

# The Future of U.S. Railroads?



## America's Energy and Transportation Challenge...

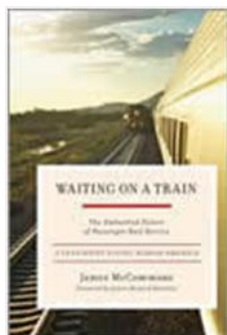
Trains are wonderfully fuel efficient but Amtrak is in shambles. Airlines—due to the high cost of jet fuel—are hemorrhaging daily and our highways are a jungle of aggressive fume-belching trucks and road-rage-inducing traffic jams. High-speed rails—the much touted quick response—are not the only panacea for our transportation woes. Throwing money at glamorous-sounding techno-marvels can only exacerbate the problem.

The American railroad system is currently in a sorry state of affairs but there are glimmering packets of hope amid the wreckage. Some states and local communities have picked up the slack with amazing results. We have much to learn by examining and understanding the symbiosis behind these successes.

Yes, railroads could provide a much-needed solution to our nation's transportation problem—it's a needed and viable alternative that can deliver freight and people at a lower cost to the environment. But fixing the system will involve government support, creative thinking on a regional and local level and above all—a change in mindset by the American people is needed to wean ourselves from the automobile and forge a responsible 21st-century solution.

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## The Good, the Bad and the Ugly...



What should be required reading for anyone interested in rail improvement is James McCommons' **Waiting on a Train**. It's a highly-readable but brutally-honest assessment of the highs and lows of "ridin' the rails" in America today. Much of this narrative is based on or prompted by this book.

With the enormous cost increase in energy, trains suddenly make sense to a lot of people who never paid attention to them before. "Green" and "smart growth" policy types, and now even highway planners and billionaire financiers all have taken a keen interest in railroads. But there's a problem.

Aside from foamers (*excessively enthusiastic rail fans*), there are few people left in America who know much about rail.

Did you know that very few Americans have much of a connection with railroads? A train is just not much of a part of everyday for many. Only 2 percent have ever set foot on an intercity train and just 3 percent use light rail and/or commuter trains to get to and from work. This wasn't always so...

In 1946, just prior to the enormous rise in automobile and air travel, about 1.5 million Americans (out of a population of 137 million) worked for the railroads! Ten of thousands of trains criss-crossed the country each day. Folks rode trolleys, interurbans and streamliners. But between 1947 and 1972, as people took to the highways and trucks grabbed more and more of the freight business, the industry lost anywhere from 40,000 to 150,000 jobs annually. Not until the 1990s did the industry stabilize and start to grow again.

*"Someday I'd like to live in a place where all I have to do is walk down the street and get on a train or even a bus that would whisk me to a railhead in less than an hour. We ought to make it easier to live in this country without a car. More mass transit will lessen pollution and congestion, create more livable neighborhoods, curb suburban sprawl and improve our quality of life..." - James McCommons*

## A Short History



<http://www.vizettes.com/kt/rta/maps/usa-rr-1920.gif> Ironically, America once had a passenger railroad system that was the envy of the world. In the 1800s, U.S. trains penetrated the wilderness, moved goods and people, tied together a nation and—in the long run—created a modern, mobile industrial society.

Railroads were THE engines of growth. At their peak in the 1920s, more than 1,000 companies operated over a network of 380,000 miles of track and moved 1.27 billion passengers annually.

The railroad system was reliable, efficient all weather and democratic mode of transportation. It enabled America to become one nation and expand on a continental basis. In 1946, ten of thousands of trains criss-crossed the country each day. Folks rode trolleys, interurbans and streamliners.

In 1934, Burlington's Pioneer Zephyr ran the 1,105 mile Chicago to Denver route in just 13 hours and 5 minutes, averaging 77.6 mph and topping out at 112. People turned out by the thousands to watch this modern marvel stream by and nation-wide, radio networks tracked its progress.

*The Lake Shore* - The Twentieth Century Limited, once called the world's greatest train, ran the water level route of the old New York Central Railroad between New York City and Chicago from 1902 to 1967. Making just three intermediate stops, it



covered the 960 miles in 16 hours. The Lake Shore today makes seventeen stops and takes nineteen hours.

Even today, the Acela Express—composed of locomotive and train cars designed and built overseas rarely hits 150 mph and usually averages only 88 mph—no faster than many steam locomotives in services over eighty years ago.

