

High Speed Ground Transportation for North America

America's transportation system is approaching a crucial moment as we move into a new century and economics have become based on a widespread, interconnected, multi-centered economic model. The current trend in business towards collaboration between physically remote partners, and the need to tap broader markets is driving a demand for access to both physical and human resources outside of local areas. Some of this demand is being met by digital networks and the internet, but the need to move raw material, or to meet face-to-face cannot be displaced by digital communication and collaboration (Goddard 261-264). There are also many businesses and regions whose economic viability relies on transportation to bring them customers, in the form of tourists. Tourism and leisure travel still account for a major share of national transit, and are steadily growing. The issues of mobility and economy are inextricably linked to one another, whether the miles traveled are for business or leisure. Both segments of the transportation industry are growing, and the current systems are nearing capacity.

Monday through Friday our highways are clogged with commuters, often grinding to a complete standstill during rush hours because of the volume of traffic (Goddard 254, Swartzwelter 30). People spend hundreds of dollars a month at the gas pump, which doesn't even begin to address the hidden costs we incur by driving (Goddard 255-6). On holidays millions of people endure long, uncomfortable journeys to spend time with their families (U.S. BTS). People crowd on to overpriced, overbooked flights after spending hours going through overcrowded airports and interminable security checks, and if they are lucky their flight won't be delayed. People endure all of this, mostly without realizing that there is anything wrong with it. They don't see viable alternatives and so they continue to support an inadequate system, largely without realizing it. When people get a glimpse of the system of high-speed railways in Europe and Asia, they might wonder why rail transportation has been neglected in the United States for the past 50 years (Eastham 20). There are many factors that contributed to the neglect of our national rail systems, but the time is right for a North American railway

renaissance (Goddard). We are on the edge of a new century, and we have only begun to see the possibilities it holds.

One example of these new possibilities is the opportunity to develop a better form of the traditional high-speed ground transportation (HSGT) networks found in Europe and Asia. There have been many feasibility studies done in the US, but most overlook the fundamental reasons for the success of HSGT in other countries, namely externality benefits (Eastham 21, Lynch 101-27). These are the benefits that the society as a whole (including non-users) gain from the system that exceed the costs levied for direct users (Lynch 104). Examples of these benefits are often related to sustainability in terms of the environment and energy, but also include time-savings, increased accessibility to urban centers, and increased economic activity. It is a case where the sum of the whole is greater than that of the parts, and it is often difficult to express this in a simple and concrete way. Once one understands this fundamental feature of high-speed ground transportation, it seems obvious that it hasn't taken root in the United States partly because our society still clings to out-dated values based on capitalistic-agrarian individualism, in short-term individual gains are more highly regarded than long-term collective benefits.

This has been a major impediment to the development of the infrastructure and public support for HSGT in the US, because the financial nature of such projects is not ideal for generating significant profits (Lynch 126-7). In Europe and Asia, it is understood that the revenue generated from rider-ship won't usually cover the operating costs of the railway, but tax revenues generated from the economic growth mechanisms of the railway more than make up for it (not to mention the additional social benefits). For a variety of reasons, for the costs of an HSGT to work out, government has to be involved in its financial operation. In this country, that is a very hard idea for people to accept, because of our government's history of fiscal irresponsibility, our negative attitudes towards 'big government', socialism of any shade, and notions of private enterprise.

There is quite a bit of rhetoric in this country against spending public money for transportation, but the practice of subsidizing travel and transport is widespread already and goes far beyond what most people realize. There are many examples of the way

transportation has been subsidized in this country for over a hundred years. One particularly fascinating example that escapes the notice of most people is that of the automobile and public roads. Nearly every paved road in this country is the result of a complex blend of private interests, public pressure, and government funding (Goddard). The automobile industry has been built on selling private means of conveyance over public roads, which the automotive manufacturers do not directly pay for, but benefit from greatly. Even if you never once own or operate a car, your tax money still gets used for roadway maintenance and repair. The trucking industry has also been a direct beneficiary of this same sort of government subsidy, as a part of powerful lobbies for the Federal funding of Interstate highway construction (Goddard 191). It was a primary reason that they were able to compete against a more established railroad industry, although it should be mentioned that the railroads were also formed on a foundation of government assistance. In the case of the railroads, there was mutual interest in expansion, because it meant profits for the railroads and rapid development for the nascent nation. The railways were subsidized in a different way than roadways, because the railroad companies were responsible for building most of their own infrastructure and owned the property their trains traveled over, but those lands were often granted or sold to them very cheaply by the government (Goddard 9-10).

