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# HIGH SPEED RAIL IN THE UNITED STATES: THE CURRENT DEBATES AND PRACTICES

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*Abstract*

*The possibility of a nationwide high speed rail system in the United States has been the topic of much excitement as well as skepticism since President Obama announced the allocation of a significant amount of federal funding for high speed rail development early in 2009. Though successful high speed rail systems have been in operation in Europe and Japan for over twenty years, it seems like the time has finally come for the development of a comprehensive high speed rail system in the U.S. Now that significant funding is being offered to initiate such a system in this country, critics and supporters alike are offering their arguments, armed with environmental data, cost projections, and political opinions. This paper addresses the various arguments for and against high speed rail in the United States and explores past, present, and future strategies towards high speed rail development.*

## Introduction

The possibility of a nationwide high speed rail system (HSR) in the United States has been the topic of much excitement as well as skepticism since President Obama announced the allocation of a significant amount of federal funding for high speed rail development early in 2009. Though successful high speed rail systems have been in operation in Europe and Japan for over twenty years – and advocates have argued for such a system in the United States in the past – it seems the time has finally come for the development of a comprehensive high speed rail system in the United States. Now that significant funding is being offered to initiate such a system in this country, critics and supporters alike are offering their arguments, armed with environmental data, cost projections, and political opinions. Even with a federal administration that is highly supportive of public transportation, smart growth policies, and environmental initiatives, the debate over where, how, and if high speed rail systems should be developed is as heated as ever.

This paper does not aim to take a position on the merits or faults of high speed rail transportation for the United States, but rather attempts to give a voice to the multitude of issues surrounding the debate. Based on comments and observations drawn from the literature, recommendations for further study and possible plans of action will be offered at the conclusion.

## Definition and Brief History of High Speed Rail

The definition of high speed rail is relatively unclear in the United States, and it is especially unclear once one compares the U.S. system to that of Europe and Japan. According to transportation engineering expert Tony R. Eastham (1998), high speed ground transportation is defined by systems that are capable of sustaining operating speeds over 125 mph (p. 1). The International Union of Railways, on the other hand, classifies the international standard for HSR as top speeds of 155 mph on new or upgraded track and 124 mph on old track (Reutter, 2009). The United States, however, has its own definition of high speed rail. The Federal Railroad Administration (2009b) delineates three categories of high speed intercity rail based on trip length, maximum speeds, and type of track (shared, dedicated, or grade-separated). "Emerging HSR" requires top speeds of 90-110 mph, "Regional HSR" requires speeds of 110-150 mph, and "Express HSR" must reach top speeds of over 150 mph (FRA, 2009b, p. 2). Additionally, the

FRA generally considers appropriate HSR corridors to be 100-600 miles in length. Another way of conceptualizing the different categories of HSR is the differentiation between "Incremental HSR" and "New HSR" (De Cerreno, Evans, and Permut, 2005, p. 7). Incremental HSR involves upgrading existing tracks to be able to achieve higher speeds (up to 150 mph), while "New HSR" requires the installation of new dedicated HSR tracks and equipment that can achieve speeds around 200 mph. Another type of high speed rail technology, called Magnetic Levitation (or Maglev), can achieve speeds of over 300 mph. However, there are currently no commercial Maglev trains in operation anywhere in the world, and implementation of Maglev in the United States is not in serious consideration at this point (De Cerreno, et al., 2005, p. 7).

Modern high speed rail began development and implementation in the 1960s. The first HSR line built was Japan's Shinkansen bullet train linking Tokyo and Osaka, which opened in 1964 with top operating speeds of 169 mph (De Cerreno, et al., 2005, p. 7). In 1982 France deployed its first high speed train,Train à Grande Vitesse train between Paris and Lyon with a top speed of 188 mph, which was soon followed by Germany's Intercity Express train that also reaches 188 mph. In the United States, the only rail corridor that meets the international definition of HSR is Amtrak's Acela Express located in the Northeast Corridor, reaching 150 mph for an 18 mile stretch between Rhode Island and Massachusetts. Amtrak's rail service in the Northeast Corridor is also the only corridor that qualifies as HSR by the United States' own definition (110 mph), and yet the average speed is still only 67 mph between Boston and New York and 77 mph between New York and Washington, D.C. (Reutter, 2009).

Many in the U.S. Government has recognized the desirability of HSR in this country since its formation of Amtrak in 1970 and later, in the 1990's, with the designation of official HSR corridors based on population densities and trip generation possibilities (FRA, 2009b, p. 6).