### ***Interurbans***

As cities developed at odd intervals across the United States throughout the nineteenth century they found they required infrastructures for transporting their citizens. Mass transit was born. Most cities adopted some sort of system that involved cars on rails. Electrification of streetcars rail service led to the interurban.

The interurbans seemed to fill a travel void for much of America. The interurbans were bright and clean, stopped almost everywhere, and ran far more frequently than the steam trains, for one car made a train. Once in town the cars usually operated through the streets and went right downtown. Extended further they could service rural communities, making regular travel to "the city" reasonable and connecting cities to their suburbs.

At one time, nearly every city in the U.S. with population over 10,000 had at least one streetcar company. It is estimated that in 1920, 90 percent of all trips were by rail using 1,200 separate electric street and interurban railways with 44,000 miles of track, 300,000 employees, 15 billion annual passengers, and \$1 billion in income.

In the 1920s, just about every metropolitan area in the country could boast interurban service but before the 1930s were over the interurban was almost dead.

### **What Happened? - *Decline (Competition and Conspiracy)***



<http://www.vizettes.com/kt/rta/images/rustyRRbridge.jpg> Beginning around the end of World War I the industry began a decline, accelerated primarily in the 1920s by the growth in automobile ownership combined with state construction of durable concrete highways.

Often these highways flanked the interurban lines, and in some cases the state would pressure the struggling interurban to abandon service so that the state highway could be widened after tracks were removed. As a result of this shift in transportation methods, the small and unprofitable lines were discontinued. By the 1930s, most of the interurbans had disappeared.

Many interurban and streetcar lines were bought out in the *Great American Streetcar Scandal* and deliberately destroyed. The General Motors streetcar conspiracy (also known as the National City Lines conspiracy) refers to allegations and convictions in relation to a program by General Motors (GM) and a number of other companies to purchase and dismantle streetcars (trams/trolleys) and electric trains in many cities across the United States and replace them with bus services.

During the period from 1936 to 1950, National City Lines and Pacific City Lines were involved in the conversion of over 100 electric surface-traction systems into bus systems in 45 cities.

GM and other companies were subsequently convicted in 1949 of conspiring to monopolize the sale of buses and related products via a complex network of linked holding companies including National City Lines and Pacific City Lines.

During the time of the 1973 oil crisis, controversial new testimony was presented to a United States Senate inquiry into the causes of the decline of transit car systems in the U.S. This alleged that there was a wider conspiracy—by GM in particular—to destroy effective public transport systems in order to increase sales of automobiles and that has been blamed by some for the virtual elimination of effective public transport in nearly all American cities by the 1970s.

### ***Death Knell***

The completion of the interstate highway system in the 1950s swung the balance of power in transporting freight to motor trucks which could deliver goods door to door, not simply railyard to railyard like trains. This road network also encouraged the abandonment of central cities and the development of suburbs, while the popularity of the automobile eroded the passenger base which had been a regular source of railroad income.

### ***Another Perspective - The Switch from Steam to Diesel or Electric?***

In 1941, GM thru a merger created the Electro-Motive Division (EMD) producing and marketing powerful gasoline and diesel engines using the competitive strategies and economies of scale it already had brought to the automobile industry. GM also used its muscle to extend easy credit to convince railroads that had electrified their infrastructures and were already running powerful electric locomotives to tear down their overhead wires and run diesels instead.

At the time it seemed like a wise economic decision because diesels were a cheaper alternative to building or maintaining an electric infrastructure but soon this limited their ability to compete efficiently against trucks and cars by running higher-speed trains. While other countries electrified, America dieselized and as a result, there are few electrified lines in America today.

### **Fuel Duels**

Railroads could provide much-needed solutions to the nation's transportation problem. Railroads are a viable alternative that can deliver freight and people at a lower cost to the environment.

### ***Freight Facts***

*"A single train moves the same load as 280 tractor trailers and a ton of freight can go some 400 miles on a single gallon of fuel." - CSX commercial*

The railroad freight lines move 65% of the country's coal and 60% of the nation's grain harvest. When it comes to long-haul shipping and moving big, heavy stuff, American railroads, in terms of tonnage and efficiency, do it even better than anywhere else in the world. Europe has a great passenger system but only 10% of its goods move by rail.

