Comment on Draft California Sustainable Freight Action Plan

Submitted by

RAIL Solution

June 21, 2016

railsolution.org

David L. Foster, Executive Director
342 High Street, Salem, VA 24153
540-389-0407 railsolution@aol.com

The first and paramount guideline to achieving a sustainable state freight plan is this: ***As much mid- to long-distance freight should move by rail as possible.***

Energy efficiency of rail movement of freight is over three times greater than for trucking. Less fuel required means less fuel burned, less pollution generated, less greehouse gas emissions, and lower impact on climate change.

A second corollary principle is this: ***Railroad electrification can greatly enhance its efficiency and multiply its benefits.***

Acceleration, deceleration, and braking are all improved with electric traction, and fewer, less complex locomotives are needed. These factors all act to improve line capacity.

A third and derivative principle is this: ***Railroad electrification has compelling environmental advantages as well.***

→ Zero locomotive emissions, extremely important in densely populated, urban, and non-attainment zones.
→ Helps wean the transportation sector from total dependence on oil.
→ Multiple non-fossil fuels can be used to generate electricity, including solar, hydro, geothermal, wind, and nuclear.
→ Much greater energy efficiency than using liquefied natural gas (LNG) as a locomotive substitute for diesel oil.

These basic principles must guide long-term visioning and sustainable freight planning.
In the following pages, as a guide to help California with its plan, we detail some of the challenges and obstacles faced by transportation planners in bringing such principles to fruition.

Capacity.

Today's railroads lack the capacity to handle much additional business, making it difficult to divert more truck freight from highways. This stems from over 50 years of build-out of the Interstate Highway System and the competitive impact it had on rail freight volumes. As rail freight declined, railroad managements downsized everything in an attempt to save money on maintenance and property taxes, while maintaining a capital base adequate to service only reduced traffic levels.

Now as congestion on highways becomes increasingly a problem, especially in and around urban areas, there is no slack capacity on the rail network, even though shippers may now be more willing to explore a non-highway alternative.

With demand in excess of supply, railroads suddenly find themselves with pricing power. They can accept more lucrative business and turn away less desirable shipments. This is a welcome development for the rail carriers. As a result, their perceived need for new capacity, or at least the urgency for it, is far less than for a transportation planner seeking to optimize state, regional, or national goals.

Without major new rail capacity on today's railroads, truly truck-competitive freight transportation is unlikely. Required speed, reliability, and cost comparable to over-the-road trucking Is just not there.

Shared infrastructure investments, benefiting both passenger and freight trains in the 79 – 110 mph range, make the most economic sense. Today's freight railroads have a record of antipathy to passenger trains, mainly because they sap already-strained system capacity. The long-term goal for transportation planners should be a rail system with adequate capacity for passenger, freight, intermodal, and truck ferry trains without having them competing for space.

Restoration of long-removed double tracking, addition of new track, elimination of grade crossings, improvements in signaling, and bypasses of urban congested areas are all avenues to boosting capacity on key rail lines.

Electrification.

From the principles on the previous page, it follows that electrification is very important. There is no technical barrier here. Railroad electrification is in widespread use throughout the world, but only in the Northeast Corridor of Amtrak here in the U.S. Technology for catenary and locomotives is well developed and widely available from established vendors.

As noted above, there are compelling efficiency and environmental advantages to railroad electrification. The big obstacle typically cited is the upfront cost of installing catenary along principal mainlines.

Here states can help by bringing together funding partnerships and possibly by issuing or backing bonds. Electric utilities are natural allies. Electricity sales growth has moderated due to decline in heavy industry, the economic downturn, and the rise in aggressive conservation efforts. Utilities need new markets. And railroad rights-of-way can double nicely as transmission line corridors.

For example, there is an abundance of wind power generation in rural west Texas, but few major markets. Electrification of the Union Pacific mainline from El Paso to Los Angeles would permit transmission of this excess power to fulfill a new market need while at the same time powering trains all along that corridor.

At the same time any emissions from fossil fuel generation are occurring in remote locations far from California's population centers and from a state perspective, zero emission freight goals can be achieved.

LNG.

Railroads have been flirting experimentally with the use of liquefied natural gas as a substitute for diesel fuel in locomotives. Like electrification, use of LNG faces huge up-front capital costs. New or modified locomotives are needed, facilities to create, maintain, and distribute the LNG need to be built, and in this case numerous technical issues remain to be resolved.

The natural gas industry might help with some of these costs in expectation of market growth, just as electric utilities might help with railroad electrification costs. But direct use of LNG in locomotives has drawbacks.