However, this recognition of the desirability and feasibility of HSR systems has not been supported with adequate federal funding. The Intermodal Surface Transportation Efficiency Act of 1991 authorized the federal government to provide funding to designated HSR corridors for safety improvements on highway-rail grade crossings, yet little-to-no matching funds were offered to states for any other type of rail infrastructure projects. Essentially, the federal government has recognized that certain corridors and existing railways would be good candidates for the development of HSR systems without providing any funding to implement them.

In April of 2009, President Obama announced an unprecedented amount of funding dedicated to the development of a HSR system in the United States. As part of the American Recovery and Reinvestment Act (ARRA), Obama dedicated $8 billion to be distributed to states on a competitive basis within the next fiscal year, and $1 billion per year for five years after that (The White House Office of the Press Secretary, 2009). Additionally, in December 2009 Congress appropriated an additional $2.5 billion to the HSR program to be distributed the next fiscal year (FRA, n.d.). Though this is the most federal funding ever dedicated to the development of HSR, as we will see, it is just a very small portion of what would be needed for a national system. Nonetheless, the Federal Railroad Administration (FRA) reviewed applications from individual states and corridor programs to decide which projects would receive funding from the ARRA. For the first round of ARRA funding, the FRA received 259 grant applications from 37 States, totaling nearly $57 billion in requests for the $8 billion available (FRA, n.d.). This first round of funding has already been awarded and distributed, and the results of this competitive grant process will be discussed at the end of this paper. Despite this considerable interest and growing support for HSR development in the United States, the debate over the benefits and feasibility of a national HSR system is far from over.

**Examples of High Speed Rail Proposals in the U.S.**

Current federal transportation legislation calls for the development of a National Rail Plan as well as individual State Rail Plans in order to create a coordinated national rail effort while still allowing states to decide what is best for their own interests within the framework of federal regulations (FRA 2009b, p. 13). Since the National and State Rail Plans are not yet complete, funding decisions for the $8 billion available from ARRA were decided made on a set of merits laid out by the FRA for designated HSR corridors. As a result, individual states and multi-state advocacy organizations have developed plans to submit for federal funding consideration. These plans vary greatly in size, scope, cost, and level of progress.

For the proposed Chicago Hub Network project, the Midwest High Speed Rail Association is putting together plans for a HSR network that spans several states, including Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin. The Midwest Regional Rail Initiative plans to increase passenger rail lines in these 9 states to 100 mph service through incremental HSR upgrades involving cooperation between Amtrak, the FRA, and individual state agencies (Midwest High Speed Rail Association, 2009). The Association is also advocating for a system of new 220 mph HSR tracks that would go through six of these states, though no official studies for this type of corridor improvement have yet been performed.

The Texas High Speed Rail and Transportation Corporation (2009) is advocating for a HSR system in Texas called the "Texas T-Bone" that would connect San Antonio, Houston, Dallas, and major points in between. This particular group does not have a detailed plan for what kind of HSR system would be implemented and how because it "relies on regional, local, and municipal entities to participate in the planning and to allow for a self-determined final alignment"

(Texas High Speed Rail and Transportation Corporation [THSRTC], 2009). However, according to a THSRTC newsletter, the Texas Department of Transportation applied for a total of $1.8 billion in ARRA funding for high speed intercity passenger rail service.

In the Southeast Corridor (Virginia, North Carolina, South Carolina, Georgia, and Florida) the Southeast High Speed Rail Corridor organization is publicizing a general plan for the development of HSR in this region. For most of the corridor area, environmental impact studies have been completed or are in progress (Southeast High Speed Rail Corridor, 2009). For the Charlotte to Atlanta section, feasibility studies have been completed while environmental impact statements have not. Most of the Richmond, Virginia to Raleigh, North Carolina rail corridor is slated to be rebuilt with new tracks for 110 mph trains. A small portion is to be upgraded with positive train control measures so that it can increase speeds from 79-90 mph eventually (Southeast High Speed Rail Corridor, 2009). The federally designated Southeast HSR Corridor extends to Jacksonville, Florida, but no planned rail improvements for this section are reported by the organization.