Facts on freight rail's fuel efficiency:

- One train can haul the load of 280 trucks or more.
- In 2009, Class I railroads generated 1.53 trillion revenue ton-miles.
- Class I railroads reported fuel consumption in freight service of 3.192 billion gallons.
- Dividing 1.532 trillion ton-miles by 3.192 billion gallons of fuel yields 480 ton-miles per gallon. That's up from 436 in 2007 and 457 in 2008 (480 was the average last year for all rail traffic across all Class I railroads).
- What's the most environmentally-friendly way to transport goods? The answer is freight rail. The EPA estimates that every ton-mile of freight that moves by rail instead of by highway reduces greenhouse emissions by two-thirds.
- A train gets about 100 miles per gallon per ton whereas a truck (*tractor trailer*) gets 10 miles per gallon for the same payload. When used for transporting passengers instead of freight the difference even increases: 468 passenger-miles per gallon for trains versus 30 for a compact car.
- A train can move a ton of freight 436 miles on one gallon of fuel—three times farther than a truck. One intermodal double-stacked train takes 250 to 300 trucks off the road.



With the emergence of the containers—first patented by an American Malcolm Mc Lean in 1956—freight is easily transferred between ships, train and trucks and freight trains are much "greener" than trucks moving items across the continent.

Due to the use of containers, intermodal movement of goods has proved increasingly successful. Ramping this up is important as fuel prices climb inevitably higher in the years ahead. Trucks will move goods the final miles, but long-haul trucking is losing its economic advantage and should not be subsidized. One guy behind the wheel of a mammoth tractor trailer driving from California to New Jersey cannot compete against a two-mile long train of containers running a 70 mph and likely 90 mph in the future.

### ***Passenger Train Positives***

The increased demand for passenger rail due to increased energy costs has already begun to increase mass transit ridership. Traffic will continue to grow across America because population is growing. Trains won't cure congestion any more than additional roads will. What trains will do is change some settlement patterns and plant seeds for developers who build higher-density development closer to the tracks. Rail can promote a more conservative use of the land because infrastructure influences settlement.

In United States, 80% of all travel is less than 500 miles and most Midwestern cities are situated 100 to 500 miles apart too close to fly and too inconvenient to drive particularly in severe weather. A regional system of fast trains would have the added benefit of relieving the strain on Chicago's O'Hare airport (the second busiest airport in the world). Currently 1/3 of all flights out of O'Hare are less than 500 miles. [Existing Intercity railroad system >](#)

Where passenger trains are present, railroads may need to maintain their tracks to a different

standard. On curves, for example, the outside rail is elevated above the inside rail to bank the turn. The amount of elevation depends on the speed of the trains. Faster passenger trains require higher elevations. All trains put more weight on the lower rail as they round the curve. Passenger trains are relatively light and put little wear and tear on the track but heavy freight trains going through these curves can cut in half the amount of time rail can safely be used—consequently there are higher maintenance costs.

## Infrastructure Budgets

The U.S. government subsidizes highways, airports, and ports directly; and gasoline and electricity indirectly via foreign policy and support of the oil and gas industry; so there's no surprise that trains need subsidies as well to compete.

Passenger rail is not just a Federal responsibility. States did not stand aside during the building of airports and interstate. For many states, investing in rail for passenger transport is the fiscally conservative choice. Instead of the usual short-sighted sacrifice of land for the costly widening of highways, etc.; railroads offer a much greater "bang for the buck" with greater fuel efficiency and the inevitable long-term decrease in sprawl.

America has had a history of government support for transportation. In the early Nineteenth Century governments built canals to link natural waterways. In the second half of that century, government support took the form of land grants to and bond purchases from railroads. In the 1950s, Eisenhower launched the interstate highway system.

But sadly, increased regulation of the railroads and subsidies for highways and air transportation heavily tipped the playing field against trains of all types. Now—more than ever—a balanced transportation/energy policy would include and coordinate all modes of transportation, making it easier to continue a journey on bus or car, train or air or, in the case of cargo, by truck, rail or air freight.

Did you know United States infrastructure spending that is less than half of that in Europe and a third of that in China in terms of GDP? Far too few funds are dedicated to the maintenance of existing infrastructure and yet we have very low gas prices compared to just about everywhere else. Our continued dependence on the congestion-causing, sprawl-inducing, pollution-generating private automobile has resulted in very high traffic fatality rates and some of the longest commute times in the developed world.



In transportation, we are shying away from supporting our rail network because it does not fit in with contemporary American commuting trends. We spent massively to create the highway network, and the result is that it is now the backbone of most Americans' daily commutes.