In the past two centuries the world has changed dramatically, and the past century saw incredibly rapid and accelerated change. Along with all of the positive developments that took place, there were mistakes made which continue to haunt us today, World Wars, the splitting of the atom, increased chemical and environmental hazards. As we move into the next millennium there are several important areas the world should focus on to prevent further problems from developing. World wide there are shortages of water, food, and energy, and we are destroying natural resources, such as land, at an unsustainable rate. This ties into architecture in many ways, and the development of the 'green' movement in design and building technology is encouraging but it isn't the full picture. There have been accompanying theories emerging about urban planning, sprawl and density, and the general consensus seems to be that we can't afford unlimited sprawl, and the best alternative is increase density in our urban areas (Mau 37). This is where we need to start thinking really critically about the state of transportation in this country. For

example, as we move towards higher density cities, automobile usage becomes more cumbersome and less advantageous for many purposes, and the space required for roadways and parking for automobiles could be put to more productive uses. Part of our problems stem from the limited number of transportation options available to travelers (Goddard 272). By integrating various systems we could have a more efficient, more sustainable transportation network. Each piece of the system could be specialized to accomplish certain tasks more efficiently. Light rail and buses work very well for high-volume daily commuting within urban limits, the on-demand flexibility and freedom of the personal automobile has its place, and air travel is essential for intercontinental travel. In an ideal transportation system, there would be more choices for how to travel, and they would work efficiently together. It seems unlikely that the personal automobile is going to disappear anytime soon, or that the airline industry (bankruptcies and all) is going to collapse, but there is a competitive place between these for a high speed train system linking city centers to one another.

There are bold visions laid out by authors like Brad Swartzwelter, in Faster than Jets, and there are more staid but only moderately less ambitious plans such as that suggested by historian Stephen Goddard, and Timothy Lynch, but all of them point to the need for something to happen in this country. Each author states that there is growing trend towards a transportation crisis in this country, “As unabated population growth and urban density increase [...] demand for more efficient transportation systems is inevitable” (Lynch xiv). All three point to growth and trends of ever increasing congestion on highways and at airports as signs that an alternative is needed, and the most logical answer seems to be high speed rail. High-speed rail is in a unique position to accommodate travelers and freight from both systems of transportation, which could increase efficiency across the board as costly delays are minimized. Because of the inherent efficiencies over automotive transportation, high-speed rail would provide transportation for people at lower energy costs per passenger-mile (Lynch 155), and significantly lower costs per freight-ton mile (Swartzwelter 137). High-speed rail could reach speeds of 300 mph (perhaps more) in the form of maglev vehicles capable of competing with air routes at distances between 300-500 miles (Lynch xiv, Kuttner). While we might not ever reach the predictions of “thousands of miles per hour” in low

atmosphere tunnels (Swartzwelter 110), but even reaching speeds of 400 mph would make high speed ground transportation a potent alternative to air-travel, even at cross country distances (Mau 48).

While there is no way to predict with certainty what the future might bring, the history tells us that innovative thinking can bring us unexpected technologies, and unexpected changes can require rapid shifts in the way we evaluate our lives. There is a lot of talk of 'peak oil' and the rising costs of energy, as well as a growing sustainability movement looking for alternatives to petroleum fueled 20th century technologies. High speed trains are a proven technology that has room left for innovative improvements and can "enable sustainable mobility" (Mau, 46).

Sources

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