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Global Intermodal Freight
State of Readiness for the 21st Century

Report of a Conference
February 23–26, 2000
Long Beach, California

Committee on the Intermodal Challenge:
Freight Transportation Issues for the 21st Century

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  U.S. Coast Guard

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The **Transportation Research Board** is a unit of the National Research Council, which serves the National Academy of Sciences and the National Academy of Engineering. The Board’s mission is to promote innovation and progress in transportation by stimulating and conducting research, facilitating the dissemination of information, and encouraging the implementation of research results. The Board’s varied activities annually engage more than 4,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.
Preface

The Transportation Research Board (TRB), with support from the U.S. Department of Defense and the U.S. Department of Transportation, hosted this conference on February 24–27, 2000, in Long Beach, California, to focus attention on the state of readiness for accommodating national and global intermodal freight movement in the 21st century. Through presentations, discussion, and an intermodal freight transportation “report card,” conference speakers and participants assessed the progress that has been made since 1994, when the National Commission on Intermodal Transportation submitted a report to Congress with recommendations for developing the U.S. intermodal transportation system. The program also included an intermodal vision for the future that helped frame discussion of the challenges and opportunities facing the public, commercial, and defense sectors. Panel sessions focused on a range of topics critical to global freight movement: institutional relationships, safety, cargo liability, national security and defense, infrastructure capacity and connectivity, trade policy, financing, information technology, environmental issues, service reliability and operations, and technology and labor.

This conference was one in a series of intermodal conferences hosted by TRB. These events began with the National Conference on Intermodalism: Making the Case, Making It Happen, held in New Orleans in 1994. In 1996, with support from the U.S. Department of Defense, TRB convened a conference to develop a framework for intermodal transportation research, responsive to the nexus of intermodal interests: commercial, military, and the public sector. In 1997, TRB hosted the National Conference on Intermodal Transportation Education and Training. These events have helped shape the new working partnerships called for in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)—partnerships between the public and private sectors and with states and metropolitan planning organizations.

The goal of the February 2000 conference was to assess the current state of readiness and to identify elements of a 21st century action agenda for global intermodal freight movement. The Proceedings provides the reader with a compendium of ideas and public, private, and defense sector initiatives that have emerged in response to the National Commission report and as a result of legislation that has encouraged the development of intermodal transportation services and facilities—ISTEA and the Transportation Equity Act for the 21st Century. The conference sponsors and the committee hope this compilation and the participants’ assessments will serve the needs of transportation planners, carriers, shippers, and other service providers as well as legislators and policymakers who will frame future transportation legislation and policy.

The intermodal freight transportation report card gave participants an opportunity to consider each of the commission recommendations and assess progress to date and future requirements for the nation’s intermodal freight transportation system (a copy of the report card and a summary of responses are provided in Appendix A). Conference presentations, panel discussions, a U.S. Department of Transportation poster display, and various exhibits and demonstrations provided participants with information useful in making their evaluations. A preliminary compilation of report card findings was presented on the final day of the conference. Brief descriptions of the exhibits and demonstrations, which highlighted a broad range of strategies and technologies that have been successfully implemented or are in development, are provided as Appendix C.
The TRB Committee that we cochaired developed the conference program. There were many more program participants than can be individually recognized in this preface; their contributions appear in the Proceedings. The conference organizers would like to acknowledge the following contributors to this event:

- The dinner and luncheon speakers, who each offered a unique perspective: Lt. General Daniel G. Brown, Deputy Commander in Chief, U.S. Transportation Command (USTRANSCOM); Gregory Lebedev, U.S. Chamber of Commerce; and Robert D. Krebs, Burlington Northern Santa Fe Railway Company and Chairman of the National Commission on Intermodal Transportation;
- The very capable moderators of panel sessions, including Janet Oakley, American Association of State Highway and Transportation Officials; Robert C. North, Rear Admiral, U.S. Coast Guard; Tay Yoshitani, Port of Oakland; Bonnie Green, Maritime Administration; Frank Weber, USTRANSCOM; Daniel Smith, The Tioga Group; Theodore Prince, Transgistics; Philip Puccia, Adelphi Capital LLC; Geraldine Knatz, Port of Long Beach; Edward Emmett, National Industrial Transportation League; and Richard Walker, Maritime Administration;
- The Office of Intermodalism for preparing the summary of U.S. Department of Transportation actions on recommendations of the National Commission on Intermodal Transportation (provided in Appendix B);
- The ports of Los Angeles and Long Beach, which hosted waterside tours of their port complexes; and
- The Alameda Corridor Transportation Authority, which hosted a landside tour of the Alameda Corridor project.

This Proceedings contains presentations and summarizes views expressed by conference speakers, panelists, and participants. The Committee on the Intermodal Challenge: Freight Transportation Issues for the 21st Century is responsible for the accuracy of the Proceedings as a record of the conference; however, the views expressed by the conference participants are not necessarily those of the committee.

