IV. THE PROCEEDINGS

Thursday, 16 October 1997

Friday, 17 October 1997

Two panels of senior North American executives from aviation, rail, highway, and maritime operations and representatives from labor, third-party and customer-shipper groups, and an environmental research organization convened to discuss key issues of intermodalism. The participants on Panel I were asked to address issues from a modal perspective, including specifics on the plans and the visions of their company or industry. The participants on Panel II were asked to discuss specific issues from an intermodal perspective.

The panelists were invited to consider the following:

- the opportunities and the obstacles confronting the development of a North American intermodal system and how they may be overcome;
- the effect of current governmental policies on industry progress toward intermodalism;
- NAFTA-related issues influencing intermodal development;
- the role of technology in the evolution of an intermodal transportation system;
- infrastructure requirements and financing; and
- the adequacy of existing intergovernmental agreements and cooperative arrangements.

Panel I: Transportation Modes and Stakeholder Perspectives

Moderator: Thomas L. Finkbiner, Norfolk Southern Corporation

Panelists: Clifford J. Hardt, Federal Express Corporation (air)
Agustin Irurita, ADO y Empresas Coordinadas, S.A. de C.V. (bus)
Katharine F. Braid, Canadian Pacific Railway Company (rail)
Theodore Prince, "K" Line America, Inc. (maritime)
Edward M. Emmett, National Industrial Transportation League (shippers and customers)
Thomas R. Brown, RISS Companies (third-party providers)

PANEL I OVERVIEW

The issues raised by Panel I provide an insightful glimpse into the potential realities and the current weaknesses that will affect the realization of a comprehensive North American intermodal system. The panel highlighted the importance of globalization and its impact on the intermodal system. Despite the variety of perspectives, the common themes that emerged were efficiency, funding, planning, cooperation, and the role of governments. The panelists, all in their own way, suggested that a major shift in attitudes and policy structures by key actors was required if the potential of intermodalism was to be achieved. The paradox that remains is how to achieve cooperation given the high levels of competition that exist within, between, and among the modes.

Specific obstacles impeding the growth of an intermodal system include the following:

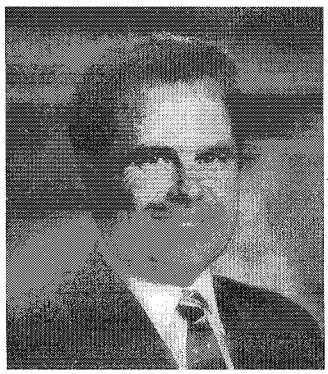
- inadequate infrastructure and capacity,
- inappropriate investments and capital shortages,
- inadequate information channels,
- weak modal interactions,
- inadequate planning by governments—local, national, and international—and corporations,
- absence of government regulations and influence in key areas,
- inability to change existing business practices,
- congestion, and
- standardization issues.

Above all, for intermodalism to succeed, it is essential that an intermodal transportation system be able to meet customer requirements by increasing reliability and service quality and to take advantage of the strengths of each mode while working to minimize their shortcomings. Nor should the role of culture be ignored. Attitudes and values differ in the NAFTA countries, and any attempt to create a North American intermodal system must take such differences into account.

Introduction to Panel I

by Moderator Thomas L. Finkbiner
vice president, Intermodal,
Norfolk Southern Corporation;
ITI Board of Directors

We are fortunate to have such an impressive group of people on this panel representing the users of the North American intermodal network. While intermodal represents a significant opportunity for shippers and carriers alike, progress toward the realization of its promise has appeared to be disappointing, for one single reason. All of the intermodal constituencies treat the movement of goods according to the comfort level that they have with their own mode or according to what they wish to obtain. These panelists will discuss their aspirations and will point out what must happen for intermodal to achieve its promise.



Transportation Mode: AIR

by Clifford J. Hardt
vice president, Air Ground Terminals
and Transportation,
Federal Express Corporation;
ITI Board of Directors

I will address, in general terms, the issues affecting aviation. As you can imagine, air transportation has many of the same issues, or concerns, as the other transportation modes, and they include, but are not limited to, infrastructure, funding, regulatory matters, and MPOs, or Metropolitan Planning Organizations.

INFRASTRUCTURE

Unlike the other modes, aviation is managed multilaterally by the ICAO or International Civil Aviation Organization. This organization was created 50 years ago as a special agency of the United Nations. The ICAO is instrumental in developing standards and in recommending practices that address safety, security, air traffic modernization, the environment, and technology and research development. The real global system of aviation is founded on the success of ICAO.

Even though the ICAO has met with real success, infrastructure issues are still a major concern. For example, the growth in air traffic has created airport congestion; few airports have been built in the last 10 years; the Air Traffic Control (ATC) system has changed little in the past 10 years; and, delays are more frequent. The air industry is in danger of becoming gridlocked.

ENVIRONMENT

All modes of transportation affect the environment, and the level of noise, in particular, is of interest in the US. Airports can establish curfews and limit the time of high use. Most airports try to maintain a balance between the needs of the community and the interests of business. However, establishing restrictions and maintaining this balance can create operating opportunities.

Emissions are a global problem, and as such, global standards need to be established by the ICAO. At present, however, US Government is working on US standards, which may or may not agree with global standards. The new ATC system, which can give more direct flights rather then vectoring, is one solution.

Emissions are a global problem, and as such, global standards need to be established by the ICAO.

SAFETY AND SECURITY

Air travel is one of the safest modes of transportation, but it has high visibility when accidents occur. Air safety issues need to be more focused on audit and compliance. While much has been accomplished to ensure air security, much more needs to be done.

FUNDING

As with all of the other transportation modes, funding is a primary concern. How does the industry pay for improvements? How does the industry receive its fair share of government monies? Usage charges are

one way that is being discussed to solve the problem. Today, airlines pay landing fees to support the costs of operating airports.

The National Civil Aviation Review Commission began an investigation to examine the services provided, the costs of the services, and the users of the services, or systems. It has made some preliminary recommendations regarding funding and the role and responsibility of the Federal Aviation Administration (FAA). One recommendation states that aviation, like highway transportation, should have its own dedicated sources of funding, such as a tax. However, implementing such a tax will be difficult, and industry consensus does not exist.

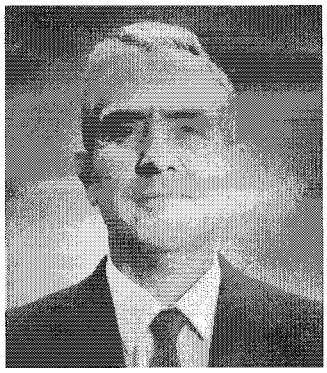
REGULATORY MATTERS

The regulatory bodies and agencies must recognize that the world is truly becoming a global economy. The interdependencies of supply chains around the world and the speed of the various modes of transportation make it critical that regulations recognize the customer's requirements. For the global economy to function, governmental control must be kept to a minimum while maintaining safety, security, and equitable funding initiatives.

METROPOLITAN PLANNING ORGANIZATIONS OR MPOs

These organizations have an impact on all modes of transportation, and air is no different. Their historical focus has been on passenger transportation issues and local community requirements. While many of these organizations listen, there seems to be limited efforts to improving airport/truck interface, and in some cases, they are trying to limit truck access in conjunction with airport authorities. These two groups, MPOs and airport authorities, must acknowledge the need for highway infrastructure around airports and must plan this infrastructure for five to ten years in advance.

It is unfortunate that what influence we can attain is limited, due to our inability to come together and discuss these crucial issues as intermodal partners. I can assure you that Federal Express Corporation has a stronger voice in Memphis, Tennessee, than it does in St. Louis, Missouri. It is my opinion that if we spoke with one intermodal voice, we would certainly be better off than we are today. It is meetings such as this, with representatives of all modes and other interested groups, that will provide the opportunities to developing an "intermodal voice" and to becoming "intermodal partners."



Transportation Mode: PASSENGER BUS

by Agustin Irurita
general director,
Ado y Empresas Coordinadas, S.A. de C.V.

The bus transportation industry in Mexico has had a long and sustained development. Today, it represents the most common means of travel in the country, carrying more than 2 billion passengers annually, and its share in the massive, intercity transportation market is more than 90 percent. Its development has been very closely linked to that of the economy of the country.

Today, the bus represents the most common means of travel in Mexico.

Now, after more than 30 years of stable growth, the bus transportation industry suffers the growth-development, stagnation-survival cycles that limit its sustained progress. Since 1990 bus transportation has become a deregulated service on federal roads and a regulated and protected industry for local carriers on most state roads.

Bus service is provided with some 40,000 buses in several well-defined market niches, such as the following:

- **Luxury Service** Buses with sleeper seats, meals, air conditioning, lavatory, and video systems.
- **First-class Service** Buses with video systems, lavatory, air conditioning, in direct terminal-to-terminal service.
- **Economy Service** Buses with basic service that pick-up passengers and packages along their route.
- **Feeder Services** Small vehicles that carry passengers from rural areas to small cities.
- **Tourist Services** All types of buses from luxury to economy service.

A network of bus stations and terminals, from which services are offered, has been developed throughout the country. This is a private

network, owned and operated by the carriers, and it allows the user to choose among multiple services. For example, there are four central stations in Mexico City, with one of them offering departures to Puebla, 84 miles away, every three minutes.

Carriers operate as any other regular company, but 95 percent of them maintain individual economic results for each bus, that is, for its corresponding owner. This complex framework renders highly competitive and efficient results. A number of big corporations control more than 60 percent of the services offered, with each one of them operating in a different region.

The quality of the service achieved by most medium to big companies is truly acceptable, with some services equivalent to the world's best. The same does not apply to a number of small, unorganized companies that operate illegally with obsolete and highly polluting vehicles. This contrast is present in many ways throughout the country.

The parcel business has developed parallel to passenger transportation through the use of the bus luggage bins. Most bus companies will offer these parcel services solely to the cities to which they carry passengers. Some offer a nationwide parcel service as well as freight services; others, extend it through agreements with other bus lines. Air transportation is also used. The service provided is very comprehensive and prices are extremely competitive. Security, quality, and delivery schedules are equivalent to that of any industrialized country.

CONNECTIONS IN INTERMODAL TRANSPORTATION

Although intermodal transportation is scarcely developed, some interesting connections exist.

Urban to Intercity Transfer points have been established in some cities enabling passengers to carry out faster, more comfortable travel.

Airplane to Bus Internal terminals exist in several airports with connections by bus to nearby cities. This allows the passenger to switch transportation modes without leaving the airport.

Bus to Freightliner The companies that offer nationwide parcel service use compartments in their buses to provide freight service to distribution centers in specific cities.

Bus-Freightliner-Airplane International parcel-service companies use all three means of transportation.

Ship to Bus Additional bus services are offered at the docks for passengers going to resorts by the sea.

THE PRESENT SITUATION IN MEXICO

NAFTA represents an opportunity for the development of commerce among its three members as well as for Mexico. Economic openness, privatization of state-owned companies, and deregulation are important changes that should go hand-in-hand with change in cultural issues. Open and equal systems will allow for expanded economic development between and among countries. The same applies to politics, where democracy is a basic requirement that supports a broad economic relationship.

Mexico is immersed in a process of change that affects each and every citizen in all aspects of life. Change can generate uncertainty and encourage a focus on the past. As change happens, the benefits are often not easily seen and resentment can set in, and in this case, NAFTA, economic openness, deregulation, democracy, etc., can be blamed.

Mexico is immersed in a process of change—abandoning old behaviors and customs and searching for the new.

Competition is not a strong value in the Mexican culture. Time is also viewed differently—not with the modern sense of urgency. It is fairly common to hear "Why such a hurry?" And, corruption exists. For example, the current legal system requires change so that it is applicable to everyone. It is in this environment of abandoning old behaviors and customs, of change, of searching for the new, and of trying to understand, that we, the Mexican entrepreneurs, are evolving.

There are some clear examples of change in some companies and in some regions in the country; regretfully, many more have been unable to find their way and their problems have multiplied. This must be understood in order to examine the opportunities, the obstacles, and the challenges to the development of an intermodal transportation system in the region.

OPPORTUNITIES

- Establishing a regular international bus service between Mexico and the US represents a great opportunity for passenger and freight. There are obstacles to providing this service, such as illegal immigration, local and state laws that limit and complicate the establishment of services, the lack of flexibility to develop this new market, and some customs barriers to investment.
- Instituting the new technologies, the electronic coordination (Internet) of transportation services, will require the joint efforts of the different carriers and the enlightened understanding that a trip is an entire origin-destination segment, regardless of the transportation mode.

- Changing the concept of terminals to main points for connecting services (bus-plane-boat) and eliminating the concept of terminal-originated or terminal-terminated services will encourage the inclusion of intermodal transportation in the facilities.

BARRIERS

There are some obstacles in Mexico to the development of intermodal services, such as:

- The lack of a strong legal system that grants security to investors. The arbitrary application of the law must be eliminated.
- An existing infrastructure that needs improvement and expansion to meet the demands of the marketplace. It is also important to implement fees that are appropriate for the use of this infrastructure, both for roads and telecommunications.
- The lack of competitiveness in the culture. With greater understanding by the population, the move to a more competitive society could be motivating and could contribute to the elimination of monopolies and subsidies.
- The poor condition of public safety. It is imperative to improve public safety and to give citizens confidence in their day-to-day life, thus guaranteeing the free flow of passengers and goods nationwide.

In addition, open commerce among nations demands reciprocity in treatment and equivalent legislation to ease business activities. The accords made under NAFTA for freight and passenger transportation have not been put into practice. Several interest groups are lobbying against them, preventing them from operating. Reciprocity to what has been agreed upon must be respected, as well as current legislation that has been approved in each country. Mexico is being pressured to enact parcel regulations allowing American freightliners free transit, but NAFTA provides for the exclusivity of freight movement within Mexico for Mexican carriers. Such pressures make it difficult to reach understanding and closeness between companies and nations.

Developing an intermodal transportation system is essential in order to use resources more efficiently and to provide passengers with better services. It is important to remove all barriers that stand in the way of reaching this goal. It is also necessary to understand the differences in development and culture among the nations and to search for possible solutions. If we, the entrepreneurs and the government, fail to identify the obstacles to establishing intermodal and international services, development will be delayed. The opportunity set forth by this meeting is a valuable instrument for progress.

Transportation Mode: RAIL

by Katharine F. Braid

formerly executive vice president, Strategy, Planning, and Research, Canadian Pacific Railroad Company; ITI Board of Directors

I am pleased to share some thoughts—based on the Canadian experience—about the future of intermodalism and the railroad role in that future.

OPPORTUNITIES AND CHALLENGES

Intermodalism is one of the fastest growing rail sectors today. Sustained economic growth domestically and in some overseas markets points to the need for more capacity.

Opportunity lies in the ability of railroads to move large volumes long distances; railroads can also help improve overall transportation safety and mitigate environmental and land-use issues.

By definition, what one player in an intermodal system does affects the others. For example, difficulties with trucking and highways are increasingly apparent—highway damage, traffic congestion, air-quality problems, safety, truck-driver shortages and turnover. Making matters worse are the marginal returns on trucking operations, despite hidden highway subsidies. Railroads can help alleviate some of these problems through intermodal expansion.

Intermodalism is one of the fastest growing rail sectors today.

Increasing the size of ships may reduce ports of call and demand greater investments in the ports selected. Bigger ships and fewer ports can reduce land transport competition but improve intermodal economics. For railroads, bigger ships can mean longer trains and larger inland terminals. In this context, ISTEA funds should not be diverted to road-only projects. A reauthorized ISTEA should be used to enhance transportation efficiency by focusing on intermodal projects.

Railroad mergers can be an opportunity and should improve the economics of the mode's participation in intermodal systems and should en-

hance operations. Reducing the number of interchanges can improve cycle times. Railroads can expand participation in intermodalism by adding routes, cars, locomotives, terminals, and information systems, but to really seize opportunities, they must improve reliability, especially on-time performance. This involves rail service itself and the inter-relationship of railroads with the other modes.

The two basic intermodal interfaces—transfer terminals and information systems—can only benefit from joint approaches and lots of cooperation. Port access is a problem for some railroads, as is inadequate dockside infrastructure for marine-rail container transfers. Congestion on the railroads can deter trucking lines from finding intermodal solutions. An intermodal perspective is critical to the quest for optimal transportation solutions, be it for manufactured goods traffic or bulk materials.

Opportunities for the railroad vary by commodity and by service requirements over distance in two distinct categories—long haul and short haul. The long haul is the field of natural advantage for rail. It is where interconnectivity among North American rail carriers is critical—be it at traffic transfer facilities or in the flow of information among them. Railroad opportunities lie in bringing increased "seamlessness" to railroad industry-wide and inter-company service approaches and to teaming—individually and collectively—with ocean-shipping lines, trucks, and couriers to meet overland long-haul needs. Short-haul opportunities depend on increasing both the competitiveness and the compatibility of rail with trucks, in part, through technological improvements, such as new container-car types. There is great potential for rail intermodal growth by controlling and lowering costs, through increasing rail intermodal speed and reliability, and by improving information systems.

OBSTACLES AND BARRIERS

For all publicly owned railroads, the one major obstacle to intermodal development is investment capital—how to obtain, to generate, or to find the funds or capital to invest in intermodal capacity at the speed of market expansion. Most railroads have not received tremendous rates of return on their investments, and even traditional railroading is highly capital intensive.

Capital investment is critical to realizing the potential of intermodalism, and the acceptance of more risk than many public companies like may become necessary. All categories of investment carry risks. This issue is high on the minds of executives of shareholder companies because the ability to spread that risk is less for a corporate project than for a public project. In addition, the rate of return required by privately owned railroads is higher than the rate of return implicit in traditional

government spending on roads. And, the low rate of return on terminals, for example, can make it difficult to justify the investments.

One of the keys to exploiting railroad participation in intermodalism is mitigating the risk. Government policy as well as cooperation between and among the railroads and among railroads and other modes can help mitigate some of this risk. Mitigating this risk includes encouraging common intermodal standards and related public policies. It also means maintaining these standards and policies for a sufficient time to permit investments to be repaid. Areas where standards and policies can tilt the balance one way or the other include container sizes, truck vehicle weight and dimension specifications, fuel taxes, and customs and international issues concerning the free and smooth flow of goods.

