

# Solving the Freight Rail Transportation Bottleneck

By  
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## 1. Introduction

The performance of the freight rail industry in the U.S. matters to more than the rail industry, rail shippers, and rail stockholders. The general public has a significant interest as well. Consumers would face higher prices, more congestion on the nation's highway system, and consequently longer travel times for commuters if more of the nation's freight were carried by trucks rather than rail. Research also indicates a strong association between better mobility – less traffic congestion – and productivity for business and people in their roles as commuters and consumers.

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There is considerable potential to improve the capacity and reliability of the nation's freight system by using freight rail to move more truck trailers and containers. The model is already in operation: A large part of truck commerce, both in terms of shipping containers and trailers, travels on intermodal trains around the nation. Intermodal shipments represent the fastest growing market in the railroad industry. There would appear to be substantial potential, at least on a theoretical level, for expanding intermodal operations.

The problem, however, lies in insufficient rail infrastructure. Freight rail's potential for adding volume already is severely strained, especially in the Chicago and Los Angeles areas and along both the East Coast and West Coast. Freight train average operating speeds dropped from 24 miles per hour in 1990 to 21 miles per hour in 2000, reflecting at least in part constrained

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capacity. Thus, it appears likely that freight railroads are nearing serious limits on their ability to expand, due to their limited financial resources and inability to earn their cost of capital.

This report outlines the freight rail situation and proposes public policies that would increase the capacity of the freight rail industry without unfairly or unduly burdening taxpayers. Part 2 presents an overview of the current situation and recent trends. Part 3 documents the rising congestion on both railroads and highways. Part 4 describes the dilemma – a possible win-win solution exists by increasing investment in freight rail systems, but no market or public policy mechanisms exist to implement the solution. The potentially enormous social benefits that would come from finding such a solution are then reported.

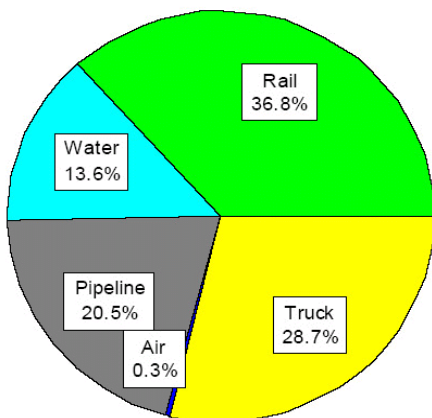
Part 5 describes the public policy barriers that currently contribute to the dilemma. Principal among them are policies that subsidize and give passenger rail service preferential access to railways, even though few passengers choose to ride passenger trains. Part 6 begins the discussion of possible public policy solutions by presenting the two objectives and four principles that ought to guide the discussion.

Part 7 scores 11 possible reform proposals against our principles of reform, finding about half of them either violate the principles or are unlikely to attain our market and public objectives. Part 8 presents a new reform plan that combines the best (and avoids the worst) of the reform plans now being debated and outlines how the plan would be implemented. Part 9 contains a brief summary and concluding remarks.

## 2. Situation and Trends

Railroads are often thought of as a transport of the past. This perception may arise from the fact that railroads, once the principal form of intercity transportation, have become a secondary or even tertiary mode in all first-world nations and nearly all developing nations. Yet in the United States and just a few other high-income nations, freight rail systems carry more volume than ever before. Moreover, they have the potential to carry much more.

**Figure 1**  
Share Domestic Freight  
2004: TON MILES



### Advantages of Freight Rail

Railroads are a relatively efficient and clean way to move freight. According to the Association of American Railroads, freight rail is three times as energy efficient as trucks per ton mile. Further, reflecting the close relationship between fuel consumption and pollution, railroads pollute less, emitting one-third as much nitrogen oxide per ton of cargo as trucks. Since 1980, railroad fuel

efficiency has increased 75 percent.<sup>2</sup> Finally, freight rail is estimated to cost one-third as much as trucks to move the same commodities.<sup>3</sup>

Railroads move more of the nation's freight commerce than any other form of transport in the United States. Rail's 37 percent market share in ton miles<sup>4</sup> leads trucks by a considerable margin, followed by pipelines and water (rivers, coastal, and lake). (See Figure 1 on previous page.)

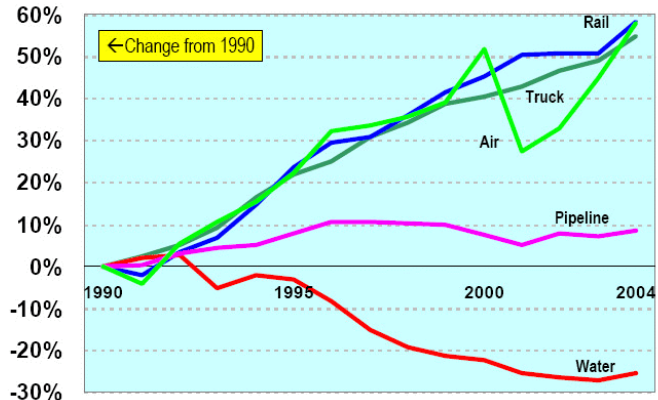
Since 1990, freight rail volumes have risen nearly 60 percent, slightly more than that of trucks and similar to that of air freight.<sup>5</sup> Pipeline volumes have risen only modestly, while water shipping volumes have declined. (See Figures 2 and 3.)

Rail carries approximately 56 percent of total truck and rail commerce. This figure has remained relatively constant since 1990. Freight rail experienced its largest market share losses to trucks during the 1950s, with a much slower decline from 1960 to 1990. (See Figure 4 on next page.)

This may be surprising, because the largest losses of freight rail market shares to trucks occurred before the interstate highway system was substantially completed. Less than one-quarter of the interstate system had been completed by 1960. The greatest expansion occurred in the 1960s, as the system expanded to 75

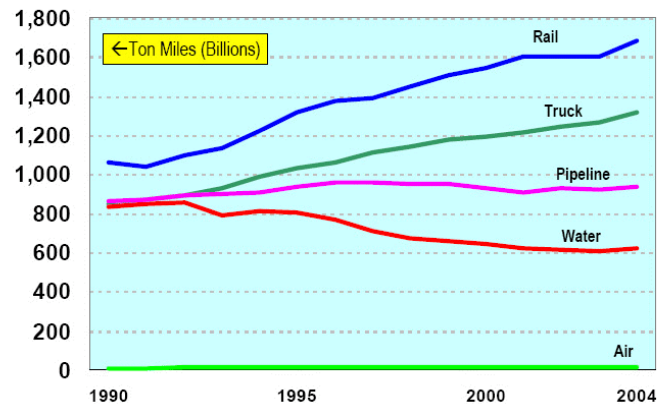
**Figure 2**

**Market Share Trend: 1990-2004**  
UNITED STATES FREIGHT MODES



**Figure 3**

**Freight Volume Trend: 1990-2004**  
UNITED STATES FREIGHT MODES



<sup>2</sup> [http://www.aar.org/getFile.asp?File\\_id=364](http://www.aar.org/getFile.asp?File_id=364).

<sup>3</sup> The American Association of State Highway and Transportation Officials estimates that comparable freight moving by truck costs 3.3 times that of rail. AASTO *Freight-Rail Bottom Line Report*, page 66. <http://freight.transportation.org/doc/FreightRailReport.pdf>.

<sup>4</sup> A ton mile is a ton of freight moved one mile. Since ton miles measure both weight and distance traveled, it is a better measure for analysis dealing with traffic congestion than tons or value.

<sup>5</sup> Air freight volumes were rising at a greater rate than freight rail until the events of September 11, 2001. However, air freight volumes are comparatively small, approximately 1 percent of the truck or rail volume.

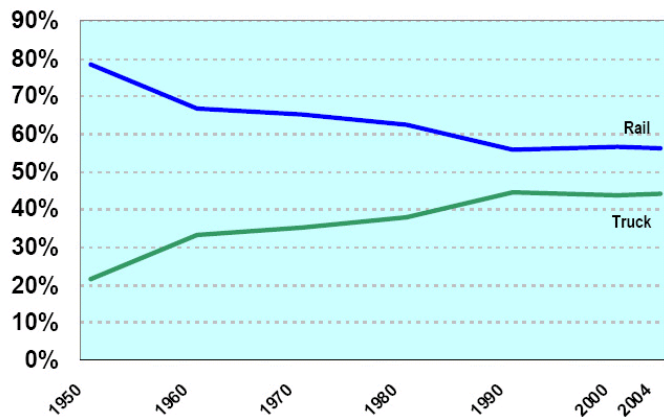
percent of its eventual length.

By 1980, 94 percent of the system had been opened and most remaining segments were in urban areas rather than intercity. During this time, trucks gained a substantial speed advantage, yet freight rail's market share declined only 17 percent over the 30 years from 1960 to 1990 – little more than the 15 percent loss during the 10 years of the 1950s.

**Figure 4**

### Rail & Truck Market Shares

1950-2004: TON MILES



### Types of Rail Service

Freight rail serves three broad markets:<sup>6</sup>

- *Bulk unit trains:* Bulk unit trains generally carry a single commodity, such as coal or grain or waste. Bulk unit trains can be up to 1.5 miles long. Perhaps the largest volume is on routes carrying coal from Powder River Basin mines in Wyoming toward the east and south. Bulk unit trains account for approximately 47 percent of freight rail ton miles.
- *Intermodal and automobile-carrying trains:* Intermodal trains carry shipping containers or truck trailers. Much of this business represents a partnership between the trucking industry and the railroad industry. Trucking companies have increasingly used railroad intermodal services to move trailers and containers over longer distances. Automobile-carrying trains move new cars from factories or ports to distribution centers. Intermodal operations hold the greatest promise for attracting volume from motor freight carriers. Approximately 34 percent of freight rail ton miles are in intermodal or automobile-carrying trains.
- *Mixed carload trains:* Mixed carload trains include a variety of railcar types, such as boxcars, flatcars, and tank cars. Mixed carload trains are routed through classification yards at locations such as Houston, Kansas City, and Chicago. Mixed carload trains account for 19 percent of freight rail ton miles.

### Reasons for Freight Rail's Expansion

A principal reason for freight rail's volume gains and slower market share losses after 1960 was the substantial reduction in passenger train volumes. Passenger trains generally operate at higher speeds than freight trains and are often granted priority. Railroad tracks, unlike highways, do not permit easy passing. Many rail lines were single track, which means passing could occur only at

<sup>6</sup> American Association of State Highway and Transportation Officials, *Freight-Rail Bottom Line Report*, <http://freight.transportation.org/doc/FreightRailReport.pdf>.

sidings, where one train stops and waits for the other to approach and pass. Even where there was double tracking, passing could occur only where there were crossover connections between the two tracks. This made it more difficult for railroads to provide time-competitive service, especially in the environment of more flexible trucking operations. Even with the relatively poor roadway systems of the 1950s, freight rail lost a huge share of its market to trucks.

Passenger train volumes declined substantially during the 1950s, and the rate quickened in the 1960s. By 1970, passenger train miles had fallen to one-quarter the 1950 level and were to fall a further two-thirds in the 1970s with the establishment of Amtrak. (See Figure 5.) As a result, freight train operating speeds were able to increase. The average operating speed of freight trains in 1950 was approximately 17 miles per hour. By 1970 it reached 20 miles per hour, and by 1990 it was nearly 24 miles per hour.

The removal of most passenger trains better positioned the railways to be competitive in moving freight and to some degree nullified the growing advantage of the trucking industry from expansion of the interstate highway system. Since 1970, freight rail has more than doubled its volumes. It seems likely that the large gains made in railroad freight volumes could not have occurred without the removal of most passenger train service.