The Southern and Central Florida region is a separate, federally designated HSR corridor apart from the Southeast Corridor, and thus the Florida High Speed Rail organization has its own plans for HSR in the state. It proposes two phases of HSR development: Phase One from Tampa to Orlando, and Phase Two from Orlando to Miami. Each line would operate at speeds in excess of 120 mph. The estimated costs for these projects are $3.5 billion and $8 billion, respectively (State of Florida Department of Transportation, 2009). The Florida Department of Transportation (FDOT) has requested $30 million of ARRA funding to perform a project development and environment study on the Orlando-to-Miami corridor, and FDOT has also requested "$2.6 billion to design-build-maintain and operate the high speed rail system within the

Tampa to Orlando corridor" (State of Florida Department of Transportation, 2009). Phase One construction is projected to be complete by 2014 and Phase Two by 2017.

To date, the California High Speed Rail Authority's plan for a complete HSR system in California is the most comprehensive and ambitious government-proposed plan in the United States. According the California High Speed Rail's website, California is further along in the HSR planning process than any other state, is the only state proposing HSR with speeds in excess of 200 mph, and is prepared to break ground on the project in 2011 (California High Speed Rail Authority, 2009). California's ultimate HSR corridor would run from San Diego to Sacramento, operate on new, dedicated HSR rights of way, and be completely electrically powered. Additionally, California's policy goal is to fuel the new HSR system with only clean renewable energy sources. The State of California has requested $4.7 billion of the available $8 billion ARRA funds for its HSR project.

## Economic Costs and Benefits

Perhaps one of the most contentious issues surrounding high speed rail in the U.S. is the cost of its development. In the simplest form of a cost-benefit analysis, the cost of building a HSR system will be compared to the revenues that it can bring in from user fees. Using this simple input-output equation for costs, by almost all accounts HSR is an extremely expensive endeavor, and one that may not pay for itself any time in the near future. Most analyses of HSR in the United States do not attempt to make an estimate of cost for the total build-out of a national system due to the uncertainties of differing building strategies, technologies, and incomplete state plans. However, general estimates for the cost of the entire FRA High-Speed Intercity Passenger Rail Plan (the officially designated HSR corridors) range from a minimum of $90 billion to over $200 billion, to a maximum of nearly $1 trillion if more corridors are added (O'Toole, 2009; Reutter, 2009). In contrast, according to Reutter (2009), the cost of building the entire Interstate Highway System, in today's dollars, was about $280 billion.

California's proposed HSR corridor alone is predicted to cost $45 billion to build, though it is claimed to require no operating subsidies once built and earn over $1 billion in annual profits (California High Speed Rail Authority, 2009). The cost for the first two phases of Florida's HSR corridor is set at $11.5 billion, not including the cost of some right-of-way acquisitions (State of Florida Department of Transportation, 2009). While Florida's plan does not project a specific profit from its HSR system, it does stipulate that funding for HSR will come from federal and private sources as well as user fees, as opposed to state funding. Incremental HSR improvements between Washington, D.C. and Charlotte, South Carolina along the Southeast Corridor are expected to cost up to $4.5 billion, and a study by the U.S. Department of Transportation predicted that operating costs in this corridor would be covered by user fees (Southeast High Speed Rail Corridor, 2009).

None of the cost estimates cited above clearly state if and when the actual construction costs of the HSR line, outside of operating costs, will be paid for by user fees. Indeed, Randal O'Toole (2009) of the Cato Institute claims that "despite optimistic forecasts by rail proponents, passenger fares will rarely if ever cover high-speed operating costs" (p. 9). He cites the fact that Amtrak's rail service between Boston and Washington lost nearly $2.30 per passenger in 2001, as reported by the Amtrak Reform Council. If passenger train service in this most populous corridor in the United States cannot cover its costs, he argues, no other train system will be able to make a profit or even cover its costs. This may not be a fair argument, however, considering that many proposed new HSR corridors will have much higher operating speeds than the current Amtrak service in the Northeast Corridor, thus possibly attracting a larger ridership.

Another consideration in the cost-benefit analysis of HSR systems is whether this kind of transit should be expected to pay for itself. O'Toole (2009) again argues against HSR saying, "Taxpayers and politicians should be wary of any transportation projects that cannot be paid for out of user fees" (p. 9). Yet as Mark Reutter (2009) of the Wilson Center aptly points out, roads and airports are not entirely paid for out of user fees either. Furthermore, passenger rail's supposed lack of fiscal performance is likely the result of a federal funding preference for other modes such as highways and airports. As the Federal Railroad Administration (2009b) states, "While other modes have historically benefited from dedicated Federal funding for infrastructure investment, rail has had no such Federal capital matching source" (p. 6). Thus the argument against federal (or even State) subsidies of passenger rail falls short when compared to similar transportation subsidies for other modes.