For the railroad industry, there is a serious investment risk from technological obsolescence. This risk is perhaps as much regulatory as it is technological. For example, if 53-foot containers become the standard trailer sizes for trucks, some railcars will no longer be economically viable. For their part, however, railroads have failed to standardize railcars, and the continual upward pressure on truck dimensions will keep this issue alive.

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For many of the opportunities for the railroad industry to be realized, however, there is a need for labor cooperation. For intermodal opportunities, the cooperation needs to take the form of flexibility regarding job functions and a willingness to learn and use the new skills required to make intermodal seamless.

PUBLIC POLICY AND INTERMODALISM

No obstacle to intermodalism rivals the basic disadvantage posed by public policies that have favored highways over railways in all three countries. Getting intermodalism right requires modal balance. Today, railroads provide their own roadways, yet they pay property taxes on the railroad rights-of-way. Then, they pay fuel taxes, which in turn help build more highways.

In Canada, the transportation laws that were written over the past thirty years contained language to let each mode do what it does best. But, among the various levels of government, modal equity gets lost. Making intermodalism happen will depend on the right policy and tax framework. In Europe, public policy is tilted to favor rail. In North America, I will take basic fairness—from which all society and all modes will benefit.

Cross-border harmonization is needed to obtain the full advantage of North American trade. While there is a free-flow of goods, there is not yet a free-flow of transportation services needed to move the goods. Obstacles include the following:

- contradictory safety regulations between Canada and US,
- restrictions on the use of rail crews,
- lack of harmonization of customs reporting, and
- slow border crossings between the US and Mexico.

The three North American national governments could foster intermodalism by seeking state-of-the-art solutions to expediting border crossings.

NEXT STEPS

As we consider how to create the right intermodal system—the post just-in-time (JIT) system, if you will—a few considerations come to mind. In any purchase and delivery (P&D) situation, there are uncertainties and risks, everything from weather problems to traffic and labor disruptions. There is always some factor that may be beyond the JIT planner's control. In most cases, JIT means shifting the inventory burden to the supplier. The supplier may try to shift that inventory farther down the line. In any event, someone is left holding someone else's inventory burden. This all happens by bilateral contract between two parties within the overall P&D chain. Somewhere along the way from the mine site to the smelter—to the component plant—to the assembly plant—to the wholesaler—to the retailer—to the customer's address, JIT usually involves one or more inventory buffers.

Conceptually, any post-JIT environment can go one of two ways—towards a perfect P&D paradigm or towards a tailored transportation system. In the perfectly smooth, continuous supply chain P&D paradigm, I go to a retailer to buy a new refrigerator to my own specifications. This purchase triggers all the component manufacturers to start turning out the parts; they are assembled instantly; and, by the time I get home, the refrigerator is installed and working. Nothing is produced until the consumer gives the word. Components flow right through to the consumer as assembled products.

This is rapid-fire P&D on demand with no inventory burdens along the way. If achievable at all, it would be highly costly and, quite possibly, very energy-intensive. It would also put enormous strains on most P&D systems. Does the consumer want to pay the fee? Does society? For most shippers, the financial price for something approaching a perfect P&D

paradigm would be self-defeating. Price and cost considerations will rule the day.

Under a tailored transportation system, JIT, for many shippers, has more to do with reliability and correct information about the scheduling of shipment arrivals than anything else. Usually, these shippers do not care if shipments are on the move for three hours or thirty as long as they get to the unloading dock on time. But, if there is going to be a late arrival, the receiver has to know early so a contingency plan can be implemented.

For railways to fit into this paradigm, costs must be controlled, reliability must be assured, information The focus on the customer is the point, and the continental economy can only benefit when the use of transportation depends on the true market advantages of each mode. systems have to be first class, and carriers must be geared to striking the optimal balance between price and service in individual situations. Railways can provide an inventory buffer especially over long distances, going faster or slower to keep up with the needs of the P&D system and its price/service requirements. To enhance broad intermodal service coverage, however, railroads have to work together to smooth out their interfaces and strengthen their linkages—not just for dedicated train services but for all intermodal services. The European concepts of Intercontainer and Interfrigo may be worth a visit.

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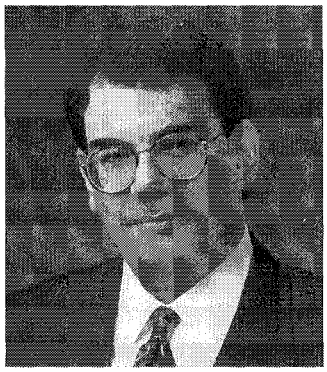
This will depend on the elimination of policy distortions that favor one mode over another, which should then encourage each mode to do what it does best. This process might be facilitated by a para-jurisdictional body, possibly a joint international agency, that can foster intermodalism, promote investments (the right ones at the right time), and work to eliminate inefficient biases and obstacles.



Transportation Mode: MARITIME

by Theodore Prince
senior vice-president and COO,
"K" Line America, Inc.;
ITI Board of Directors

Recent developments in intermodal technology have grabbed the attention of industry professionals and observers. As an international steamship line, "K" Line has a primary interest in vessels and an ongoing involvement with railroad, truck, barge, and air transportation. "K" Line is an asset-based network operator, and there are several elements of the intermodal system that it connects with to deliver the service product effectively to its customers.

Yet, international steamship lines suffer as an industry. More often than not, in planning the future of the steamship business, the members of my profession and trade consider only the infrastructure, the capital investment, or the technology inherent in intermodal transportation. We overlook the opportunity to redefine the process used to integrate the various transportation modes. Unfortunately, infrastructure is often built for today and not for tomorrow. Concentration on the infrastructure at the expense of the process and underlying service provided is done at great risk.

International steamship lines suffer as an industry.

I remember the "old" Pennsylvania Station, built in New York City by the former Pennsylvania Railroad to handle its then booming intercity passenger business. The station was build to last 1,000 years. However, the development of civilian aviation and the construction of the Interstate Highway System caused the intercity passenger business to abandon rail service. Ironically, Pennsylvania Station took three times as long to tear down as it did to build, ignominiously ending as landfill in New Jersey.

The maritime industry, like most transportation industries, has a very diverse service provider chain. Yet, its various players seem only to see as far as the next participant. For example, ports see marine terminals as their customers, who in turn see steamship lines as their customers, who

only then see the actual customer. This linear relationship can be made more complex by the addition of other players, such as railroads and Non-Vessel Operations Common Carriers (NVOCCs). There is little or no real communication or effective connection between the actual customer and the various service providers. Decisions made on existing relationships may cause an overall misjudgment of the ultimate commercial reality.

CUSTOMER FOCUS

How will intermodalism impact marine transportation? The most important thing to consider is customer focus and view. As a service provider, steamship lines must fulfill customer requirements. Otherwise, there will be no customer, and no need for intermodal transportation. Most customers seek a reliable pipeline of transportation for their goods. It would appear that, with rates continuing to decline, customers realize that they can obtain fairly competitive rates from any carrier they choose. As a result, customers are going to select the carrier that best provides the service. It is no longer a choice between high-cost/high-service and low-cost/low-service. The customer of today can have low-cost/high-service. Despite industry fixation on transit time, or speed, for most customers, the real issue is reliability. Customers are seeking complete certainty that the goods will arrive on time and intact.

Unfortunately, international customers often encounter a variety of difficulties. Customers may experience problems firsthand, while other problems that impact the underlying carrier may, sometimes, affect the customer. While advancements have been made toward seamless transit, customers still see intermodal as being fraught with obstacles and real or potential problems or hazards to their cargo—and ultimately their business.

By its very nature, an intermodal system calls upon various modes of transportation. Several years ago the focus was on seamless transportation. The obvious analogy is a relay race where speed and reliability depend not only on the speed of participants, but also on the ease and the smoothness of the exchange between participants. Despite major technological developments, the process of intermodal transportation begs improvement so that the quality of through transportation will be beyond reproach.

Today, inland transportation is much more important to steamship lines than it has been in the past. Twenty years ago, the standard transit from Hong Kong to New York was 40 days by all-water service through the Panama Canal. In the late 1970s, intermodal transportation became an option. Cargo from Hong Kong was discharged on the West Coast and

moved to New York by rail for a transit time of 30 days. In 1984, development of the integrated double-stack service from the West Coast further reduced the transit to 24 days. By 1990, direct service from Hong Kong to the West Coast and further intermodal improvements provided 17-day service. This is transit time reduction of more than 50 percent. The development is due not only to intermodal technology but, more importantly, to an integrated process.

Such developments should continue as trading patterns change. In 1984, Los Angeles to and from Chicago was the primary double-stack corridor. Other West Coast ports and major inland points became network points as traffic grew and infrastructure was added. Canadian and East Coast ports were able to offer service as demand and infrastructure grew. As Mexico, Latin America, and South America develop as important trading partners, it is realistic to expect other ports to emerge as key gateways. Quality intermodal connections will need to follow.

INFRASTRUCTURE CONCERNS

It is unrealistic to build a single infrastructure and expect it to be sufficient indefinitely. Economic life and physical asset life are different. A good case study on infrastructure versus process is marine terminals and on-dock rail. US industry practice on the West Coast has been vertical integration. Steamship lines have developed their own independent terminals. Productivity benchmarking indicates this is very expensive when measuring TEUs handled per acre, per year. Hong Kong handles close to 30,000 TEUs per acre per year, yet most US ports handle only a small fraction of this. In the US, we build the infrastructure because it is affordable—not because it is necessary. Lack of government intervention has allowed this over-investment.

Although this investment has been successful to-date, the long-term implications may not be so sanguine. Ocean shipping, in a regulated environment, supports cost-based pricing. The price to the customer is based on the costs involved in producing a move and a margin is added. Deregulation eliminates this methodology. As competitive markets develop, price-based costing ensues. Customers determine the value of the move and are willing to pay the carrier up to that amount. If the carrier wishes to handle the business, it must find a way to get under the cost threshold so as to make money and continue to support its business. This simple microeconomics lesson has been demonstrated in other transportation modes, such as air, rail, and truck, and asset-based, network-operating industries, such as telecommunications and electric power.

The industry needs to review the paradigm by which terminals are developed. On one hand is the "Field of Dreams" theory, "if we build it,

they will come." These ports seem to feel that they must have the latest and greatest in marine facilities, including on-dock rail to attract steamship lines to their facilities. On the other hand, there exists the model of the lemmings, where one follows the other into the sea as a biological response to over-population or to "over capacity." This is the "if they have it, I must have it, too" theory, which disregards economic sense yet seems to be rampant in the industry. The big, bigger, biggest phenomenon has already happened with vessels. Can terminals be far behind?

The industry needs to review the paradigm by which terminals are developed—not the "if we build it, they will come" practice or the "if they have it, I must have it, too" theory.

In the maritime industry today, economic rationale often seems to have been supplanted by ego. The results can be grave. Today's environment supports terminal pricing at average costs; however, deregulation could result in terminal pricing at marginal costs. This could result in the inability of a port to support a sufficient return to pay back borrowed money. Washington Power in the early 1980s demonstrated that technical and engineering superiority, even accompanied by a AAA credit rating, was not sufficient to preclude billion-dollar bond defaults. We may see port revenue bond defaults in the not so distant future. As carriers exit the industry, ports could be left with very expensive terminals.

On-dock rail follows in the footsteps of marine terminals and seems largely unquestioned in its benefits. "K" Line has been operating on-dock rail longer and in more places than any other steamship line. It is an integral part of its product; however, "K" Line recognizes that there are questions. There are a number of problems involved in the traditional transfer from marine terminals to rail intermodal terminals, and using on-dock rail does not eliminate them, it merely shifts the obstacles.

First, railroads have severe space constraints in West Coast ramps, and international shipments often are delayed. However, marine terminals have congestion problems, too, and on-dock rail can and does exacerbate them. Whereas ramp space can be used for any type of operations, on-dock rail is specialized and therefore limited—that dedicated space in the marine terminal cannot be used for anything else. Second, highway congestion, especially in Los Angeles, is often cited as a key impediment to transfer. However, most ports have switching and short-line situations that are even more congested than the highways. Mode transfer is effective only after cargo is on a mainline train that has departed towards destination, but there are no controls on how efficiently cargo is loaded. Third, there have been well-publicized issues of trucker drayage problems involving the bridge

transfer from the marine terminal to the railhead. Yet, there are also constant uncertainties revolving around port labor.

Some analyses would show that on-dock rail is a very expensive operation. Although it takes place in a marine terminal, on-dock rail is a traditional, intermodal terminal ground-to-railcar transfer. A study needs to compare what occurs in various intermodal terminals, not just what takes place in marine terminals. Given rudimentary benchmarking, not only is the labor cost per on-dock lift much higher, but the capital required to perform each lift is also significantly greater. Ultimately, economic reason should prevail over the compulsion to build.

Infrastructure questions should not be considered apart from other issues, such as transition issues that are as important as construction projects. Improvements will ultimately fail if a bridge to the future is absent. For example, the Alameda Corridor in Los Angeles has been cited as a panacea for Southern California on-dock. In anticipation of the Alameda Corridor, significant on-dock capacity has been brought on-stream. Unfortunately, this capacity has been brought on years before the corridor is ready. Existing infrastructure and San Pedro Port access remain unchanged.

Without significant investment and/or port involvement in controlling the operating costs, congestion problems in and out of marine terminals will only get worse and the intended benefits will disappear. By the time the Alameda Corridor is ready, some of the intended benefactors may be unintended victims. Furthermore, infrastructure projects need to be carefully considered in terms of cost/benefit tradeoffs. Poorly planned user fees may cause long-term problems. Even worse, some projects are undertaken without any consideration of what user fees should and will be.

THE ROLE OF GOVERNMENT

Finally, we should consider how government might help improve the intermodal process. Understanding that customers require reliable transportation, we need to recognize the role of regulatory issues. On the federal level alone, four agencies are predominantly involved with international cargo. They are the Department of Agriculture, the Immigration and Naturalization Service, the Drug Enforcement Agency, and the US Customs. Any one of these agencies can put a halt to cargo movement. While recognizing the government's role to protect public safety, we need to encourage the federal government to consider a more coordinated approach on regulatory holds.

Customs issues are most critical. Inbound movement of cargo is essential. There is not enough space on the West Coast to hold all cargo until such time that customs clearance is achieved. A straw man initially proposed by US Customs two years ago would have eliminated inbound

movement. In a rare display of unanimity, steamship lines overwhelmingly objected to such a proposal. The subsequent tin man is still under review.

Borders are still not seamless. We still await the intended benefits of NAFTA to enable free trade and transportation within North America. Without addressing some of the more obviously political issues, the fact remains that borders are not as seamless on international cargo as they were intended to be. Cargo destined for Canada, moving through a US port, is at an inherent service disadvantage to cargo that moves through a Canadian port. The same is probably true in reverse and exists as well with Mexico. Furthermore, cabotage restrictions prevent cost efficiencies that could only improve international trade efficiency.

Borders are still not seamless. We still await the intended benefits of NAFTA to enable free trade and transportation within North America.

Reliability extends beyond transit time and speed. Cargo needs to arrive at destination. Unfortunately, many places in North America are beset by an epidemic of cargo crime. Whether it is hijacking or enroute pilferage, the impact is significant. Local governments seem unable or unwilling to address this problem, given more serious crime issues. Noting that such violations involve international and interstate commerce, the role of the federal government should be a much more aggressive one in this category.

Transportation without reliability is nothing. If a service provider cannot provide a reliable product, that provider will be replaced. An intermodal transportation system needs to transcend the issues of reliability so that it can prove itself to be as worthy an option as single-mode transportation.

Transportation Stakeholder Perspective: SHIPPERS AND CUSTOMERS

by Edward M. Emmett
president and COO,
The National Industrial Transportation League; ITI Board of Directors

First, I must say that it is an honor to be a panelist at such a historical event, and, it is a particular honor to speak for shippers. For those of you who are not familiar with The National Industrial Transportation League, a little history is in order. The League was formed in 1907 to represent the interests of shippers, primarily before the Interstate Commerce Commission, which dealt with railroad issues. Since that time, the League representation has broadened to represent shippers' interests in other modes, including trucking, maritime, and air, which is why I am so eager to speak at an intermodal summit.

The League has also changed in another way. We now deal regularly with international issues. In that regard, the League delegation to the recent Tripartite Shippers Meeting in Scotland included representatives from the Canadian Industrial Transportation League and the Canadian Shippers Council. In the future, we hope to include Mexican shippers, too.

There are two irrefutable facts about transportation. The first fact is that modes of transportation exist only to serve customers who, in the case of freight transportation, are shippers. Too frequently policy makers forget this because governments tend to organize along modal lines and reflect the interest of the carriers.

Modes of transportation exist only to serve customers.

The other fact is constant change, and change brings winners and losers. Too frequently, governments and the public focus on potential losers. This is understandable because the winners from change are not yet present. Here are two examples of change.

First is the Interstate Highway System. What would have happened if all of the owners of cafes, motels, and gas stations along the old US highway system had banded together and organized a large political ac-

tion committee? They could have argued that the multi-billion dollar interstate highways would put them out of business and cause the loss of millions of jobs, and they would have been correct! However, how much better off are we, as a nation, because of the Interstate Highway System.

A similar example is trucking deregulation. Thousands of inefficient motor carriers could not compete in a deregulated market, but many thousands more have been created to take their place. Change creates losers, but it makes winners of us all in the long run.

The two irrefutable facts—modes existing for shippers and constant change—are blended in intermodalism. It is the product of customer demand for seamless service, and it is major change. With globalization, intermodalism will spread around the world.

With globalization, intermodalism will spread around the world.

Since shippers have a perspective on all transportation modes, I will review each mode, listing observations of each with a focus on concerns for the future. Ocean shipping is the only mode with tariff filing and enforcement administered by the US Government. No confidential contracts are allowed for US importers and exporters, unlike shippers in the rest of the world. As a result, we are already seeing cargo diversions to Canada. In the near future, I suspect cargo will be diverted to Mexico, too.