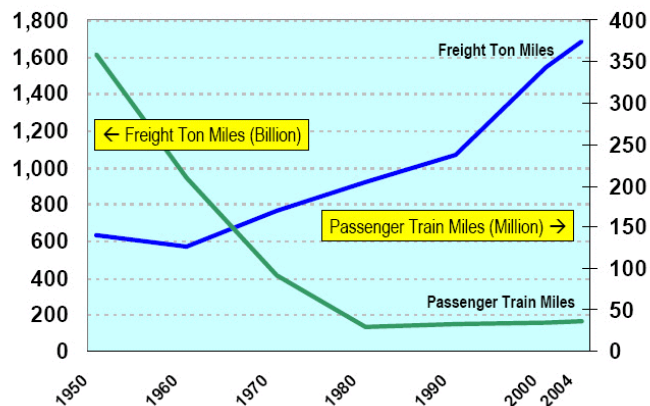
The second reason railroads have become more competitive is The Staggers Act, which deregulated railroads in 1980, granting substantial commercial discretion to railroads, which had previously been tightly regulated. Since deregulation, the annual ton-mile growth rate has increased one-third from the rate of the 1970s. Since deregulation, labor productivity has improved more than 400 percent and rail rates (the price charged to shippers) have declined 65 percent (inflation-adjusted).<sup>7</sup> The trucking industry, which was also deregulated, also became more productive, with rate reductions of 31 percent (inflation-adjusted) between 1980 and 2001.<sup>8</sup>

There are indications that freight railroads could experience market share gains in the years to come. American Trucking Associations projects that rail intermodal shipments (containers and truck trailers) will grow faster than truck and air freight between now and 2017.<sup>9</sup> However, there are serious concerns about the ability of the railroad industry to provide sufficient infrastructure to handle the growth.

**Figure 5**

**Freight Ton Miles & Passenger Trains**

UNITED STATES: 1950-2004



<sup>7</sup> Over the period from 1980 to 2004. Labor productivity measured by ton miles per employee.

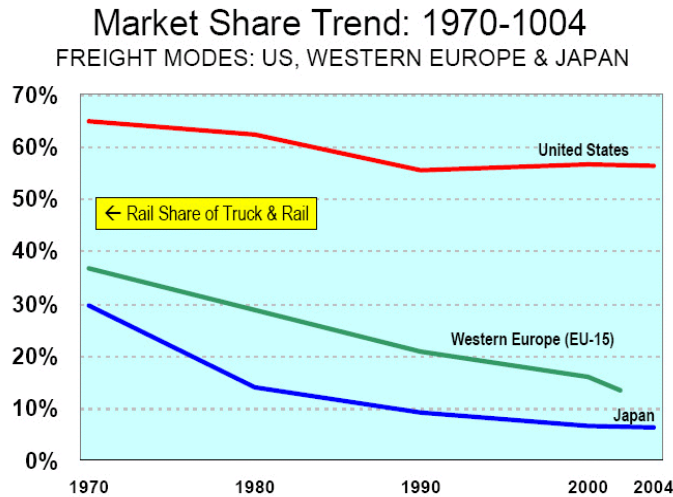
<sup>8</sup> Latest data available.

<sup>9</sup> American Trucking Associations, *U. S. Freight Transportation Forecast to 2017*, November 2006.

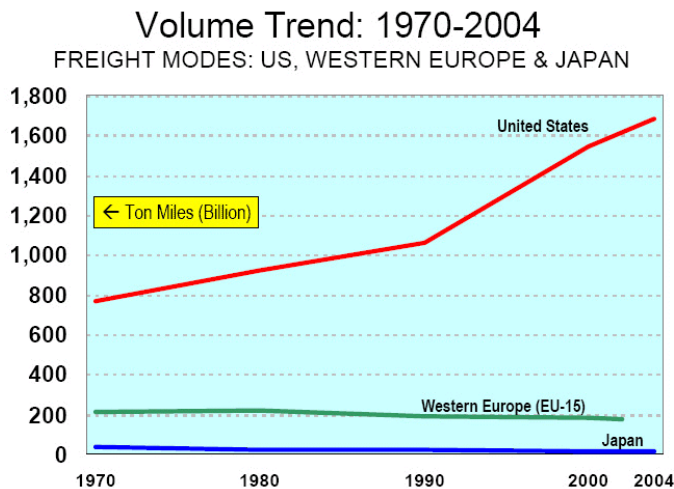
## International Comparisons

Freight rail systems in the U.S. perform dramatically differently than those in Europe and Japan. In both Western Europe<sup>10</sup> and Japan, freight rail has experienced substantial losses. Since 1970, there has been a more than 60 percent decline in freight rail market shares in Western Europe and a nearly 80 percent decline in Japan. (See Figure 6.) This compares to only a 15 percent loss in the United States. More significantly, actual U.S. freight rail volumes (ton-miles) have more than doubled since 1970, while volumes have declined in Western Europe and Japan (Figure 7).

**Figure 6**



**Figure 7**



The huge market share loss in Western Europe is even more significant because of the disadvantages faced by the trucking industry there. Fuel costs are far higher than in the United States and road tolls are more routine and much higher than in the United States.<sup>11</sup> Shorter distances and differences between national rail systems in Western Europe, on the other hand, tend to make trucking more competitive. Nonetheless, there is a consensus among European transport experts that freight rail should carry a larger share and that trucks should carry less. A number of programs, however, have failed to reverse freight rail's decline.

Japan has shorter average shipping distances than in Western Europe or the United States. However, Japan's linear geography contributes to longer-than-might-be-expected shipping distances. Railroad sea crossings (bridges and tunnels) make it possible for trains to operate the entire length of more than 1,000 miles of the main islands, from northern Hokkaido, through the main island of Honshu, to Shikoku and Kyushu. Moreover, Japan is particularly dependent upon imports and has some of the world's largest ports. Japan would thus appear to

<sup>10</sup> European Union before enlargement (EU-15).

<sup>11</sup> Jose Manuel Vassallo and Mark Fagan, "Nature Or Nurture: Why Do Railroads Carry Greater Freight Share In The United States Than In Europe?" Harvard University: John F. Kennedy School of Government, 2005. <http://ideas.repec.org/a/kap/transp/v34y2007i2p177-193.html>.

be an ideal market for intermodal freight operations, yet the freight rail market is small.

Perhaps the most significant difference between freight rail in the United States and other countries has nothing to do with freight. It is again the inherent incompatibility of passenger trains and freight trains. Rail networks in both Europe and Japan have far more intense passenger rail services, despite the fact that the majority of travel is by car. Approximately one-third of passenger travel in Japan is on rail, while 6 percent is by rail in Europe.<sup>12</sup> This compares to less than 1 percent in the United States.

The most significant impact of these differences is on the rail infrastructure itself. Japan has 70 times as much passenger traffic per mile on its rail system as the United States. Western Europe has 15 times as much traffic.<sup>13</sup> About one-fourth of the European traffic is on high-speed rail lines, which are largely operated on tracks that do not handle freight service. However, the rest of the system, on which freight trains operate, has a comparatively high volume of passenger service. Similarly, Japan has passenger-only high-speed rail rights-of-way, but high volumes of passenger service operate over other tracks that are shared with freight.

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No high-income nation has both a strong freight rail system and a strong passenger rail system. The only other high-income nations that have high freight rail market shares, Canada and Australia, have very low levels of passenger rail service, like the United States. Some lower-income nations, such as China and Russia, have substantial amounts of passenger rail service and retain high freight market shares. Automobile ownership in countries such as these, though rising, remains comparatively low. This means passenger rail systems have a larger “captive” market that will gradually be lost as reliable personal transportation becomes more available. This would follow the experience in the United States, Western Europe, Japan, and the rest of the high-income world.

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<sup>12</sup> The share of rail plus air passenger travel is nearly the same in the United States and Western Europe, at approximately 12 percent.

<sup>13</sup> Even these figures tend to understate the differences, because one-half of the U.S. passenger rail volume is on commuter rail systems in the Northeast that have comparatively little freight volume. New, passenger-only high-speed rail systems have been built in Japan and Western Europe, but conventional passenger train volumes remain high on routes used by freight.

### 3. Congestion and Bottlenecks

Freight rail ton miles are expected to increase 47 percent from 2000 to 2020. However, it will be challenging for the railroad industry to finance the expansion necessary to accommodate this growth. The capacity situation is even more dire for the trucking industry.

#### Freight Rail Congestion and Bottlenecks

A study of freight transportation bottlenecks produced for the United States Department of Transportation indicates freight rail's potential for adding volumes is limited and capacity appears to be severely strained, especially in the Chicago and Los Angeles areas and along both the East and West Coasts.<sup>14</sup> Freight train average operating speeds dropped to 21 miles per hour in 2000 from 24 miles per hour in 1990, suggesting the system is nearing capacity. An embargo on new business from the Powder River coal-producing region of Wyoming, imposed to ease capacity constraints, was only recently lifted.

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The worst capacity constraints are in the Northeast. Throughout most of the nation, the rail system is principally geared toward providing freight service, with some passenger service. However, in the nation's busiest and most heavily populated corridor, the opposite is true. From Washington to New York and Boston, there is a relatively

high level of passenger train service. On the principal route, owned by Amtrak, freight train operations are limited to late at night and early in the morning.

The Northeast is also an area of highway capacity constraints. The only significant cancellation of an intercity interstate highway project was between the two largest adjacent urban areas in the United States (or the world) – New York and Philadelphia. The result is a shortage of highway capacity in the corridor and considerable traffic congestion.

Freight rail is further constrained in the Northeast Corridor by a shortage of Hudson River-crossing capacity. The southern-most freight rail crossing of the Hudson River is at Albany, more than 100 miles north of New York City and the Atlantic Ocean. This effectively constrains much of New England rail access to other parts of the nation, especially down the eastern corridor (I-95 and I-81). Producers that might otherwise use rail in this congested part of the nation often have no choice but to ship by truck. The most congested truck freight corridors will continue to be in the Northeast Corridor as is indicated by the FHWA traffic congestion map for 2020. (See Figure 8.)

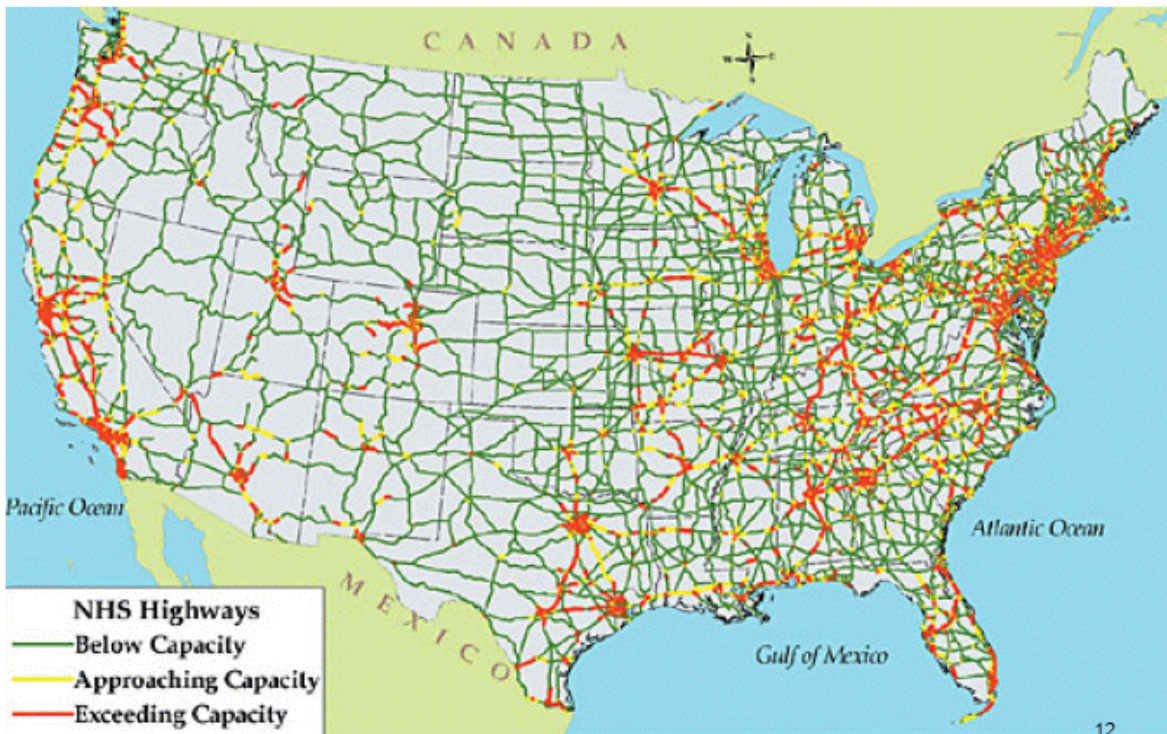
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<sup>14</sup> <http://www.fhwa.dot.gov/policy/otps/bottlenecks/>.