The public versus private and profit-based nature of passenger rail funding is a conceptual issue as well as an economic one. In *High Speed Rail in the U.S.: Super Trains for the Millennium*, Dr. Thomas Lynch (1998) argues that the European view of financing transport services differs from the United States in that they do not expect to profit or break even from public transit. As a service to the public, transport services are expected to be largely paid for by the public (through taxes), rather than operating as a profit-making private enterprise. The Director General for the Lending European Investment Bank explains:

> A transport service (unlike CD players, telephone services, energy supply and restaurants, for instance) cannot in most cases be supplied on a profitable or even cost covering basis. Conventional capitalistic wisdom would dictate that the HSR or

> transport system should be liquidated or phased out as happens with restaurants and manufacturers of CD players if they cannot break even . . . . However (in the European view) most transport services, especially those which need to modernize due to outdated infrastructure, rolling stock or those that need to expand, show huge losses (as cited in Lynch, 1998, p. 104).

If a transport service, such as high speed rail, is not necessarily expected to cover its costs on a regular basis, then the cost-benefit analysis becomes more about the costs and benefits to the public rather than to the State or country's pocketbook.

## External Costs and Benefits

Any accurate and worthwhile cost-benefit analysis must include the calculation of externalities—those benefits and costs that accrue directly or indirectly to the larger economy, society, and natural environment. A study by the Mineta Transportation Institute on the successes and failures of HSR projects in the United States concluded that looking only at the "bottom line" of HSR development plans will severely hinder any proposed HSR project because of the massive amount of capital investments required (De Cerrano, et al., 2005, p. 6). The report suggests tabulating costs and benefits that include the costs and benefits to other transportation modes as well as the society as a whole under build and no-build alternatives. External benefits are often emphasized by rail proponents, but it is also important to also take into account the external costs associated with any HSR project.

When President Obama expressed his support for federal HSR investment, the main emphasis was on the positive externalities of a HSR system. At the White House Press Conference on April 16, 2009, Vice President Biden exclaimed:

> With high-speed rail system, we're going to be able to pull people off the road, lowering our dependence on foreign oil, lowering the bill for our gas in our gas tanks. We're going to loosen the congestion that also has great impact on productivity, I might add, the people sitting at stop lights right now in overcrowded streets and cities. We're also going to deal with the suffocation that's taking place in our major metropolitan areas as a consequence of that congestion. And we're going to significantly lessen the damage to our planet. (Lee, 2009)

As Vice President Biden's comment illustrates, much of the expected benefit associated with HSR is environmental. The environmental impacts of HSR will be addressed in the next section of this paper, but in general HSR is expected to include less use of fossil fuels, less energy use overall, reduced air pollution, a reduction in greenhouse gases, less land use than expansion of highways and airports, and encouragement of high-density, transit-oriented development (California High Speed Rail Authority, 2009).

There are several other possible benefits associated with HSR besides the environmental effects. Gui Shearin (1997), in an assessment of external benefits and costs of high speed ground transportation, identifies a number of external benefits of HSR, including: travel efficiency (time savings), safety increases, economic savings to other travel modes (from reduced expansion and repairs to highways and airports), benefits to intra-city commuter rail, creation of rail-related jobs, and commercial development around train stations (p. 1). Shearin evaluated the external costs and benefits versus financial costs in three rail corridors in the U.S. for four different HSR speeds (including Maglev). The author concludes that, for most of the speeds and corridors analyzed, benefits of HSR can outweigh the costs if externalities are taken into account. In Shearin's analysis, the majority of benefits were actually due to time and cost savings for the airport and highway modes and less dependent upon environmental effects (1997, p. 6).

Often underplayed as significant benefits, high speed rail can have major implications for both personal passenger safety and the security of our nation (both of which have financial costs associated with them). Statistics from HSR operations in Europe and Japan show that HSR is the safest of all modes of transportation, with a total of 85 injuries and 14 fatalities in all of Europe and no derailments or collisions on Japan's Shinkansen line since its inception in 1964 (California High Speed Rail Authority, 2008, p. 3.2-20; FRA, 2009b, p. 3). Several sources also note that HSR systems can positively affect our nation's security by reducing dependence on foreign oil (Drake, Bassi, Tennyson, and Herren, 2009; Lee, 2009; Rail Solution, 2010). As it stands now, the movement of goods and people in the U.S. is largely reliant on foreign oil sources, which poses a threat to national security. If a comprehensive system of passenger and freight rail is developed, and these rail services reduce or eliminate our reliance on oil, energy independence and security will be increased.

