




GETTING FROM
**HERE to
THERE**

HOW RAILROADS CAN
SAVE OUR HIGHWAYS
FROM GRIDLOCK

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America's highways have long been asked to do too much with too few resources, and now the chickens are coming home to roost. Growth in demand for scarce space on the roads, along with decades of deferred maintenance, have led to ever-growing traffic congestion – traffic that has become a major drag on the productivity of the intercity trucking industry as well as a major source of frustration for commuters who have no practical alternatives to using their cars.

More money in all the obvious places would help, a reality acknowledged in the Obama administration's stimulus package, which included \$29 billion for highway improvements, \$8 billion for mass transit, and another \$8 billion as a down payment on the construction of a handful of high-speed rail corridors. So, too, would investments in smarter roads that use a variety of information technologies to minimize bottlenecks. But in the search for ways to increase the productivity of surface transportation, some of the lowest-hanging fruit is getting short shrift. In particular, we estimate that every \$1 invested in the intermodal transportation network – the infrastructure for seamlessly shifting freight from truck to rail to ship and back – would yield \$5 to \$8 of benefits in terms of less congestion, reduced shipping costs and fewer traffic injuries.

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Optimizing the return on intermodal transit investment is, of course, easier wished for than done. By its very nature, it requires coordination among often bitterly competitive transportation sectors, as well as help from a host of state, local and federal agencies with widely varying priorities. But the effort, we believe, would generate a payoff measured in the hundreds of billions of dollars.



OVERTAXED HIGHWAYS

America's Interstate Highway System was once the envy of the world. In many ways, however, it proved to be too good, encouraging dependence on cars for commuting and on trucks for long-haul freight. The Federal Highway Administration recently calculated that highway delays cost the trucking industry more than \$8 billion a year. All told, the Texas Transportation Institute – the independent

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source for most of the analysis available on road use – estimates that highway congestion cost Americans an astonishing \$87 billion in wasted fuel and travel time in 2007.

There is little hope, however, of solving congestion problems solely by investing in more highway capacity. According to the American Society of Civil Engineers, annual spending on highway improvements is now roughly \$70 billion – a fraction of the estimated \$186 billion needed to stay ahead of traffic growth.

INTERMODAL TO THE RESCUE?

In an era of chronic, rising congestion and high fuel costs, it's no surprise that shippers are attracted to intermodal systems because they offer ways to bypass highways for much of the trip. Here, freight generally starts and finishes the journey on trucks, but is moved long distances by water and rail.

Actually, the appeal of intermodal transportation is hardly new. Britain pioneered intermodal systems in the 1920s. Shipping systems using the now-familiar steel boxes, bearing the logos of shipping companies from dozens of countries, really came into their own in the late 1960s with the global standardization of containers.

Truck-train intermodal transit, the key to land-based service, took off in the United States in the decades that followed. For one thing, the deregulation of interstate truck and rail transit gave shippers far greater flexibility to choose modes and routes that minimized costs. For another, the explosive growth of global trade and the conversion of virtually all non-bulk ocean-going freight to container systems led to massive demand for intermodal options at the ports.

Markets are, of course, the primary force driving the demand for intermodal service: Truck-train combos are far cheaper on most long-haul routes than door-to-door trucking because rail uses far less fuel and manpower per ton-mile. Note, too, that the prospects for increasing carrying capacity using sophisticated information technology are greater for rail than for highways because rail systems are inherently less complex than road systems and access to rail is easier to model and to control.

But the public's stake in freight rail transportation in general and rail-based intermodal transportation in particular goes further

are good reasons to believe that it offers the best hope of expanding future shipping capacity without pouring hundreds of billions of dollars into highways. But a variety of factors now constrain it.

Bottlenecks. Before the current recession, some key rail corridors were running at (or over) effective maximum capacity because tonnage had increased so rapidly in the previous decade. Railroads have responded by accelerating investment in double-track lines, modern signal systems and rail beds capable of supporting faster speeds. But they are still behind the demand curve.

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than lower shipping costs. Transportation is replete with what economists call “externalities” – the costs of congestion, pollution and energy insecurity that are borne by third parties rather than by the buyers and sellers of the shipping services. A single intermodal freight train can displace as many as 300 intercity trucks from the highways, and reduce fuel consumption by 75 percent in the process. One study (admittedly, commissioned by the railroad's trade association) estimates that if 25 percent of freight volume were shifted from trucks to rail by 2026, commuters could save an average of 41 hours a year in time spent in traffic. And, of course, since railroads are far more fuel-efficient than trucks, the shift would reduce both local air pollution and greenhouse gas emissions.

THE WORMS IN THE APPLE

Domestic intermodal rail traffic has quadrupled since 1980, and, as we've suggested, there

In some cases, rail corridors have enough capacity to operate more intermodal trains. But the junctions or terminals at the ends of the corridors (usually in urban areas) are highly congested and thus act as bottlenecks. Often, the simplest way to increase corridor capacity would be to double-stack standardized containers on the rail cars. But on the older rail networks – especially those in the eastern half of the country – double-stacking will not be possible until tunnels are enlarged and bridges are raised to accommodate taller trains.