Figure 8

## Roadway Congestion: 2020 FEDERAL HIGHWAY ADMINISTRATION



### Trucking Congestion and Bottlenecks

Trucks already are impeded by serious traffic congestion problems in many urban areas and intense congestion at freight bottlenecks on the roadway system.<sup>15</sup> It is projected that motor freight volumes (ton-miles) will increase 58 percent between 2000 and 2020.<sup>16</sup> The Bureau of the Census projects national population growth over the period at nearly 20 percent, the equivalent of adding the population of the states of California and New York. It can be expected that automobile traffic will continue to grow at least in proportion to the population change.

Most population growth is likely to be in metropolitan areas, where traffic congestion is most pronounced.<sup>17</sup> In an environment of limited highway expansion, the greater volumes of truck and

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<sup>15</sup>See: [http://www.highways.org/pdfs/travel\\_study2005.pdf](http://www.highways.org/pdfs/travel_study2005.pdf) and <http://www.fhwa.dot.gov/policy/otps/bottlenecks/>.

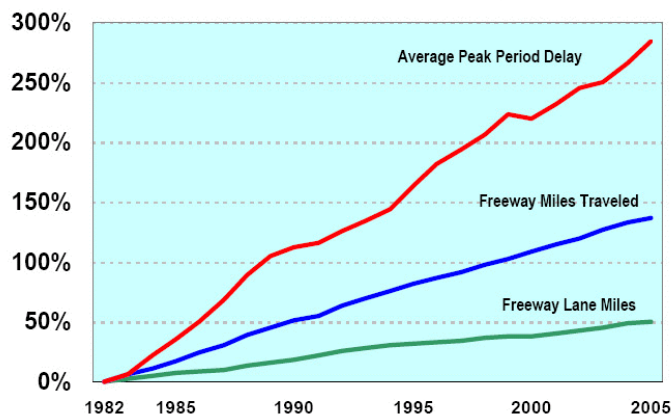
<sup>16</sup> American Association of State Highway and Transportation Officials.

<sup>17</sup> The Bureau of the Census estimates that between 2000 and 2006, 92.7 percent of the nation's population growth was in metropolitan areas.

automobile traffic will lead to worsening traffic congestion, which will seriously retard the reliability of trucking schedules.

Urban traffic congestion was kept under reasonable control in the early decades of the interstates. By the early 1980s, most of the interstate highway system was completed, and opposition was rising to new road construction. Plans to build short but significant segments of

**Figure 9**  
**Traffic & Road Capacity Trends**  
U.S. URBAN AREAS OVER 1,000,000



the system were abandoned, principally in urban areas, due to neighborhood concerns and out of a belief that mass transit would be preferable to roads. Major urban freeway segments were cancelled in Los Angeles, Chicago, Atlanta, Portland, Memphis, and elsewhere. These decisions were principally political and were not associated with detailed analyses of the longer-term traffic consequences. Through the “interstate transfer” program, funding was moved from urban freeways to mass transit. Many states did not significantly augment the interstate system with non-interstate urban freeways.<sup>18</sup>

Traffic congestion increased substantially as freeway expansion slowed. From 1983 to 2005, average peak-hour delays in the largest urban areas increased 285 percent as freeway lane miles were increased less than one-fifth as rapidly, at 50 percent.<sup>19</sup> (See Figure 9.) Texas Transportation Institute data indicate annual congestion costs rose from \$6 billion in 1982 to \$60 billion in 2003 (in 2003 dollars).<sup>20</sup>

There are indications that traffic congestion will worsen. An exhaustive analysis of traffic trends by the Reason Foundation projects peak-hour traffic congestion delays will rise 65 percent in urban areas of more than 3,000,000 population by 2030. The delay increases are projected to be even greater in urban areas with populations between 1,000,000 and 3,000,000, at 89 percent.<sup>21</sup> This projection may be optimistic with respect to urban areas that have adopted “compact city” or “smart growth” densification policies, which increase the intensity of traffic and traffic congestion.<sup>22</sup>

<sup>18</sup> Significant exceptions were California, Texas, and Minnesota.

<sup>19</sup> Delay data from Texas Transportation Institute, *2005 Annual Mobility Report*, <http://mobility.tamu.edu/ums/>, modeled to 2005.

<sup>20</sup> Urban areas with populations of more than 1,000,000.

<sup>21</sup> David T. Hartgen and M. Gregory Fields, *Building Roads to Reduce Traffic Congestion in America's Cities: How Much and at What Cost?* <http://www.reason.org/ps346/index.shtml>.

<sup>22</sup> <http://www.publicpurpose.com/ut-trafficintense.htm>.

## Fascination with Passenger Rail

Rising costs slowed the rate of highway construction. But even more significant was the emergence of a belief that highway demand could be readily transferred to mass transit, especially new urban rail systems.

The demand modeling that accompanied the new strategies predicted traffic congestion would become worse, rather than better, and traffic congestion in fact has increased in all urban areas, with and without new rail transit systems.<sup>23</sup> Virtually none of the major regional transportation plans established traffic congestion relief as a principal objective. For the most part, the economic dimensions of mobility, traffic congestion, and highway freight movement were largely ignored.

It seems unlikely that sufficient investment will be made to significantly slow the rate of traffic congestion increase, much less reduce traffic congestion. The Reason Foundation report reviewed long-range regional transportation plans in metropolitan areas with populations greater than 1,000,000 and found mass transit spending was projected to consume an average 48 percent of the

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combined highway and mass transit spending. At the same time, the average mass transit share of travel in these areas was less than 2 percent. On average, the regional plans provide more than 150 times as much financial support for each mass transit passenger mile as for each highway passenger mile.<sup>24</sup> The same study found there was more than sufficient funding in all but one of 43 regional plans to finance the highway improvements necessary to remove all severe traffic congestion, but only if the funds were used for highway expansion.<sup>25</sup>

None of these regional plans projects a material movement of highway traffic demand to mass transit. There is not even a theoretical basis for assuming that mass transit can, in any way, alleviate traffic congestion that results from trucks. Mass transit is most effective to the largest downtown areas (central business districts) in the largest urban areas. Mass transit's strength to these markets is in a dense radial system of routes that is not replicated to any other destination in the urban area. As a result, nearly one-half of the mass transit work trips in the 50 largest urban areas were to the downtown areas.<sup>26</sup>

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<sup>23</sup> Based upon analysis of data in the Texas Transportation Institute *2005 Annual Mobility Report*, <http://mobility.tamu.edu/ums/>.

<sup>24</sup> David T. Hartgen and M. Gregory Fields, *Building Roads to Reduce Traffic Congestion in America's Cities: How Much and at What Cost?* <http://www.reason.org/ps346/index.shtml>.

<sup>25</sup> Hartgen and Fields, *Ibid.*

<sup>26</sup> <http://www.demographia.com/db-cbd2000.pdf>, calculated from U.S. Census data for 2000.

However, these downtown areas have less than 10 percent of urban employment.<sup>27</sup> There is insufficient mass transit service to the other 90 percent of employment destinations and it would be financially prohibitive to provide the same dense radial service to other locations.<sup>28</sup> There simply is no prospect for materially reducing road congestion through mass transit improvements.

## Anti-Highway Transportation Planning Policies

Also contributing to the absence of new investment in highway capacity was a view, increasingly prevalent among urban planners, that highway expansion “induces” additional automobile use. The conclusion was that “you cannot build your way out of congestion.”

The belief that more roads simply encourage more driving proved to be false.

The belief that more roads simply encourage more driving proved to be false.<sup>29</sup> The underlying research on which the claim was based generally was roadway-specific, rather than covering entire corridors or urban areas. Thus, while the addition of a freeway lane, for example, would be

accompanied by an increase in traffic on that particular roadway, alternate routes would lose traffic volume. Federal Highway Administration research indicates a minor induced travel impact with respect to distance, but none with respect to travel time.<sup>30</sup>

Two regional cases illustrate that you can indeed “build your way out of congestion.” Phoenix has expanded its freeway system more over the past 20 years than any other major urban area. Nonetheless, automobile travel in Phoenix increased at less than the national average rate, demonstrating the virtual absence of a material induced traffic effect at the urban area level.<sup>31</sup> Major freeway expansions in Houston led to a significant reduction in traffic congestion between 1986 and the early 1990s. In 1986, Houston had the worst traffic congestion in the nation, according to the Texas Transportation Institute. By 1992, the average peak-hour travel delay had been reduced more than 40 percent.<sup>32</sup>

In short, traffic congestion has become much more intense because sufficient highway capacity has not been provided and regional planning bodies have failed to implement programs aimed at

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<sup>27</sup> While work trips are a declining share of overall urban travel, their predominant importance is the result of their peaking twice daily, which is the principal cause of recurring urban traffic congestion.

<sup>28</sup> See Wendell Cox, “The Illusion of Transit Choice,” *Veritas*, March 2002, <http://www.publicpurpose.com/illusion.pdf>.

<sup>29</sup> <http://www.fhwa.dot.gov/planning/itfaq.htm>.

<sup>30</sup> *FHWA Research on Induced Traffic: Little Effect*, <http://www.publicpurpose.com/hwy-induced.htm>.

<sup>31</sup> <http://www.publicpurpose.com/hwy-phx-induce.htm>, based upon Texas Transportation Institute data.

<sup>32</sup> Based upon change in Travel Time Index (<http://mobility.tamu.edu/ums/>).

containing traffic congestion. Planners in some urban areas, such as in Texas and Atlanta,<sup>33</sup> are beginning to adopt traffic congestion reduction objectives.

## 4. Social Costs and Benefits

With sufficient funding, the railroad industry could add the capacity it needs to handle much larger intermodal volumes. This would reduce congestion and bottlenecks on highways by reducing the need to use trucks on longer routes.<sup>34</sup> Commuters would benefit from shorter drive times, and there could even be environmental and other benefits.

In practice this would mean increasing the capacity of major rail lines by such means as double tracking and new sidings. Tunnel and overpass clearances could be increased, where necessary, so that “double stack” container trains could operate, effectively doubling capacity. Computerized positive train control systems could be installed, which would allow more efficient use of the rail right-of-way by safely permitting more trains to operate. Trunk route bypasses could be provided around urban areas, which would increase operating speeds. Inland ports might be added, where truck shipments would be combined into rail shipments for greater efficiency.

The simple answer is that railroads don't make more money by solving congestion on highways, so they have no incentive to expand their intermodal services rather than, say, their bulk services, which may be more profitable.

