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PARTNERS IN INTERMODALISM

Good Afternoon. I am very pleased to have the opportunity to speak to you today. I must say that it was mighty generous of Cal Grayson to invite a resident from Big Orange Country to the home of the Big Blue. The trip up here normally isn't so pleasant for us Tennesseans. I guess since it is not basketball season yet, though, I can go back with my dignity intact. Seriously, though, it is always a pleasure to be here.

When Mr. Grayson called and asked me to address this session, I asked him what the themes were. He responded that the overall conference theme was Transportation Partners for Quality and that this session specifically focused on intermodalism. Now, I have been in academia for four years, but before that I spent seven years in logistics management, and the terms quality, partnership, and intermodal were mutually exclusive terms. The transportation world is indeed changing, and now you can't do business without considering each of these elements.

Let me begin with the following definitions:

Multimodalism is the process of considering all modes of transportation.

Intermodalism is the process of looking at linkages, interactions, and movements between transportation modes.

In this country, we have long taken a multimodal approach in both the public and private sectors, although our consideration leans rather more heavily towards some modes than others. Private sector consider-

ation of intermodalism is nothing really new. Intermodal transportation has been practiced in various forms for many years. It is the public sector promotion of intermodalism that is really coming on strong.

The passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 did more than anything else in recent years to raise intermodalism in the consciousness of the public sector transportation community. The stated goal of ISTEA is to:

"...develop a National Intermodal Transportation System that is economically efficient, environmentally sound, provides the foundation for the nation to compete in the global economy and will move people and goods in an energy-efficient manner..."

The Act makes the improvement of intermodal connections a major federal aim. It created an Office of Intermodalism in the U.S. Department of Transportation, and it outlined, among other things, the requirement for state governments to develop intermodal management systems. There are real opportunities for the public sector to coordinate the interests of public/private interests, resolve land use and zoning issues, and to assess the economic, environmental, and traffic impacts of intermodalism.

Intermodalism has many possible implementations for freight, including rail-highway, rail-barge, rail-ocean vessel, truck-barge, truck-ocean vessel, and truck-air. (Passenger intermodalism has exciting possibilities in the air-high speed rail area, and is no less important in ISTEA, but I will confine my remarks to freight transportation.) The current emphasis in intermodalism focuses on combinations of the rail, highway, and ocean vessel modes.

Intermodal transportation is, almost by definition, a partnership. In the United States, unlike other countries (such as Canada), transportation companies have a limited degree of horizontal integration. Therefore, intermodal movements traditionally involve two or more transportation providers. In rail-highway moves, for example, an intermodal move might involve a third party marketer, a drayage company for pickup and delivery, and one or more railroads for the line haul. These firms should all be partners, since they are working towards the common goal of selling and providing a service. Unfortunately, traditional intermodal partnerships often demonstrated little marital bliss.

In today's commercial environment, where quality is becoming a watchword, partnership is being taken considerably further than the above example indicates. To compete globally, U.S. firms must provide a quality product at a competitive cost. To accomplish this, manufacturers are tightly integrating transportation providers into their production processes. The service providers are becoming true partners in the production and distribution of the end product. At the same time, and perhaps because of this, the intermodal players are seeking to forge true partnerships which exploit the strengths of each firm. There are now, as a result of ISTEA, opportunities for the public sector to help forge and to

participate in these partnerships. I plan, during my talk, to explore each of these trends in more detail. First, however, I'd like to give some background on the intermodal environment and illustrate how we have arrived at the current status.

Rail-highway and rail-vessel intermodal services have been around for many years. The railroads have hauled highway trucks since at least the 1920s, although trailer-on-flat-car (TOFC) service volume was first widely offered during the 1950s and 1960s. Similarly, railroad container-on-flat-car (COFC) dates from early in the century. Unlike TOFC, COFC volumes remained relatively small in the U.S. until the 1970s. The direct transfer of commodities in bulk between rail cars and ocean vessels has been conducted since the early years of rail transportation.

Railroad TOFC service was developed in an attempt to reverse the loss of high value freight to motor carriers. The railroads offered 14 different "plans" for traditional TOFC service. These generally varied in the details of which party provided the highway equipment and performed pick-up and delivery functions. During the boom years of TOFC growth, the railroads constructed hundreds of terminals nationwide to handle the loading and unloading of trailers from railcars. These were often small facilities without much mechanized equipment, relatively poor access to the highway system, and little area for equipment storage. As such, they were relatively inefficient and costly to operate.