There is deregulatory legislation before the US Congress now that the US Department of Transportation has endorsed in principle. It is supported by shippers, US ocean carriers, and forward-thinking foreign flag carriers. Railroads and truckers should be in the forefront seeking change, too. Organized labor and some ports have opposed deregulation, but ports really need to consider the needs of their ultimate customers, the shippers. The bottom line for ocean shipping is that deregulation will occur and it will be a good thing.

To many shippers and to most of the public, air cargo is mysterious. Freight is usually given to a "middleman" and magically reaches it destination. In the case of integrators, like UPS or FedEx, shipping is as easy as mailing a letter. However, a number of scary policy issues arose after the crash of TWA 800. For example, some proposed banning cargo from passenger aircraft or requiring the named shipper to appear in person when shipping cargo. Another suggestion has been security clearances for everyone in the manufacturing and packaging chain. Any one of these proposal could become a nightmare for shippers and the air-cargo industry.

The Federal Aviation Administration, at the direction of the White House, has organized a Cargo Working Group to examine issues of air-

cargo security. The League is pleased to have representatives as members of this group as it works on such a major international transportation issue.

Now to railroads, where the bright spot of the present-day intermodal system is growing dim with the service meltdown on the Union Pacific, a situation that raises questions about rail-to-rail competition. Most observers, and railroad operators, will admit that trackage rights do not provide adequate competition.

Of course, the fundamental nature of railroads has to be understood. The vast majority of rail shippers are served by only one railroad. If they are unhappy with the service provided by that railroad, they cannot call another competitor to come to their facility. Shippers have no recourse, so whenever I hear railroads talk about how much they compete with each other, I find it amusing. There is no free market in the railroad industry, and I am not saying there should be. Pretending that market forces work for rail shippers, however, is "hogwash." International partners of US rail shippers should be concerned over developments in the US railroad industry as mergers give us fewer and fewer mega-railroads.

The last, but certainly not the least important, mode is trucking. There is a truck involved in almost every intermodal freight movement. Deregulation of the motor-carrier industry has been wonderful for US shippers and the overall economy. In fact, deregulation has allowed intermodalism to work. However, there are still some problems in the trucking industry.

A major obstacle to the development of an integrated transportation system for North America is the failure of the United States to implement fully NAFTA. This is embarrassing and counter productive to progress. The continued efforts of the railroads to stagnate efficiency by opposing truck size and weight improvement are bad for business. Ultimately, their efforts are bad for safety, too, because they will result in more trucks on the roads.

My bottom line is that deregulation has created the need for partnerships among shippers, carriers, and others. Intermodalism is the result of such partnerships and intermodalism creates the need for more partnerships. That is the reason for this Summit.

Deregulation has created the need for partnerships among shippers, carriers, and others.

Transportation Stakeholder Perspective: THIRD PARTY

by Thomas R. Brown
president and COO,
RISS Companies

It is a pleasure to comment from the perspective of an intermodal marketing company (IMC) on the challenges and the opportunities implicit in the development of a North American intermodal network. IMCs are the "token entrepreneurs" of what is primarily a big ticket, big asset, large institution business. Accordingly, IMCs are at the bottom of the intermodal food chain. No one in this business really takes you seriously unless you have assets—especially large, highly visible, heavy, slow-moving assets. However, during 1996, IMCs accounted for approximately 38 percent, or 3,230,000 intermodal shipments in the US, the single largest source of intermodal revenue for US railroads.

IMCs are at the bottom of the intermodal food chain.

In North America today, we experience what is probably the world's most efficient logistics system. In the US, for example, while the nation's freight expenditures have quadrupled from $116 billion in 1975 to over $450 billion in 1996, transportation costs have declined from 8 percent to 6 percent of GDP over the same period.

We can be justifiably proud of the role that the intermodal network has played in North America. It is, in many ways, a phenomenal success story that has been recognized throughout the industrial world. Some even see it as a model for their future growth and development. Yet, as we face the future, we also encounter a fundamental truth about this network and its commercial framework—the past in the intermodal business is a very poor author to the future. Why? Because, today's network evolved out of a unique set of circumstances, which are largely no longer in existence and which are unlikely to be reproduced in the future.

What were the circumstances of growth during the past three decades? Essentially, North American intermodal grew:

- without a blueprint or plan;
- initially, by the conversion of carload to intermodal traffic;
- and later, by ocean-carrier conversion from East to West Coast ports to serve Midwestern, Northeastern, and Southeastern markets by rail;
- through the exploitation of underutilized route and terminal capacity, in a largely sunk cost environment; and, finally,
- with more complexity in its marketing channels and product delivery to the customer than is either economically rational or necessary.

As a stakeholder in this business, I continually experience cognitive dissonance when I focus on its nature. At the same time that it demonstrates great economic vitality, social significance, and customer value, intermodalism is also lacking in strategic direction from its major stakeholders. It is fragmented, overly complex, undercapitalized, and largely dysfunctional in its information exchange between trading partners. Perhaps this business is much as Dr. Johnson said of the dancing dog—"It's not so much that it is done poorly as that it is done at all."

None the less, even with a very imperfect framework, intermodal volume has grown for the past 15 years at over twice the growth rate of the US economy—an average 5.5 percent annually. For all of its apparent success, however, IMCs still have a very modest share, just 3 percent, of the overall domestic freight market. Yet, this rate of growth impresses. In a quote from the *State of the Truckload Industry* on 8 August 1997, Alex Brown states that "intermodal has grown from 2% to 3% of the market. While intermodal remains small in the context of the overall market, growth since 1985 has been impressive. Our sense of intermodal is that it works well in high density lanes, but that it is not really much of a factor in the bulk of the transportation markets in the U.S."

So today, 16 October 1997, as we attend this intermodal summit, we are asked to look not backward but forward, to identify what opportunities avail themselves and what obstacles appear as we enter the next century.

PLANNING WITH THE CUSTOMER IN MIND

Implicit in the mixed review presented here is the notion that we "wouldn't, shouldn't, and couldn't do it this way in the future." The future needs to be more planned and more clearly orchestrated to meet the customer's requirements than has been in the past. The capital preconditions of growth are too large to allow for a continued anecdotal approach to growth. Again, the cognitive dissonance is apparent. At the same moment that what brought us here seems frail and under-structured, it also seems to engender its own mitigation.

The stable and separate hierarchies of railroads, trucking companies, IMCs, and shippers are being superseded by a new railroad route map, new relationships—often between former competitors and blurring lines between sales channels, and far fewer asset owners and train operators. These shifts, of course, are only a part of a larger transformation that is embracing the entire economy—globalization—and a drive to more efficient uses of capital in a world of increasing scarcity.

Clearly, the IMC channel is undergoing its own major changes. The Hub Group and CH Robinson have become very successful public companies. The Hub Group, consequently, is moving toward more centralized control and execution, while RISS Companies, Mark 7, and others continue to build toward becoming multi-service logistics providers. The IMC channel will continue to consolidate, especially as rail carriers move to increase minimum revenue thresholds for contract holders.

These changes, however, should be the footnotes in the white paper entitled "The Year 2000 and Beyond: The North American Intermodal System." The bold print, headline and text, should be the intermodal formula for meeting the changing and increasingly demanding expectations of the customers, something that is barely accomplished today. The information path between the real customer and the carrier has to be dramatically shortened.

The *fin de siecle* intermodal system in North America is a product of what the carriers had left over and what the entrepreneurs could create with minimal resources beyond their own sales acumen and desire to succeed. Credit these folk with a lot—they put the ball in motion and the business has grown beyond anyone's expectations. And credit the customers—especially the liner company—whose needs and demands drove the major intermodal product innovation of our time—the double-stack train.

CUSTOMER EXPECTATIONS

What will the customers expect of intermodal vendors in the future? While not complete, the list will include the following:

- Reduced transit time—not truck-plus-one but equal to truck.
- Reduced effective cost—not just lower prices but lower effective costs that can come, in part, from:

  greater dependability—allowing customers to remove the protection stock often maintained due to the variability of the intermodal product and

  the appropriate vehicle—the North American home market is a 53-foot market.

When shippers are forced to cube down to the smaller intermodal equipment, the intermodal revenue opportunities are depressed, which adds to the costs of the end users. Incredibly, about 40 percent of the IMC fleet is still 45-foot trailers!

The characteristics that will meet these needs in an economically rational fashion include the following:

- A low cost of operation with high asset utilization. This requires equipment type simplification and stakeholders, especially IMCs, taking responsibility for the assets when they are not in the direct control of the railroad.
- Integrated enterprise systems, not linked by EDI, but systems that can be used by trading partners through the Internet or other business networks.
- Flexibility and a willingness to discard those parts of the past that no longer work, even though some of the parts are still profitable.

Where do the market opportunities reside? Here is where the merger picture comes into crisp focus. Looking past the immediate problems, mergers, if properly executed, will create opportunities for intermodal growth. If the vision includes the Norfolk Southern and CSX partitioning and operating Conrail, we see a multiple of new, shorter distance, inter-regional markets that will represent the most important growth opportunity for intermodal since its inception. CSXT's Peter Carpenter put it well in a recent interview, stating that "the sizzle—the synergy—has to be north-south. . .long haul, single line service between the growing, boom, increasingly industrialized, southeast and the major population centers of the northeast." CSX believes it can quadruple rail share in these markets and convert 321,000 truckloads in three years.

Looking past the immediate problems, mergers, if properly executed, will create opportunities for intermodal growth.

Norfolk Southern's application indicates that there is, essentially, a potential to double Conrail's intermodal volume between certain local city pairs in a relatively short time frame. Norfolk Southern argues that, for a number of reasons, Conrail typically has a much lower current share of on-line traffic potential than the average for other carriers that are serving city pairs at similar distances. Assuming that this structural deficit in market share is corrected by the investment of Norfolk Southern in capacity and in marketing acumen, and assuming that CSX is correct about the intermodal potential in its territory post-acquisition, this may lead to the possibility of major new obstacles.

First and foremost will be intermodal capacity and access to it, and the question will be who gets access to the network and on what terms. Second will be rationalizing and restructuring the intermodal delivery mechanism to make it more efficient and more customer friendly. IMCs have an enormous responsibility in this context.

Today, the intermodal industry is straining to handle the volumes of traffic available to it. The future will require even more investment. And, that leads to the conundrum that must be faced—how does an asset intensive industry finance rapid growth from its earnings stream when Wall Street continues to expect sufficient free cash flow to protect dividends in those years when the business cycle trends downward? One financial analyst refers to this as the investment-growth dilemma, a dilemma that has ramifications for IMCs as well as for the rest of the "intermodal food chain."

Today, the intermodal industry is straining to handle the volumes of traffic available to it. The future will require even more investment.

Panel II: Intermodal Transportation Issues—Passenger and Freight

Moderator: Craig R. Lentzsch, Greyhound Lines, Inc.

Panelists: William Bon, Brotherhood of Maintenance of Way Employes for Mac A. Fleming (labor)
George Davies, Apogee Research International Ltd. (environment)
Emilio Sacristán Roy, Ferrocarriles Nacionales de México (safety and security)
Sunil Harman, Miami International Airport (airports)
Ruben C. Medina, Transportacion Maritima Mexicana (seaports)

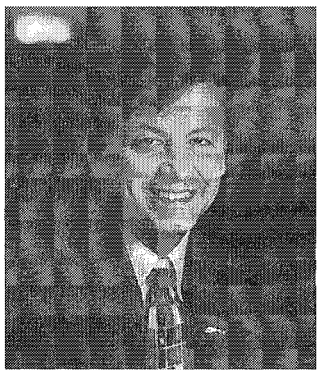
PANEL II OVERVIEW

Panel II reiterated many of the same issues that were raised in Panel I. The panelists emphasized the need to enhance the quality of service, to improve the efficiency of the various modes, and to link the modes together in a manner promoting safety and security as well as protecting the environment. The need for governments to standardize rules and regulations was restated.

Additionally, this panel provided two very interesting case studies, one in the US that showed ways in which partnerships can create an in-

termodal terminal to improve the quality of service at an airport, and the second in Mexico, where a shipping company has been transported into a major intermodal company.

However, a new point emerged, one that deserves particular attention—the position of the workforce. There is little doubt that labor and its leaders feel alienated and marginalized. Any progress towards intermodalism must take into account the concerns and the interests of the workforce.



Introduction to Panel II

by Moderator Craig R. Lentzsch
president and CEO,
Greyhound Lines, Inc.;
ITI Board of Directors

As the moderator of the panel discussion on intermodal issues for both passenger and freight transportation, I want to first provide an overview from the perspective of the mode that I know best, intercity passenger service by bus. In addition, I want to attempt to identify and frame the key issues facing intermodal transportation. The preparatory material from ITI suggested four issues and arranged for panelists to discuss labor, environment, safety and security, and ports and terminals. From my review of the panelists remarks, discussions with members of the ITI Board of Directors, and my own experience, I want to change the discussion of ports and terminals to infrastructure and add the issues of government and the legal system, technology and communication systems, and mode bias—or the perception of the stakeholders of each mode

I have, then, grouped both freight and passenger intermodal issues into seven broad categories. Each category includes many specific barriers and obstacles to a seamless intermodal network which, when resolved, should enable a person to travel from Meridian, Mississippi, to Oaxca, Mexico, or from Yellow Knife, Canada, to Miami, Florida, or Pueblo, Colorado, to London, England, while only using the automobile for local transfers.

The following are specific examples of the issues that I have identified in my passenger experience:

INFRASTRUCTURE ISSUES

Terminals, ports, airports, roads, right-of-ways, and air space are manifestations of infrastructure issues, and, all of the infrastructure issues have one common bond—capital. It takes money to create infrastructure and it takes money to solve infrastructure issues. Capital creates our biggest challenge. The predominant single mode of passenger transportation in the US today is the private automobile. There are 160 million personal motor vehicles in the US alone, representing an investment by the American people of $1.5 trillion. It is a voluntary investment in infrastructure that private business or government cannot match. By comparison, for example, Greyhound Lines operates a nationwide network of 400 terminals and 2,000 buses for a total investment of only $300 million.

It takes money to create infrastructure, and it takes money to solve infrastructure issues. Capital creates our biggest challenge.

Now, like all owners of an investment, car owners want to use their cars as much as possible. They are convenient and flexible and the more they use their cars, the cheaper it becomes. While the full cost of operating a car today is 40 cents per mile, the marginal cost is only 5 to 10 cents per mile. By comparison, the intercity bus is the cheapest form of public transportation, and my average fare is 9 cents per mile. An intermodal system must be able to compete with a well-capitalized, low-cost automobile alternative.

INTERMODAL TERMINALS

In addition to the broad capital issues, there are also some specific infrastructure barriers to an intermodal system. In the US, most passenger terminal facilities are not intermodal in design, operation, or orientation. Having separate facilities for air, rail, transit, and intercity bus creates an overwhelming barrier to intermodalism. Passengers are not packages. A mode change in and of itself is a barrier, and if that mode change requires a lengthy walk in an uncontrolled environment or a cab ride, then the passenger will not even consider the mode change.

There are no places in the US where transit bus, transit rail, intercity bus, intercity rail, and air all come together. There are places where some combinations of modes do come together to reduce the physical barriers of intermodal travel. New York's Port Authority Bus Terminal and Bos-

ton's South Station are two facilities where transit, rail, and intercity bus come together and mutually support each other. In addition, Greyhound participates in 72 intermodal terminals, which is 18 percent of our locations. These facilities usually include transit and occasionally rail. One bus station is in an airport and one more is on airport grounds. Greyhound has 56 more intermodals in various stages of development. Three of our intermodal development efforts are illustrative and, I hope, educational.

There are no places in the US where transit bus, transit rail, intercity bus, intercity rail, and air all come together.

In Chattanooga, Tennessee, Greyhound was evicted from a traditional, old, decrepit downtown bus terminal. This community had a new, federally funded, $22 million airport that was half empty and, in spite of the support of the US Department of Transportation, the Congressman from southeastern Tennessee, and Greyhound, the city fathers would not let Greyhound use a small portion of their airport as a bus terminal. So, Greyhound built a terminal across the street from the airport, and today, on a code-share basis with Valuejet, it is running direct, nonstop service to Atlanta's Hartsfield Airport. This bus service is giving the people of southeast Tennessee their first access to low-cost air travel.

In Phoenix, Arizona, the transit authority built a transit hub in downtown Phoenix. Land adjacent to the hub facility was available, but the city would not permit Greyhound to build a bus station there. Interestingly, however, they did permit Greyhound to build a terminal at Sky Harbor Airport, and, this summer Greyhound carried 120 passengers per week to the airlines at Sky Harbor from rural Arizona with no incremental cost to it or to the passenger.

The best look into the future is the experience of relocating the Greyhound terminal in Atlanta, Georgia. With only eight months notice, Greyhound relocated its terminal to the Garnett Street MARTA station, providing easy interchange between the subway, transit buses, and intercity buses with rail access to the airport. The rapid creation of this intermodal facility with private capital was possible due to the vision of Bill Campbell, the mayor of Atlanta, and the cooperation of the Atlanta City Council, the Georgia DOT, MARTA, and the US DOT. Inclusive multimodal terminals may be the most important part of a seamless intermodal system.

GOVERNMENT STRUCTURE AND THE LEGAL SYSTEM

This category includes enforcement, borders, trade, infrastructure funding, and liability risk. In the US, the barriers to intermodalism start

at the top. The executive and administrative functions of the federal government are organized principally by mode and are supported by a small, but important, office on intermodalism. In the US Senate, three different committees have jurisdiction over intermodal issues. Historically, infrastructure funding has been mode specific.

Changes are coming, however. The US House of Representatives has consolidated its efforts under the Transportation and Infrastructure Committee. We have ISTEA, and its reauthorization is likely to have larger, broader pots of money, simplified processes, and more emphasis on intermodalism.

TECHNOLOGY AND COMMUNICATION SYSTEMS

There is no single database, point of contact, or common ticketing for planning an intermodal trip. Most travel agents will not sell bus tickets, many do not sell rail tickets, and city transit is completely segregated from the intercity system.