So why isn't this happening? The answer is both simple and complex. The simple answer is that railroads don't make more money by reducing congestion on highways, so they have no incentive to expand their intermodal services rather than, say, their bulk services, which may be more profitable. Private railroad companies can and should be expected to pursue their own financial objectives, as is required of any investor-owned business, but they have neither the resources nor the responsibility to address public policy objectives.

Thus, in the course of market activities, it cannot be expected that railroad investments will be optimally geared toward reducing traffic congestion. That is as it should be. The objective of reducing traffic congestion is not a market objective of railroads, but rather a public responsibility.<sup>35</sup>

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<sup>33</sup> See <http://www.texasgbc.org/Reports3.htm>.

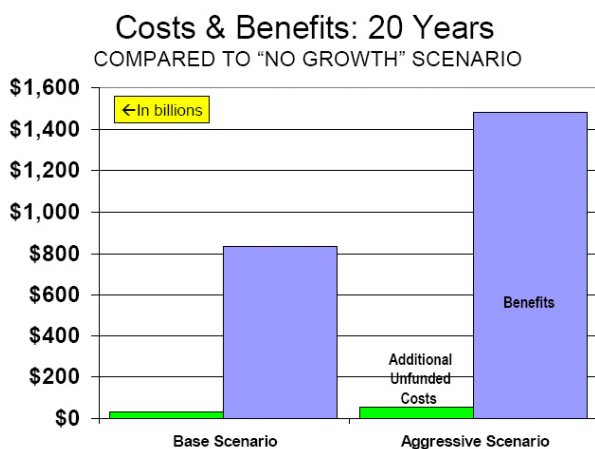
<sup>34</sup> See, for example, Joseph Bryan, Glen Weisbrod, and Carl D. Martland, *Assessing Rail Freight Solutions to Roadway Congestion: Final Report*, October 2006, [http://www.trb.org/NotesDocs/NCHRP08-42\\_FR\\_Rev10-06.pdf](http://www.trb.org/NotesDocs/NCHRP08-42_FR_Rev10-06.pdf).

<sup>35</sup> It is theoretically possible for the road system to be provided by the private sector. However, in the United States and virtually everywhere else in the world, roads are principally the responsibility of the public sector and where there is private provision of roads, it is virtually always under the regulatory authority of government. Whether this is appropriate is beyond the scope of this report.

The American Association of State Highway and Transportation Officials (AASHTO)<sup>36</sup> says freight railroads are unlikely to be able to fund necessary infrastructure improvements:

- Under the “no growth” scenario, railroads will have a \$23 billion deficit relative to the capital required simply to maintain present volumes.
- Under the “base” scenario, railroads will have a \$53 billion deficit relative to what would be required to maintain present volumes.
- Under the “aggressive” scenario, railroads would have an \$83 billion deficit relative to the capital requirements to maintain present volumes.

**Figure 10**



The AASHTO report sums up the situation of the freight railroads as follows: “The rail industry today is stable, productive, and competitive, with enough business and profit to operate but not to replenish its infrastructure quickly or grow rapidly.”<sup>37</sup>

AASHTO projects significant benefits could accrue from higher levels of freight rail infrastructure investment. (See Figure 10.) The \$30 billion in additional investment required between the “No Growth” and “Base Case” scenarios is projected to save \$839 billion in costs to highway users and shippers and in highway investment costs, a benefit-to-cost

ratio of more than 25 to 1. Another \$30 billion in investment would yield a further \$653 billion in benefits, for a benefit-to-cost ratio of 22 to 1 in the “Aggressive” case. As large as these benefits are, they do not include the even greater benefits of stronger economic growth made possible by lower shipping prices and less highway congestion.

## Commercial Mobility and the Economy

Traffic congestion exacts a considerable economic toll on the trucking industry and shippers. The slower travel speeds typical of congested periods increase operating costs, which are reflected in higher costs. The slower and less evenly flowing traffic reduces fuel efficiency, because vehicles tend to operate more efficiently at more constant highway speeds. The slower and less evenly flowing traffic produces more intense emissions, subjecting local residents to higher concentrations of pollution.

<sup>36</sup> AASHTO, *Transportation: Invest in America, Freight-Rail Bottom Line Report*, n.d., <http://freight.transportation.org/doc/FreightRailReport.pdf>. AASHTO is the professional organization of state transportation departments.

<sup>37</sup> *Ibid.*, p. 3.

There are broader impacts, as well. Regional economies can be hurt by traffic congestion. Portland, Oregon has pursued for two decades policies that discourage highway expansion and rely on mass transit expansion. During that time, Portland's average traffic delay increased well above average, as traffic congestion has risen substantially. Businesses are now avoiding Portland for expansion or relocation, according to a report co-sponsored by Metro, the land-use and transportation planning agency. The report calls for highway expansions.<sup>38</sup>

A similar situation has developed in Vancouver, British Columbia, where anti-highway policies have led to intense traffic congestion. A concern about future competitiveness has led a prestigious business alliance to call for significant highway expansion to improve Vancouver's competitiveness.<sup>39</sup>

The Texas Governor's Business Council report estimated that the economic benefits from reducing congestion over the next 25 years in Texas urban areas would be eight times the cost of roadway expansion.<sup>40</sup>

Since traffic congestion reduces reliability, it makes businesses less competitive by raising costs.

Efficient freight movement is important to competitiveness and economic growth. The United States is in an intense international competition for jobs and production. "Just in time" delivery and reliable delivery schedules are essential to maintaining economic competitiveness. Since traffic congestion reduces reliability, it makes businesses less competitive by raising costs. This can occur between regions or between nations. Outsourcing of production to offshore locations becomes more attractive as the costs of transportation in the United States increase. The long-run competitiveness of the United States requires a freight system that is efficient and reliable.

China, one of the most important international competitors, has built approximately 25,000 miles of interstate standard highway throughout the nation.<sup>41</sup> Plans call for 40,000 miles by 2010 and 53,000 miles by 2020. Today, the total freeway mileage in the United States is nearly 60,000, only slightly more than the ultimate plan for China. Moreover, China is also making substantial additions to its freight rail system.

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<sup>38</sup> Economic Development Research Group, *The Cost of Congestion to the Economy of the Portland Region*, December 5, 2005. [http://www.metro-region.org/library\\_docs/trans/coc\\_exec\\_summary\\_final\\_4pg.pdf](http://www.metro-region.org/library_docs/trans/coc_exec_summary_final_4pg.pdf). See also Economic Development Research Group, *The Cost of Highway Limitations and Traffic Delay to Oregon's Economy*, [www.portlandalliance.com/pdf/state\\_trans\\_study.pdf](http://www.portlandalliance.com/pdf/state_trans_study.pdf).

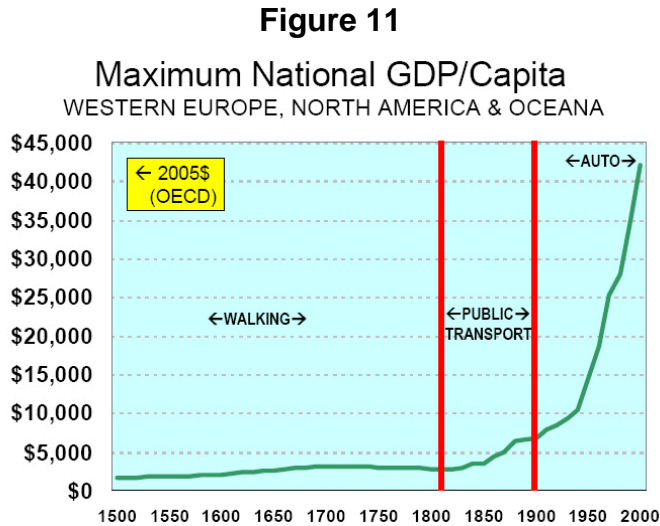
<sup>39</sup> Delcan and Economic Development Research Group, *Economic Impact Analysis of Investment in a Major Commercial Transportation System for the Greater Vancouver Region*, July 2003. [http://www.gvgc.org/pdfs/SW1040\\_FinalReport\\_Revised2.pdf](http://www.gvgc.org/pdfs/SW1040_FinalReport_Revised2.pdf).

<sup>40</sup> Texas Governor's Business Council, *Shaping the Competitive Advantage of Texas Metropolitan Regions*, 2007. <http://www.texasgbc.org/Reports3.htm>.

<sup>41</sup> National Bureau of Statistics of China, *China Statistical Yearbook 2006*. <http://www.stats.gov.cn/tjsj/ndsj/2006/indexeh.htm> and <http://www.publicpurpose.com/hwy-chinamotorwaysystem.pdf>.

## Household Mobility and the Economy

There are also important benefits from reducing traffic congestion and thereby improving mobility at the household level. Historical estimates of gross domestic product for member nations of the Organization for Economic Cooperation and Development are strongly related to increases in motorized mobility. (See Figure 11.)<sup>42</sup>



Prud'homme and Lee find that as the percentage of jobs that can be reached in a particular period of time increases, urban economic production (gross regional product) improves. A 10 percent improvement in employment access leads to an increase in economic output of 1.8 percent.<sup>43</sup>

My own urban area research found that urban travel is strongly associated with higher urban income levels.<sup>44</sup> (See Figure 12 on the following page.) This econometric analysis of data from 99 urban areas indicates that average gross

product per capita is strongly related to at least two factors: the extent of economic freedom, as measured by The Heritage Foundation Index of Economic Freedom, and the amount of travel. This research finds much weaker relationships between higher incomes and other factors, such as mass transit market share, mass transit service intensity, and size of urban area (population).

It is becoming increasingly clear that providing mobility throughout the urban area to expand low-income employment opportunities requires the greater mobility cars provide. Raphael and Stoll, at the University of California, estimate that if automobiles were available to all African-American households, the gap between non-Hispanic-white and African-American unemployment would be reduced by nearly one-half,<sup>45</sup> with the attendant economic gains.

A Brookings Institution report similarly concluded that improved mobility was important to the

<sup>42</sup> Uses highest GDP per capita (constant dollar) for each period. Data from Angus Maddison, *The World Economy: Historical Statistics*, Paris: Organization for Economic Cooperation and Development, 2003.

<sup>43</sup> Remy Prud'homme and Chang-Woon Lee, "Size, Sprawl, Speed, and the Efficiency of Cities," Paris, France: Observatoire de l'Économie et des Institutions Locales, 1998.

<sup>44</sup> Wendell Cox, "Public Transport Performance Indicators: Implications for Emerging Urban Areas," presentation to the CODATU X Congress, Bucharest, Romania, May 2004. <http://www.publicpurpose.com/c11-icators.pdf>.

<sup>45</sup> Steven Raphael and Michael Stoll, *Can Boosting Minority Car-Ownership Rates Narrow Inter-Racial Employment Gaps?* National Science Foundation, June 2000.