It should be noted, however, that these mostly indirect external benefits and costs are notoriously difficult to measure and even more difficult to predict than the financial costs of a HSR project. Any prediction of transportation system effects must rely on use and ridership projections, and, as we will see in the environmental section, these numbers are highly contested. Many of the expected benefits of HSR are related to changes in the nation's built environment as well as individual behaviors. The California High Speed Rail Authority (2009) touts HSR's ability to discourage sprawl, reduce automobile dependence, and encourage the adoption of smart growth principles and transit-oriented development. O'Toole (2009), however, doubts that HSR will significantly alter development practices or people's driving behavior. In "The High Cost of High

Speed Rail," O'Toole (2009) argues that higher densities and transit-oriented developments fail to reduce automobile use (p. 17). Furthermore, he points out, smart growth and Transit-Oriented Development policies impose huge financial costs on the public as well as infringing on personal property rights. Thus, it is clear that the external costs and benefits of HSR development differ depending on who is doing the analysis.

## Environmental Impacts

Several of the major benefits associated with high speed rail development are attributed to environmental impacts. According to the California High Speed Rail Authority (2009), benefits of HSR as compared to expanded highways and airports include: reduced energy usage; less impact on wetlands, water resources, and farmlands; reduced dependence on fossil fuels; less air pollution; and a reduction of greenhouse gases. Most analysts concede that rail systems require less land use per passenger and thus have a less detrimental effect on wildlife habitats and farmland (California High Speed Rail Authority, 2009; International Union of Railways and Community of European Railway and Infrastructure Companies, 2008). However, the potential benefits of HSR regarding reduced air pollution and fossil fuel use, and increased energy efficiency are highly contested.

First, the argument that HSR will significantly reduce air pollution and fossil fuel use is largely predicated on the assumption that the systems will be powered electrically. Currently, parts of the Northeast Corridor and the Philadelphia to Harrisburg lines are the only electrified intercity passenger trains in the United States (Drake, et al., 2009, pp. 5-6). Aside from California, most other HSR plans in the works are not planning to operate on 100 percent electricity, and many will just continue to use diesel trains. The superiority of electrically-operated trains is clear - not only do they use less fossil fuel and produce less air pollution, they also have about 15% higher capacity than diesel trains, are more energy efficient (due to regenerative breaking), require less maintenance, and generally have higher horsepower that diesel-powered trains (Drake, et al., 2009, pp. 5-6). Nonetheless, full-scale electrification of HSR projects is often not proposed because of higher initial capital costs. Another point for consideration is the source of the fuel for electricity. As O'Toole (2009) points out, most electricity in the United States still comes from fossil fuels (p. 14). If electricity for new HSR systems is not generated from clean and renewable sources, electric trains are essentially just replacing the potential air pollution they would generate on the tracks with air pollution at power plants while still consuming fossil fuels for operation.

Aside from the issue of fuel, the general energy efficiency of intercity passenger rail is debated. For example, the term "energy efficiency" can refer to total barrels of oil consumed, amount of carbon dioxide emitted, or energy use per passenger-mile. U.S. Transportation Secretary Ray LaHood reports that current intercity passenger rail consumes one-third less energy per passenger-mile than cars (The White House Office of the Press Secretary, 2009). The Federal Railroad Administration claims that "passengers traveling by rail use 21 percent less BTUs [British Thermal Units] per mile on average than those traveling by automobile, and 17 percent less BTUs per mile than those traveling by air for short-haul flights on average" (2009a, p. 14). A study by the Center for Clean Air Policy and Center for Neighborhood Technology (2006) concludes that a full build-out of the U.S. high speed rail system could result in an emissions savings of six billion pounds of carbon dioxide per year (p. 1).