A key element of TOFC marketing was the cost differential between it and motor carrier truckload service. The railroads sought to recapture their market share by undercutting motor carrier pricing. The construction of the Interstate Highway System provided the trucking industry with the opportunity to greatly improve service levels. At the same time, the rail physical plant was deteriorating as the railroads faced extreme financial pressures. Motor carrier management frankly outperformed rail management by identifying opportunities, solving service problems, maintaining high customer service standards, and marketing their product. Increasingly, shippers equated motor carrier service with premium transportation and willingly paid the higher rates.

The broker was an integral element of traditional intermodal transportation. Brokers operated off the margin obtained by consolidating shipments to TOFC level, building sufficient volume to get more favorable rates, or by providing value added services such as drayage. In effect, brokers served as a TOFC marketing arm for the railroad. Seldom, if ever, did brokers provide or own any of the equipment involved in intermodal operations. When performed by reputable firms, brokering performed a valuable function and helped to build volume. Unfortunately, brokers were sometimes dishonest, financially unstable, incompetent, or otherwise unable to perform. The few bad actors tainted the waters for many shippers who would have otherwise used TOFC.

Railroad operations involving TOFC often left much to be desired. Railroads frequently attempted to operate TOFC equipment in regular

"loose car" train service. This resulted in unacceptable loss and damage as cars were switched in yards and greatly enhanced transit times over truck competition. To use TOFC service, shippers were required to use special trailers (always in short supply) and to block and brace cargo to withstand the rigors of rail handling. The railroads could never seem to find your load in their system when you called for a trace. As a shipper, you had to deal with the broker and his bill and the railroad and its bill. It was always hard to figure out how much the shipment cost. Shippers faced a real battle in trying to file and collect claims for their frequently damaged or lost shipments. It is little wonder that motor carrier sales forces had it so easy.

The railroad TOFC plans attracted rather low valued commodities which were not time sensitive. The railroad industry seemed unable to recognize that service had value. By the early 1980s, rail intermodal profits were widely considered to be marginal at best, and the railroads continued to lose market share in many intermodal corridors. There were some intermodal success stories. United Parcel Service (UPS) made extensive use of intermodal to handle its small parcel service. UPS was successful in this because it tendered large volumes, sufficient in many cases for dedicated trains and certainly large enough in any case to gain leverage with rail management. A few major railroads, such as Conrail and Santa Fe, counted on intermodal for such a large revenue share that they actively solicited the business and sought to provide and sell service. This worked well as long as the entire movement was internal to their systems, but once a shipment was interlined to another rail carrier, they had no control over the service levels.

Obviously, from this synopsis, you might gather that there were a number of players--railroads, brokers, shippers, drayage firms, etc.--with vested interests in intermodal transportation. Yet, each seemed to function according to its own self-interest, and there was little true partnership. What happened to change this?

In 1980, Congress passed the Staggers Rail Act, which greatly deregulated the rail industry. Staggers gave the railroads more freedom in pricing and the ability to offer contract rates. The Motor Carrier Act of 1980 relaxed entry requirements for the trucking industry. The Interstate Commerce Commission followed with a series of rulings largely deregulating TOFC rates.

These rulings had a dramatic effect on the railroads and motor carriers. Under the freedoms accorded by Staggers, the U.S. railroad industry had record revenues during the 1980s. The carriers used these revenues to implement extensive capital improvement programs to upgrade and rehabilitate their physical plant and equipment. At the same time, they downsized by eliminating excess plant and slimming their labor force. The railroads succeeded, through negotiation, in reducing labor requirements and in effectively cutting costs. By the mid-1980s, many analysts felt that the U.S. rail system was at an all time

peak condition. Even so, rail market share continued to decline, although absolute tonnage levels reached record levels.

For the motor carriers, on the other hand, deregulation offered mixed blessings. The relaxing of restrictions on market entry and pricing fostered fierce competition. Many old line trucking companies disappeared from the scene. A general decline in highway conditions along with increased congestion whittled away at motor carrier service levels. A national driver shortage raised the price of labor, and fuel prices rose throughout the decade. The carriers were able to use increases in productivity gained from increased vehicle sizes to partially offset cost increases.