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's (NRC's) Report Review Committee. The purpose of this independent review is to provide candid and critical comments that assist the institution in making the published Proceedings as sound as possible and to ensure that this report meets institutional standards for objectivity, evidence, and responsiveness to the charge. The review comments and draft manuscript remain confidential to protect the integrity of the process. We thank the following individuals for their review of this report: William D. Ankner, Rhode Island Department of Transportation; and Jean C. Godwin, American Association of Port Authorities.

Although the reviewers provided many constructive comments and suggestions, they did not see the final draft of the report before its release. The review of this report was overseen by Lester A. Hoel of the University of Virginia, Charlottesville; as TRB Division Chair for NRC Oversight, he was responsible for making certain that an independent examination of this report was carried out in accordance with NRC report review procedures and that all review comments were carefully considered. Responsibility for the final content of this Proceedings rests entirely with the authoring committee and the institution.

M. John Vickerman
C. Michael Walton
Cochairs, Conference Committee
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Conference Overview

Following the model of previous Transportation Research Board (TRB) intermodal conferences, the National Conference on Global Intermodal Freight: State of Readiness for the 21st Century provided a forum for discussion and information-sharing on issues and developments affecting intermodal freight transportation planning and operations. The conference brought together more than 200 leaders and experts in intermodal freight transportation from the private sector, all levels of government, and the military. The goal was to take a collective look at how far the nation has come and at what remains to be done toward realizing the vision set forth in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA):

It is the policy of the United States to develop a National Intermodal Transportation System that is economically efficient and environmentally sound, provide the foundation for the Nation to compete in the global economy and will move people and goods in an energy efficient manner.

Section 5005 of ISTEA established the National Commission on Intermodal Transportation to “make a complete investigation and study of intermodal transportation in the United States” and to recommend ways to speed national conversion to an efficient intermodal transportation system and identify the resources necessary to do it. In 1994, the commission submitted a report to Congress setting forth their recommendations for policy needs, investment issues, and a restructuring of government institutions to improve intermodal transportation. The Transportation Equity Act for the 21st Century (TEA-21) built on the initiatives established in ISTEA and responded to many of the commission’s recommendations. The discussions and findings from the Global Intermodal Freight Conference provide useful input to the framers of the next surface transportation reauthorization scheduled for 2004.

Federal transportation policy as embodied in ISTEA and, most recently, TEA-21, has heightened awareness of freight transportation, its importance to the U.S. economy, and the need to better integrate individual transport modes.

ISTEA was the first time the public sector became aware of what the private freight sector had known for a long time. . . . It committed the public sector to institutional changes—changes that have not been easy and are not complete, but they remain as essential as ever. . . . In the simplest terms, these changes reinforce the need for the USDOT and its public and private sector partners to strive even harder to plan and coordinate infrastructure and investment so that the nation benefits from an integrated transportation system. . . .

—Stephen Van Beek, U.S. Department of Transportation Office of Intermodalism

We must use technology across the entire spectrum of modes to leverage the capabilities that we have and get more capability out of the existing infrastructure. . . . Freight has to be a consideration early in the process and when identifying and setting financing options and priorities. Multi-jurisdictional coordination is
essential...the next reauthorization bill will continue to focus on efficiency and equity and add a focus on effectiveness. . . .
—Kenneth Wykle, Federal Highway Administration

Carriers seek ways to effectively integrate and market their capacity and services; shippers look for the most reliable, timely, and cost-efficient means to move freight; and, with a redefinition of its transportation needs and capabilities, the military emerges as a major customer for the commercial services and civilian facilities—all of which is reflected in comments from plenary session panelists:

We must respond to the needs of the shippers...and recognize...they are looking for a seamless process. They want to know what capacity we’re going to have, where we’re going to have it, and what condition it’s going to be in, and how we are going to keep them informed.
—Tim Rhein, American President Lines, Ltd.

The key players in intermodal transportation, the ocean carriers, the railroads, and the trucks, have to work better together to customize services for particular segments of business.
—Steven Branscum, Burlington Northern Santa Fe

Freight transportation is all about execution, but you can’t do it without capacity.
—Greg Stefflre, Rail Delivery System

A shipper feels when they turn over their freight, they want it delivered in ‘x’ days to its ultimate destination. They really don’t care how it gets there, as long as it gets there in ‘x’ days at a price they consider fair.
—Edward Emmett, National Industrial Transportation League

Intermodalism is a way of thinking about the movement of freight, but for DOD, it’s also becoming a way of thinking about power projection. The defense community is just beginning to understand, much less exploit, the vast potential of the intermodal system.
—William Lucas, Military Traffic Management Command