There was nothing natural about that process. We are adding population at such a quick rate that we need to encourage different commuting trends but in order to do so, we must change our mindset and invest the resources required.

If President Eisenhower had waited until (1) he had all the cash on hand, (2) all the lines drawn on a map and (3) all the naysayers on board; America would not boast the state-of-the-art [interstate highway system we have today](#). With our population expected to swell by 70 million over the next 25 years, continuing to rely on congested highways and overburdened airports is simply unsustainable and would constrain America's economic growth.

When it comes to upgrading our woefully inadequate railroad system, we stand at a moment similar to that in the 1950s when President Eisenhower pressed for a network of American highways. If we fail to prepare for the decades ahead by taking similarly innovative steps by adding energy efficient alternatives to our infrastructure, we will shortchange future generations and deprive them of the tools they will need to compete in a global economy.

State Governments and Local Communities must work together with the Federal government to redefine national policies for intercity travel. Megaregions will be the epicenter for change, creating financially-stable [interconnected networks for long distance travel](#). Cooperation among various mode of transport should result in more centralized "travelports", where travelers can make convenient connections to air, higher-speed rail or high-quality bus service to complete their journeys. The development of such a coordinated system approach will help to solve the financial crisis plaguing the airline, rail and travel industries in a way that improves economic and environmental efficiency and promotes consumer choice.



## The Emergence of Megaregions - Staying Competitive



<http://www.vizettes.com/kt/rta/maps/us-megaregions.jpg> As current urban areas of America grow into each other, they create hundreds of miles of dense settlement commonly referred to as megaregions.

Examples of megaregions are the Northeast Megaregion, from Boston to Washington, or Southern California, from Los Angeles to Tijuana, Mexico. They comprise multiple, adjacent metropolitan areas connected by overlapping commuting patterns, business travel, environmental landscapes and watersheds, linked economies, and social networks. At least ten megaregions have been identified in the United States.

In Europe and Southeast Asia, governments are investing tens of billions of dollars in high-speed rail and goods movement systems to connect networks of cities in what are termed "global integration zones." These counterparts to America's megaregions are increasingly being viewed as the new competitive units in the global economy, where knowledge workers can move freely among urban hubs. Economic regeneration strategies are also being deployed at this scale, to transition former industrial regions to the new information economy.

The demands of these new megaregion communities will necessitate the expansion of advanced rail systems as an alternative to massive new highway building. Upgrading the current railroad infrastructure to support higher-speed trains and a greater separation of passenger from freight

transport should be a high priority. The longer we wait, the more expensive it will become and the farther we will fall behind other countries with already-established high-speed rail (i.e., France, China, Japan, etc.).

In addition—on an even more local level—we should consider incentives to create more walkable communities inter-connected by public transit. Less need to jump in an automobile to pick up a quart of milk, get your kids to school or commute to work means huge savings on energy and reduced stress for all.

### **Trains Make Sense...**

Railroads, unlike highways, generally respected landscape, following the contours of the land, creating smaller footprints and as a result, offering travelers more intimacy with nature and place.

*"To ride across America enjoying the privacy of your own sleeper-car room, and also the sociability of dinner in the diner with strangers who often become friends (as well as all the electricity you need to keep your laptop and cell phone charged and actually get some work done), is a civilized experience more and more Americans are seeking out.*

*College students, retirees, and small-town residents still make up the bulk of Amtrak's long-distance riders, but more and more these days I meet worldly scriptwriters, computer programmers, and other professionals who have had it with airports and interstates and welcome the opportunity for either the concentrated work or the deep relaxation that train travel offers.*

*With proper funding, and faster, more frequent service, passenger trains can regain their storied place in American life—and you don't have to be a rail nut anymore to see that."*

*- [Phillip Longman](#)*

Many states, from Maine to Michigan and California, are spending their own money to fund passenger trains and, in some instances, such as Virginia, are investing in freight rail as well, to get trucks off the road.

Although most State Departments of Transportation (DOTs) are still dominated by highway builders, under the leadership of strong personalities, key government employees in a few states (such as California, Washington, Wisconsin, and North Carolina) have changed the culture and mindset of the state DOT to focusing more on rail.