Environmental impact studies claim that high-speed trains use one-third the energy of airplanes and one-fifth the energy of automobiles, while projecting that the California HSR system will save twelve billion pounds of carbon dioxide emissions per year by 2030 (California High

Speed Rail Authority, 2009). The International Union of Railways and Community of European Railway and Infrastructure Companies (2008) reports that, based on existing European transport systems, passenger rail travel is four times more efficient than driving and three times more efficient than taking a plane in terms of carbon dioxide emissions (p. 7). Randal O'Toole (2009), on the other hand, argues that the environmental benefits of high speed rail are often exaggerated, claiming that Amtrak services are currently slightly less efficient than intercity driving (p. 5). He also points out that many studies use inaccurate vehicle occupancy rates for their calculations (p. 13).

The data about energy efficiency relies on several factors, including what kind of "efficiency" one is trying to measure, how that efficiency is measured (using what data and projections), and what kind of train service is being measured (electric, diesel, or combination). For example, California's projections for various energy efficiency measures are based on a system ridership of 117 million annual passengers by 2030 (the high end of ridership projections), 2.4 passengers per intercity automobile trip, 101.25 passengers per plane (70 percent load factor), and a fully electric system derived from clean and renewable energy sources (California High Speed Rail Authority, 2008, p. 3.5-14). California's environmental impact statements refer to 2030 projections based on HSR system build and no-build alternatives.

A study by The Center for Clean Air Policy and Center for Neighborhood Technology (2006), on the other hand, calculated the carbon dioxide emission reductions that would result if HSR systems replaced automobile and airplane trips in 2025 if all currently proposed HSR systems were built out (p. 1). These calculations are based on 1.6 passengers per intercity automobile trip, regional jets at 70 percent capacity, and HSR emissions calculated based on a model of diesel-powered passenger train with a top speed of 99 mph (p. 9). Randal O'Toole's

(2009) claim that current Amtrak passenger rail service is actually less energy efficient than intercity automobile trips is based on current energy calculations, 2.4 passengers per intercity automobile trip, and the total energy usage calculation of the entire Amtrak fleet by the Department of Energy (p. 13). These three examples prove that energy efficiency calculations can differ greatly depending on the measure of energy being used, type of HSR system being measured, time frame, and data sources.

## Politicization of High Speed Rail

As with any proposal that involves large amounts of government spending, high speed rail projects have been and will continue to be highly politicized issues. On a national scale, one of the driving forces behind the pursuit of HSR systems is the desire to emulate other industrialized countries. President Obama's words in April 2009 when announcing HSR funding sum up this sentiment:

> Now, all of you know this is not some fanciful, pie-in-the-sky vision of the future. It is now. It is happening right now. It's been happening for decades. The problem is it's been happening elsewhere, not here . . . . There's no reason why we can't do this. This is America. There's no reason why the future of travel should lie somewhere else beyond our borders (Lee, 2009).

Since Europe and Japan's successes in HSR have been apparent for several years now this desire to "catch up" to other countries' passenger rail systems is not a new phenomenon. The United States' failure to emulate other HSR systems over the past thirty years is due to several factors, but one of the main impediments has been sustained opposition from other transport modes with large shares of the passenger and freight movement market (Lynch, 1998, p. xiv). In a society and economy largely built on petroleum-burning automobiles, winning favor for development of technologies that interfere with these highly entrenched and profitable modes is difficult.

Some of the current political reasons for pushing HSR development are more recent and context-sensitive than the desire to catch up to Europe. For one thing, as evidenced by Vice President Biden's remarks mentioned above, highway and airport congestion are presenting major problems that legislators are expected to alleviate. Additionally, anything that shows environmental concern is popular in current bipartisan politics, and HSR can gain citizen support if it is marketed as environmentally-friendly. Perhaps the most politically-motivating factor of all during this current economic situation, however, is HSR's potential to create jobs and spur economic growth. Matthew Lewis (2009) of the Center for Public Integrity sums up the current issues salient to the average politician regarding HSR:

> Large airports are operating at capacity. Highway congestion is costing tens of billions per year. Trains promote energy independence and run cleaner. And, of course, there's the primary focus of legislators during a recession—the potential for long-term job creation and economic development (para. 7).

Politically, the benefits of High Speed Rail, which are currently in vogue with many constituent groups, may be seen to justify even hefty costs.