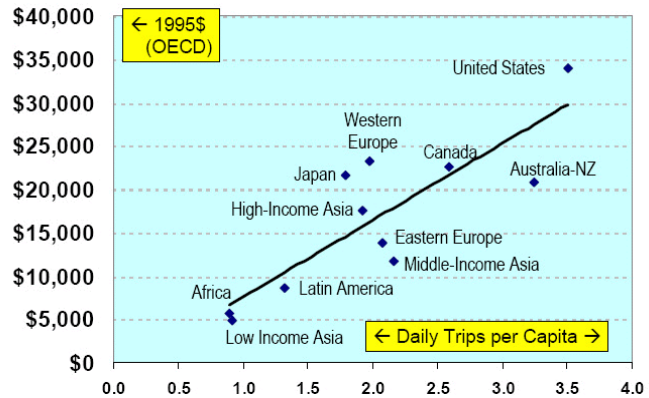


economic advance of low-income households: “Given the strong connection between cars and employment outcomes, auto ownership programs may be one of the more promising options and one worthy of expansion.”<sup>46</sup>

Similarly, a study by the Progressive Policy Institute, a research organization affiliated with the Democratic Leadership Council (of the Democratic Party), noted:

In most cases, the shortest distance between a poor person and a job is along a line driven in a car. Prosperity in America has always been strongly related to mobility and poor people work hard for access to opportunities. For both the rural and inner-city poor, access means being able to reach the prosperous suburbs of our booming metropolitan economies, and mobility means having the private automobile necessary for the trip. The most important response to the policy challenge of job access for those leaving welfare is the continued and expanded use of cars by low-income workers.<sup>47</sup>

**Figure 12**  
Daily Motorized Trips & GDP/Capita  
1995 DATA



## Conclusion

Freight rail’s market performance and market share are of importance to more than the rail industry, rail shippers, and rail stockholders. The general public has a significant interest as well. Consumers will face higher prices if freight rail volumes are diverted to trucks. Rail’s inability to grow has serious negative implications for congestion on the nation’s highway system. Trucking companies and automobile drivers could face greater travel times and greater costs. As outlined above, research indicates a strong association between better mobility – less traffic congestion – and productivity, for businesses and people.

The issue, then, is not simply the role of railroads in the market. There is a strong public policy element, precipitated by the potential positive impacts of a more reliable freight transportation system and less congestion on highways. The driving issues are economic growth, job creation, business investment, poverty reduction, and international competitiveness, all of which suffer in an environment of less reliable freight operations and more intense traffic congestion.

<sup>46</sup> Evelyn Blumenberg and Margy Waller, “The Long Journey to Work: A Federal Transportation Policy for Working Families,” Center for Urban and Metropolitan Policy, Brookings Institution, July 2003, p. 2.

<sup>47</sup> Margy Waller and Mark Alan Hughes, “Working Far from Home: Transportation and Welfare Reform in the Ten Big States,” Progressive Policy Institute, August 1, 1999.

## 5. Barriers to Investment

To be best positioned to gain freight share, railroads will need access to a substantially expanded infrastructure so they can provide rapid, reliable service that successfully competes with trucks. The freight railroad industry, however, faces serious barriers to raising the funds needed to build new infrastructure.

Federal law requires freight railroads to grant Amtrak passenger trains priority over freight trains throughout their systems.

The U.S. freight rail industry is a private-sector business and finances its own operations and capital expenditures from customer revenues. It is particularly capital-intensive, with freight rail companies on average investing nearly 18 percent of revenues in capital, nearly five times the rate

of manufacturing industries.<sup>48</sup> During 2007, the railroad industry is expected to make \$9.4 billion in capital investments.<sup>49</sup>

Railroads are not earning enough to cover the cost of their capital. According to the Association of American Railroads, railroads are under-investing an average of \$2 billion annually.<sup>50</sup> This under-investment is due to a number of reasons explained here, including limits on the discretion of freight railroads to plan and operate their systems imposed by federal requirements to handle passenger trains, the absence in some cases of public-private planning for infrastructure needs, and the way rail's principal competitor, trucks, finances its infrastructure.

### Passenger Trains

Freight trains, like trucks, operate on shared rights-of-way. However, while the shared right-of-way works to the advantage of trucks, it works to the disadvantage of trains.

Federal law requires freight railroads to grant Amtrak passenger trains priority over freight trains throughout their systems. As a result, along most of the mileage used by Amtrak, freight trains must routinely be stopped on sidings to allow passenger trains to pass. As noted above, there is an inherent conflict between passenger and freight operations, with increases in passenger rail making freight rail operations less competitive and reliable. The situation is far better than before Amtrak, when passenger train volumes were more significant, but passenger trains still interfere with freight rail performance.

Federal law also limits charges for Amtrak trains to incremental, rather than fully allocated costs.

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<sup>48</sup> AASHTO, *Freight Rail Bottom-Line Report*, p. 41.

<sup>49</sup> Statement by Edward R. Hamburger, president and CEO of the Association of American Railroads, to the Surface Transportation Board, April 16, 2007. [http://www.bnsf.com/employees/communications/bnsf\\_today/2007/04/2007-04-16-g.html](http://www.bnsf.com/employees/communications/bnsf_today/2007/04/2007-04-16-g.html).

<sup>50</sup> AASHTO, *Freight Rail Bottom-Line Report*, p. 36.

Thus, freight rail loses commercial revenues in two ways – by being forced to subsidize passenger trains (by charging less than fully allocated costs for access) – and by making freight rail service less reliable, which limits the potential for wooing shippers from trucks.

Passenger rail priorities interfere with the efficient operation of freight services in the Chicago area due principally to the high volume of commuter and Amtrak trains. A similar constraint exists between Los Angeles and San Diego, where much of the rail capacity is consumed by passenger trains (commuter trains and Amtrak), limiting the potential for coastal freight rail service expansion to San Diego and the large volume of international freight traffic from Mexico. Since freight rail is a national system, constraints introduced on one corridor can have negative impacts on speed and reliability in other corridors. Any expansion of passenger rail service that would anticipate using freight infrastructure would likely erode the volumes and market share of freight rail.

As in the case of urban mobility, public policies subsidizing intercity passenger rail seek an objective that cannot be reached.

There are various reasons for this set of public policies. There is a hope that giving priority to passenger service would divert enough riders from cars to reduce traffic congestion. There are envious comparisons to nations (such as Japan and France) with high-speed rail systems, and not unimportantly, a nostalgia that seeks a return to the days of passenger rail dominance. As a result, there have been a number of federal and state proposals to increase passenger rail service, many of which would require use of freight rail infrastructure.

Some proposals, such as the “Midwest High Speed Rail Initiative,” are high-speed only in name, envisioning top operating speeds of 110 miles per hour, little more than one-half as fast as the world-class high-speed rail systems. Door-to-door travel would generally be slower than by car. Even so, such service would be somewhat faster than current passenger train service, enough perhaps to attract more passengers and significantly reduce the capability of freight rail to provide reliable service on some corridors.

As noted above, the world-class high-speed rail systems have been developed with recognition of the inherent incompatibility of freight and high-speed passenger rail. New dedicated passenger rail rights-of-way have been built, except for the final approach to the most important stations (such as Tokyo Station and stations on the periphery of inner Paris).

Any hope that improved passenger rail service would materially reduce traffic congestion must be tempered by the fact that the preponderance of traffic congestion is within urban areas. Passenger rail provides services between urban areas, where there is generally little traffic congestion. No intercity mode of transport – rail, air, or otherwise – can play a major role in reducing traffic congestion within urban areas. As in the case of urban mobility, public policies subsidizing intercity passenger rail seek an objective that cannot be reached.

## Roads versus Rails

Freight rail's principal competitor is the trucking industry. By virtue of its ubiquitous use of roadways, the trucking industry has considerable advantages in flexibility over railroads, although as noted above, intermodal operations represent an opportunity for the two industries to work together to effectively maintain and improve the reliability of freight operations.

Railroads are particularly capital-intensive because of the costs of building and maintaining their network of rail infrastructure.

There are substantial differences in capital finance between the two industries. Railroads are particularly capital-intensive because of the costs of building and maintaining their network of rail infrastructure. The infrastructure used by trucks is also expensive, but it is shared with cars. Trucks

pay for their usage of this infrastructure through user fees, principally taxes on diesel fuel.

America built the world's most comprehensive high-capacity roadway network at comparatively low cost. For example, the interstate highway system, more than 42,000 miles, was delivered for approximately \$423 billion (in 2006 dollars),<sup>51</sup> an amount similar to a single year's United States defense spending. The interstate system was not built with general taxes and as a result imposed virtually no burden on taxpayers. The system was largely funded from a four cent fee per gallon on motor fuels and matching state motor fuel user fees. Thus, highway users paid for building the interstate highway system in proportion to their use.<sup>52</sup>

A four cent user fee was in effect from the commencement of the interstate highway program in 1956 until 1982. Since that time the user fee per gallon has been increased to 18.4 cents for gasoline and 24.4 cents for diesel fuel. This dramatic increase in user fees has not been associated with a material expansion of roadways.

This method of infrastructure finance works to the advantage of the trucking industry relative to the railroad industry in three ways. First, sharing roads and rights-of-way with cars gives trucks a major advantage over trains. Only in rare cases do trucking companies have to buy new rights of way or build new roads to reach their customers. In nearly all cases, the roads already exist or will be built by public entities with truck access in mind. If, like railroads, the trucking industry were required to build its own network of truck-only roads, its infrastructure costs would be much higher than the cost of using the existing shared system.

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<sup>51</sup> During construction of the interstate highway system, costs exceeded budgets by 37 percent. However, all but 10 percent was due to new requirements or additions to the system after the national system had been approved. It was a substantial accomplishment to complete the system over a 25-year period with such a small cost overrun. See <http://www.publicpurpose.com/freeway1.htm>. This is at considerable odds with many large transportation infrastructure projects in both North America and Western Europe, as reported by Bent Flyvbjerg, *Megaprojects and Risk: An Anatomy of Ambition*, Cambridge, UK: Cambridge University Press, 2003.

<sup>52</sup> It can be argued that there might have been more efficient pricing mechanisms. Nonetheless, the interstate highway system was paid for by users based upon their extent of use.

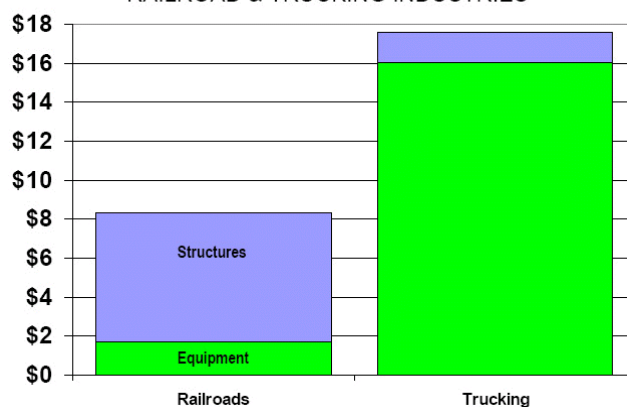
Second, the federal highway program and most state highway programs operate without debt. User fees finance highway capital and operating costs on a “pay as you go basis” with no interest component. Railroads, on the other hand, finance their infrastructure costs with debt. If, for example, a railroad uses long-term bonds to finance its infrastructure, interest payments cause its costs to more than double.

Third, trucks pay slightly less (4 percent) than their fair share of highway capital and operating expenses at the federal level.<sup>53</sup> This amounts to a small capital cross-subsidy from other highway users. No comprehensive data are available with respect to trucking industry user fees as a share of their allocable state or local highway costs. Railroads, by contrast, have no source of funding for infrastructure except for the revenues they earn from customers.

Combined, these differences have an enormous impact on the economics of the two freight delivery industries. In 2005, approximately 80 percent of railroad capital expenditures were for structures and 20 percent for equipment, such as locomotives and rolling stock. In the trucking industry, only 9 percent of capital expenditures were for structures and 91 percent for equipment, such as trucks and trailers. (See Figure 13.) If the trucking industry’s highway user fees are considered a capital expenditure (which is appropriate for this analysis), capital expenditures for structures rise to 52 percent, still well below the 80 percent reported by the railroad industry.

**Figure 13**

**Capital Expenditures: 2005**  
RAILROAD & TRUCKING INDUSTRIES



It is beyond the scope of this report to precisely estimate the capital cost differences between the railroad and trucking industries. However, it appears there is not competitive neutrality between the two, with the trucking industry having significant capital funding advantages.

## 6. Principles for Reform

A rational plan to solve the freight rail bottleneck must start with recognition that freight railroads are effective movers of large volumes of freight, especially over longer distances. They have the potential to provide much more freight movement than they currently do, especially intermodal shipments that can improve shipping reliability by avoiding the most congested urban highways.