Without a doubt, cost pressures contributed to a first wave of intermodal volume increases in the 1980s. Economic slumps in the early 1980s made shippers more cost conscious. In response, traffic was diverted to the lower cost intermodal alternative. With the increased ability of the railroads to provide service, some traffic remained in intermodal service. Fuel price increases also increased the cost advantage of intermodal. Fuel represents 8-10 percent of operating costs for rail intermodal versus 15-20 percent for motor carriers. Increased fuel costs therefore tend to shift traffic to intermodal service.

The first new wave of intermodal partnerships was initiated by the steamship lines. Faced with a tidal wave of inbound import traffic as a result of the U.S. trade deficit, these lines looked toward rail intermodal to move containers from their vessels to market areas deep within U.S. borders. Vessel lines used COFC to landbridge container traffic from port to port across the continent. This traffic had a domestic leg, however, and furthermore, the containers had to be returned to the port for return to the overseas point of origin for reloading.

To handle their traffic at competitive costs, the vessel lines adapted the double stack platform, an innovation introduced by the Southern Pacific Railroad. Double stacking containers significantly increased COFC productivity, offering as much as a 40 percent cost advantage over single stack operations. This was important, since the long inland hauls placed the vessel lines at a cost disadvantage.

The steamship lines looked at their empty container backhaul and decided to solicit domestic freight to cover their costs. To their surprise, the domestic freight volumes soon became extremely lucrative. The railroad company operated the trains, while the vessel operators marketed the service and provided all support services to the customer (billing, tracing, etc.). Despite concerns that double stack services competed with their traditional TOFC business and that they were being pressured to accept unreasonably low rates, the railroads found the traffic volumes offered by the vessel lines too attractive to resist.

By the late 1980s, vessel lines had entered into numerous partnerships with railroads to provide double-stack services. Companies such as American President Lines, Mitsui OSK, NYK Lines, and SeaLand were

operating double-stack services in conjunction with various railroads. These were true partnerships.

The case of American President Companies (APC) is illustrative. APC entered the double-stack market to assist its vessel line (APL) which served Pacific Coast ports. APC planned to use rail to reach inland markets, many of which could be more cheaply reached by an all water move. The company decided to use dedicated rail service to provide a premium service for which shippers would pay higher rates. It developed close working relationships with selected rail carriers to ensure that strict performance standards were met. APC purchased several intermodal brokers to solicit backhaul freight.

APC's partnership with the railroads focused on a joint approach to shipper problems. APC personnel were assigned in a liaison role to the railroad terminals. Dedicated staff at headquarters coordinated line-haul activities with railroad management. APC managed all terminal operations; the railroad simply operated the container trains. APC provided railroads financial assistance for clearance improvement projects necessary to handle the double-stack equipment. The Union Pacific Railroad proposed to drop all conventional TOFC service in favor of APC managed COFC service.

A second intermodal partnership relationship has sprung up between major Intermodal Marketing Companies (IMC), the vogue term for brokers, and the railroads. The major railroads have long been concerned by the problems associated with poor IMC performance, yet have depended upon the ability of these companies to generate intermodal business. This need has become more acute as railroads have downsized and centralized their own sales and marketing departments. The railroads have therefore tended recently to seek relationships with a selected number of reputable IMCs. In return, the IMCs have become more insistent upon quality performance from the railroads upon which to base their marketing efforts.

The third intermodal provider relationship, and perhaps the one which offers the greatest possibility for realizing the ultimate potential for intermodal freight, is that between motor carriers and railroads. Such is the potential of these relationships that the 1990s has been termed the decade of intermodalism. These partnerships should take advantage of the strengths of each participant:

- Low cost, high productivity long haul capability of the railroad
- Local pick-up/delivery capability of the motor carrier
- Marketing and customer service expertise of the motor carrier

It is refreshing that motor carriers and railroads, long bitter rivals, should be cooperating rationally in the 1990s. From the standpoints of both modes, there are strong economic reasons why these partnerships are sensible.

At first glance, railroad intermodal growth has been impressive in terms of volume. Consider that 1992 lifts exceeded 6.7 million, a better than 100 percent increase over 1980 volumes, and a 7.4 percent over 1991 levels. Almost 50 percent of these lifts were double-stacked. Yet, intermodal captures only 3-4 percent of total intercity freight movements. In terms of the truckload market (500+ miles), intermodal does somewhat better, with an estimated 15 percent share. The railroads have had difficulty in overcoming on their own the image of intermodal traffic as a low cost, low quality alternative to motor carrier service. This has left them with the low rated moves and slim margins on intermodal business. Equipment has been another barrier to railroad intermodal growth. The railroads have difficulty in achieving satisfactory utilization statistics for their own trailers used in TOFC service. The rapid growth of trailer sizes has rendered much railroad intermodal equipment prematurely obsolete, further contributing to intermodal financial woes. With intermodal loads contributing \$6 billion+ in annual revenues and 20 percent of the total rail carloadings, the industry must find a more effective way to handle the business.