In Canada, however, Greyhound Lines of Canada conducted a bold air/bus experiment. With private capital, they created through-ticketing and a common distribution system. For 15 months, Greyhound carried 1.2 million people and saw 10 to 12 percent use the air/bus combination. While the experiment failed as a business, it proved the efficacy of air/bus intermodalism.

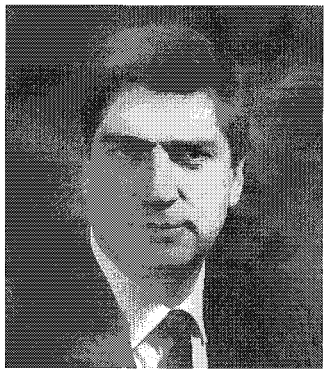
The members of the panel will specifically address the issues of labor, the environment, safety and security, and ports and terminals. However, I want to point out that all of our transportation modes require significant labor input and intermodal systems will be no different. Labor must be included in the process of developing a seamless transportation system, and intermodalism should be a friend of the environment because the economy of scale that an intermodal system creates should produce significant, long-term environmental improvements.

Safety and security, however, are issues of responsibility and perception. Our goal should always be a completely safe environment, and an intermodal system can be safer than mode-specific travel. The individual modes of transportation are already safer than private travel. For example, Greyhound Lines, Inc., had only one passenger fatality in the last three years, 1994-97, while traveling over 20 billion passenger miles.

The last and, perhaps, most complicated barrier to an intermodal system is mode bias. As Pogo said, "we have met the enemy and he is us." Each mode's perceptions, biases, and prejudices frequently have been the greatest barriers to intermodalism. In fact, the passengers on Amtrak, Southwest Airlines, Greyhound buses, and in our transit systems are all hard-working people with a need to be somewhere. They look alike

Each mode's perceptions, biases, and prejudices frequently have been the greatest barriers to intermodalism.

while they are all different; they act the same while they pursue different life experiences. Fundamentally, they have similar needs and a common purpose. A seamless intermodal system will let each mode provide the service it performs best and empower the passengers to make the choice to get where they need to go, when they need to go, inexpensively, easily, safely, and with dignity.



Intermodal Transportation Issues: LABOR

by Mac A. Fleming
president, Brotherhood of Maintenance of Way Employes and ITI Board of Directors

Mac Fleming, the president of the Brotherhood of Maintenance of Way Employes (BMWE), was scheduled to address you, but he was unable to attend due to urgent business. I have spent a decade as the general counsel of BMWE, and Mac asked me to share some of his thoughts in his stead.

The Brotherhood of Maintenance of Way Employes represents the rail employees that construct and maintain the track, bridges, and buildings of the vast majority of the freight and passenger railroads of the United States and Canada. Our members repair the sophisticated machinery that we utilize in maintaining the track. We also construct and maintain the electric catenary system of the electrified portions of the national passenger railroad, Amtrak.

First, Mac asked me to convey his thanks for the invitation to address the Summit. However, some of what I will say may be unwelcome or controversial. BMWE does not like to be at odds with the many friends

(Fleming Paper was presented by William Bon, general counsel, BMWE.)

who will address the Summit. Indeed, US Transportation Secretary Rodney Slater will be here. He has been a good friend to BMWE and transportation labor. He has used his good offices to assist the parties in labor negotiations to reach fair and reasonable settlements. We appreciate his current efforts assisting Amtrak and BMWE to settle our current contract bargaining and, hopefully, avoid disruption to passenger transportation.

THE PERIL OF OVERLOOKING LABOR

BMWE does not like to be at odds with Secretary Slater or with our friends on the ITI Board of Directors. Nonetheless, we have some serious objections to the thrust of this Summit. Fundamentally, the approach of the Summit tends to "disappear" labor. While acknowledging the importance of the interests of customers and consumers, a key stakeholder in these enterprises is marginalized. Without their employees, transportation enterprises, whatever the mode, are nothing but useless accumulations of fixed capital. Yet, the enterprises have failed to seek a real partnership with their human capital. Instead, as this millennium draws to a close, the managers of enterprises both propose and dispose the future of the firm. Only as an afterthought are the workers invited to be enthusiastic about what is already a *fait accompli.* In most cases, the workers are told that they must make present-day sacrifices in order to enjoy some glowing future, when, presumably, the benefits of restructuring will trickle down to their level. Of course, for the managing elite and the holders of an equity interest in the firm, no delayed gratification is asked or demanded.

Many of the economic watchwords of the last quarter of this century are merely recycled ideas that have been antithetical to the vast majority of the populations who live with the consequences of their implementation. In the US, these concepts—deregulation, privatization, global competition, and free trade—have been used as bludgeons to eliminate good-paying jobs and to reduce the living standards of some three-quarters of the population, while they are gleefully embraced by both those who profit from them and a squad of neoliberal ideologues. Given these realities, we at BMWE remain hopeful that continental intermodalism and sustainable development may be visions that will benefit all stakeholders in the affected enterprises. Yet, based on our experience with other waves of change, we are skeptical that this will be so.

Unfortunately, there has been a disconnection between the champions of restructuring and the views of the employees that implement the changes. Academics and other industry observers have credited the Staggers Act with the renaissance in rail transportation. From the standpoint of employees in the rail industry, however, the results of Staggers have

been disastrous. While Staggers largely deregulated the industry, it provided a legal framework that enabled the Interstate Commerce Commission (ICC) to invent a new role as a labor relations agency. Under Staggers, the ICC stripped employees of statutory protections that mitigated the effects of the sale of rail lines. The ICC, and its successor the Surface Transportation Board, transformed these same statutory protections into a mechanism for carriers to rip-up their solemn contractual undertakings, arrived at through collective bargaining, whenever they proved inconvenient. Under Staggers, we saw employment drop from 457,000 workers on the US Class 1 railroads in 1980 to fewer than 200,000 today. We understand that the experience of our brothers and sisters in the other transportation modes has been no better.

Now, looking at the preliminary draft of the "Denver Declaration on Intermodal Transportation," we see that the words "labor," "workers," and "unions" are missing. Although the declaration draft seeks to improve the integration of transportation planning, there is no hint that such planning must take into consideration the guarantee of decent and safe conditions for those who work in the integrated intermodal system of the future. Once again, it appears that the interests of the single most important sector within the transportation community—the frontline workers who provide the services—will be dealt with as an afterthought. Worse, the men and women who have dedicated their lives to transportation careers may be treated as if they were just another commodity, like a locomotive or a boxcar, rather than as the lifeblood of the enterprises.

Labor does not oppose progress, new technology, or changes in organizations and processes.

Labor does not oppose progress, new technology, or changes in organizations and processes. Transportation unions are not shortsighted Luddites who wish to stop or reverse the clock of history. Labor wants employers to do well and to have the wherewithal to pay good wages. Labor has always risen to the occasion. It has adapted to the higher skills demanded by the new technologies. But the track record of industry has been one of exploding corporate profits and very generous executive salaries, paired with declining or stagnant real wages. The renaissance of industry, fueled by the exponential growth in employee productivity, has primarily benefited those who are high up on the corporate ladders.

RAILROAD TRENDS

We do not agree that the rail industry of the 1970s is rapidly heading for extinction, but we do believe that what is actually occurring is an adjustment between the modes and neglect by caretaker managers. In the

1920s rail was king; between 80 and 85 percent of all intercity freight moved by rail. There were few interstate highways, and those that existed were not the limited access roads of today. The airline industry was still an embryo. The automobile industry was still in its adolescence.

In the early 1930s, freight still had to move by rail or water. With the onset of the Great Depression, there was little impetus to create innovative transportation alternatives, as the country was crushed under the weight of enormous excess capacity. Once the war ended, however, a long wave of economic expansion began, fueled by pent-up demand and by new outlets for capital investment in industries created from wartime technological innovations. The interstate highway system was built, and air travel became commonplace. By 1980, the portion of intercity freight moved by rail had declined to a little over 30 percent.

Much of the contraction of the rail industry occurred before Staggers, but the job losses were ameliorated by both contractual and statutory schemes that eased the transition of long-service employees away from the industry. With Staggers, many of these protections were stripped away. The industry bottomed out, even as technological changes, such as piggyback cars and containers, melded rail routes with other modes. And, Staggers permitted the restructuring without recognizing the sweat equity of the employees.

Unfortunately, the overreaching concerns of the carriers were not limited to their labor-relations departments. Management short sightedness has created a situation where the zeal to boost the bottom line by paring track and employees has left some without sufficient capacity to move the freight volumes of today. Now, the railroads are unable to hire qualified people fast enough to meet the demands of the economy. Even a casual reader of the business section of any major periodical knows that the Union Pacific/Southern Pacific merger has created a transportation bottleneck in the West and Southwest, which will not be resolved in the foreseeable future. Ironically, some of the very shippers who were solicited to support the transaction find themselves without reliable service. Worse, the tangled operation has sacrificed safety, with three fatal crashes, several workers killed, and more injured because the mega-carrier seems too big to manage. This, however, has not warned others of the disease of mega mergers. Now, CSXT and Norfolk Southern seek to carve up Conrail, with the collaborators promising fierce competition the day after the feast. There is simply no reason to expect that the oligopolies that will result will be any better able to manage the transition without consequences to worker safety and customer service.

THE IMPACT OF LABOR ON INTERNATIONAL ARRANGEMENTS

Beyond the rail industry, we have already seen the results of international arrangements that do not consider the effects on workers and communities. Trucking safety standards differ between the US and Mexico. In the air industry, different standards regarding aircraft maintenance and the treatment of flight crews have raised the fear that the differences will be resolved by a race to the bottom. In the manufacturing sector, NAFTA failed to deliver on its promises. Good union jobs flow south, even as the real wages of Mexican workers have gone into precipitous decline with no sign of recovery from this post-NAFTA slide. Rather than a general prosperity, with working people entering or remaining in the ranks of the consumer-spending, middle-income groups, stagnating or declining living standards prevail. So, too, with the environment, as local environmental degradation and pollution of shared waterways result from the race to attract capital.

LABOR AND INTERMODALISM

Transportation labor accepts intermodalism. It is here; it already exists. The members of BMWE make it work even as this Summit talks about it. We believe that, as societies, we must continue to build on what already exists and to shape energy and space efficient and ecologically friendly transportation systems. We believe that the involved enterprises must be responsive to customer needs. But, we also believe that creating these systems involves social interests beyond the carriers and their immediate customers. We believe that international accords, understandings, and shared goals must, in each instance, protect the public, the workers, and the environment. We believe that the costs of change should not be borne solely by labor. Wages, benefits, and working conditions should not decline in any mode in order to accommodate the new continental and international intermodalism. Collective bargaining must be the cornerstone of the relationship between labor and management. Moreover, until we, labor, are included in the planning process, with the ability to reject schemes inimical to our interests, then you are not really talking about intermodalism. Instead, intermodal planning will be just another neoliberal disguise for the transfer of wealth from the pockets of workers.

Transportation labor accepts intermodalism. It is here; it already exists. The members of BMWE make it work even as this Summit talks about it.

It does not need to work this way. In the long run, enterprises will prosper if they can be competitive in their industries and also act as good corporate citizens and employers. To succeed in that role, dialogue must expand to include all affected communities of interest. And, for the dialogue to be real, it must begin at the beginning, for no post-hoc invitation to embrace the decisions of the governmental or management elite will be judged as other than public relations ploys that seek to manufacture consent. Extending the invitation to labor to be heard today is good, but a brief address at this Summit will not substitute for the kind of dialogue that should already be ongoing.

Again, I am sorry to have to put forward this discordant note among friends, but transportation employees should not be taken for granted. Time and again, when the legitimate interests of workers are ignored, discord and turmoil results. This is not inevitable. A real and substantive partnership can make development of an intermodal transportation system a winning proposition for all stakeholders in our respective societies.

Intermodal Transportation Issues: ENVIRONMENT

by George Davies

president and CEO,
Apogee Research International, Ltd.

(Photo unavailable.)

An intermodal approach to transportation opens up greater possibilities to move toward a sustainable transportation system. However, we must recognize that all transportation activity has an impact on the environment. No transportation mode is environmentally benign. The movement of goods and people over similar distances can have significantly different impacts on the environment, depending on modal choices. A high-quality intermodal system, accompanied by market prices that reflect full environmental costs, can help make our North American transportation system more sustainable.

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In Canada, between the truck and rail modes, some 40 percent of the freight is moved by truck, representing 60 percent of the value. Rail is the reverse with 60 percent of the tonnage moved, representing 40 percent of the value. This relatively higher value-added per-ton in the trucking mode is a reflection of the volume of lower-unit-value-commodity cargo that is moved by rail.

THE IMPACT OF TRANSPORTATION ON THE ENVIRONMENT

Apogee Research International has done considerable cost analysis of the environmental impacts by mode and has priced these impacts. Many of the costs are borne by society, as the costs are not currently reflected in the market prices being charged shippers. For instance, Apogee has calculated that the external costs of pollution for goods moved by truck is some 2 ½ times the external costs of pollution for goods moved by rail (0.72 cents per ton-kilometer for truck versus 0.29 cents per ton-kilometer by rail). A breakdown of the external pollution costs by mode shows the following range of pollution costs per ton-kilometer:

semi-truck	$.72
double trailer	$.58
piggyback rail	$.36
containerized rail	$.29

However, these figures are an underestimate of the full range of environmental and social costs by mode. Full-life-cycle impacts, such as construction, manufacturing, maintenance, and disposal/recycling, were not factored into the equation. Only operating impacts are included. In addition, Apogee only calculated the costs associated with pollutants that have local and regional impacts as particulate matter—NOx (nitric oxide and nitrogen dioxide), VOCs (volatile organic compound), and SOx (sulfur dioxide). For local and regional pollutants, there is an established science of estimating costs to health or environment. Apogee did not calculate the impact of global pollutants, such as carbon dioxide or CO_2.

Here, the private motor car, commuting to and from work, is responsible for 50 percent of the CO_2 emissions in Ontario, the intercity passenger car—22 percent, the intercity truck—15 percent, and the intercity rail freight 6 percent. Transit is responsible for 2 percent.

As the world leaders begin to make decisions about global warming prevention strategies, much greater costs will have an impact on various modes. The relative magnitude of the impacts on the modes can be understood by looking at the emissions of CO_2 in Ontario, a province of 11.5 million people and an economy that is

heavily dependent upon manufacturing and trade, particularly with its six neighboring US states. Here, the private motor car, commuting to and from work, is responsible for 50 percent of the CO_2 emissions in Ontario, the intercity passenger car is responsible for 22 percent, the intercity truck some 15 percent, and the intercity rail freight 6 percent. Transit is responsible for 2 percent. Obviously, measures to reduce global CO_2 emissions will have the effect, or should have the effect, of shifting people from cars to urban transit and intercity freight from truck to rail.

The freeing of markets has demonstrated how quickly the transportation modes can respond to shippers needs to move goods quickly and efficiently to market. While market signals now determine the most efficient private decisions in transportation choices, a full accounting of the environmental costs is not available, which would allow for the market to make the right environmental and social choices in determining modal splits.

MOVING TOWARD "SUSTAINABILITY"

Government is faced with the challenge of how to intervene to help move transportation activities to greater levels of sustainability. One of the most effective ways to do so will be to level the playing field across the modes by assessing fairer taxes, by eliminating subsidies, and by moving to reflect fully the environmental costs in market prices and best practices. While there is still a role for targeted regulation, for example, in fleet fuel efficiency standards, market mechanisms have proven their effectiveness and efficiency in obtaining environmental improvements at least cost. The example of tradable emission credits to attack sulfur dioxide emissions demonstrated that the market could obtain results at about 10 to 40 percent of the cost predicted for a traditional governmental regulatory approach. The discussion of solutions to tackle global warming at Kyoto, Japan, in early December 1997, can be expected to examine the applicability of tradable emissions credits. Measures to address global warming will have a major impact on the transportation sector and will open up new opportunities for intermodalism.

There are many transportation "best practices" on how to achieve a lower impact on the environment—from how to move people to and from work to how to move goods to and from the marketplace. The commuter rail system in Toronto replaces the need for six more expressways, and Toronto and Ottawa have among the highest rates of transit utilization on the continent. Both the commuter rail system and the transit system in Toronto are currently covering 80 percent of their operating costs from fares, and this is before pollution costs have been fully reflected in the pricing system, which will further increase the use of urban transit.

INTERMODAL CONNECTIONS

Good intermodal connections are helping Toronto achieve high rates of utilization with the public transit park-and-ride; with fair integration with suburban and regional transit systems; with route and schedule integration; with a commuter rail station that also handles intercity rail and connects directly to the subway; with some intercity buses; and most importantly, with an underground walkway to office building concentrations in the downtown area that allows over 80 percent of the people arriving by commuter rail to walk to work. However, much more can be done to improve the intermodal passenger system within Greater Toronto. Key to greater transit utilization and better transit economics is improved land-use planning. Urban development in the Toronto area must be planned in a manner that achieves much higher densities, less urban sprawl, and establishes workplaces close to living areas. In one newly planned community of 35,000 people northeast of Toronto, 30 to 40 percent of the workforce is expected to find employment within the community.

There are successful cases of intermodalism in the movement of intercity passengers. Greyhound, Canada's largest intercity bus company, established its own airline, provided interline ticketing and routing that used the bus system as a feeder system to airports, and achieved high user acceptance. Unfortunately, the service was undercapitalized and is no longer in operation.

Canada has also examined the feasibility of high-speed passenger rail between Toronto, Ottawa, and Montreal through a federal provincial task force that I chaired. The system was designed to interconnect with both airports and transit systems. However, the task force concluded that it was a great concept that could not be economically justified at this time but recommended that the government and the private sector revisit the feasibility in five years when circumstances may change.

Environmental considerations and costs will have a major impact on the transportation system responsible for moving both people and goods. An effective and efficient intermodal system can help ensure that the impact is managed in a way that will cause the least disruption to the economy and to people. We need to learn much more about best practices, apply them throughout the world, monitor their results, and learn from their experience. There is so much more to be done, and we are only scratching the surface of intermodal possibilities.