<sup>53</sup> <http://www.publicpurpose.com/ut-hwycostallocaloca.pdf>. Federal Highway Administration data indicate that large trucks pay only 21 percent of their attributable federal highway costs. However, these figures include mass transit spending, which is not a highway expenditure (despite being called so in federal law). The figure cited has been adjusted to remove the costs of mass transit.

The second premise must be that the expansion of freight railroads is limited by internally generated revenues that are insufficient to finance substantial diversion of traffic from trucks to intermodal trains. Their operating environment is subject to public policy interference, through passenger train requirements, that can make freight rail service less reliable.

A rational plan to solve the freight rail bottleneck must start with recognition that freight railroads are effective movers of large volumes of freight, especially over longer distances.

The public policy task is to identify mechanisms by which railroads can achieve returns on investment strong enough to attract new capital, while also addressing the public objective of reducing future traffic congestion and thus facilitating greater economic growth. A reform program based upon the following four principles would have the greatest potential for achieving these objectives.

### **Principle 1: Rely on market forces**

There is no longer any question but that a free market, in which companies and people are allowed to make their own choices, achieves better results than any other alternative.<sup>54</sup> Markets direct capital to where it is needed most, reward efficiency, and facilitate change and innovation. The principal strength of the U.S. freight rail market is that it is a commercial business. As such, the industry must succeed or fail by satisfying its customers in a competitive environment.

Railroads have enjoyed considerable success, especially since deregulation, with freight rail volumes increasing at least 80 percent. In other nations without a strong tradition of commercial operation (and even subsidies to freight rail), rail volumes have declined. The potential for reaching both the market objective and the public objective is grounded in commercial operation. The most fundamental principle is that railroads must be allowed to operate as private businesses, with no more regulatory control than is required by the public purpose.

### **Principle 2: Reduce existing barriers to new investment**

The first option of any reform plan should be to reduce existing government interventions that interfere with the natural processes that would otherwise bring market and public objectives into balance. It is often the case that what appears to be “market failure” is in fact “government failure,” the failure of past government programs to achieve what their supporters envisioned.<sup>55</sup>

New interventions are justified only to promote modal neutrality or to produce desired outcomes

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<sup>54</sup> See Daniel Yergin and Joseph Stanislaw, *The Commanding Heights: The Battle Between Government and the Marketplace that is Remaking the Modern World*, Simon & Schuster, 1998.

<sup>55</sup> See Tyler Cowen, ed., *Public Goods and Market Failures: A Critical Examination*, Transaction Publishers 1991; Tyler Cowen and Eric Crampton, *Market Failure or Success: The New Debate*, Edward Elgar, 2004.

that cannot be expected to occur solely within the competitive market. Where a legitimate purpose for government involvement is identified, programs should be designed to preserve the commercial integrity and independence of railroads. This requires that railroads continue to be driven by customer needs, rather than political expediency.

### **Principle 3: Limit political interference**

Reform plans often look good on paper, but become far less attractive as they are transformed by the give-and-take of politics into legislation, and finally become unrecognizable when implemented by government agencies.<sup>56</sup> The history of transportation policy is rife with examples.

Congress established a program to encourage passenger rail service that was followed by a substantial market share drop, little ridership, and huge additional costs. Since 1970, mass transit's urban travel market share has declined nearly 60 percent, while passenger use has increased only 15 percent and annual expenditures have risen 280 percent.<sup>57</sup> Mass transit programs have become a major vehicle for congressional earmarks (pork-barrel projects).

The rise in mass transit expenditures per passenger mile has been greater than the unit cost increase of medical care, yet the former cost escalation is seldom remarked upon while the latter is often declaimed as a crisis.

The rise in mass transit expenditures per passenger mile has been greater than the unit cost increase of medical care, yet the former cost escalation is seldom remarked upon while the latter is often declaimed as a crisis. Much of the cost escalation in mass transit can be attributed to extensive regulations (especially with respect to labor), combined with special interest advocacy, which has prevented competitive reforms that could have materially improved performance.

The federal highway program is also showing the effects of political interference. The program operated with little political interference until the early 1980s. However, since that time, Congress has enacted programs to divert substantial amounts of user fees to other purposes (principally mass transit), engaged in rampant earmarking, and established regional planning conditions that have made provision of sufficient capacity difficult. It is not likely to be possible to enable freight railroads to contribute substantially more to freight reliability if public strategies are not removed from the day-to-day political process of Washington and the influence of special interests.

While political realists may be inclined to doubt whether any government program can be made resistant to political interference, there is in fact a literature on how it can be done. Much of it

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<sup>56</sup> See Andrei Schliefer and Robert W. Vishny, *The Grabbing Hand: Government Pathologies and Their Cures*, Harvard University Press, 1998.

<sup>57</sup> See <http://www.publicpurpose.com/ut-usptshare45.htm> and <http://www.publicpurpose.com/ut-value2004.htm>.

addresses privatization – the process of moving the production of goods and services from the public sector to the private sector, while leaving some decisions concerning funding and delivery in the hands of the public sector.<sup>58</sup> The current author has also contributed to this literature, addressing transportation specifically.<sup>59</sup>

#### **Principle 4: Consistency with both objectives**

The fourth and final principle is that acceptable reforms should be consistent with the twin objectives of ensuring that the railroad industry can make sufficient infrastructure investments to maintain its present market share and then go beyond that level to make infrastructure investments that produce social benefits associated with reduced congestion on roads.

While political realists may be inclined to doubt whether any government program can be made resistant to political interference, there is in fact a literature on how it can be done.

The promise of social benefits arising from a shift of freight traffic from highways to rails has not received the attention it deserves in the national transportation debate, and consequently is often not included in reform plans. Worse, reform plans contain provisions that undercut and contradict the objectives of reform.

Much of the emerging traffic congestion crisis can be attributed to transportation policies at the metropolitan level that commit disproportionate amounts of funding to mass transit in hopes of materially reducing automobile use. Yet, none of these plans projects a material reduction in automobile use, demonstrating that not even the framers of the plans anticipate achievement of their objectives. Similarly, states often seek to expand Amtrak or passenger rail services to reduce traffic congestion. These initiatives are simply irrational because they virtually never project a material reduction of traffic and thus cannot achieve their objectives.

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Armed with clear objectives and four principles with which to evaluate reform plans, we are now prepared to evaluate reform proposals that have been set forth by some of the interest groups that are driving the debate over freight rail policy.

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<sup>58</sup> See E.S. Savas, *Privatization and Public-Private Partnerships*, Chatham House Publishers, 2000; William D. Eggers and John O’Leary, *Revolution at the Roots: Making Our Government Smaller, Better, and Closer to Home*, Free Press, 1995; General Accounting Office, *Privatization: Lessons Learned by State and Local Governments*, 1997.

<sup>59</sup> Wendell Cox, “Competitive Tendering of Public Transport,” presentation to the Urban Road and Public Transport Symposium, Centre Jacques Cartier, Montreal, 2004, <http://www.publicpurpose.com/ut-ct-mon2004.pdf>.



## 7. Evaluation of Reform Proposals

Currently, there are no specific railroad reform plans that would address both the market and public objectives presented above. AASHTO says it will be necessary to use public resources to ensure that the freight rail system is able to accommodate the growth that is expected and to reduce traffic congestion by attracting business from trucks. However, AASHTO does not offer a specific plan for achieving this objective.

A proposal sponsored by the Association of American Railroads, recently introduced in Congress, would better position railroads for meeting the market objective through the use of investment tax credits and accelerated depreciation allowances.

Currently, there are no specific railroad reform plans that would address both the market and public objectives presented above.

There are two additional rail reform proposals, also introduced in Congress. One is sponsored by Consumers United for Rail Equity and the other by the Alliance for Rail Competitiveness. These two proposals would implement regulatory changes that do not address the present issues.

Most transportation funding reform plans use a combination of 11 techniques to improve the ability of freight railroads to handle additional traffic. Each measure can be evaluated in relation to the reform principles set forth in Section 6. Table 1 summarizes the result of this evaluation.

	<b>1 Relies Principally on Markets</b>	<b>2 Reduces Barriers to Investment</b>	<b>3 Limits Political Interference</b>	<b>4 Consistent with Objectives</b>
1. Enhance commercial revenues	Yes	Yes	Yes	Yes
2. Investment tax credits	Yes	Yes	Yes	Yes
3. Accelerated depreciation allowances	Yes	Yes	Yes	Yes
4. Tax-exempt bonds	Yes	Yes	Yes	Yes
5. Public-private partnerships	Yes	Yes	Yes	Yes
6. Government loan guarantees	Yes	Yes	No	Yes
7. Railroad Trust Fund	No	No	No	No
8. Government capital grants	No	No	No	No
9. Operating and capital subsidies	No	No	No	No
10. Passenger and freight assistance	No	No	No	No
11. Government ownership of infrastructure	No	No	No	No

Yes = consistent with principle

No = not consistent with principle

## 1. Enhance Commercial Revenues

Commercial revenues are the core of any private enterprise. Enhancing commercial revenue is the best way to allow market processes to direct the right amount of capital to the freight rail industry while minimizing interference by politics. It doesn't require politicians to "pick winners," and it doesn't require adding new tax incentives and subsidies to a room already crowded with this kind of furniture. Commercial revenues should fund the most important infrastructure investments (at least from a business perspective) in any reform plan.

Commercial revenues can be enhanced by changing current public policies, in particular those favoring passenger rail over freight rail, that make freight rail less competitive and reliable. Even with these changes, however, the market and commercial revenue positions of railroads probably would not allow them to raise the funding needed to finance the significantly greater infrastructure required to achieve the second, public, objective.

This plan passes all four tests, though we doubt it will enable us to achieve the public objective of expanding freight rail capacity enough to divert significant traffic from highways.

## 2. Investment Tax Credits

Investment tax credits allow a proportion of new capital investment to be used to reduce a company's tax bill. Tax credits are used by national, state, and local governments to encourage investment in a wide range of activities, including energy conservation, affordable housing, and scientific research.

Investment tax credits would make it possible for railroads to generate more infrastructure investment from their own revenues, avoiding the need for public subsidies.

Investment tax credits would make it possible for railroads to generate more infrastructure investment from their own revenues, avoiding the need for public subsidies. They reduce the amount of taxes paid by the freight rail industry, so in that sense they represent a return to market-based processes. Another advantage is that they are facilitative, rather

than prescriptive. Investment tax credits would not involve government choosing what investments to make and would keep government out of the management of railroads, which would remain investor-controlled.

Investment tax credits are not without their flaws and critics. They contribute to a tax code that is already riddled with exemptions and loopholes, making it expensive to enforce and causing distorted investment decisions. Tax credits are subject to change from year to year, making investors leery of relying on them to justify long-term investments.<sup>60</sup>

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<sup>60</sup> For a discussion of the potential perverse incentives of investment tax credits and accelerated depreciation allowances, see Alex L. Rosean and Patrick L. Anderson, *The Impact of the Freight Rail Infrastructure Capacity Act of 2006*, report commissioned by Citizens for Rail Safety, 2007. <http://www.citizensforrailsafety.org/whitepapers.php?id=16>.

Nevertheless, investment tax credits are consistent with all four of our reform principles. We view them as less invasive than other reform options.

### 3. Accelerated Depreciation Allowances

Depreciation is an accounting term reporting the decline in the value of capital assets over time due to wear and obsolescence. Companies are allowed to deduct from their taxable income the depreciation costs of their assets. Straight-line depreciation is calculated by dividing the cost of the asset equally over each year of its useful life, while accelerated depreciation means reporting a greater loss of value in the early years of the asset's life and less in later years. Accelerated depreciation permits larger tax deductions in the early years, thereby encouraging new investment and the retirement of old assets.

