

The Thruport in 21st Century American Rail Freight Transportation

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I am writing in reference to the Intermodalism hearing by the House Transportation & Infrastructure Subcommittee on Highways, Transit and Pipelines held on June 15, 2006. At the hearing, Dr. Patrick Sherry, from the Intermodal Transportation Institute at the University of Denver, addressed the Thruport Concept “as a project worthy of additional consideration and funding”. I would like to further elaborate about the potential of the Thruport concept to improve American rail freight transportation and provide a justification for a strategy involving feasibility studies and implementation. It has been stated before this committee and others that rail freight is currently facing serious challenges to meet the nation’s present and future freight mobility needs¹. In simple terms, limits in the capacity of many segments of the national rail system have been reached and new solutions must be provided. Due to the complexity of contemporary freight distribution, these solutions will have to be addressed by the various actors involved, from the federal, state and municipal governments to the private sector (rail companies, terminal operators, trucking companies, third party logistics providers, etc.). While many endeavors can be mitigated almost exclusively by the private sector, the national scale inherent to the problem addressed by the Thruport requires a concerted effort. Before going further, I would first like to provide a brief introduction of what is a Thruport and why its setting should be seriously considered.

The Nature of a Thruport

The term Thruport suggests a seamless transfer of freight by a reduction in handling and the number of movements required to perform a “transmodal” container or trailer operation. The term transmodal simply refers to a movement from one segment of the same transportation mode to another such as rail to rail or truck to truck. Currently transmodal rail operations rely on two approaches. The first involves trucking as containers are moved from one rail terminal to another; let it be within the same facility or between nearby facilities. The second is a standard rail interchange that switches

¹ See for instance the testimony of the Honorable Joseph H. Boardman, Federal Railroad Administrator, before the Subcommittee on Railroads, Committee on Transportation and Infrastructure, U.S. House of Representatives, April 26, 2006.

railcars between different terminals. This can take between 24 and 48 hours or longer depending on the corridor and the type of railcar. Both strategies are not very efficient as they involve several stages. Functionally, a Thruport reduces the multiple stages in transmodal rail operations to a single one. Aside from the gained efficiency resulting from reduced handling operations, the probability for damage from the numerous operations a container is subject to is reduced. For instance, a Thruport would eliminate tractor, driver, chassis, and cross-town delivery to terminals (Figure 1).

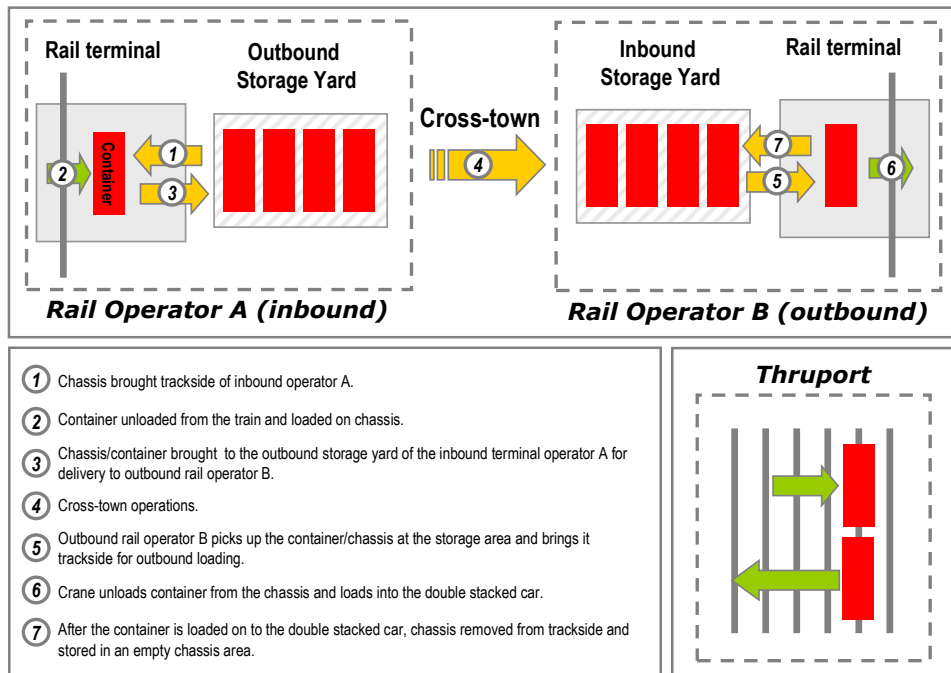


Figure 1 Transmodal Rail Container Transshipment Sequence: Before and After a Thruport

The Rationale for a Thruport

Although American intermodal rail transportation is getting increasingly efficient (particularly rail / ship), the whole issue of transmodal rail has barely been addressed. Rail transmodal operations are complex and time consuming, mainly due to the fact that the terminals involved are not directly connected because of ownership fragmentation. Typically for transcontinental rail freight, a container has to be unloaded at the terminal of a rail operator to a chassis which is then stored at an outbound yard, waiting to be picked up. Then, after several document verifications, the container is carried across town to the terminal of another rail operator, where it is stored at an inbound yard. The truck that delivered the container often drives back empty. When the outbound unit train is being assembled, the container is picked from the yard and loaded on the railcar. The time and cost performance of such operations varies since there is a wide variation between peak and non-peak time periods, the amount road congestion between terminals as well as congestion and delays to access terminals.