Intermodal Transportation Issues: SAFETY AND SECURITY

by Emilio Sacristán Roy

restructuring vice president,
Ferrocarriles Nacionales de México;
ITI Board of Directors

The free flow of merchandise throughout the North American Continent has become a reality. An efficient system of transportation is a crucial part of this flow, a system that brings together all modes of transportation, in essence, an intermodal transportation system. However, it is necessary to recognize that we still have a distance to go. The transportation system in each country differs in quality and service, so there is a need to design the proper strategies in order to reach common objectives.

With the issues of safety and security, the situation is not different. Each mode has a full set of regulations to ensure that it is safe and secure. However, a set of regulations has to be applied to an intermodal transportation system, and, of course, the conditions and situations affecting safety and security are different in each country. In this regard, the preoccupation of carriers and shippers to preserve the integrity of their freight against damage, theft, and vandalism is well justified.

Each of the modes has responded to the problems of safety and security, initially merely as regulations and later as technological solutions. The concerns have produced extensive regulation on infrastructure, vehicles, and operations as well as on the techniques of loading, handling, and packing materials. In the case of railroads, the US Federal Railroad Administration and the American Association of Railroads have a set of regulations, standards, and procedures.

The development of intermodal transportation and the increased use of the container, which promoted the interaction of modes, required a uniform set of rules and regulations on the following:

- the design, construction, and operation of vehicles and containers
- cargo liability and insurance
- documentation

- responsibility of the different agents
- border traffic, customs, and other inspections

Today, the need for standard agreements and terms in intermodal transportation across borders is evident. This is an important, long-term challenge. Considering that it took almost a century to arrive at a common and homogenous rail system, the task for intermodalism becomes more illusive.

However, this comprehensive set of regulations is yet to be established and agreed upon. Back in the 1970s, the United Nations made a formidable effort in the design of such convention. Mexico became a signatory, yet it could not achieve worldwide agreement. New efforts have to be initiated for North America.

INTERMODAL OPERATIONS

Railroad intermodal transportation in Mexico consists of basically two forms, the piggyback and the container. A brief experiment of rail over barges failed. The first, the piggyback, is mainly used for the export of tomatoes and other vegetables in refrigerated trailers from regions in Northwestern Mexico to California and Arizona.

The second, containers, refers to the import and export of manufactured goods and parts, particularly the high-value automobile parts. The transportation of containers is the fastest growing traffic of the railroads as well as the ships. Despite its growing traffic, however, railroads are behind the truckers in the movement of containers. The fast growing use of the container is due, to a large extent, to the great protection of the integrity of merchandise as well as the greater possibility of rendering a "just in time" service, which requires that the service be provided on preferential terms, in train dispatching, crew programming, and terminal services.

Within Mexico, however, the movement of containers is still very limited when compared to the US and Canada. In Mexico, the containers are seldom moved in special doublestack flatcars but are usually transported in ordinary gondolas. In some instances, the international freight traffic is also transported in such an inefficient manner, especially that directed to the seaports. However, the trains interchanging at the border with the American railroads generally use the doublestack. One of the reasons for the success in the flow of imports via containers is that both the Mexican and US Customs officials have agreed to waive the inspection at the border, performing it at the final destination, where specified areas have been authorized as inspection sites.

Piggyback traffic has yet to grow much more. At least 90 percent of the trailers arriving by train at the Mexican border from the US or Can-

ada are transferred to trucks. In the case of containers, at least 50 percent of them arrive by rail and are transferred to trucks. At the ports, about 90 percent of the containers from overseas are transported inland by truck instead of rail. This is largely due to the inability of the railroads to keep their schedules and not to safety or security issues. This situation will improve with the increase in the efficiency and the reliability of the railroads due to the privatization effort.

Safety in intermodal traffic is directly related to infrastructure, operations, vehicles, and handling. The safety record in intermodal service in Mexico has been very high, basically due to the uniform standards of the Mexican infrastructure, vehicles, and services with those of US and Canada. In fact, the number of safety incidents registered for the whole railroad industry was 1,257 in 1995 and 878 in 1996; in the case of container traffic, only one claim was registered in both years. It must be recognized, however, that some claims may have been made to the freight forwarders, as well as to the insurance companies, that were not, in turn, made to the railroads. Nevertheless, the record is very good. Regarding piggyback traffic, incidents practically disappeared with the practice of forming mixed trains with container cars. The safety records of the container and refrigerated trailers moved by trucks are not nearly as good, basically because there are no uniform standards of control and regulation.

The safety record in intermodal service in Mexico has been very high, basically due to the uniform standards of the Mexican infrastructure, vehicles, and services with those of the US and Canada.

Security is a major concern in Mexico. Security issues are the major problem confronting container traffic for both railroad and trucking companies. Trucking thefts have increased as vandalism has lost its relevance. Today, shippers are increasingly worried about the security of their freight on highways and are willing to exchange reliability and timing for greater surveillance. The Mexican trucking industry is overcoming the 1994 crisis and is willing to cover the costs of improving security.

Security is a major concern in Mexico. Security issues are the major problem confronting container traffic for both railroad and trucking companies.

Security is not as serious a problem for the railroads as for trucking, yet some freight shipments have been hit hard, particularly in the auto industry. Special programs with added surveillance have been shared by the shipper and the carrier and applied at the intermodal terminals. It

seems that containers are more easily violated within Mexico where no doublestack trains run. Vandalism does occur; however, with the exception of some incidents at the border, it is relatively minor.

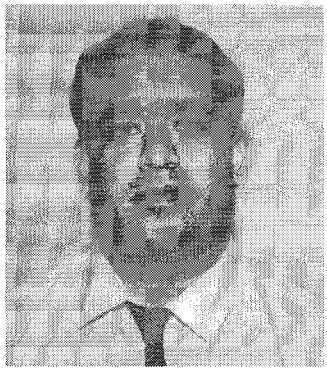
CONCLUSIONS

The US, Canada, and Mexico have signed NAFTA with the conviction that it is possible to achieve greater economic prosperity for the respective countries through free trade, which is based on fair and clear rules that permit healthy competition and that respect cultural customs and differences. Transportation plays a key role in the development of the free-trade markets, which is why a specific calendar was set for the removal of barriers and for the establishment of compatible technical standards and rules.

The railroads are driving the intermodal system in Mexico, due to the influence of the Association of American Railroads and to the existence of uniform standards across the North American Continent, which have existed for many decades. It is important, however, to arrive at a comprehensive set of rules regarding safety and security in connection with intermodal freight transportation, including:

- specifications for vehicles (trucks, locomotives, and cars);
- emission standards for vehicles;
- licenses, inspections, and medical requirements for drivers and engineers; and
- standardized road signage and signals.

In order to develop a more uniform transportation infrastructure, it is important to have a planning process that is considerate of and compatible with environment technologies, safety and security concerns and issues, and the overall optimization of transportation facilities. As in many other areas in intermodal transportation, and specifically in safety and security, Mexico lags behind its two North American counterparts. Yet, with their assistance, Mexico will be able to eliminate the gap in a reasonably short period.



Intermodal Transportation Issues: AIRPORTS

by Sunil Harman

chief of aviation planning,
Miami Intermodal Center Project,
Miami International Airport

The Miami Intermodal Center (MIC) Project is sponsored by the Florida Department of Transportation (FDOT). The FDOT prime consultant, ICF Kaiser Engineers, is leading the effort in the preliminary engineering and design work and in the preparation of environmental impact documents for the project.

In November 1996, FDOT entered into a pre-certification, post-franchise agreement with Florida Overland Express, L.P. (FOX), a private consortium of nearly 30 companies led by Bombardier, GEC Alsthom, Fluor Daniel, and Odebrect Contractors of Florida, to undertake ridership and alignment studies for a high-speed rail system linking the MIC and the Miami International Airport with Orlando and Tampa. The 320-mile system would utilize all-electric trains derived from existing TGV trains, currently in use in Europe. FOX anticipates completing the certification process in 1999.

Dade County, Florida, located at the southeastern most corner of the United States, is undergoing rapid population and employment growth, particularly in its suburban areas. Between 1990 and 2020, the population in Dade County is expected to increase by 70 percent to over 3 million residents. Employment is expected to grow by 28 percent for the same period.

Suburbanization of population and employment has led to a significant increase in automobile use. Because of the disbursement of jobs and residences, the automobile accounts for 95 percent of travel in urbanized areas. Miami International Airport (MIA), located in an urban, landlocked area, approximately 9 km (6 miles) west of Miami's central business district, is the world's ninth largest airport in terms of total annual passengers, but physically it is one of the smallest. Miami's geographical location, relative to international markets in Central and South America, the Caribbean, North America, and Europe, has resulted in MIA exper-

iencing consistent, significant growth in passenger and cargo traffic over the past decade. MIA anticipates continued growth in passenger traffic from 33 million in 1995 to 70 million annual passengers by 2020, with even more growth in its cargo business.

Given its central location in a congested, urban area, roadways in the MIA area now operate at or above capacity. Approximately 1.3 million trips per day are projected for roadways in the MIA area in 2010. Of these, 21 percent would be destined for MIA. Although traffic to the airport is not the prime generator of congestion on these roadways, the congestion directly affects travel time for trips to and from MIA. The heavy volume of traffic in the MIA area has led to congestion that exceeds acceptable levels, and the area's transportation system is expected to become increasingly saturated, even with the roadway improvements identified in the county's long-range transportation plans.

Growth of cruise-line activity at the Port of Miami is another factor contributing to the congestion at the MIA terminal and on area roadways. As the largest cruise terminal in the United States, the Port of Miami currently attracts over 2.9 million passengers per year. Eighty percent of cruise passengers arrive at MIA and are transported on buses to the cruise ship terminal, located approximately 15 km (9.3 miles) east of the airport. Cruise passenger projections are anticipated to exceed 6.8 million by the year 2000.

Dade County is served by several transportation modes: Amtrak, Tri-Rail (a regional commuter rail system), and Metrorail (a countywide heavy rail system). The local bus service, Metrobus, is provided by the county's transit agency and several smaller private- sector service companies. Greyhound Lines furnishes intercity bus service.

Dade County is served by several transportation modes. . . . However, there is a lack of connectivity between these local, regional, and intercity transportation modes, as there is no central, intermodal, transfer facility.

There is, however, a lack of connectivity between these local, regional, and intercity transportation modes, as there is no central, intermodal, transfer facility. Moreover, none of these modes provide direct access to MIA, except for Metrobus, which provides infrequent service to the passenger terminal area. Metrorail's nearest station is almost 6 km (3.7 miles) north of the airport. Amtrak and Tri-Rail service terminate at stations located approximately 6 km (3.7 miles) and 2 km (1.2 miles) north of the airport. Shuttle-bus service provided only between MIA and the Tri-Rail station is frequently adversely affected by area roadway congestion. And, Greyhound bus ser-

vice terminates approximately 3 km (1.8 miles) east of the airport and is accessible to MIA only by private automobile or taxi.

Therefore, the Miami Intermodal Center, is proposed to serve as a regional hub for Amtrak; Tri-Rail; Metrorail; future high-speed rail service between Miami, Orlando, and Tampa; a proposed east-west rail line; bus; taxi; private automobile; bicyclists; and pedestrians. The MIC will house selected airport landside terminal functions, such as ticketing and baggage service, and will be connected to MIA via an automated, fixed guideway transit system—the MIC/MIA Connector. In addition, the MIC will accommodate the Airport/Seaport Connector to provide premium rail service between the airport and the seaport. Included within the MIC program is a six-lane expressway connection (the Interconnector) between State Road 836 and State Road 112, which will also provide expressway access to the MIC and MIA. The Interconnector will also serve as an additional east-west connection, linking I-95 on the east and the Florida Turnpike on the west.

EARLY MIC SITE SELECTION AND PLANNING PROCESS

The MIC project began in the early 1980s when the Dade County Aviation Department (DCAD), the county entity that operates MIA, developed strategies for relieving the congestion at the MIA passenger terminal area. Some of the earliest attempts at resolving area-wide congestion included looking at the feasibility of building an additional airport in the Everglades. However, this project was stopped for environmental reasons. In 1989, Metro-Dade accepted the Miami International Airport Area Transportation Study recommending implementation of a multimodal transportation access facility. Such a facility would link commuter, heavy rail, light rail, and future high-speed rail as well as bus service, thereby providing needed regional connectivity and improved access to the airport. In the early 1990s, the State of Florida implemented multimodal policies to encourage the use of transportation modes other than the single-occupant vehicle. The policies specifically limited the number of lanes on state highways. The passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 by the federal government spurred local planners and decision-makers to undertake planning efforts to link the two local commuter rail systems, Tri-Rail and Metrorail, with MIA, and to improve roadway access at MIA.

Dade County initiated studies for what was originally called the MIA Intermodal Center in 1992-93. The resulting report identified ten subareas within the study area as possible locations for the MIC. A comprehensive site evaluation recommended two sites, which were located immediately east of the airport, for further study and evaluation.

STATUS OF ENVIRONMENTAL IMPACT STUDIES

The development of the MIC was further pursued in 1993 when an Environmental Impact Statement Study was initiated. Prior to this, six federal agencies, namely, the Federal Highway Administration, the Federal Transit Administration, the Federal Railroad Administration, the Federal Aviation Administration, the Maritime Administration, and the United States Coast Guard signed a Memorandum of Understanding with the Florida Department of Transportation (FDOT) to coordinate each agency's role in implementing actions related to the MIC.

Site evaluation and selection processes were developed to assess the most feasible alternative for location of the MIC. Criteria were based on:

- ability to accommodate airport-related functions; light, commuter, and heavy rail; bus and vehicular access;
- compatibility with surrounding communities and with existing, as well as future, land-use plans;
- creation of joint-development opportunities, described as capability of a site to generate opportunities for joint and associated developments within the limitations of Federal Aviation Administration and zoning regulations;
- impact on natural environment; and
- costs.

FDOT's Draft Environmental Impact Statement (DEIS) for the MIC was approved by the Federal Highway Administration in October 1995. The Dade County Board of Commissioners subsequently adopted the DEIS, and the recommended development alternatives for all MIC project components were included in the county's official long- range transportation plan on 7 March 1996. The completion of the FDOT's ongoing PE/FEIS process for the project should result in approval from the Federal Highway Administration, which would facilitate funding for final design, land acquisition, and project construction. It is estimated that the core functional areas could be operational by 2005.

RELATED ACTIVITIES AND STUDIES

Other major projects external to the MIC may result in programmatic and design impacts as the project proceeds through final design and implementation. These projects are occurring concurrently and are being closely coordinated throughout the MIC design process. The projects include:

- the East-West Multimodal Corridor Study, addressing possible solutions to congestion along the most overcrowded, east-west expressway in Dade County, State Road (SR) 836;
- the Miami International Airport Strategic Airport Terminal Planning Study, designed to provide guidance to the airport on long-term, 20 to 40 years, development options for its terminal facilities;
- High-Speed Rail Project, designed to develop a partnership between government and the private business community to implement high-speed rail from Tampa and Orlando to Miami.

THE INTERMODAL TERMINAL FOR THE 21ST CENTURY: THE MIAMI INTERMODAL CENTER

The Miami Intermodal Center will provide a safe, efficient, economical, attractive, and integrated multimodal transportation system that offers convenient, accessible, and affordable mobility for the community and for the movement of goods. The MIC facility will serve as a central transfer point for a wide variety of transportation modes on trips using light, commuter, and heavy rail, future high-speed rail, the Airport/Seaport Connector, bus, private automobiles, bicyclists, and pedestrians. The MIC will also become an extension of Miami International Airport landside terminal functions, accommodating airline ticketing, baggage claim, rental-car services, limousine services, and parking, as identified in the MIA Airport Strategic Terminal Planning Study.

The Miami Intermodal Center will provide a safe, efficient, economical, attractive, and integrated multimodal transportation system that offers convenient, accessible, and affordable mobility for the community and for the movement of goods.

Other key components of the MIC will include an automated people-mover system, referred to as the MIC/MIA Connector, to link the MIA terminal area with the MIC, rental car facilities, and other associated development. Forecasts indicate that a total of 80,000 passengers per day are expected to use the MIC. Of these, 60 percent or 48,000 will be traveling to or from the airport on the MIC/MIA Connector.

The MIC Core, consisting of a central facility to house MIA-related and intermodal functions, will encompass an area of 123,146 square meters (1,325,000 square feet) and rise to height of 48.7 meters (160 feet). MIC functions will be distributed on five levels:

Basement Level B will contain service-access functions, mechanical and ancillary spaces, baggage-handling facilities, and a baggage tunnel linking the MIC to MIA.

Arrivals Level 1 will service the arrivals, vehicular loop, and curbfront activities and will have the public lounge and circulation spaces, baggage-claim facilities, inbound baggage make-up area, and associated ancillary and support spaces. A 12-bay bus facility for Metrobus and other regional bus service will also be located at Level 1, east of the MIC Core.

Departures Level 1A will contain the departures, vehicular loop, and curbfront activities as well as public lounge and circulation spaces, ticketing and baggage-check facilities, outbound baggage make-up areas, and associated ancillary and support spaces.

Main Concourse Level 2 will contain the main public and circulation concourse, the MIC/MIA Connector access vestibule and platforms, Tri-Rail access vestibule and platform, Amtrak access vestibule and platform, Metrorail access vestibule and platform, East-West access vestibule and vertical circulation, Airport/Seaport Connector access vestibule and vertical circulation, the high-speed rail lobby, lounges, and vertical circulation and associated ancillary and support spaces.

Upper Platform Level 3 will contain the high-speed rail platform areas, the East-West and Airport/Seaport Connector platforms, the Airport/Seaport Connector passenger waiting lounge area, and associated ancillary and support spaces.

Additional levels may contain collateral ancillary and support facilities for MIC, MIA, rental car, and joint development functions. A 1,500 space park-and-ride facility for the east-west corridor rail is proposed immediately east of the MIC Core with direct access to the east-west platform.

The capital cost of the MIC and its components is estimated at $1.8 billion (1995 dollars). A 20-year program is assumed, based on current projections of patronage demand. Except for the MIC/MIA Connector and Tri-Rail, the cost of building and operating the rail systems serving the MIC is not included in the MIC costs (other than right-of-way), and they will be borne by the tenant modes. Major elements of the MIC, such as rental car and public parking facilities and landside MIA terminal facilities, will be developed incrementally, depending upon the demand for increased capacity.