Allowing railroad companies to accelerate the depreciation of new assets would encourage more investment.

Allowing railroad companies to accelerate the depreciation of new assets would encourage more investment. Accelerated depreciation allowances are similar to investment tax credits in most respects: They avoid the need for public subsidies, reduce taxes paid by the freight rail industry, and keep government out of the business of directing investments or managing the operations of railroads.

For these reasons, we score accelerated depreciation allowances a “yes” for all four principles.

### 4. Tax-Exempt Bonds

Interest payments made on public-purpose bonds issued by a municipal, county, or state government are not subject to federal income tax and sometimes also are exempt from state or local income tax. Such bonds are routinely used to finance city road projects, and sometimes projects of questionable public benefit, such as sports stadiums and arenas. Because the interest is tax-free, such bonds pay a lower interest rate than commercial bonds, making borrowing cheaper.

There is some justification for allowing railroads to issue tax-exempt bonds. The public objective we have set clearly states there is a public benefit to new investment in freight rail infrastructure, above and beyond what railroads might recover in profits. Railroads have some of the characteristics of public goods, and we have identified their high capital costs as an obstacle to increasing their capacity.

Allowing railroads to issue tax-exempt bonds would give them access to higher levels of debt for financing improved infrastructure. It would do so with (arguably) less distortion of market processes than most other proposals and would be more secure from government interference, since once the bonds are issued it is extremely unlikely governments would attempt to tax interest on them.

However, the commercial revenue of railroads may not be sufficient to service substantially larger

amounts of additional debt. As a result, such bonds may have limited potential for reaching our objectives. We nevertheless rank this reform “yes” for all four principles.

## 5. Public-Private Partnerships

In recent years, there has been a heightened interest in U.S. infrastructure investment through public-private partnerships. Public-private partnerships are being employed to provide greater capacity and expedite freight rail operations. The Alameda Corridor provides grade-separated access to Los Angeles and Long Beach Harbors. Another project, the Alameda Corridor East, will improve rail operations between Los Angeles and San Bernardino. Public-private partnerships have been used around the world to deliver mega-projects such as the English Channel Tunnel.<sup>61</sup>

Public-private partnerships are a necessary part of any plan to enhance the freight rail system.

The Chicago Region Environmental and Transportation Efficiency Program (CREATE) is a partnership between the State of Illinois, City of Chicago, Metra (the regional mass transit system), and six of the nation’s seven major railroads. CREATE intends to invest

\$1.5 billion over the next six to 10 years in new grade separations and otherwise improving the flow of both freight and commuter trains.<sup>62</sup>

Public-private partnerships are a necessary part of plans that require coordination of largely private freight rail investments with largely public highway investments. Public-private partnerships generally rely on user fees for retiring debt, however many use public funds already allocated for transportation projects or the sale of public assets. Because they involve public funds, public-private partnerships raise the risk of politicization and have been criticized on these grounds.<sup>63</sup> However, we see no better means of melding the nation’s private rails and public highways at key intermodal transfer points. We score public-private partnerships as meeting all four of our reform principles.

## 6. Government Loan Guarantees

Having state or national governments guarantee loans reduces the interest that must be paid, and therefore is another way to increase the railroad industry’s access to capital. The national government already guarantees billions of dollars in loans each year to small businesses through the Small Business Administration, and scores (perhaps hundreds) of state programs do the same

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<sup>61</sup> Eurotunnel has been a financial failure. This illustrates that private risk-takers can lose as well as gain. The public policy advantage is that neither governments nor their taxpayers have suffered any financial loss.

<sup>62</sup> [http://www.createprogram.org/PDF/create\\_overview.pdf](http://www.createprogram.org/PDF/create_overview.pdf)

<sup>63</sup> See William Eggers, “Answers to the Most Common Objections to Public-Private Partnerships,” Reason Foundation, *Privatization Watch*, Vol. 31, #1 (2007), pp. 6ff.

as part of their attempts to boost economic development.

Such programs have been vigorously criticized on the grounds that governments do not have any information or technology advantage over private lenders that would enable them to “pick winners” more reliably than private credit markets.<sup>64</sup> And indeed, such programs have not been shown to spur economic growth.<sup>65</sup>

The case concerning railroads is somewhat different. In this case it is known with some certainty that there are social benefits to directing more capital toward railroad infrastructure. It is also known why commercial lenders aren’t willing to loan railroads what they need to meet the public objective of having enough capacity to reduce congestion caused by trucks using highways.

Government loan guarantees raise the problem of moral hazard – lenders and loan recipients are likely to behave in riskier fashions knowing the government will pay off the loan if necessary.

Government loan guarantees raise the problem of moral hazard – lenders and loan recipients are likely to behave in riskier fashions knowing the government will pay off the loan if necessary – which is a kind of market distortion. Guaranteed loans wouldn’t increase the railroad’s ability to service the additional debt, so they probably wouldn’t take us very far toward our objectives. Finally, such loans also raise the threat of politicization of the investment process, since Congress and bureaucrats will want to influence which projects and players receive the loans, and will be lobbied to change the terms of repayment once loans are made.

For these reasons, we score government-guaranteed loans “yes” on three of the principles but “no” on Principle 3, which calls for limiting political interference.

## 7. Railroad Trust Fund

There have been proposals to establish a Railroad Trust Fund, similar to the Highway Trust Fund, funded by a user fee on diesel fuel used by railroads. Such a fund would funnel money collected from railroads into a common pot out of which infrastructure investments could be made.<sup>66</sup>

The trust fund idea seems at odds with the principles of relying on markets and minimizing government involvement in investment decisions that should be made by railroads, which better

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<sup>64</sup> Samuel R. Staley, Ph.D. and Michael LaFaive, “State Economic Development: Feeding Sparrows Through A Horse,” *ALEC Policy Forum*, American Legislative Exchange Council, September 2002.

<sup>65</sup> Katharine L. Bradbury, Yolanda K. Kodrzycki, and Robert Tannenwald, “The Effects of State and Local Public Policies on Economic Development: An Overview,” *New England Economic Review*, Federal Reserve Bank of Boston, March/April 1997.

<sup>66</sup> A railroad trust fund was proposed in the Railroad Safety and Funding Act in 1999, but was not enacted. See: [http://management.energy.gov/documents/nepdg\\_2251\\_2500.pdf](http://management.energy.gov/documents/nepdg_2251_2500.pdf).

understand their market needs. A railroad trust fund would complicate rail operations and lead to some market share loss.

It is likely that a trust fund would produce insufficient funding to materially increase railroad infrastructure investment. For example, diversion to a trust fund of the now-repealed deficit reduction fuel tax on railroads would produce gross revenues of only \$160 million annually, a small fraction of the more than \$9 billion railroads are investing annually.

Even the best-designed grant program could deteriorate into a politically charged “earmark” system in which politics, rather than genuine public policy (or commercial) considerations drive decision-making.

Unless other sources of funding for the trust fund were arranged, the source of funding would be commercial revenues of railroads, which are already being used to fund rail infrastructure. Some part of that already-inadequate revenue stream would have to be used to fund an administrative body (perhaps the Federal Railway Administration). Not providing additional revenues, a trust fund would not help achieve our objectives.

We score the trust fund idea “no” on all four principles.

## **8. Government Capital Grants**

Governments could make grants to railroads for specific capital projects. This strategy, like the Railroad Trust Fund idea, increases the potential of political interference in management of railroads. Generally, grant programs have significant qualification requirements, which are established in the political environment. Even the best-designed grant program could deteriorate into a politically charged “earmark” system in which politics, rather than genuine public policy (or commercial) considerations drive decision-making.

We score government capital grants “no” on all four principles.

## **9. Operating and Capital Subsidies**

Governments could establish programs to provide operating and capital subsidies to freight railroads. The model for such an approach is the federal mass transit program, which has perennially under-performed. It is likely that this strategy would debilitate industry, which would naturally serve its most important customer first – government.

As with all subsidy programs, it can be expected that a freight subsidy program would be accompanied by onerous regulations that could hamper operations and performance. Market share losses would be likely and, as a result, more freight traffic could be expected to be diverted to trucks, with freight reliability suffering and traffic congestion increasing more. We score government operating and capital subsidies “no” on all four principles.

## 10. Federal Passenger and Freight Rail Assistance

In recent years, there have been proposals to substantially expand passenger rail service in the United States through public funding, much of which would go to the private railroads. It has been claimed that the improvements would be beneficial to both freight and passenger rail.

Political support for subsidized passenger rail service makes it likely that most of the funding under such a plan would go toward subsidizing passenger rail service. More importantly, the inherent conflict between passenger rail and freight rail is likely to lead to lower freight rail service levels and less-reliable service. Such a strategy is highly unlikely to improve freight rail market shares and could lead to material losses. This could lead to a less-reliable freight rail system or even to Europeanization, in which most rail volumes would be diverted to trucks.

Political support for subsidized passenger rail service makes it likely that most of the funding under such a plan would go toward subsidizing passenger rail service.

We score federal passenger and freight rail assistance “no” on all four principles.

## 11. Government Ownership of Infrastructure

Government-owned rail infrastructure has been the historic rule in much of Europe and Japan. Generally, the result was less than satisfactory. Nonetheless, there have been suggestions that federal ownership of rail infrastructure in the U.S. would be desirable.

Japan has privatized its entire rail system, including infrastructure. European nations are generally placing rail infrastructure under independent government corporations, which do not engage in train operations and are required to operate commercially. Competitive reforms in operations have been effectively blocked through political action in some European countries. The nations that have relied upon nationalized rail infrastructure have seen their freight services rapidly lose market share to motor freight, despite substantial market advantages for rail.

Nationalization of rail infrastructure could be expected to lead to a politicization of rail policy that would weaken the competitiveness of the freight railroads. The likely result would be a less-competitive freight rail industry, less-reliable service, and greater traffic congestion from a larger volume of trucks. We score government ownership of infrastructure “no” on all four principles.

## 8. Recommended Reforms

The plan outlined below meets the four reform principles and is likely to achieve both the market and public objectives set out in earlier sections of this report. The plan is summarized in Table 2.

**Table 2  
Summary of Strategic  
Rail Enhancement Program**

**Market Approaches to Help Railroads Meet  
Rising Demand for Freight Service**

Policy Changes:

- Repeal of passenger train priority
- Full-cost access charging for passenger trains

Funding:

- Railroad revenues
- Tax incentives to achieve competitive neutrality with trucks

**Public Approaches to Reduce Congestion on  
Roads by Expanding Freight Rail Capacity**

Policy Changes:

- Incentive tiers (on railroad property)
- Bottleneck removal projects

Funding:

- Less-invasive public finance strategies
- Public-private partnerships

Implementation:

- Strategic Rail Enhancement Program Design Commission
- Strategic Rail Enhancement Corporation

### **Market Approaches to Meet the Rising Demand for Freight Service**

To create conditions under which railroads are able to invest enough in infrastructure to meet the rising demand for freight service, we recommend a market-based approach that allows the freight rail industry to choose where to invest. Policy reforms that are needed include the following:

- Remove the requirement that Amtrak trains be given priority over freight trains, a requirement we have shown reduces the competitiveness of freight rail vis a vis trucks and is not justified by passenger rail's social benefits.
- Allow railroads to charge Amtrak the fully allocated costs for its use of rail infrastructure. Freight rail shouldn't have to subsidize passenger rail service, just as the trucking industry is not forced to subsidize the infrastructure used by cars and buses.
- Allow expansions of rail passenger service on freight rail infrastructure only upon an administrative law finding that the additional passenger trains will have no

detrimental impact on the competitiveness of the freight railroad system or the corridor involved.