California has big transportation problems: it contains three of the nation's most congested urban areas, transportation accounts for 40 percent of its air-quality problems, congestion costs \$20 billion a year in fuel consumption and lost productivity, and the state may add another 20 million people over the next twenty years, reaching 50 million. These statistics have staggering implications. If the trains system is not built, studies show the government will have to build 3,000 additional miles of freeways and expand all major airports at a cost of \$82 billion.



## Incentives

The infrastructure of our rail system is rusting away... waiting to be fixed; the project would put scores of thousands of people to work at meaningful jobs at all levels.

The past saga of survival for U.S. railroads was accomplished on two tiers:

1. Solidifying Trunkline Mains as a result of mergers over the last fifty years; and
2. Hundreds of viable feeder lines salvaged or spun-off from the merged mega railways.

We must recognize that future survival depends on down-scaling and re-localization. To revive our train system it will be important to rehabilitate branchline rail connections to many places now truck-dependent. Smaller cities and industries near dormant railroad corridors that are not of interest to operating shortline operators will need to approach operators, and form local consortiums or partnerships to reconnect.



Bailing out Detroit should be more than just ramping back up the car assembly lines. In 1941, GM made the transformation from cars to armaments in a matter of months; why can't it produce the rolling stock for a renewed passenger rail system? Or jump start remaking trolleys once more?

Why hasn't anybody in a position of authority thought about restoring America's mothballed passenger rail terminals to their old position as the local and regional hubs of a revitalized national passenger rail network?

*"It is fantastically expensive to get high speed rail started and time consuming to build, not least because it involves the taking of much private property for the new right-of-way.*

*Arguably, many more communities could be served, sooner and for far less money, by projects that simply boosted the speed of passenger trains upward to around 110 mph, which would allow them to run on existing tracks and share the cost of the infrastructure with slower but profitable freight trains. This approach has the added benefit that capital spending for improved track and signaling would help freight railroads to get more trucks off the highways, even as it provided many more Americans with passenger service that is fast enough to beat driving or taking a plane. It's a humble vision compared to that of gleaming bullet trains, but perhaps a more practical and equitable one as well."*

*- [Phillip Longman](#)*

Leadership on the Federal level is still sorely lacking on this. If our government declared this to be a national policy objective and made bailouts and tax breaks conditional on retooling for energy-efficient vehicles (not just automobiles!) the American public and other related industries should follow.

## Summary

Sadly, due to the merger mania—triggered by deregulation in 1980—much of the U.S. rail network was abandoned. Much of this contraction was ruthlessly efficient for the bottom line but in retrospect, regrettably short-sighted. Energy-efficient transportation desperately cries out for a re-assessment of our railroads and a return to much of the network they once had. Since the 1960s, nearly half of the nations' rail infrastructure has been abandoned or removed.

The country needs connectivity: seamless frequent and dependable connections between and intercity train, bus, light rail vehicle or airplane. Intermodal travel is efficient and hassle free.

Most of the U.S. public would benefit tremendously from normal rail service on a par with the standards of 1927, when speeds of 100 miles-per-hour were common and the trains ran frequently and on time. The mainline tracks are still there, waiting to be fixed.

What rail really needs is a guaranteed source of funding, much like the *Highway Trust Fund* for roads. The *Highway Trust Fund* was created in 1956 to fund the interstate highway system by earmarking fuel and highway-user taxes for roads. During the creation and building of the interstate system, all money went to the highways. Rebuilding the railroads requires intervention and financing of the same scope and magnitude.

Across the globe, really fast trains are electric because they aren't weighed down by onboard diesel generators fueled by heavy fuel tanks. Lighter trains accelerate and decelerate quicker and climb grades more easily. Electrifying more track in the U.S. will be expensive but will be necessary to allow bullet trains.

Efficiency will be the driver in the years ahead. America needs a greener more efficient solution to transportation and trains provide it. Hard choices will have to be made. Doubling the interstate system and widen the major thoroughfares across America will only increase congestion. Building corridors for high-speed rail will cost multi-millions as well but the side-effects of lowering congestion and reducing sprawl will—in the long run—more than offset its cost. But focusing money first on the current rail infrastructure and engaging local communities and State involvement is the key to building consensus and spending money wisely.

For far too long America "de-trained". Now is the time to "re-train" and get back on track to meet the energy and transportation challenges of tomorrow.

*Rich Coffey -Jan, 2012*

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Recommended Resources and Credits found online at  
<http://www.vizettes.com/kt/rta/retrainingAmerica-part3.htm>