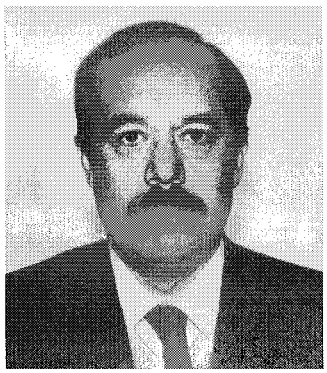
JOINT AND ASSOCIATED DEVELOPMENT

The synergy resulting from the development of a major intermodal facility in close proximity to Miami International Airport creates significant opportunities for private-sector development within and adjacent to these facilities. An aggressive joint development program has been established for the MIC to capture this potential and, thereby, help to offset

capital and operating costs of the facility. This development will also enhance the ridership on public transportation modes serving the MIC, and the joint development plan will include office, hotel, conference, retail, and entertainment space.

CONCLUSIONS

The Miami Intermodal Center, as a significant component of the region's transportation network, will help solve mobility problems that plague the growing South Florida area. Strategically located next to Miami International Airport, the MIC will promote the intermodal goals stipulated in the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). And, the MIC will also enhance the long-term viability of Miami International Airport by incorporating certain landside functions into its core and consolidating rental car functions adjacent to it, thereby relieving traffic congestion at the airport.



Intermodal Transportation Issues: SEAPORTS

by Ruben C. Medina

director, Port Business Division,
Transportacion Maritima Mexicana (TMM)

Today, statistical data obtained from the United Nations states that close to 90 percent of the exchange of goods between nations is performed via maritime transportation. Historically, regular liner maritime transportation started in the early 19th century when an American shipping line started a timely service between New York and Liverpool. Soon, regular sailing routes were established from the European countries to the West Indies, Australia, and India. These liner-shipping routes were accepted as the means whereby general cargo was transported across international waters. Extensive investment and development of the maritime fleets followed in order to serve the growing overseas markets with European and American maritime interests dominating the arena.

Towards the latter part of the 19th century, the opening of the Suez Canal shortened the routes between Europe and the Far East, and, in the early part of the 20th century, the Panama Canal further reduced the steaming distances. Though distances were shortened, however, the ship owners were facing mounting costs as cargo handling productivity declined and operating costs increased, not to mention the inadequate use of the vessel's capacity. Ships were spending too much time in port and too little at sea, and a vessel is only profitable at sea, not in port.

At this time, the most modern "break bulk" ships were making an average of two-to-three roundtrip voyages per year. This meant that 60 to 70 percent of the time the ships were sitting idle at port. There was a reason for this high-cost scenario. Productivity in the ports was quite low, the equipment for handling the cargo was inefficient, and the way the general cargo was packed for shipment was neither adequate nor conducive for the fast turnaround of the vessels. In addition, pilferage and damage were extensive, which hampered both the shipper as well as the ship owner from providing the final consumer with reliability and cost efficient merchandise.

The goods, or general cargo, were handled, at times, no less than 25 times between Europe and the US Midwest. Therefore, the percentage of what is called "end products" selling prices that were attributed to transport were increasing at an alarming rate.

Expensive items of capital hardware would stand idle for days, not to mention weeks, affecting both the overseas as well as the domestic traffic movements. Depressed profit margins were, therefore, the stimulant for change and innovation in maritime transportation.

Changes were implemented at each interface of the transportation chain, creating a more streamlined approach to the entire concept of cargo handling, and the concept of "consolidation of cargoes" emerged. This concept of "fewer but heavier" loads at the ports led to the evolution of box transportation, which was the birth of the container and the beginning of intermodal transportation.

INTERMODAL BREAKTHROUGH DEVELOPMENTS

This breakthrough came from the United States domestic market, and the credit is given to Malcolm McLean, the initiator of Sealand Services. A trucker by profession, McLean was concerned with the costs of handling cargo in the cities from the Northeast Coast to the Gulf. In essence, his idea was to lift the entire truck trailer onboard the ship, utilizing his tractors to the fullest at each end of the route.

This trailer/load scheme became a large steel box filled with cargo. In the past it would have taken 15 to 20 single cranes to load the same

amount of cargo between the quay and the ship, but now one single lift achieved the same results. In addition, the "steel box" or container doubly protected the cargo goods.

Today, every general liner trade is containerized. Maritime trade has been transformed from a labor to a capital-intensive industry. Shipping lines are no longer simple ocean carriers but providers of total transportation packages. As a result, shipping lines have invested millions of dollars in information systems, container vessels, and land infrastructure.

Today, the shipping lines, the shippers, and the consignees cooperate in the overall system of cargo distribution. The regularity and the reliability of the shipping schedules on the world's foremost trade routes have enabled the large multinational shippers to set up "just in time" processes in which the container ship is part of the production-line process. Liner shipping is now interrelated with world economies. The traditional ship owner is now a "through transport operator" with knowledge of the road hauler, container controller, and marketing agent. In other words, the shipping line is now involved in what is called "multimodal-integrated transportation." It is a must, and those that do not offer this first class service will not survive in the global marketplace.

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THE MEXICAN EXPERIENCE

As an example of the evolving "multimodal-integrated transportation" system, I want to discuss the experiences of Mexico and my company, Transportacion Maritima Mexicana (TMM). Mexico has been transporting goods by sea since the 15th century, when Hernan Cortez sent Saavedra Ceron to explore the South Pacific. This was the beginning of trade between Mexico and the Philippines, followed by a flourishing trade between Mexico and both Spain and South America.

However, while Mexico continued to trade, it was served by foreign shipping companies. It was not until 1952 that Mexico had its first national shipping line, Transportacion Maritima Mexicana (TMM). And, TMM has come a long way in just 42 years. The possibilities for continued growth are unlimited, at this moment, because both the government of Mexico and various companies have a clear vision for the future. NAFTA, too, has enhanced this perspective.

Today, TMM is the largest transportation and distribution company in Latin America. It owns and operates 6 port concessions, owns and

manages railroads, possesses chemical, oil storage, and warehousing facilities as well as value-added facilities at manufacturing sites. TMM also owns and manages trucking companies (both cross-border and dedicated-service contract carriers). A fleet of 38 container vessels attends the 6 liner services to and from Mexico to Europe, the Far East, and South America. Also, TMM owns and operates 5 car-carrier vessels servicing the Far East to the United States and from Europe to South America.

Today, TMM is the largest transportation and distribution company in Latin America.

TMM also participates in bulk cargo transportation, whether in crude oil or parcel tankers, as well as operates 11 supply vessels that attend Pemex offshore drilling facilities. Today, the TMM container fleet amounts to over 90,000 boxes.

Most recently, TMM has become the majority shareholder of "Flota Mercante Gran Colombiana," based in Bogota, Colombia, and of "Compañia Transatlantica Española," based in Madrid, Spain. Also, TMM has strategic alliances for some trade lanes with APL, Hapaglloyd, and C.S.A.V. TMM is becoming a truly integrated multimodal transportation network, and its primary focus is on multiple lanes to and from Mexico.

Intermodalism will work if a truly seamless product can be constructed. TMM believes that it will be one of the first companies in the world to provide a truly integrated multimodal product. Today, TMM, with its partner Kansas City Southern Industries controls, TFM "Transportacion Ferroviaria Mexicana," a significantly important NAFTA railroad link. In fact, TFM calls itself the "southern half of the NAFTA railroad." This railroad, TFM, represents the shortest and most efficient route within Mexico and serves states that represent 78 percent of the population and 75 percent of the production of Mexico. This railroad is well positioned with the most efficient and shortest routes to and from primary population and production centers in the United States. This unique positioning will allow TFM to be the spine of a US-Mexico intermodal system as it connects directly to the Union Pacific in Laredo and to the Burlington Northern Santa Fe in Brownsville, Texas. TFM has already begun operating the former "FNM Northeast Railroad," and freight volumes are significantly increasing. It is anticipated that this railroad will become a very successful venture as it is user friendly, competitive, and fair with all of it connections north of the border.

Intermodalism will work if a truly seamless product can be constructed.

TMM has other operations that exist close to this spine. Setesa Operations are value-added facilities where logistical activity occurs at primary automobile plants and other manufacturing sites throughout Mexico; TMM tank farms provide for the storage of chemical and food grade chemicals; and warehouses that TMM controls and manages provide additional storage space. In addition, TMM manages port facilities—Tampico-Altamira, Veracruz, Manzanillo, Acapulco and Cozumel—that are connected through to the TMM railroad system. TMM will be expanding into the terminal ports in Mexico City, San Luis Potosi, Monterrey, Queretaro, Neuvo Laredo, and Laredo at Tex Mex. TMM has the potential of offering a totally integrated product.

The next step for TMM is to take all of these assets and to begin to market them as an integrated product. In early 1998, TMM will be forming a Mexican logistics company, and that company will utilize the natural positioning of all of TMM's assets and market them under one price for users both within Mexico and within the United States. TMM maintains that no company has ever had this kind of density or opportunity, serving 78 percent of a nation's population and 75 percent of a nation's productivity. TMM intends to use all of these assets in a way that makes sense, to enhance all of the elements of the supply chain, and to begin to provide customers with a truly integrated service.

CONCLUSION

This is a product offering that is nonexistent today. Some companies own some ships, some own some railroads, and some own some trucks. They call themselves integrated multimodal providers, but very few of them can control enough assets to maintain high quality service throughout their entire supply-chain channel nor can they offer competitive prices because of their many partners. The components of this supply-chain management system have their hand out waiting for a profit.

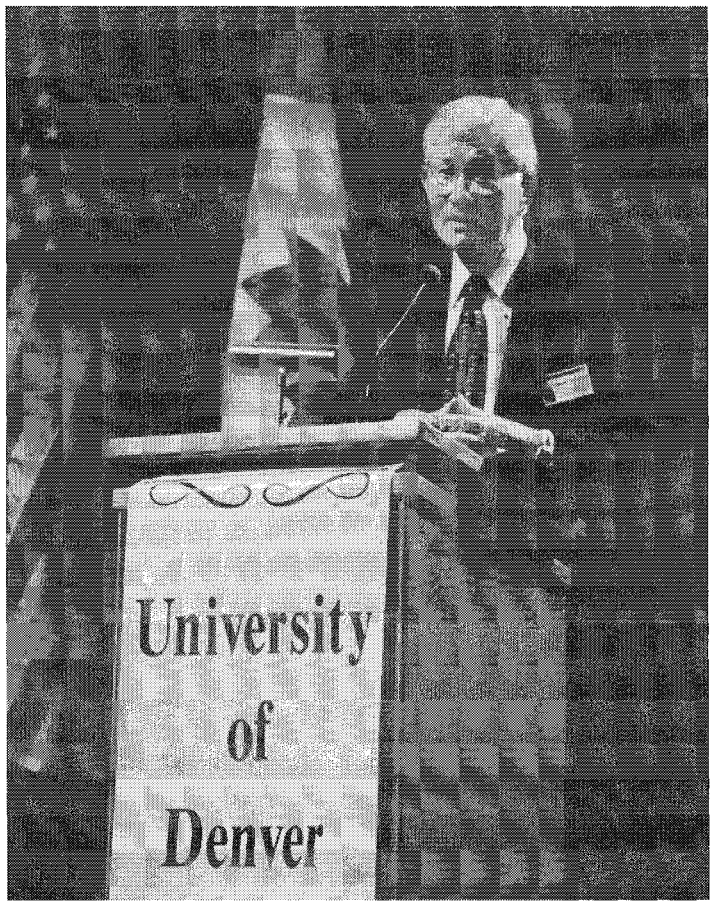
This is the vision of TMM and its Chairman José Serrano. In 1998, TMM intends to take all things that it has done over the years and begin to offer a product in the broadest sense of the word—to land ports, to seaports, to terminals—all linked to TMM ships, railroads, and trucks as well as to the TMM value-added services. TMM, because of its geographical position and its willingness to meld its services into an integrated product, is in an extremely solid position to work with US, Canadian, European, Asian, and Latin American partners to make a Mexican integrated-intermodal product a reality.

Summary of the Conclusions of the Panel Discussions

Considering both of the panel discussions together, the key points raised by the stakeholders may be summarized as follows:

- Major changes are taking place in all aspects of transportation as a result of globalization and national developments, within modes, in their relationships, and in their relations with customers.
- The existing infrastructure is inadequate, particularly with regard to terminals for truck, rail, port, and air.
- Governments have adopted and implemented rules and regulations that are not clearly defined and that inhibit the effective and efficient operation of the private sector.
- Local and regional planning organizations are insensitive to the needs of the freight community.
- A new concept of the trip needs to become accepted, one that recognizes it begins at the home or the factory and ends at a final destination. Terminals must be viewed from this perspective.
- Relations among countries and modes should be based on principles of reciprocity and equality.
- Each mode possesses advantages and disadvantages.
- Increased cooperation between modes is essential. To some extent, they may remain competitive, but there may very well be some continuing consolidation between modes, such as Virgin Air operating passenger trains in Great Britain.
- Transportation does not generate high returns on investment, thus limiting the amount of resources available for upgrading and modernization.
- Governments must establish common standards and procedures.
- Governmental policies and subsidies should be based on the principle of modal equity.
- Attention should be paid to processes that integrate the different modes.
- Greater attention must be paid to meeting customer expectations and lowering their perceptions of the risks involved in intermodalism by achieving greater reliability in deliveries.

- There is a need for shortened information paths between the real customers and the carriers, increased reliability, and better integrated information systems.
- Planning and decision-making structures and processes of private firms as well as of governments require renewed attention.
- Governments should better coordinate the rules and the regulations issued by their various departments.
- Given the rapid changes that continue to characterize technologies, international trade, and customer demands, it is essential to plan for the future.
- Each mode should strive to achieve greater efficiency.
- The role of national cultures and values must be recognized.
- The needs and the interests of the workers must be taken into account when devising and implementing intermodal policies.



Gilbert E. Carmichael
Chairman, ITI Board of Directors
Vice Chairman, MotivePower Industries

Gilbert E. Carmichael *serves as chairman of the Board of Directors of the Intermodal Transportation Institute at the University of Denver. A leading international authority on railroad and intermodal transportation policy, Carmichael was the Federal Railroad Administrator in the US Department of Transportation during the administration of President George Bush.*

Carmichael helped to develop President Bush's national transportation policy to reform laws to permit intermodal transportation initiatives and to formulate new federal policy toward the rail mode and Amtrak. He also supervised international railway technical assistance programs and sponsored the first World Railways Congress in 1991, which brought together senior government and railway officials from 60 nations.

He has presented and published numerous papers on the transportation industry, promoting the need for a North American and global "intermodal" freight and passenger system utilizing the world's rail network.

An Overview of the 21st Century North American Intermodal System

Allow me to offer a brief vision of North America's intermodal transportation system early in the 21st century, not a long-distance vision but one that could be in place ten years from now. A couple boards a Greyhound bus in Columbia, Mississippi. They will not see their checked baggage again until they retrieve it at the carousel at DeGaulle Airport in Paris or the train station in Vouray, France—their final destination. There will not be any enroute haggling with ticket agents because the coupons and boarding passes cover the entire trip.

A Greyhound bus delivers a traveler to Jackson or Meridian, Mississippi, where the passenger walks through a modern intermodal facility that is comfortable, convenient, and a hub for downtown retailing. The traveler then boards a high-speed train and is delivered directly to the New Orleans International Airport terminal and one hour later boards a nonstop flight to Paris. Most of the infrastructure to accomplish this trip was already in place in 1997—as was the computer technology for reservations and ticketing.

Meanwhile, a customer at a Macon, Georgia, auto dealership orders a car. Within days his automobile rolls off the assembly line in Ontario, Canada. Within one week it is in a dealer's lot in Georgia. The auto company's logistics manager can remember that in 1997 it often took three weeks, or a month, to get the vehicle from the factory to the dealer.

A doublestack train leaves the Seattle, Washington, dockside and arrives in Kansas City, Missouri, with the same reliability and schedule as UPS second-day air.

The mayor of Denver, Colorado, cuts the ribbon for a new freight intermodal facility on the city's northeast side. City and county planners had concluded three years earlier that a rail-truck intermodal center would reduce pollution and traffic congestion. Project costs were shared by two railroads, a major trucking company, the state transportation department, and the city—which was able to use federal funds under the ISTEA law now in effect.

Twenty regional high-speed rail passenger corridors are in operation—at speeds of 90 to 150 miles an hour—with construction under way for 200 mile-an-hour service from Chicago to New York via Detroit and Buffalo.

Passenger revenues cover operating costs because the individual routes connect transit, intercity bus service, Amtrak long-distance trains, and commercial airports. One of these rapidly expanding corridors runs from Vancouver, British Columbia, to Eugene, Oregon—a total of 425 miles—because back in 1996, the State of Washington had concluded that this project could be built for the same amount of money as adding one lane each way on the 74 miles of Interstate 5 between Seattle and Portland. Federal trust fund money helped finance the project, which also had private investors. The common sense of this solution even earned the endorsement of the Federal Highway Administration.

Two high-capacity, high-speed freight railroad lines between Mexico City and the United States carry ten times the volume of freight that existed before NAFTA, and the unemployment rates in all three nations are the lowest in memory. Meanwhile, construction crews are laying track to the Guatemalan border, as a Pan-American Rail System is beginning to take shape. Alaska transportation officials are meeting with their counterparts at Dawson in the Yukon to put the finishing touches on a plan to connect Alaska by rail to Western Canada and the lower 48 states.

Two hundred North American cities have intermodal passenger terminals that link bus, rail, transit, airports, vans, and rental cars. The majority of them are in the city center and the others at major airports. These synergies have made the passenger rail systems of all three countries self-sustaining for operating costs. Greyhound Lines and several other intercity bus companies have just reported the best quarterly financial results in their history.

Every North American container port has dockside rail access. As the doublestack trains move inland, they operate on mainline tracks—and at high speed, because the majority of the grade crossings have been closed, separated, or use new, low-cost, crossing protection devices that are far more fool-proof than earlier systems.