My research² has revealed two major factors behind the fragmentation of the current rail system that particularly justify a Thruport:

- **Market Fragmentation.** The American market is massive but fragmented and can only be accessed through a small number of gateways, mainly corresponding to major ports. As the American retailing market increasingly depends on foreign suppliers, the traffic handled at these gateways has surged along with long distance rail. In this one-to-many distribution setting, it is virtually impossible to offer direct services; hubs have to be used. This thus represents a situation in which Thruports could act as hubs where containers are shuffled to their respective unit trains bound to specific markets. The efficiency of gateways to accommodate intermodal traffic would thus be linked with the efficiency of the Thruport.
- **Ownership Fragmentation.** American Rail companies have their facilities and customers and thus have their own markets along the segments they control. Each rail system is the outcome of substantial capital investments occurring over several decades. Interchange is a major problem between segments controlled by different rail companies, particularly since many networks were built to gather market share and regional control over rail freight services. Until the last two decades, this did not present too many difficulties since transmodal operations were comparatively small. However, with a surge of transcontinental rail shipments (for reasons previously discussed), rail operators are bound to further address transmodal issues. In this context, the Thruport creates multiplying effects. The distribution potential of each operator is expanded since they have better access to the freight markets of their competitors, creating a situation of complementarity. An analogy can be made with network alliances that took place in the airline industry. The outcomes were costs reductions, a better service and a wider geographical coverage. Rail networks are obviously much more constrained in the process since they have a high level of spatial fixity – by far the highest of any mode. A Thruport would thus appear to be the next step in this trend since ownership fragmentation will remain in North America.

Consequently, as a transportation geographer I see the research and development of Thruport facilities as an important strategic step to improve the efficiency of our nation's intermodal transport system. Among the problems facing rail transportation, the challenges of transmodal operations may have been underestimated, particularly in the context of rail freight solutions to rising energy costs and urban congestion. Addressing this issue particularly calls for a strategic plan directed by the Federal government. Because of the capital costs involved, widespread acceptance will be essential; thus, an active Federal role will ensure that every Thruport meets the demands of all the essential players - railroads, motor carriers, and shippers - who often support competing agendas. Despite divergent agendas, all the players are united in wanting to better serve their customers and would eagerly support strategies enabling them to provide service in a more efficient and cost effective way.

² Rodrigue, J-P (2007) "The Thruport Concept: Reconciling Time and Flows in Rail Freight Distribution", submitted for publication, *Journal of Transport Geography*, http://people.hofstra.edu/faculty/Jean-paul_Rodrigue/downloads/JPR_Thruport1.pdf

The Setting of a Strategy

In the testimony of the Honorable Jeffrey Shane, under secretary for policy, US Dept. of Transportation, the basic structural make up of the DOT and its placement of the Office of Intermodalism within the Research, and Innovative Technology Administration (RITA) was discussed. Mr. Shane stated that this change within the DOT would help give a much needed boost to intermodalism with research on key issues, the search for appropriate technologies and the use of relevant statistics. In regard to statistics, there is no tracking of essential rail-to-rail interchange speed and reliability, neither by rail or truck. This is essential information for shippers making decisions how to route their cargo in an intermodal transport system. In contemporary freight distribution, the time element is becoming as crucial as the cost element, particularly in the context of “just-in-time”. The growth of containerized rail traffic is in addition creating uncertainties. For example, the “dry port” of Chicago, which is the third largest container hub in the world, experienced a rail intermodal volume increase from 12.4 million TEUs in 2003 to 13.98 million TEUs in 2004, yet shippers have no idea what this surge has done to the speed and reliability of service. There also is no tracking of intermodal traffic volume per rail line. To thoroughly compare the benefits of a range of different Thruport locations and designs, these types of statistics will be vital.

There are many possible consequences caused by a lack of funding in intermodal rail. The most obvious are congestion and a decline in the reliability of freight distribution. Mr. Edward R. Hamberger, President and CEO of the American Association of Railroads provided an excellent profile of the economic context affecting rail operations in a Testimony for the Committee on Transportation and Infrastructures, Subcommittee on Railroads, on April 26 2006. On the positive side, we should not expect the freight and rail industry to remain inactive for the clear reason that access to the American market remains one of the most strategic commercial ventures in the global economy, in spite of the remarkable potential of emerging markets such as China and India. For instance, global players, namely maritime shippers and/or port operators, will step in to acquire segments (or significant stakes) of inland freight transport systems, starting with port terminals. In his testimony, Mr. Robert Bray, Executive Director, Virginia Port Authority provides an eloquent example: “Perhaps the best indicator of this tremendous effort is the APM/Maersk’s private investment of more than \$450 million of its own money to build a 300-acre terminal in Portsmouth, Virginia. This is the first time that a shipping line has invested its own money to build a marine terminal from scratch in the United States.” This is probably only the beginning as these global corporations have the financial and managerial means to control large segments of international and national transport systems. The acquisition and the management of strategic intermodal infrastructures by foreign interest are not without controversy as the Dubai Ports situation pointed out in early 2006. I am not here to judge if foreign ownership or management is preferable or not (in many cases it is since a foreign company steps in with an unmatched expertise that benefits the American economy), simply to state that the loss of ownership is almost always perceived negatively by the public. Nevertheless, the needs for efficient transmodal rail operations can only increase with the question remaining to what extent it will be imposed by external players.

In conclusion, the development of our nation's intermodal transport system has encountered several bottlenecks. One such bottleneck concerns transmodal rail operations, for which the Thruport concept provides a salient solution. Still, little is known about the strategic and operational setting in which a system of Thruports would operate. At this stage, a public and private partnership could be set, namely under the Office of Intermodalism, which could consider establishing a planning and development agency - a national thruport construction authority. Along with high speed rail corridors, additional main lines, strategic overhead grade crossings, remote switching from the cab, and radar in all locomotives to prevent rear end collisions, the development of strategically located Thruport terminals present a unique opportunity for the United States to develop an extremely efficient intermodal rail freight system with enormous energy, environmental and competitive advantages that no other country could match.