

Abridgment

# RCTFC—Freight Terminal Network of the Intermodal Age

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Contemporary concepts in freight handling are incorporated in an intermodal freight center designed to provide an efficient and effective interface with domestic commerce and international trade markets for a large region. One such concept, referred to as a Regional Cargo Transportation Facilitation Center (RCTFC), would provide efficiencies through such means as increases in freight aggregation into unit trains, multiple trailer truck operations for inter-regional and international movement, integration of the inland waterways into the total intermodal freight system, and dedicated facilities to increase all-cargo flights to and from distant continental and intercontinental markets. Unit train and multi-bottom trailer movement can be dispatched directly to and from coastal and inland waterway ports of transfer for through international movement. The concept deals with terminal and interface requirements of both commercial and military (national security) aspects of the national system. It seeks to bring together, under optimized ownership, management, and operating conditions, all modes and forms of freight transportation (as appropriate in specific regions) in a national set of regional freight terminals. A nationwide network of up to five such terminals is envisioned. The concept embodies advanced management techniques, communications and data processing systems, materials handling technology, and terminal operating procedures on a multimodally compatible basis.

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A few years ago, a Presidential message on transportation stated, "America lacks a coordinated transportation system that permits cargo to move conveniently and efficiently from one point to another, from one means of transport to another—thus enabling us to use the best characteristics of each."

The technical question for transport professions is: Can an approach to freight terminals be found that will meet the efficiency and performance requirements of the nation's total transportation system? Some have suggested using a newly emerging role of freight terminals as a network for the total transportation system. This network can be expected to consist of all transportation modes functioning intermodally and modally. In this paper an attempt is made to answer this question and offer an outline of how such a network can be accomplished.

Certain public acknowledgments and activities of the past are worth noting. For example, as the result of a survey of railway terminals done in 1935 by Boatner for the Federal Coordinator of Transportation, Mr. Joseph B. Eastman estimated that from terminal unification alone savings of as much as \$50,000,000 could be realized. Eastman also believed that terminal unification would improve the financial and competitive health of the railroads and enable them to build up their traffic and that "communities would have more to gain than lose."

Then, in a 1936 statement on terminal coordination, Commissioner Eastman and other experts said that the outstanding problem in translating good coordination plans for terminals into actuality is the difficulty of obtaining the cooperation of the various transportation interests involved. At one time the Interstate Commerce Commission believed

that in order to effect efficient and economic operation and the free movement of traffic all terminal properties should be thrown open to all users on fair and equal terms. The Commission also proposed the unification of all terminal lines in the respective terminals.

Later, according to the findings of the National Transportation Inquiry conducted by the Special Subcommittee on Transportation, 79th Congress, 2nd Session (House Report 2735, USGPO, Wash., 1946), it was found that "many plans for freight terminal coordination had been proposed, but few have been carried out." Interestingly, the subject of that investigation was "Plans for greater coordination of terminal facilities between the carriers of the same and other types."

In Wilfred Owen's "The Metropolitan Transportation Problem," published by The Brookings Institution in 1946, "we find . . . terminal problems mean high costs and delays for all forms of transportation. The scattered location and obsolete design of freight terminals and the absence of satisfactory physical relationships among the several methods of transportation create a heavy volume of unnecessary traffic as well as delay and high costs that penalize business, the consumer, and the community." The coordination and integration of all modes of transportation are key factors in the fullest possible industrial and agricultural development of our country and in national security. That is true for both the domestic and international commerce of our nation.

Authorities recognize that in the true concept of modern day transport systems, ports and terminals as a group are categorized as interface or connectivity centers and as infrastructure. Those ports and terminals include seaports, airports, inland waterway ports, truck terminals, and rail heads or yards including rail piggyback and container terminals. It is no longer appropriate to consider freight terminals and ports as serving one transportation company or mode or as serving only the nation's transport system. They now represent a major and fundamental element of the total public and national security interests of the nation.