The majority of the continent's truck drivers are able to spend most evenings with their families because intermodal partnerships between trucking and railroad companies have slashed the number of costly, fatiguing, long-distance runs.

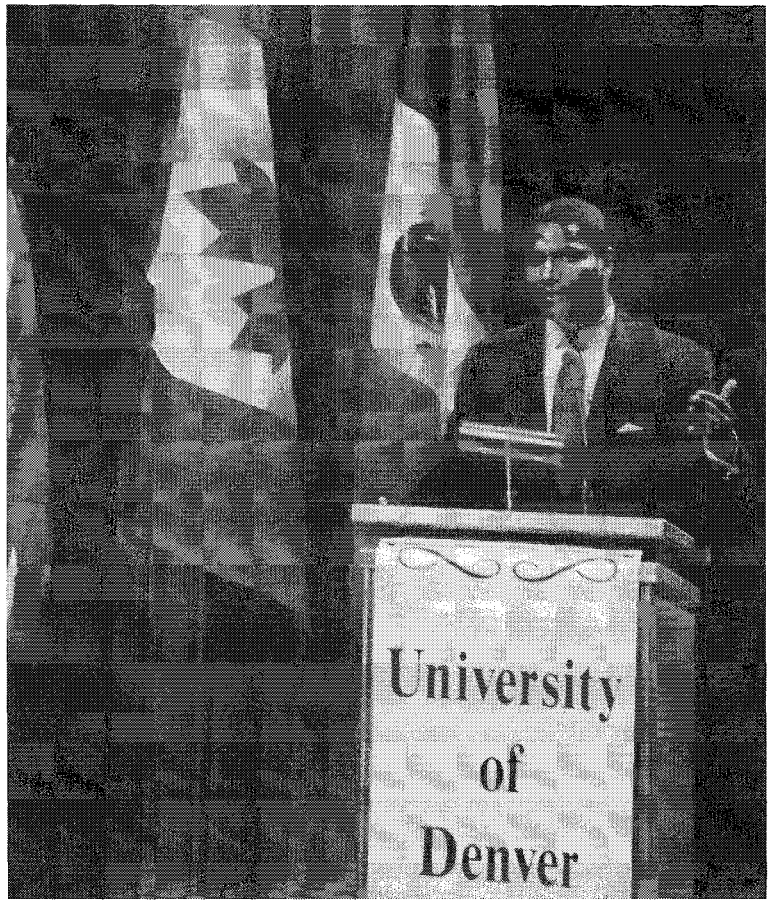
The United States highway death toll, which had climbed above 43,000 in 1997, now is at 30,000 and dropping. Federal safety officials no longer have to cite deaths-per-million-vehicle-miles to argue that highways are becoming safer because now the raw numbers provide a more dramatic and meaningful illustration.

No major commercial passenger airport in any of the three nations has constructed a multilevel parking garage during the past three years—because conventional rail, light rail, and bus services are faster and cheaper. Denver's airport is connected by a modern rail link to its down-

town. By merely crossing a platform at the airport, arriving air travelers can board trains, hourly, to take them to Fort Collins or Pueblo or the urban stations in between.

Several university transportation schools now offer post-graduate degrees in the intermodal transportation and logistics sciences. The air is getting cleaner in every urban center in North America. The amount of downtown real estate consumed by parking lots has dropped by 20 percent, and property values have been bolstered by the return of people to city-center life.

Through collaboration and cooperation across borders and between and among governments and industry, this vision of an integrated transportation system for this continent can become a reality, now.



The Honorable Rodney E. Slater
Secretary of Transportation of the United States

The Honorable Rodney E. Slater *became Secretary of Transportation of the United States in February 1997. Prior to his appointment, he was Federal Highway Administrator, serving during a critical period in which federal highway policy became supportive of intermodal solutions to the nation's transportation needs.*

A former chairman of the highway commission for the State of Arkansas, Secretary Slater has also served as a special assistant to then-Governor Bill Clinton, as assistant state attorney general for Arkansas, and as director of government relations at Arkansas State University. He holds an undergraduate degree from Eastern Michigan University and a law degree from the University of Arkansas.

Address by The Honorable Rodney E. Slater, Secretary of Transportation of the United States

This North American Intermodal Transportation Summit, held at the University of Denver, is an incredible opportunity to not only celebrate the ties that bind the United States and our neighbors but also to set a course for transportation in the 21st century. I hope that the private meetings with my colleagues today are as successful as President Clinton's were this summer, when Denver was the world stage for the G-8 Summit.

Denver is also the home of two of my colleagues in the Cabinet—Secretary of Energy Federico Peña, Denver's former mayor, and Secretary of State Madeline Albright. Secretary Albright is making her mark by traveling, not around the world, as you might expect, but to the middle of America, explaining why foreign policy is a bread and butter issue. So, too, is transportation.

Transportation is about more than concrete, asphalt, and steel. It is about providing economic opportunity. Today, we will discuss issues that our predecessors ten years ago never dealt with. Issues of how we can better move the billions of dollars of goods and the millions more people, north and south, since we tore down trade barriers with NAFTA.

This is just the beginning. President Clinton is holding discussions in South America. By 2005 he hopes that the entire hemisphere will be a free trade zone, and, as he declared, "we can see a new world in the making." To a great extent, this "new world" depends not only on how we bridge our differences on opening markets, but also on how we build bridges that bring goods to market and people to places.

For Americans for the last fifty years, transportation can be described in one word—the Interstate. It connected cities. It made manufacturers more competitive. It grew the suburbs. It brought jobs to millions. If, 40 years ago, our leaders had not imagined how we could change the face of America with a highway, we would not be the mobile, prosperous country we are today.

Clearly, it is our turn now. It is up to us to visualize transportation in the 21st century. A century when information superhighways will deliver

products to homes or offices around the world faster than a plane or train ever will. A century when whether a company is a freight forwarder, railroad, trucking firm, or airline—the consumer will know them as simply the shipper. A century where "soccer moms" will be replaced by services that move people, everyday in everyway. A century where a larger percentage of federal dollars will go to fix—rather than expand—our infrastructure, making it more environmentally acceptable and safer than today. A century where ships will be bigger; buses, lighter; planes and trains, faster; and technology, which has yet to be developed, will have effects we cannot imagine.

How should we define a system for the 21st century that will dominate as the big I—the Interstate—did in this century? I define this integrated system with four new Is—international in reach, intermodal in form, intelligent in character, and inclusive in service.

The transportation system for the 21st century must be international in reach because we will live global lives. We will travel further and faster than we ever have. We will compete with companies half a world away, because the cost differences of transporting whatever we make versus whatever they make will not be a factor. We will need roads to markets that do not stop at our border. Since NAFTA was signed, American exports have grown 37 percent to Mexico and 34 percent to Canada, supporting 300,000 American jobs. In 1995, with our friends in Canada, we tore down aviation restrictions. Within two years, 3.5 million more people flew between our countries; 50 new routes were served; and the net economic benefit was $4 billion.

Why must the system be intermodal in form? Unless we bring highways, transit, rail, airports, and seaports together, we will not be as efficient as we need to be. Intermodal is the fastest growing sector in freight transportation in America, now a quarter of the market. We just built an airport terminal in Washington DC, and the subway goes right to the terminal, an important convenience.

The US Department of Transportation has an Intermodal Office, formed just a few years ago. This office has a goal—to be put out of business. It wants to see the day when it does not have to be the watchdog, because ingrained in highway, train, transit, and maritime planners is the concept to build systems that connect so that the customer has door-to-door transportation. And, that day will come sooner rather than later, because of the pioneering efforts of this University to offer an intermodal curriculum.

Why a system that is intelligent in character? We need smarter highways, and we need cars that do the driving. When people drive, they make mistakes that lead to accidents. When the car is in charge of the driver, our roads will be safer. Our border crossings have bottlenecks.

We are now conducting tests at six crossings of the US-Canada border and four at the US-Mexico border, aimed at electronically checking truck drivers and their cargo. And in the air, we are changing the way pilots will navigate in the future. Just last month we successfully demonstrated the new system with a plane landing in Tijuana.

Any integrated transportation system must also be inclusive. We come here representing 400 million people. Whether they live in suburban, urban, or rural areas or along the borders of our countries—clearly all must benefit.

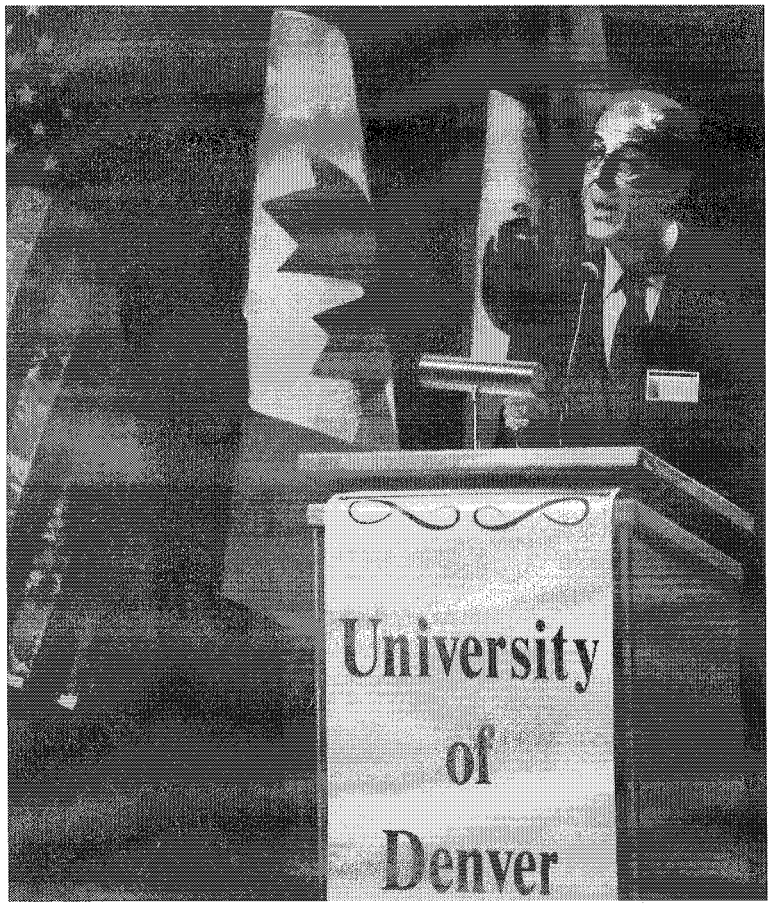
So, today, as I meet with my distinguished colleagues, it is with the desire that we build this integrated system—international in reach; intermodal in form; intelligent in character; and inclusive in service. If we do not, others will. We have a big incentive to take forward steps today.

Secretary Ruiz Sacristán of Mexico and I will discuss what has been a thorny issue for us—cross-border access for trucks and buses. We will try hard to resolve a dispute over whether or not US small package firms can use the equipment that Mexican firms do. We will discuss drug and alcohol testing for drivers, expanding opportunities for our airlines, and providing assistance in both aviation and sea safety programs.

Minister David Collenette and I will talk about tearing down the last remaining restrictions on aviation and setting the stage for a truly binational agency that oversees the St. Lawrence Seaway. We will spend time discussing the legislation before the US Congress that will fund transportation for the next six years in the US. President Clinton has asked for substantial funds for border transportation needs and, in the Senate and House versions of the bill, border programs are included—and that is good.

Let me close with this in front of two friends, who share my title. This is a wonderful time to be a Transportation Secretary. The United States Department of Transportation is 30 years old, and we celebrated by going on a diet. We downsized. We are giving more authority to state and local governments, and, with President Clinton's leadership, we stood strong for increasing infrastructure investments. They are up 20 percent, at a time when we have cut the budget deficit to almost zero. The US transportation industry is healthy. Since President Clinton has been in office, almost 700,000 transportation jobs have been created.

Now, with our long borders, our rich history, our free markets, we want to create with our neighbors an integrated transportation system for the 21st century. Our best days are yet ahead of us. Thank you.



The Honorable Carlos Ruiz Sacristán
Secretary of Communications and Transportation of Mexico

The Honorable Carlos Ruiz Sacristán *has served as Secretary of Communications and Transportation of Mexico since 1994, a period of exceptional accomplishment as the government of Mexico has restructured and privatized many of its key transportation functions. Mexico's efforts to restructure its transportation system are a model for global undertakings of this nature.*

Before his appointment, Secretary Ruiz Sacristán was general director of Petroleos Mexicanos, the Mexican state oil company. He is a former undersecretary of the Secretariat of Finance and Public Credit and held key positions at the Banco de Mexico, including advisor to the general director, treasurer, manager of international operations, and assistant manager of foreign exchange. He is also a former professor at Anáhuac University of Mexico City and attended Northwestern University in Illinois, receiving a masters degree in finance.

Address by The Honorable Carlos Ruiz Sacristán, Secretary of Communications and Transportation of Mexico

I am very pleased to participate in this North American Intermodal Transportation Summit. I would like to thank the Institute of Intermodal Transportation of the University of Denver for its kind invitation and extend my congratulations for the excellent organization of this meeting. This Summit is a perfect setting to exchange with Secretary Slater, Minister Collenette, and with all of you, members of the transportation community, points of view about the perspectives and trends of intermodal transportation within the NAFTA region. Also, it is a great opportunity to share with you our recent experience in implementing reforms and structural changes to modernize the transportation system in Mexico.

The development of an integrated transportation system is a priority in Mexico. We know that, in order to promote economic growth and social progress, it is necessary to make transportation more efficient and dynamic. It is also necessary to make transportation capable of moving passengers and products safely and in a competitive manner.

Historically, each mode of transportation was designed to fulfill the domestic, regional, and local needs of each nation. The modes were developed according to domestic policies, responding to national legal frameworks, and competing with each other rather than complementing one another. To a great extent, this situation reflected the prevailing bias towards economic closeness.

However, the current trends in economic development and global trade are transforming the system radically. Nowadays, the economic growth of every nation is built upon a free, open, and more competitive environment. In North America, we have a clear example of this new environment. With the Free Trade Agreement between the United States, Canada, and Mexico, our countries have created a wide array of opportunities and, at the same time, new challenges.

The development of an efficient, integrated, and competitive transportation system is one of the most important challenges we face. Free trade is bringing increasing volumes of merchandise across the borders.

Free trade, therefore, needs an efficient transportation system to support its growth. An efficient transportation system can be achieved through an intermodal approach.

Mexico realizes that its transportation system is key to fostering a competitive advantage that will allow the benefits of free trade. Mexico has, in turn, introduced policies devoted to supporting the expansion of a competitive and integrated transportation system. Until a few years ago, the Mexican Government had a direct involvement in the construction and the operation of just about all transportation infrastructure and services. However, the amount of resources needed for that purpose as well as the increasing allocation of public funds to sectors like education, health, and housing, gave way to changes in the government's involvement in infrastructure development.

Nowadays, the government is concentrating more on its regulatory function, while the private sector has increased its role in the development of infrastructure and services. This new strategy will bring more resources to improve the transportation infrastructure and to reduce the bottlenecks in the economy, and, at the same time, it will give the federal government greater flexibility to serve its basic commitments.

However, what we are doing does not only concern operational and economic issues, it is also related to governmental duties. We have introduced in the government a service-oriented attitude that is helping to reduce the obstacles and the bureaucratic red tape for the operation of an efficient transportation system. In addition, we are reviewing policies for each mode in order to level the playing field in terms of competitiveness, efficiency, and regulation, so they can evolve easily into a more integrated, intermodal system.

There are several key transformations and major achievements that are taking place within the transportation sector in Mexico. For example, integrating the railroads to other modes of transportation is essential to achieving an efficient system, which is why President Zedillo and his administration went ahead with a restructuring of the Mexican railroad system. The Mexican Congress first approved a constitutional amendment and then enacted a new railroad law. With this new regulatory framework in place, the privatization process proceeded through concessions for vertically integrated regional railroads as well as for short lines.

The first concession awarded was for the Northeast Railroad. The concessionaire is a consortium instituted by TMM, a Mexican shipping line, and the Kansas City Southern Industries. This company started operations as the first private railroad in June 1997.

The second regional railroad concession awarded was for the Pacific North Railroad. The winning group for this line includes two Mexican companies and a US railroad company. This group will start operations

no later than February 1998. With these two concessions, private operators will move more than 80 percent of the total freight in Mexico.

In addition, we have successfully concluded the privatization of two short lines in the north of the country (Coahuila-Durango). Over the next months, we will award concessions for the railroad lines located in the south of Mexico, which include the third main regional railroad of the country. Also, we will be promoting an intermodal system that will link the railroad with two very important Mexican ports. With this policy, we are eliminating subsidies, increasing investments on tracks and equipment, and, at the same time, fostering productivity for the rest of the economy.

In the air transportation sector, we also began by changing the legal framework. During 1995, Congress approved a new Civil Aviation Law that is oriented to safety, security, and healthy competition. n the same year, a new Airport Law was also approved to support the modernization and expansion of airport infrastructure with private investment participation. Based on this new regulatory framework, we will announce the general guidelines for the privatization of the airports before the end of 1997. Even though we have not yet concluded the strategic planning for this process, we are considering the following ideas: including in the concession process 35 out of 58 airports in order to avoid cross subsidies; arranging the airports into four groups; and anchoring each group with a major airport—Mexico City, Cancún, Guadalajara, and Monterrey.

A key element in a complete intermodal transportation network is the port system. This sector has also undergone major structural changes. In recent years, private companies have managed the container and the multipurpose terminals of the most important ports in Mexico. In fact, private companies manage over 85 percent of all container operations at the Mexican ports. As a result of this policy, the ports are very efficient with lower tariffs, proving that we are moving in the right direction.

We are also promoting investment projects in the Mexican ports that will encourage the integration of the different modes. The projects include the construction of transfer and storage centers and the development of efficient links with railroad and highways.

Land transportation in Mexico is by far the most widely used method of moving people and freight. For this reason, we are devoting a great amount of public and private resources to expand and to maintain the national highway network. The road infrastructure program considers the full integration of 10 main highway routes. With these routes, the main productive regions of Mexico will be connected to the most important urban areas, ports, and international borders.

