Address: Maritime-Rail Interface

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Having reviewed the program for this conference and the in-depth treatment that has been given to terminal design and emerging intermodal transportation systems, I find that addressing the topic of the maritime-rail interface places me in the position of at best being redundant and at worst contributing to "overkill." But because the ports are the places at which the sea-rail interface is accomplished, it appears to be appropriate that a port representative be invited to address the subject and bring a port perspective to it. I will attempt to do so recognizing two important facts: first, not all ports will share the same view because inevitably as technology advances there will be gainers and losers and, second, it is not possible or desirable to isolate one segment of the distribution chain, in this case the point of interface between modes of transportation, from the system as a whole.

Over the years, maritime-rail interface has taken many forms:

- Historically in the Port of New York extensive lighterage (barging) systems connected the railheads in New Jersey with the conventional break-bulk piers across the harbor in Manhattan and Brooklyn, which were the port's center of shipping activity at the time. Ultimately, that high-cost, heavily railroad-subsidized system helped contribute to the bankruptcy of many of the eastern railroads, which led ultimately to the formation of Conrail.
- Rail boxcars switched directly to marine transit sheds and "open-top" rail cars delivered directly to shipside for vessel loading.
- Automated dumpers of rail hopper cars into bulk cargo-handling facilities.
- Drayage links between rail intermodal yards and marine container terminals, with some drayage as short as 1/2 mi, others as distant as 20 mi.
- In North America, as early as the late 1960s, on-terminal direct container rail transfer facilities in such ports as Halifax, Nova Scotia, and Portsmouth, Virginia.
- Directly affecting the efficiency of the sea-rail system has been the evolving understanding on the part of the railroads of the needs of international intermodal traffic and the implementation of unit trains that bypass points of potential delay.

This variety of alternative methods of providing the sea-rail interface reflects a function of time, of respective port distribution patterns, of cargo mixes, and of the port's individual perception of its role in international distribution. The port's unique geography and relationship to urban centers has also tended to dictate its response to the sea-rail interface requirement. It is not equitable or possible to say whether a particular port's solution was right or wrong without a careful examination of these factors. What works in one situation may not work in another, or at least not as well.

The difficulty of course for ports is that technology has no sense of history or geography. Ports have never had the luxury of dictating to other transportation interests how they should operate. As a vital link in the transportation system, ports to a great extent have had to react to the technological innovations of the other partners in the chain. I do not recall the shipping lines in the 1960s asking ports how long it would take to build new container terminals before the keels of container ships were laid. The ships were coming and somehow the terminals were expected to be ready. However, attempting to resist technology is no more effective than attempting to stem the flow of a stream of water by blocking it; it does not work. The key issue is not whether to accommodate technological development but rather how best, economically and competitively, to adjust to it.

This brings us to the most recent technological development that affects the intermodal sea-rail interface, the double-stack unit container train. Introduced first in the early 1980s by the Southern Pacific Railroad and having gained increased attention as the more recent result of the success of American President Lines' "Liner-Trains," the double-stack train concept has literally burst on the transportation scene in the past year. By recent count, there are at least 32 double-stack trains or combined double-stack and conventional trains moving weekly in each direction between key terminals. (I noticed also this past Christmas season that, in some of the toy store windows, double-stack equipment was operating; this equipment is not included in the count.) In meetings I had in Asia during the past year, double-stacking was the major topic of conversation among representatives of shipping lines, and the concept appeared to have a prestige element separate and distinct from its potential economic and service advantages. Imagery aside, to date this innovation has wrought

1. Ports with established intermodal interface systems that in most cases have been based on a trucking or drayage connection have had to reevaluate their situations. In the view of some shipping lines, but not all in my experience, double-stack unit trains operate best when the rail terminal is contiguous to the marine terminal facility and the

transfer is under the supervisory control of the ocean carrier, particularly where a train dedicated to a single shipping line is involved. Such configurations are in place at this time at only a limited number of U.S. ports, but installation at other ports is presumably likely but not without additional capital expenditures and potential duplication of rail terminal facilities.

2. Imbalanced international cargo flows in double-stack train traffic corridors have brought shipping lines into the domestic transportation business in an attempt to minimize empty container repositioning.

3. It appears for the first time in our history that international traffic, accounting for about 30 percent of railroad intermodal traffic, is presently driving the domestic transportation industry toward at least a degree of domestic containerization, a concept with only limited historical application.

4. Philosophies of railroads vary dramatically as to how double-stack service should be implemented. Among the major western railroads for example, one major carrier only negotiates term contracts that then permit the ocean carrier to solicit westbound domestic traffic to balance container equipment, another retains control of the westbound trains and pricing on domestic loads, while a third provides double-stack train slots on an "as needed" basis without a contract. Clearly, there is less than a uniform approach to control and pricing philosophies.