Trucking companies, on the other hand, achieve relatively high fleet utilization, manage rapid fleet turnover to keep pace with technology, and market quality service. Yet motor carrier financial performance has been marginal for the past few years. Motor carrier bankruptcies hit record levels in 1990 and 1991. Profit margins have been razor thin, averaging about 1.6 percent during the period 1987-1991. 1991 revenues averaged \$1.84/mile, down \$0.05/mile from 1990. Driver shortages have been a severe problem in the industry, and increased highway congestion, especially in urban areas, have impacted service standards.

These relative pressures have no doubt influenced the creation of rail-motor carrier partnerships. While by no means common yet, these partnerships have received a great deal of attention because they involve major players in both industries.

The oldest and best known rail-motor carrier intermodal partnership is the Quantum service established by J.B. Hunt and various railroads. J.B. Hunt, a large truckload carrier, has prospered since deregulation through a combination of aggressive marketing and premium service. In the Quantum operation, Hunt sought to develop partnerships with rail carriers to attract new truckload business and move it intermodally. Quantum was to be marketed as a seamless premium service. Hunt would perform the sales, pick up and delivery, and billing operations, with the rail partner providing the line haul. There was no third party or IMC involvement.

Hunt's decision to establish Quantum was driven by the realization that motor carrier operations were no longer cost competitive with rail intermodal in long-haul corridors. The service started in 1990 with a midwest-California lane using the Santa Fe Railway. Quantum provided dedicated trailers for this service. Third-morning delivery time was a key

selling point. Since 1991, Hunt has expanded Quantum using five additional railroads (UP, BN, CR, SP, and CN) to serve all regions of the country except the southeast. There are rumors that Hunt is seeking a partner with which to enter this territory. The most recent partnership with Canadian National Railway allows Hunt access to the Canadian market.

Has Quantum been successful? Industry sources indicate that the original midwest-California lane handled over 100,000 units in 1992. Further, the expansion seems to be an indication of financial viability. Quantum seems to have taught Hunt one interesting lesson. The company recently announced plans to replace its trailer fleet (17,000 units) with 24,000 intermodal containers and chassis. This decision was undoubtedly fostered by the potential economies offered by double stacking. In addition, Hunt developed a container family with the full 110" clearance offered by conventional trailers, thus eliminating one shipper complaint about container equipment. Hunt reportedly has no plans to purchase further conventional trailers.

Con-Way Intermodal (CWI) is a unit of Consolidated Freightways Corp., holding company for a major motor carrier. In 1991, CWI launched its Con-Quest premium intermodal service, again in conjunction with major railroads. Con-Quest is in an expansion phase, with the recent announcement of service to Memphis, Charlotte, and Columbus, Ohio, markets. CWI also is investing \$4.9 million in chassis and containers.

Schneider National is a third major player in the motor carrier industry that is entering the intermodal market. Schneider started midwest-west lanes in 1991 using the Union Pacific and Southern Pacific railroads. The company is working with rail carriers to develop a larger network.

Thus far, I have talked about partnerships between transportation providers. There is another type of partnership which is equally important--the partnership between transportation users and providers. The emphasis on quality which is sweeping American industry is to a large degree responsible for these partnerships.

During the 1980s, American business, under pressure from global competitors, rediscovered quality management philosophies. The lessons of Dr. Edward Deming had been a great influence on Japanese industry, helping it to achieve a worldwide reputation for superior quality. As American industry embraced quality management, the relationships between transportation companies and users began to change.

Dr. Deming outlined 14 management steps as being essential to quality. The following points directly influenced carrier-user partnerships:

1. End the practice of awarding business based upon the price tag. Move towards a single supplier for any one item. Base this long-term relationship on loyalty and trust. (10)
2. Improve constantly and forever the system of production and service. (11)
3. Create constancy of purpose toward improvement of product and service to become competitive and to stay in business and to provide jobs. (14)

A recent survey of top U.S. companies revealed that 70 percent had internal quality programs. Thirty percent of the companies required transportation providers to have a quality program, also. In this same survey, these companies awarded motor carriers a 74-percent score for quality verses a 36-percent score for railroads.