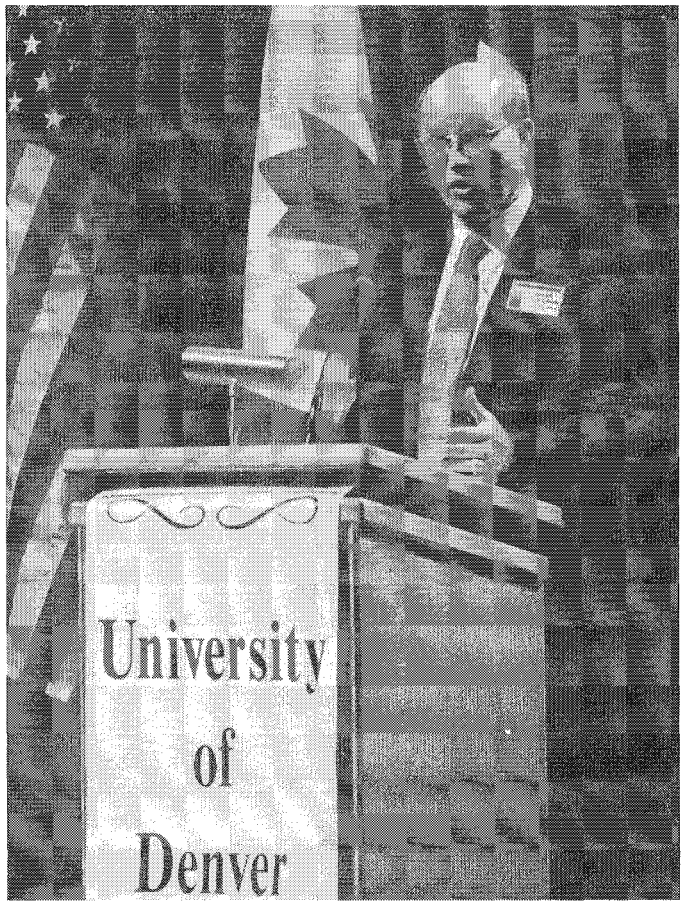
The highway program will be accelerated with the creation of a $1 billion fund, financed by the revenue obtained from privatization and

from the private investments in profitable highway projects. We are also working to enhance the healthy development of the trucking industry within an environment that clearly promotes deregulation, competition, and safety.

With all of these structural and regulatory changes, the Mexican transportation system has finished a first step toward the development of an efficient and competitive intermodal system. We still have a long way to go. We need to overcome many challenges. From now on, we must think of transportation as an integrated system among all participants. We need to use new technologies and to adopt logistic systems in order to save time and money. We need to increase investment opportunities, and we need to move passengers and freight within the NAFTA region easier and cheaper. With more investment opportunities, it will be possible to support the development of an intermodal system that fosters trade and economic growth.

Mexico is in a growth process based upon domestic savings, structural changes, and an open trade strategy, where NAFTA is a key element. However, this growth process cannot be sustained if we do not develop a modern intermodal transportation system. Therefore, we will continue to implement coherent policies and initiatives towards this objective, based on new technologies, safety, security, and clear rules to attract more private investments.

It is imperative to enhance economic competitiveness and to improve the transportation system within North America. I am convinced that the only way to make real progress is for us to commit to a cooperative effort, in terms of both transportation planning and policies. Mexico is ready to play its part. This Summit, organized by the Intermodal Transportation Institute of the University of Denver, certainly constitutes an important contribution to these efforts. Thank you very much.



The Honorable David M. Collenette
Minister of Transport of Canada

The Honorable David M. Collenette *has served as the Minister of Transport of Canada since June 1997. He is a long-time member of the Canadian House of Commons, having been first elected in 1974. During his distinguished public career, he has served as Minister of National Defense, Minister of Veteran Affairs, Minister of State for Multiculturalism, and parliamentary secretary to the Postmaster General, to the leader of the House of Commons, and to the president of the Privy Council.*

In the private sector, Minister Collenette has worked in the life insurance, plastics, and executive recruitment fields, and he was executive vice-president of Mandrake Management Consultants of Toronto. He holds an undergraduate degree from Glendon College of York University. While in the private sector, Minister Collenette was also extensively involved as a volunteer in overseas democratic development work and in monitoring elections in countries such as Haiti, Chile, Romania, and the Czech Republic.

Address by The Honorable David M. Collenette, Minister of Transport of Canada

It is indeed a pleasure to be here to exchange views on the important topic of intermodal transportation. There is a lot of talk these days about intermodalism—we could be forgiven for thinking that it is a new concept. Of course, intermodal transportation has always been used to move people and goods from one place to another.

In the early days of North American settlement, there was often no alternative. Where the train ended, the stagecoach or wagon train took over; where the waterway became impassable, the voyage continued by land. We just shifted from one mode to the next; we did not have a name for it.

As time passed, however, and more and more options became available, the combinations proliferated—each with different features. With population growth came development, and the relative advantages and disadvantages of the different modes changed as the transportation system became more advanced. The widespread availability of choice helped to bring costs and prices down by fostering competition among suppliers. It provided shippers with "back-up" options. At the same time, the speed with which shipments could reach their destination changed dramatically—and resulted in customers insisting on speedy service.

In the past, intermodalism may have meant the use of two or more modes. Today, a more modern definition is needed. Intermodalism, today, is about safe, efficient transportation by the most appropriate combination of modes. It requires a smooth transfer of people and goods both within and across modes and between intercity and urban transportation systems. What began as a convenience has now become a requirement and a challenge for service providers. A shipper who cannot provide the fastest possible delivery time at the lowest cost risks losing business to the competition. Today, customers do not just want speedy service and low cost, they also want to know where their shipment is at any given time in the process.

Advances in global positioning technology have made it possible to track vehicles, containers, and specific packages, even when they are being shipped by more than one mode and through multiple jurisdictions.

At the same time, intelligent transportation systems and electronic data exchange have greatly reduced the time required for administrative tasks and have opened up some very interesting possibilities for cooperation at international borders.

Transport Canada, Revenue Canada, and Citizenship and Immigration are cooperating with their US counterparts in a demonstration test of intelligent transportation systems, designed to speed customs, immigration processing, and toll collection at land border crossings. Information on a truck and its cargo will be forwarded electronically in advance of its arrival for processing. If equipped with a transponder, the truck will be able to pay the bridge toll automatically and electronically advise Customs and Immigration of its presence when it arrives at the border. If safe and legal, it will then receive a green light to proceed.

Similar tests are being conducted at the US-Mexico border. If the tests prove successful and electronic processing is implemented, it will substantially improve NAFTA truck traffic. The reduction in time could make a significant difference to shippers hauling perishable goods.

Advances such as these are critical in an era of global trade and investment. In today's world—in which people and goods circle the planet with less effort that it used to take to get across town—system integration and coordination among trading partners is essential. This has led our governments to take steps to ensure that our transportation systems work together efficiently, both within our borders and beyond.

The Canada-US Accord on Our Shared Border, signed by Prime Minister Chrétien and President Clinton in 1995, is an excellent example of how trading partners can harmonize their binational trade policies and practices. Compatibility of transport standards is important because it will streamline the movement of people and goods between our countries. This, in turn, will stimulate trade and investment opportunities. With over a billion dollars in trade crossing the Canadian, US, and Mexican borders every day, any improvement in procedures or to efficiency will generate significant returns.

We recognized long ago that transportation is a strategic asset that can drive a country's economy. The ability to move freight efficiently has become a measure of economic viability. What we define as "modern" intermodal freight has been an element of our system for almost 50 years—beginning with the use of flatcars to haul truck trailers by rail and moving on in the early 1960s to the use of 20-foot containers to haul domestic express freight.

Recent experiments in intermodal technologies have taken the idea a step further. While significant economies have been achieved in long-haul shipping, trips over shorter distances have historically been poor candidates for intermodal operations. To provide better service to users,

Canadian railroads have made major investments in their container facilities and in developing new technologies. Both Canadian National's *Ecorail* and Canadian Pacific's *Iron Highway* show great promise, for example. By simplifying the loading and unloading process and using smaller, decentralized terminals, these systems will experience less congestion and make intermodal transfers more attractive, even in the short haul.

At the same time, the railroads have been working closely with their US counterparts to devise methods to provide seamless service. The virtually seamless rail-freight shipping service now available throughout Canada and the US has sparked a growing interest from truck carriers, who are increasingly entering into partnerships to take advantage of the efficiencies that can be achieved through integrated systems.

However, it was the containerization of transoceanic freight that provided the critical volume to push development of an intermodal infrastructure. Canada's latest contribution to this infrastructure is a container facility called Deltaport, which opened recently on the West Coast, doubling Vancouver's container capacity. Success in shipping increasingly depends on capacity and accessibility. The new supercontainer ships are *huge,* and they need specialized docking facilities. Deltaport was designed to service the largest of them.

With state-of-the-art technology, advanced computerized systems for intermodal operation, and direct access to two transcontinental railways, this facility has redefined efficiency for loading docks.

Deltaport is important for what it can do for international trade, but its significance goes beyond that. It is a partnership unique in North America—a coalition of the Vancouver Port Corporation, TSI Terminal Systems, and Canadian National and Canadian Pacific railways. It is a clear case of the total being more than the sum of its parts, and it is an excellent example of what can be accomplished when we join forces.

While freight is currently the backbone of intermodal transportation, intermodal passenger service is showing signs of improvement. Rail passengers can also look forward to a seamless North American rail system. Beginning in January 1998, Via Rail and Amtrak will introduce a new pass designed to link Via's national network with the national US carrier's system through connecting points at Montreal, Toronto, and Vancouver. The new pass is expected to generate additional traffic. It will be sold worldwide through both the Via and Amtrak offices as well as through travel agencies. The pass is designed to let travelers focus on enjoying their trip rather than worrying about borders or barriers. This type of cooperation among industry partners is the ideal approach to encourage strong industry growth.

Considerable progress has also been made in providing seamless air transport over the past three or four years. The closer integration of the Canadian and the US air transport systems, made possible by the "Open Skies" agreement, has been of tremendous benefit to the traveling public. Moreover, the airlines have taken a major step forward in passenger convenience by forming international alliances involving code-sharing arrangements. Another step towards seamless air travel has been taken through the introduction of preclearance procedures in many major airports and an in-transit preclearance program that is currently being piloted at Vancouver International Airport.

Despite these very significant improvements in the quality of air services, however, connections with surface transport modes between airport and downtown areas are all too often inadequate. Gains achieved in air travel are offset by time lost in traffic jams. We have made significant improvements to the intermodal links for freight transport. We need to do the same for passengers.

Building the best possible transportation system is what these improvements are all about. This raises the question, however, of what we mean by "best." Safety, obviously, must be the top priority. The best possible system is one that is safe. But beyond safety, we have usually defined "best" largely from the point of view of economics and quality of service. Financial soundness and quality service are important to the long-term health of any industry. But, any reflection on how to achieve the "best" use of all modes must take in the broader perspective of sustainable development.

Today's definition of intermodalism has to recognize the impact of transportation on the environment. It has to ensure that the best use of each transport mode takes into account what is best for our land, our air, and our water. Transport Canada has stated its goal "to support the evolution of sustainable development through the provision of safe, efficient, affordable transportation services developed and operated in a manner that minimizes the environmental impacts of transportation." But no one country can take this approach alone. We need agreement with our trading partners so that a level playing field can be established for our transportation industries.

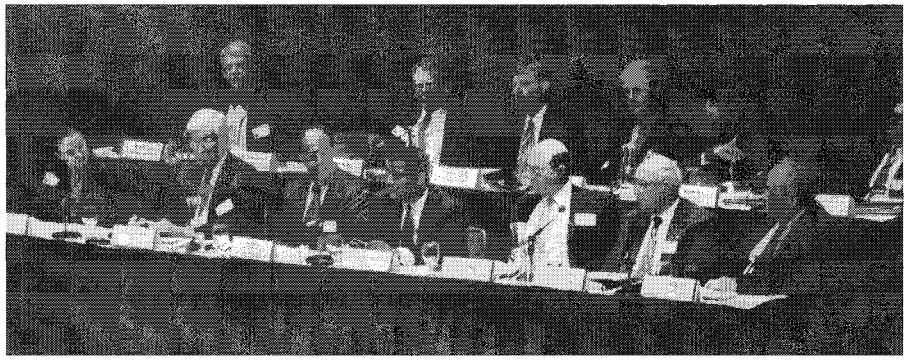
As we look to the future of intermodalism, we must bear in mind this expanded definition and make sure that we are taking into account all of the elements of an optimal intermodal system. Intermodalism means more than just using two or more modes of transportation. It means finding the best possible combination of modes for each shipment. It means taking a good, hard look at our systems—assessing how well they mesh and what kind of impact they have on the environment. And, it means making changes where necessary.

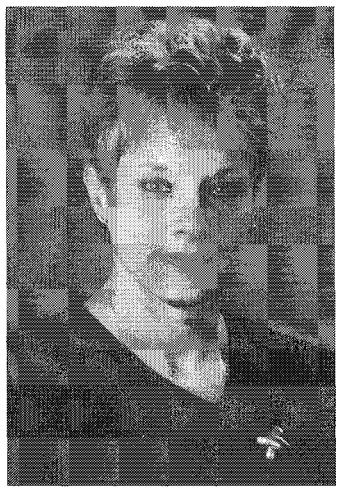
If we are to achieve these objectives, we must ask ourselves some hard questions:

- How can we encourage the use of advanced technologies (especially communications, and positioning and sensing systems) to enhance system performance?
- How can we ensure the development of strong intermodal links while reducing government intervention in the transportation system?
- How can we maintain service and price competition while moving toward closer system integration and carrier partnerships?
- How can we work more effectively in partnership with other national, provincial, or state governments and the private sector to improve intermodal links along our trade corridors?
- What is the "best" use of all modes in light of emerging "climate change" concerns?

As we approach the new millennium, we must not only remain open to change—we must be agents of change. We must set a course for success that is both economically sound and sustainable. This is our task. I urge our neighbors to join with Canada in this task.

Thank you.





Moderator Joanne Casey
president, Intermodal Association of North America

(Second row, left to right) *Anthony Perl, University of Calgary, Canada; Klaus Nielsen, United Parcel Service, Atlanta, Georgia; Andrew Goetz, University of Denver; Paul Dempsey, University of Denver; Noel Brown, United Nations; Ronald Hartman, Amtrak, Washington DC.*

(First row, left to right) *Katharine Braid, formerly Canadian Pacific Railway, Canada; Gilbert E. Carmichael, ITI Board Chairman, MotivePower Industries, Meridian, Mississippi; Secretary Carlos Ruiz Sacristán of Mexico; Secretary Rodney E. Slater of the United States; Minister David M. Collenette of Canada; Joseph Szyliowicz, University of Denver; Emilio Sacristán Roy, FNM, Mexico.*

The Roundtable Discussion: An Overview of the Nexus between Government Policies and Stakeholder Concerns

This "first of its kind" Roundtable Discussion raised the level of awareness regarding specific intermodal transportation issues in the three countries. The panels on Thursday, 16 October 1997, addressed themes from modal and stakeholder perspectives. Friday, 17 October, the Roundtable Discussion focused on issues from a broader, multinational viewpoint—that of the governments and the economies of Canada, Mexico, and the United States—and participants spoke with candor and insight.

The feasibility of an integrated North American rail, highway, and port system was examined. A consensus emerged emphasizing coordination rather than integration. The complexity and sheer number of policy-making structures clearly complicates the creation of intermodal systems within and among countries. The importance of seamless borders to an "integrated" system was reiterated, and a particularly important concern identified the need to improve the current border-crossing procedures between the US and Mexico. The considerable financial investment needed to achieve an integrated system was acknowledged, as "equal quality among the partners" will require not only increased coordination, within as well as among the countries, but also a greater focus on processes and policies. The topic of "North American transportation corridors of national significance" was raised, in general, without specific identification of what would constitute such corridors.

A conversation regarding the existing transportation infrastructure and the need for additional capacity to improve mobility and economic competitiveness revolved around "hardware" versus "software." A consensus existed with regard to the need to expand the capacity through the implementation of new technologies. Although new "physical" infrastructure may be required in some cases, it was stated that more attention should be given to upgrading and to better use of existing facilities. It was pointed out that the North American rail system capacity appears to be sufficient. However, the need for more and better information was

ever present in the discussion. For example, it was argued that the kind of information that would facilitate the development of passenger intermodalism is not available to potential customers.

Pointing out that the focus of national transportation policies appears to be on intercity traffic issues, it was argued that inadequate attention is being paid to the problems of congestion within cities. Freight can be shipped to terminals but delivery to customers within urban areas is becoming increasingly difficult. With regard to intercity traffic issues, it was suggested that the ITS programs (Intelligent Transportation System) could make a major contribution to increasing the efficiency of the existing infrastructure in certain sectors.

The three secretaries of transportation agreed that decentralization is a key word for the role of governments in promoting an integrated transportation system. State, regional, and local governments and organizations must play a greater role in developing processes and in promoting policies. Secretary Slater pointed out, however, that the federal government, in particular, plays a crucial role in developing guidelines for pollution control and for policies on environmental issues.

The flexibility to channel funding where it is most needed was stressed. Secretary Ruiz Sacristán reiterated the role of the private sector in developing transportation systems because there are "never enough resources to go around." Privatization is occurring at a rapid pace in Mexico and is transforming the railroad system, in particular. Minister Collenette addressed the benefits of change to a transportation system; however, in terms of privatization, the benefits to Canada may have been "over sold."

Other topics that were discussed included the joint use of the transportation infrastructure by both the civilian and the military sectors. The

US has had the most experience with the operational sharing of infrastructure. Secretary Slater addressed the interests of the military in intermodal transportation, noting the logistics of gathering and moving supplies and men during the Persian Gulf War. The Canadians have not experienced the need to share the infrastructure since World War II. However, it was pointed out that the sharing of facilities by the private sector is not uncommon in Canada. The possibility of establishing a North American organization to promote transportation investment and to advance standardization for an intermodal system was suggested. In conclusion, the discussion reiterated the importance of transportation to the economic growth and the well being of the countries of North America.