5. Considerable expenditures by some railroads have been necessary to provide the clearances to allow double-stack trains to operate in line-haul service, and portions of the rail system are presently without this capability.

Clearly, the introduction of double-stack technology demonstrates that the maritime-rail interface cannot be viewed in isolation from the total system of which it is an integral part.

Many questions still remain unanswered regarding this most recent innovation:

1. With most double-stack unit trains today serving the dedicated needs of a single ocean carrier, how can the needs of other shipping lines whose volumes do not support a complete unit train be most efficiently addressed? Only recently are some responses to this need being seen.

2. Is it reasonable to assume that domestic shippers will en masse find International Organization for Standardization (ISO) containers attractive vehicles for moving cargoes regardless of attractive pricing mechanisms when their package design and loading plans have been geared to units of greater dimensions and cubic capacities?

3. Will a large number of shipping lines be able to introduce the systems, disciplines, and domestic solicitation organization that a few larger lines have achieved or are in the process of implementing?

4. Will the double-stack unit container train in domestic transportation generate economies for the railroads that have seen their intermodal market share slip away to motor carriers who enjoy economic deregulation, the use of vehicles with larger dimension and higher cubic capacity, and declining fuel prices? If so, that may be a debt the railroads will owe the shipping lines that have driven this development.

5. Will the economic savings accruing from well-managed double-stack trains increase the intermodal carriers' market share of all-water movements through improved mini-land-bridge services, or will it merely permit retention of the apparently stabilized mini-land-bridge market share against competition from larger, more fuel efficient vessels in the all-water services?

In addition to technology, systems development, and terminal capability, there is another element to the equation that is sometimes overlooked and needs to be addressed. As our intermodal systems on the industry side continually improve, we appear to be seeing U.S. government policies moving in the opposite direction. Senior officials in the U.S. Customs Service, citing allegedly extensive cases of cargo manipulation while in intermodal transit and concerned about duplication of Customs' inspection workloads at port of unloading as distinct from port of Customs' entry, have publicly stated their preference to have as many containers as possible cleared at port of unloading and to minimize in-transit movements to other points of entry.

A whole series of incidents, including a directive to inspect all containers of textiles at port of unloading (subsequently rescinded), a requirement that a Customs officer affix a "red-ball" seal to each container before inland in-transit movement (subsequently modified to permit "high security seals" affixed at port of foreign loading to serve as an acceptable substitute), and a declining Customs workforce required to handle increasing import cargo volumes suggest that there are forces beyond the direct control of the parties in the transportation chain that can affect the efficiency of the system. It is advisable for all with an interest in the success of these innovative systems to be alert to these potentially constraining forces and to use their joint capabilities to protect their mutual interests.

Inherent in the subject of the maritime-rail interface is the port industry's latest buzzword, "load centers." Under the load center concept it is suggested that as container vessels grow in size, they will call at fewer ports, with a limited number of ports benefiting at the expense of all other competitors.

As long as container supply significantly exceeds demand for container space in many containerized trade routes, and the majority of opinion is that this will be the case for some time, shipping lines may find themselves compelled to call at additional ports. Equipment imbalances may require shipping lines to seek lower revenue cargoes, which historically have moved in the tramp trades, in order to minimize the cost of repositioning equipment. Such cargoes may originate in areas that the shipping line would not otherwise serve. If the load center concept does evolve, it is not a given that all shipping lines making the load center decision will necessarily select the same ports as their load centers. Indeed, the reverse would appear to be more logical.

The transportation infrastructure of any port is finite and reaches its effective capacity at some point. With many ports located in major metropolitan areas, international traffic competes with domestic traffic for rail and truck service, and the domestic traffic in many cases generates higher net revenues to the inland carriers. Competition between automobiles and local trucking for highway availability creates potential conflicts and problems. Concerns about the environmental effect of traffic congestion can be significant. For line-haul rail service, balancing railroad equipment between domestic and international cargo flows within each traffic corridor is part of the total equation. Concentrating activity at a limited number of gateway ports introduces potentially significant labor-management relations issues and raises political problems about the allocation of government resources to facilitate cargo clearance.

The large number of factors to be considered suggests that, rather than a limited number of ports becoming the load centers at the expense of all their competitors, the alternative may be a pairing of

specific shipping lines with specific ports, motor carriers, and railroads. Should this come to pass, it obviously can result in rather substantive marketshare shifts among ports within a range, but it perhaps will not be as severe as when all cargo is theoretically concentrated at a single gateway.

A year or two from now, many of the questions I have attempted to raise may be answered or at least clarified. However, that is not to say that at some point we can all sit back and enjoy the results of a climate of stability. Neither advancing technology nor marketplace conditions will allow that to happen. And besides, it would take all the fun out of the transportation business.