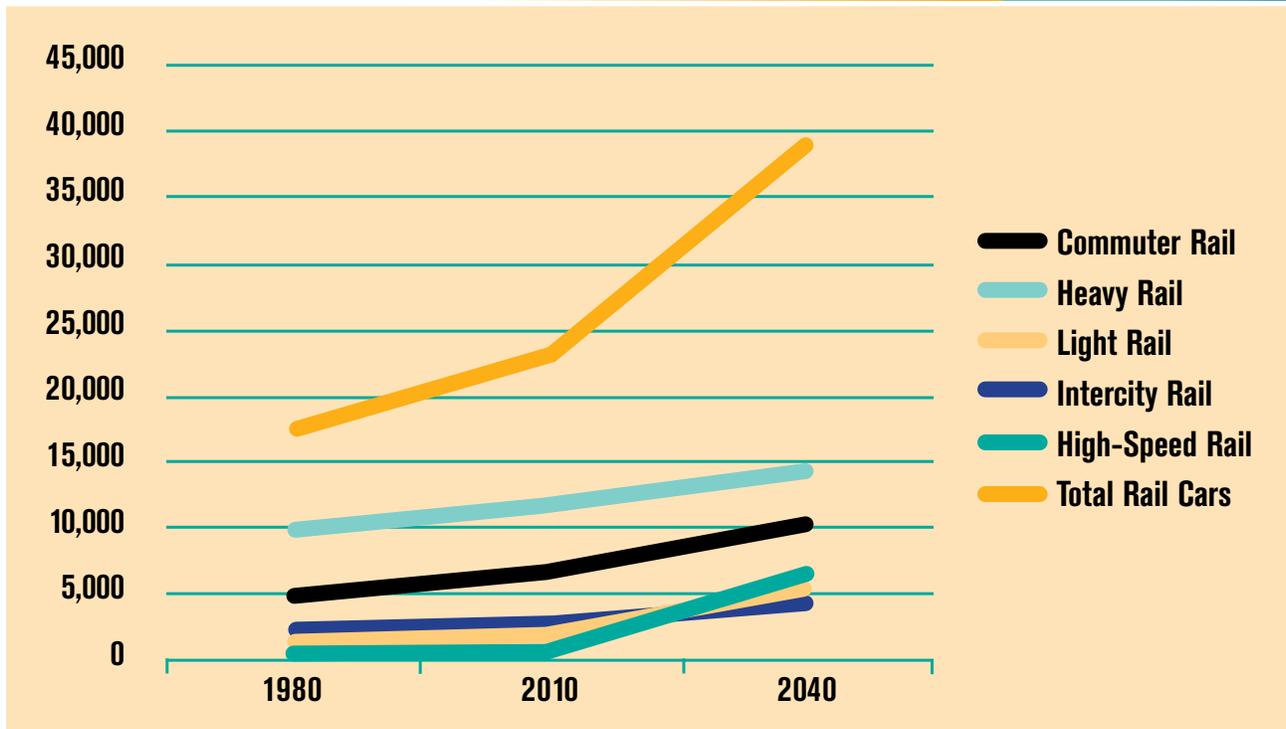
**The Need for Projects Ripe for Public-Private Partnerships:** As America looks to involve the private sector to the fullest extent possible, high-speed rail projects lend themselves well to various models, including operating contracts, concessions, and Design-Build-Operate-Maintain-Finance arrangements. Around the world, support of the central government has been needed for the initial construction of the project, with the private sector assuming a large role in project delivery and operations.

**TABLE 4** Cumulative Road Construction Cost Savings from High-Speed Rail and Transit Investment in the Florida I-4 Corridor

| Time Period | Cumulative Road Construction Savings |
|-------------|--------------------------------------|
| By 2030     | \$178 Billion                        |
| By 2050     | \$270 Billion                        |

Source: University of Pennsylvania Design Studio I-4 Corridor Study

**Providing Balance to the Transportation System:** In an illustrative example, the University of Pennsylvania Urban Design Studio found that 1 million fewer acres of land would need to be developed in the I-4 Corridor than otherwise would result from current growth trends over the next 40 years given a sound transportation investment scenario including high-speed rail and transit.<sup>21</sup> The high-speed rail and transit-based scenarios would result in significant savings in road investments. Cumulative savings in new road construction costs of \$178 billion by 2030 and \$270 billion by 2050 are projected.



Source: See Text

### An Ongoing Program of Passenger Rail Investments:

Drawing APTA's Vehicle Database, FTA's New Starts report and projected pipeline of projects, Amtrak's vehicle fleet inventory for 2010 and replacement plan for 2040, and FRA's plans for a desired construction schedule for high-speed rail, the growth in rail car needs are projected as shown in Figure 5. While many things will need to fall into place for this projection to be realized, this is the plan which stakeholders are working toward.<sup>22</sup>

Such levels of activity will spark business opportunities to plan, design, build, manage and operate systems, and to manufacture and supply rail equipment.

All this activity will be dependent on the availability of funding. At the moment, this is an issue for high-speed rail just as it is for all surface transportation infrastructure. This report demonstrates that long-term trends support the growth of passenger rail with the market rising to promising heights. It is expected that a federal surface transportation bill will be considered in the coming year.

APTA and partnering organizations are mounting an advocacy campaign in the coming months to make the case for investment in transportation infrastructure. We know that for more than 10 years, the public has voted overwhelmingly to approve ballot measures calling for an increase in public transportation investments, even when this required an increase in taxes.



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## High-Speed Rail Brochure End Notes

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