Shippers have long known that most of their shipping problems occur in the terminal area. The major problems are (a) increased delivery time as a result of delays that occur at the terminals and (b) increased loss and damage. The physical problems affecting the efficiency of terminal operations include terminal location, terminal age, and the number of terminals that must handle a shipment between the shipper and consignee. The factors of age and location apply mainly to the railroad industry. Because cities and towns literally grew up around the rail terminal, today many of these facilities are trapped in congested urban areas with little room for expansion. Thus, history and events of today make it clear that the problems associated with freight terminals have been with our national transport system for a long time. Congestion disruptive to the freeflow of commodities usually does not originate in the line haul segment of any transportation mode.

An understanding of the role of freight terminals calls for the recognition of terminals as more than freight processing stations where freight vehicles

of one mode, both line haul and pick up and delivery, meet for the purpose of transferring shipments enroute from the shipper to the consignee. It must also be recognized that decision making at the terminal level establishes a commitment to either efficiency or inefficiency of the terminal function as it relates to the total system, the shipper, the consignee, and public needs.

Further, speculation is appropriate as to the labor aspect of freight terminals. The question is whether terminals can remain labor intensive (particularly those terminals where general cargo is processed) while the rest of the transportation and distribution network is investing increasing amounts in capital technical advances. Of course, this leads to speculation about what is required to assure a qualified labor force for the new technological era. Thus, improvement programs for terminals must focus on positive areas of productivity and must provide the assurance to investors, carriers, shippers, consignees, and governments that the program provides efficient economical facilities capable of coping with the future demands of commerce.

Contemporary concepts of freight handling have been incorporated in a proposed intermodal freight center designed to provide an efficient and effective interface for domestic commerce and international trade for a large region. Such a center is called a Regional Cargo Transportation Facilitation Center (RCTFC). It would provide the basis for increased freight aggregation into unit trains, containerization, and multiple bottom trailer operations for interregional and international movement. It would provide for integration of the inland waterways into the total intermodal freight system and for dedicated ground facilities to increase all-cargo flights to and from distant continental and intercontinental markets.

The concept deals with terminal and interface requirements of both commercial and military (national security) aspects of the national system. It seeks to bring together under optimized ownership, management, and operating conditions all modes and forms of freight transportation (as appropriate in specific regions) in a national set of regional freight terminals. A nationwide network of five such terminals is envisioned. The concept is based on advanced management techniques, communications, and data processing systems, advanced materials handling technology, and terminal operating procedures on a multimodally compatible basis and all linked together as a network. RCTFCs would be expected to be activity centers of substantial capital investment and would occupy considerable land; the centers would attract and demand labor; and they would require direct and peripherally supporting

businesses to provide services and supplies. Basic analysis suggests that RCTFCs would have a significant, broad-based economic impact on surrounding areas.

In short, RCTFC is a unique concept created to address longstanding freight terminal issues and interface requirements of the intermodal age. This concept has been found to be feasible in terms of its ability to increase efficiency in the total freight system and in terms of a consistent geographical structure in which such freight centers could function. A demonstration project was found to be feasible provided there is an adequate demand for such services.

For the potential user of an RCTFC the question of whether it is economical can be answered by a comparative cost-effectiveness calculation for alternative transportation modes. For the carrier, the RCTFC would provide unique service and cost advantages. For example, within modal line haul, such as region-to-region or foreign-to-region operations where the RCTFCs would serve as preliminary origin and destination focal points, it is to be expected that more efficient transportation services could be provided. Those services that could be increased along these routes include unit trains, multiple cars, multiple trailer units, and all-cargo airlifts. An increase in such unit operations would provide the user with more service at a lower cost.

On an implementation level, the challenge of economic trade-offs occurs at every level of design. A particularly crucial area involves automation. Because the RCTFC was conceived from the beginning as a high-volume, continuous operation center, the opportunity exists to include the highest level of automation that is available.

The economics of feasibility are arithmetically not difficult. For a given commodity in a given volume, the costs of providing facilities and services must be balanced by revenues from tonnage fees and from ancillary operations such as storage or processing. Because of the conceptual flexibility of an RCTFC, virtually every economic model will show profitability, given adequate growth and minimal commodity volumes. To support a modern, efficient, and comprehensive intermodal regional terminal as contemplated in the RCTFC concept, a typical region would include several cities and the major agricultural, industrial, and mineral productivity of the region between, and surrounding, the cities. Several such regions can be readily envisioned and are referred to in the study report.

*Publication of this paper is sponsored by Committee on Inland Water Transportation.*