This political support for HSR may be a detriment to the cause, however, if political interests rather than density and demand logistics drive the development of HSR. Citing the aphorism that all politics is local, O'Toole (2009) predicts that "every member of Congress will want a piece of the high-speed rail pie," resulting in skyrocketing costs and unprofitable placement of HSR lines (pp. 8-9). In fact, this precise scenario occurred in Japan several years ago. After the enormous success of the Shinkansen line, several other towns, much smaller in population density, received HSR service as pet projects of politicians, and a large number of those lines are highly unprofitable to this day (O'Toole, 2009; Reutter, 2009). According to Lewis (2009), this is why a strong national railroad plan from the FRA is extremely important. A rational long-term plan must be crafted to be largely resistant to political interference so that HSR development will occur where it most efficiently maximizes public benefit rather than the election of certain politicians.

## Distribution of ARRA Funding

On January 28, 2010 President Obama announced which high speed rail applicants were chosen by the FRA to receive funding from the available $8 billion in stimulus funds. In total, seventy-nine applications from thirty-one states were selected for various amounts of funding (FRA, n.d.). In light of the concept of "incremental" and "new" HSR addressed above, the $8 billion was distributed almost evenly between these two categories, with approximately $3.5 billion dedicated to new HSR projects and $4.5 billion dedicated to incremental HSR projects (The White House, 2010). This distribution seems to represent a diplomatic approach by the FRA, with no clear preference for one HSR approach over the other. It is also interesting to note that the FRA avoided any appearance of political leanings by dividing the funding virtually equally between states with Republican and Democratic governors.

The best way to demonstrate the final funding distribution of the available ARRA stimulus grant is to look at the outcome of particular HSR proposals addressed at the beginning of this paper. The Midwest region received approximately $2.6 billion spread among seven states for various incremental HSR projects as well as new station construction (The White House, 2010). The State of Texas, which originally requested $1.8 billion in ARRA funding, received no funding for its particular HSR plans, but did receive $4 million to improve signal timing on an existing

Amtrak line (The White House, 2010). The Southeast Corridor received $620 million for various improvements that should increase speeds to 90 mph along most of the corridor (The White House, 2010). The Florida High Speed Rail Association, which requested over $2.6 billion for its new HSR projects, received $1.25 billion to help construct phase one of the plan(The White House, 2010). Lastly, the California High Speed Rail Association received approximately $2.3 billion of its requested $4.7 billion in funding to begin construction on the planned comprehensive statewide HSR system (The White House, 2010). As can be seen, none of the state HSR proposal applications was funded in its entirety, but rather the FRA chose to spread out the funding geographically as well as in terms of project type.

## Conclusion

The development of HSR systems in the United States seems likely in the near future, at least in some of the designated corridors, based on current political and public support. Before a successful and comprehensive nationwide system can be built, however, a better understanding of, and agreement on, HSR's costs and benefits needs to be reached in order to implement the system in the most beneficial and efficient manner possible. If the environmental effects of certain HSR proposals cannot be accurately determined, and especially if they cannot be compared to other transportation policy options, we will not succeed in implementing a system that actually achieves significant positive environmental benefits.

Likewise, if the full short- and long-term fiscal costs of building HSR corridors are not carefully evaluated and planned for, we may run the risk of huge cost overruns and abandoned, unfinished projects. The Mineta Transportation Institute's (2006) study on past successes and failures of HSR plans in the United States came to the conclusion that incremental HSR implementation on existing railways is a desirable option, not because of its technical superiority, but because it is more feasible than new HSR in today's economic and political environment (De Cerreno and Mathur, p. 7). If this is the case, then the incremental HSR plans for the Midwest Hub and Southeast Corridor areas may prove to be the most successful way to start HSR implementation.

Matthew Lewis (2009), on the other hand, argues that we need to take advantage of the current environment of positive political will by building "a real, working high speed rail line" as soon as possible. Perhaps, then, California's HSR plan holds the key to the future success of HSR in the United States. California's project is extremely far along in the planning process, ready to begin construction within the next few years, and is the only possible example of European-style HSR being proposed in the country. If California's grand plan can come to fruition and prove its publicized environmental and economic benefits to the rest of the country, the United States may then be ready to implement similar systems throughout the nation.

Ultimately, the types of systems and methods of implementation to be pursued depends on what our country's goal is for high speed rail. Do we want to build somewhat faster trains in existing rail corridors in order to offer passengers one additional option for intercity travel? Or do we want to build an extensive network of truly *high speed* trains that is competitive with highway and airplane travel in order to make rail a dominant mode of intercity transportation? These fundamental goal questions, in addition to the more technical questions about fiscal costs and externalities, will need to be answered in order to formulate a complete and effective National High Speed Rail Plan.

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