- Grant railroads investment tax credits and accelerated depreciation allowances for their choice of infrastructure improvements. As was noted above, freight railroads do not operate in an environment of competitive neutrality. Their principal competitors, trucking companies, have the advantage of not having to provide and finance their principal infrastructure. The competitive position of the railroads relative to the trucking industry could be improved by financial incentives that could provide resources for infrastructure development.



These policy changes would improve the competitive position of railroads relative to the trucking industry without the use of taxpayer subsidies or increased government interference in the investment decisions of railroads or in their operation.

## Public Approaches to Reduce Highway Congestion

Railroads are commercial entities that are best permitted to pursue their own commercial goals. It is not reasonable to expect railroads to pursue the public policy goal of relieving traffic congestion. There needs to be, at the national level, a planning process for identifying and financing projects that help achieve the public objective of reducing congestion and commuting times by solving freight transportation bottlenecks. These projects could be identified and funded by creating the process outlined below.

### Ranking Investment Opportunities

Under the present arrangement, planning and investment in each mode is done under separate private (in the case of rail) and public (in the case of roads) authorities, and the major private-sector players are not incentivized to make investments that could produce substantial social benefits. Our objective should be to overcome this lack of coordination and tap new sources of investment without creating new government authorities or bureaucracies, and without imposing taxes or fees on people who do not use or benefit from particular investments.

There needs to be, at the national level, a planning process for identifying and financing projects that help achieve the public objective of reducing congestion and commuting times by solving freight transportation bottlenecks.

The reform techniques that are consistent with our reform principles should be used to direct investment to projects where the benefit-cost ratio is highest. There is already a substantial literature on how to measure the likely impact of investments on highway congestion,<sup>67</sup> so this is not entirely new territory. Two strategies should be pursued:

- *Railroad Investment Incentive Tiers:* Rail infrastructure investment opportunities should be identified and proposals solicited from the railroads that promise to reduce highway congestion. All investments would be on railroad property, and generally such projects would be owned by the sponsoring railroad. They typically would involve double tracking, upgrading to allow double-stacking of containers, and positive train control on segments where it is particularly appropriate. These proposals would be ranked by their likely impacts on freight rail capacity and offsetting highway congestion, with government offering the biggest investment incentives (see “funding” below) to the highest ranked projects.

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<sup>67</sup> See Joseph Bryan, Glen Weisbrod, and Carl D. Martland, *Guidebook for Assessing Rail Freight Solutions to Roadway Congestion*, NCHRP Project 8-42, Task 11 Product, Revised, October 2006.

These corridors may be served by one or more railroads, and if public funding is used, such lines would be open to all railroads on a user-fee basis. Requirements would need to be developed to ensure that incentive tier investments are in addition to ones that would have occurred without the incentive tier program (“maintenance of effort requirements”).

- *Bottleneck Removal Projects:* In a similar fashion, investment opportunities should be identified and proposals should be solicited to address the most serious freight bottlenecks in the country. These projects would typically require investment in new highway or intermodal

Achieving the public objective involves the expenditure of public as well as private dollars, and therefore requires some additional government planning apparatus.

transfer capacity as well as rail infrastructure, and would be more likely to require public-private partnerships. Examples of such projects could be new or upgraded freeway and rail bypasses of major metropolitan areas, or the addition of capacity to corridors where freight movements are currently severely restricted (such as new capacity from Washington to Boston or from the

U.S.-Mexican border at San Diego to Los Angeles). Project sponsors could be railroads, public-private partnerships, state governments, or interstate compacts.

## Administration

Achieving the public objective involves the expenditure of public as well as private dollars, and therefore requires some additional government planning apparatus. Two federal agencies within the U.S. Department of Transportation (USDOT) could be created:

- *Strategic Rail Enhancement Program (SREP) Design Commission.* The SREP Design Commission would be composed of representatives from state departments of transportation, the USDOT, and the transportation industry. The commission would be required to consult with representatives of the trucking and rail industries to identify high-priority rail capacity expansion and bottleneck removal projects. The commission would convene formally periodically – perhaps once every five years – to approve the ranking of rail capacity investments and bottleneck removal projects by their importance and cost effectiveness. Their recommendations would then be submitted to Congress and the president, perhaps in a fashion similar to that used by the Defense Base Closure and Realignment (BRAC) Commission.<sup>68</sup>

The SREP Design Commission would have no role in specific project approval and would be dormant between the five-year review sessions. Congress and states would decide how much to spend overall on transportation infrastructure projects, but would be required to fund the highest-ranked projects first before moving down the list to fund lower-ranked projects. Prior to the SREP Design Commission reconvening every five years, an independent audit report would be completed evaluating the performance of the system relative to its objectives, perhaps by the Government Accountability Office.

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<sup>68</sup> See [www.brac.gov](http://www.brac.gov).

- *Strategic Rail Enhancement Corporation (SREC)*. The SREC would be a federally chartered corporation assigned the task of implementing the recommendations of the SREP Design Commission. Generally, the SREC would seek competitive bids on the highest priority projects from potential project sponsors, with winning bidders for rail enhancements receiving tax benefits, loan guarantees, and the like, and winning bidders for bottleneck removal projects receiving similar benefits plus possibly public funding. The SREC would also be responsible for disbursement of funds and overseeing the execution of the contracts.

The point of separating the selection and ranking of projects – the task of the SREP Design Commission – from the process of selecting contractors and overseeing completion of projects – the task of the SREC – is to avoid the conflict of interest that occurs when monopolistic government agencies are made responsible for both identifying objectives and achieving them. This is a common feature of successful privatization initiatives.<sup>69</sup>

Separating the selection and ranking of projects from the process of selecting contractors and overseeing completion of projects avoids the conflict of interest that occurs when monopolistic government agencies are made responsible for both identifying objectives and achieving them.

## Funding

Funding for rail infrastructure and bottleneck removal projects that are deemed worthy of public support by the SREC would come from the less-invasive public finance sources described and approved earlier (numbers 2, 3, 4, and 5 in Table 1 on page 25) and government loan guarantees (number 6):

- *Investment tax credits and accelerated depreciation allowances*, which would be made available to the railroads under the market approach for commercial infrastructure improvements, might be expanded for use in projects approved under the public approach.
- *Tax-exempt bonds*, by lowering the interest cost of debt, can help railroads raise the capital they need to expand their capacity.
- *Public-private partnerships* are already being used in the transportation sector to encourage private investment in tollroads and in a few cases, intermodal freight facilities. They could be greatly expedited by the SREP Design Commission process.
- *Government loan guarantees* can be insulated from politics if used as part of a program that separates the process of ranking investment opportunities from the processes of allocating funds and overseeing their expenditure, as the SREP/SREC proposal does.

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<sup>69</sup> See E.S. Savas, *Privatization and Public-Private Partnerships*, Chatham House Publishers, 2000.

Rail infrastructure projects that score low in cost-effectiveness may not qualify for any tax benefits or public funding, while those in the middle range would qualify (say) for investment tax credits and accelerated depreciation allowance, while those in the top range could qualify for loan guarantees or matching public funding through a public-private partnership.

Even without public funding, considerable progress could be made toward the public objective of expanding freight rail's market share.

Bottleneck removal often requires investment in highway construction or alteration, which is properly funded from federal, state, and local budgets financed by motor fuel taxes and registration fees. Our suggestion is that these projects recognize and give greater weight to the projected growth in demand for freight

transportation services and the role that freight rail can and should play in meeting that demand. This will mean including rail infrastructure needs in the budgets for bottleneck removal projects.

Even without public funding, considerable progress could be made toward the public objective of expanding freight rail's market share. Many of the techniques described here are familiar to policymakers from their use in other fields. Awareness of the growing need to expand freight rail capacity may be the trigger needed to increase their use in this field.

## 9. Summary and Conclusion

Rail systems in the U.S. carry more freight, measured by ton miles, than any other freight mode, and more than ever before. Freight rail has some significant advantages over transporting freight by truck: The cost is typically just one-third as much to move the same commodities, it is three times as energy efficient as trucks per ton mile, and it emits one-third as much nitrogen oxide per ton of cargo as trucks.

A healthy freight rail industry means lower prices for goods requiring transportation, less congestion on the nation's highways due to truck traffic, and consequently shorter travel times for commuters.

There is a problem, however. Freight railroads face limits on their ability to expand due to their limited commercial revenues and ability to finance investments in new infrastructure. Since some of the barriers to new investment are caused by current public policies, public policy reforms are needed to solve the freight rail transportation bottleneck.

To avoid a freight rail reform plan becoming just another failed attempt at central planning or unearned subsidies for special interest groups, four principles of reform ought to be adhered to: first, rely on market forces; second, reduce existing barriers to enhanced commercial revenues and new investments in infrastructure; third, limit political interference; and fourth, be consistent with both reform objectives.

A market approach should be used to ensure conditions in which the railroad industry can sustain its market share by making infrastructure investments of its choice sufficient to meet the rising demand for freight shipping. This approach would require removing the priority requirement for

operating Amtrak trains and allowing railroads to charge Amtrak fully allocated costs for their use of infrastructure. Expansion of rail passenger service on freight rail infrastructure should only be allowed upon an administrative law finding that the additional passenger trains will have no detrimental impact on the competitiveness of the freight railroad system or the corridor involved. The market approach can further be achieved by using tax incentives – investment tax credits and accelerated depreciation allowances – to create greater parity between freight rail and the trucking industry.

A public approach should be used to reduce highway congestion by ensuring conditions in which the railroad industry can expand its market share by making infrastructure investments chosen by a public process aimed at diverting more trucks from busy highways. This approach should use tax incentives, more robust public-private partnerships, and government loans. A Strategic Rail Enhancement Corporation (SREC) should be chartered to review and approve proposals for increasing railroad capacity and removing intermodal bottlenecks. An independent Strategic Rail Enhancement Plan (SREP) Design Commission, composed of state departments of transportation and subject to independent outside audit, should work in consultation with the railroads and trucking companies to routinely review and update the list of approved projects.

A healthy freight rail industry means lower prices for goods requiring transportation, less congestion on the nation's highways due to truck traffic, and consequently shorter travel times for commuters.

In conclusion, this report has shown how the nation's freight rail bottleneck can be solved with public policies that increase the capacity of the freight rail industry without unfairly or unduly burdening taxpayers.



## About the Author

**Wendell Cox** is a senior fellow of The Heartland Institute and principal of Wendell Cox Consultancy, an international public policy firm. He has served for six years as a visiting professor at the Conservatoire National des Arts et Metiers in Paris, a French national university.

He has provided consulting assistance to the United States Department of Transportation and was certified by the Urban Mass Transportation Administration as an “expert” for the duration of its Public-Private Transportation Network program (1986-1993). He has consulted for public policy organizations and government agencies in the United States, Canada, Europe, Asia, Australia, and New Zealand and for scores of public policy organizations.

Cox was appointed by Mayor Tom Bradley to three terms on the Los Angeles County Transportation Commission, where he authored the tax amendment that provided the initial funding for building light rail and the subway. He was elected chairman of the American Public Mass Transit Association Planning and Policy Committee (comprised of mass transit planning department officials) and the American Public Mass Transit Association Governing Boards Committee (comprised of mass transit board members).

Cox served three years as director of public policy for the American Legislative Exchange Council, where he oversaw the development of state model legislation and policy reports. In 1999, he was appointed to the Amtrak Reform Council by the Speaker of the U.S. House of Representatives, to fill the unexpired term of New Jersey Governor Christine Todd Whitman.

Cox is a prolific writer and popular public speaker. He is the author of scores of monographs and book chapters addressing urban sprawl and smart growth, transportation, mass transit, congestion, and demographic trends. He has addressed hundreds of audiences at major industry and academic conferences, international symposia, and government-sponsored seminars, and he always receives high marks for his enthusiastic and challenging presentations.

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