Industry emphasis on quality has had a number of impacts on transportation. A University of Tennessee survey of the top 100 U.S. corporations revealed that companies are overwhelmingly reducing the number of transportation companies with which they do business. They are taking a serious look at the service offered by companies in addition to price. Successful providers must study their customers and take a proactive role in developing and maintaining service standards to enhance the customer business. In return, customers are bringing carriers into their planning process and allowing them to work hand-in-hand on long-range distribution planning projects.

How does this affect intermodal providers? It is obvious that intermodal needs to achieve a reputation for quality service in addition to low cost. Intermodal service must be easy to use, reliable, and flexible. Intermodal companies must understand how their customers do business and make their services an integral part of the business. Given the potential business volume for intermodalism (\$30-40 billion/year), the rewards for doing so are significant. As J.B. Hunt stated during the 1993 Intermodal Expo, *"The guy who does it best, with the highest quality and the lowest cost to the shipper will be the winner."*

The automobile industry is perhaps the best example of a shipper/intermodal provider partnership. The major U.S. automobile manufacturers have been quick to embrace quality techniques, including "just-in-time." Of course, the Japanese automobile manufacturers have brought a long tradition of quality to their new plants in the U.S. At any rate, the automobile industry has been ready intermodal customers. The Triple Crown Roadrailer and container service started by Norfolk Southern handles a sizable volume of auto parts business. Triple Crown, which works closely with the manufacturers, is a premium service which is owned by a railroad, but allowed to operate semi-autonomously with motor carrier oriented management. Automotive parts business reportedly is a key component of the double-stack and premium TOFC offered by the companies already discussed herein. There are numerous reports in the trade press of the development of joint facilities at customer

locations, dedicated service lanes, and dedicated equipment to support partnerships between these intermodal users and providers.

The final aspect of intermodal partnerships I would like to address involves partnerships between the public and private sectors. We in the public sector have a vested interest from a policy standpoint in promoting intermodal transportation.

·In many cases, intermodal transportation is the most rational and economic means of handling freight. It makes the best use of existing transportation infrastructure.

·Intermodalism helps to keep American industry competitive.

·Intermodalism has positive environmental and safety impacts (10 percent of the hydrocarbons and 33 percent of the NO_x and CO_x of truck alone).

·Intermodalism reduces the strain on congested highways and alleviates the need to build new facilities.

The public sector/private sector partnership should, therefore, promote intermodal transportation. Public sector contributions to the partnership are as follows:

- Resolving land use and zoning issues
- Coordination of various public/private interests
- Assessing traffic, environmental, and economic impacts
- Promotion
- Financial assistance
- Infrastructure ownership and management

Provision of intermodal terminal facilities has been a very visible part of the public/private intermodal partnership. Many port facilities are owned by government bodies. Port managers are actively enhancing intermodal connections so that their facilities can accommodate double-stack service. Often this support extends beyond the port property. The Ports of Los Angeles and Long Beach, for example, are negotiating with the Southern Pacific Railroad to purchase an existing 20-mile-long railroad right-of-way for \$275 million. They would construct a new joint access rail line and a dedicated truck road on this right-of-way to serve container port facilities. The Port of San Francisco agreed to pay for \$11 million in tunnel clearance improvements on a Southern Pacific rail line serving its port area. This would allow double stack access to the port. Massachusetts authorities plan to fund an extensive railroad clearance improvement program to allow double-stack access to Boston terminals. Virginia has constructed an inland container facility near Port Royal. Trucks would deliver containers here for forwarding via rail service to the Norfolk container port.

It is interesting to me that most of these partnerships involve government at a local level teaming with a carrier or company. The project

typically has an economic impact on the local area--keep a port competitive or help a key industry. Promotion of intermodalism as an integral part of a balanced, rational transportation system is not the overall goal in these situations. The state initiatives to upgrade rail clearances represent opportunities to develop an overall intermodal transportation plan, but, to date, these still seem oriented towards maintaining the competitiveness of ports. Only when these projects are promoted in the context of a domestically oriented intermodal service will the true potential of intermodalism be realized. Perhaps ISTEA will shape thinking in this regard.

I've tried to give some overall perspective to intermodal transportation as I see it. I hope that my talk has been of some help in identifying key issues and opportunities in intermodal partnerships.