First, compressing, refrigerating, and maintaining the super-cooled fuel take a huge amount of energy, eroding in part any cost savings from use of a cheaper fuel. Safety is also an issue. Railroad operating unions are concerned about having a huge LNG tankcar coupled to the locomotive and what hazards this may present to crews in an accident or derailment. Another problem is that LNG has lower BTUs per pound than diesel oil, so locomotives are essentially derated unless the LNG is co-fired with diesel in some ratio. This means that all the existing complexity of diesel engines is retained and the LNG technology is added on top of that.

In summary, **it makes far greater economic sense to burn the cheap natural gas in a power plant and use electricity to power the trains.**

Regulatory posture.

If we want as much mid- to long-distance freight to move by rail as possible, any state freight plan must focus efforts on facilitating growth of the rail network, not just capacity but also in expanded reach. Today in California there is concerted opposition to increased rail access at ports, with the result that more and more

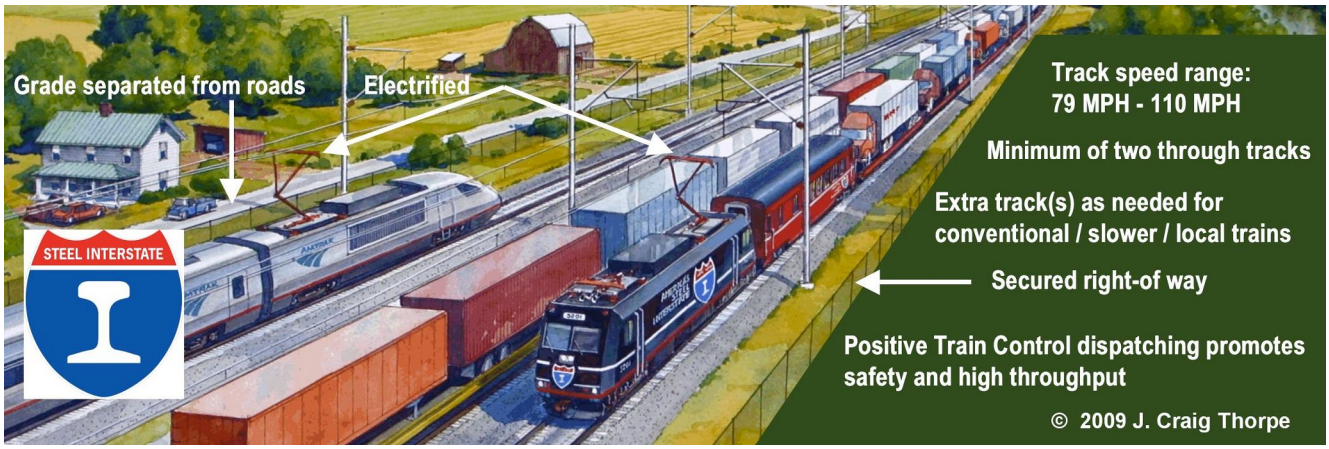
port traffic has to leave by trucks on the highway. The impact of such policies is more pollution, less fuel efficiency, and greater wear and tear on highway pavement and bridges.

California has also seen significant growth in large warehousing complexes captive to highway transport and far from any rail access. A key emphasis in the state freight plan needs to be a required cost/benefit analysis wherever large concentrations of potential freight occur. Ports, warehouses, produce hubs, bottled water operations, and so on need to be screened rigorously with a life-cycle cost/benefit model, measuring both economic and environmental factors.

Steel Interstate.

A key element in RAIL Solution's rail advocacy is the Steel Interstate. Analogous in many ways to the Eisenhower Interstate Highway System, the Steel Interstate would do for railroads what the interstate highways did for roads. A core national network of high-capacity, grade-separated, electrified mainlines would be the backbone for movement of passengers and freight in the 21st Century.

A New Vision for Railroads in the 21st Century



ELEMENTS OF STEEL INTERSTATE DESIGN: A minimum of two grade-separated *through* tracks, engineered, signaled, and dispatched for 79 MPH to 110 MPH, offering frequent, reliable service. The electrified Steel Interstate System would create adequate capacity to divert most non-local truck freight to intermodal trains, and to accommodate passenger trains without impairing freight operations.

The California Sustainable Feight Action Plan needs to provide for a full assessment of the Steel Interstate concept and its potential to craft a sustainable transportation network for the future. RAIL Solution is already working with officials in both California and Nevada to evaluate a Steel Interstate rail operation in the I-80 Corridor.