The railroad industry understands the importance of eliminating bottlenecks, and is investing with this goal in mind. But the sums involved are daunting: the American Society of Civil Engineers estimates that some \$200 billion in improvements will be needed to meet demand for rail services over the next quarter-century. And in the post-financial-meltdown era of tight credit, that amount of

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money will not be easily found.

Money, moreover, isn't the only barrier to eliminating corridor bottlenecks. Local governments must approve the expansion and modernization of truck-rail interchange infrastructure – not a small matter since the expansion of intermodal facilities will mean increased road traffic around rail and truck terminals.

Service complexity and inconsistency. While intermodal transportation for long hauls is generally cheaper than door-to-door trucking, it requires greater coordination than single-mode transport. This extra layer of complexity – and the resulting risks of breakdowns in service – make many shippers hesitant to switch from long-haul trucking to intermodal approaches where the financial benefits aren't beyond dispute. That's why the industry needs to improve its track record, particularly in meeting transit-time commitments. Among other things, that will require a major investment in the information technology needed to manage incredibly complex traffic patterns.

STAYING ON TRACK

Myriad public and private groups have stakes in expanding intermodal capacity to meet rising demand. Without more capacity, highway congestion will spread ever further from city centers. But these groups' interests – in particular, how much should be invested, where and when – are hardly identical. Hence, the need to build effective coalitions that can identify priorities and manage reasonable compromises in dividing the financial burden.

Low-hanging fruit. One no-brainer is improving the efficiency of the interchange itself. Interchange between carriers and modes (rail-to-rail, rail-to-truck) is too often the Achilles heel in intermodal systems, delaying



shipments, raising costs and undermining the whole logic of using multiple transport modes to get from here to there. Railroads plainly have a major role to play in improving the technology at terminals that makes it possible to anticipate congestion and reroute traffic accordingly. Other stakeholders – notably governments – can support interchange efficiency by allocating land for rail connections and terminals outside of urban centers and by minimizing land-use red tape. By the same token, the elimination of remaining grade crossings in urban areas offers the prospect of quick payoffs for both shippers and the public.



Few investments can return so much so fast in terms of improved speed, reduced fuel consumption and, of course, public safety.

The CREATE Program (Chicago Region Environmental and Transportation Efficiency) is a model of the sort of public-private cooperation needed. It brings together freight railroads, Amtrak and the regional commuter rail authority along with the local, state and federal governments in Chicago, where six of the seven major United States railroads converge. The partners are committed to spending more than \$2.5 billion on some 78 local infrastructure projects,

with the railroads contributing a bit more than \$200 million – their estimated direct benefits from the improvements.

The Alameda Corridor initiative in Southern California is another example. The rail corridor, completed in 2002, links the adjacent ports of Long Beach and Los Angeles (one of the highest volume freight hubs in the world) with the transcontinental rail yards 20 miles away in central Los Angeles. The authority running the corridor, which is governed by the two cities and the port managers in cooperation with the railroads using the ports, continues to build rail and truck-rail

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infrastructure in the area, with the goal of reducing bottlenecks and improving air quality.

Capacity expansion. Long-haul corridors are the backbone of cost-effective intermodal transportation, and in many cases their capacity could be expanded considerably without creating new rights of way. The investments needed: the aforementioned bridge and tunnel clearances for double-stack trains (along with locomotives capable of hauling

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them), and information technology for signaling and coordination that would decrease the space between trains that is needed for safety.

One such corridor in the making is the Norfolk Southern's \$150 million Heartland Corridor. It will link the giant port at Norfolk, Va, to the Midwest, making double-stacking possible on the route as well as cutting 200 miles (and \$500 per container in shipping costs) on the run to Chicago. The even more ambitious National Gateway improvements, a public-private partnership led by the CSX railroad, is investing \$700 million to open three corridors (Wilmington NC, to Charlotte NC; North Carolina to Baltimore; Washington DC to northwest Ohio via Pittsburgh) to double-stack trains.

Information technology, in the form of

positive train control (PTC), offers another opportunity to improve capacity on the intermodal network. PTC uses global positioning satellites to track trains with sufficient accuracy to safely reduce spacing between them – especially where freight shares congested corridors with passenger trains. The 2008 crash between a commuter train and freight train in suburban Los Angeles that killed 25 should be a reminder of what's at stake here.

THE BOTTOM LINE

Most Americans are rightly skeptical when business asks for help from the government. Too often, it's easier to compete in the "market" for government aid than in the market for goods and services. And transportation, we would note, has a long, unhappy relationship with government: a century of straitjacket economic regulation (which ended only in 1980) virtually destroyed America's private railroads, and in the process left the country dependent on trucks for far too much of its shipping needs.

But the sorts of problems facing the transportation industries today aren't likely to be solved by markets alone. Road congestion has reached crisis levels in many parts of the country and will only get worse as the economy resumes growth. Moreover, excessive use of the roads adds unnecessarily to the country's greenhouse gas emissions and will make it that much harder to contain climate change.

The least expensive way (arguably, the only way) to increase shipping traffic without inviting highway gridlock or increasing carbon emissions is to expand intermodal transportation so that most of the traffic growth is accommodated by rail. That will take plenty of money, business flexibility and innovation from the transportation industry. But it will also take the best efforts of government to ease the way. **M**