We have become more dependent on the civilian sector than ever before...our commercial partners are becoming a critical part of our wartime force structure. They provide 90 percent of our passenger airlift capacity, and nearly 35 percent of our cargo airlift capacity...over 50 percent of our strategic sealift capacity and nearly 90 percent of our surface transportation needs within the continental U.S. are all provided by the civilian sector.
—Lieutenant General Daniel G. Brown, U.S. Transportation Command

In the session titled “Vision for the Future,” James Morehouse shared his views of why the 21st century is going to be dramatically different and presented a significant challenge to the conference participants:

I challenge the intermodal industry to quit saying they are out of capacity and need more infrastructure. Maybe you do—but I think [that view] is based on 20th century thinking, not 21st century thinking. Take the 21st century, look forward, and then tell what infrastructure you really need. Think about breaking down the barriers between the modes and then tell me what infrastructure you really need. Think about 24/7 operations everywhere, everywhere, all the time, and then tell me what infrastructure you need. If you have a problem with the unions, face the problem head-on.

The selected quotations reflect how the Day 1 plenary sessions set the stage for the panel sessions on Day 2 that focused on the range of issues confronting intermodal freight transportation today and into the future. The speakers in Day 2 panel sessions used case studies and presentations to illustrate how some challenges are being met, what new challenges are emerging, and where attention and resources should be focused in the future.

INSTITUTIONAL RELATIONSHIPS

Although technology is a critical element in the future of global intermodal freight movement, all the technology in the world cannot overcome institutional barriers without partnerships, coalitions, and alliances among and between the many players in the intermodal freight arena.

• Michael Huerta, a former Director of the U.S. Department of Transportation (DOT) Office of Intermodalism, offered a unique perspective on the federal role in intermodal transportation and the challenges faced in trying to carry out the recommendations of the National Commission on Intermodal Transportation. Those recommendations included integrating all modes of transportation into a national intermodal transportation system, expanding funding, and restructuring U.S. DOT to support intermodal integration. He cited examples of the struggles the federal government has faced over the years in trying to be more “intermodal,” noting that the Office of Intermodalism has focused on advocacy, consensus building, and technical assistance.
CARGO CLEARANCE, SECURITY, AND SAFETY

Issues and challenges relating to border and port of entry clearance, international equipment and safety standards, efficient transfer of goods, cargo liability, cargo crime, and security are on the rise as freight movement is increasingly affected by traffic congestion, multiple users of the transportation system, and the desire for goods to move faster from origin to destination.

- Jerry Ellis from the Washington Department of Transportation highlighted the success state of Washington has had as a result of the Public-Private Initiatives in Transportation Act authorized in 1993 as a way to entice private investment into meeting public infrastructure needs. Examples include the Tacoma Narrows bridge project, the FAST (Freight Action Strategy) corridor, and the Cascade Gateway project at the U.S.–Canada border.

- Benjamin Ritchey discussed the Greater Columbus inland port, an entity of private interests who are interested in freight. The group promotes the central Ohio region and advocates and facilitates continued development and coordination of the region’s freight transportation needs.

- Bob James from the New Jersey Department of Transportation talked about the partnerships and institutional issues that have come up in the Portway project, which is a mix of infrastructure improvements focused primarily on intermodal access.

- Alan Spear pointed out two ways the intermodal system has changed the face of cargo crime: (a) the system is so efficient that stolen cargo can be moved rapidly around the world; for example, a load stolen in California can cross the border into Mexico undetected within 12 hours; and (b) the innocuous character of containers, while preventing certain kinds of theft such as pilferage, can make high-cost thefts of entire loads more likely if inside information is available to criminals. He outlined four things needed to counter such crime: additional support for law enforcement crime task forces in major cities; sharing of information among insurance companies, shippers, carriers, and law enforcement; criminal statutes for cargo crime; and improved security practices throughout the supply chain.

- Commander Stephen Flynn talked about incorporating security into the global system for intermodal freight movement, noting that three elements require attention: ensuring the security regime has strategic depth, making trade more transparent, and having appropriate incentives and sanctions to promote and sustain the security regime within the private and public sectors.

- John McGowan discussed the findings of the Interagency Commission on Crime and Security in U.S. Seaports, including the need for better reporting, better collection of information for assessing the actual threat, and vulnerability at ports; accepted standards for physical security, including better port access control; and improved coordination and cooperation among agencies involved in moving goods.

- Jeff Black provided an overview of the Technology Asset Protection Association, composed of the security directors from the top 60 high-tech companies in the United States, whose goal is to develop and utilize common guidelines and tools for freight security, regulations, contract language, and autoprotocol.

IMPLICATIONS OF TRADE POLICY FOR GLOBAL INTERMODAL DEVELOPMENT

Trade policies have significant implications on the increasing globalization of markets and the economic interdependence resulting from multinational business activities and multimodal transportation systems.

- Jess Browning focused his remarks on the activities of the World Trade Organization, the General Agreement on Trade and Services, the activities of the European Union, and the Asia Pacific Economic Cooperation and how these agreements affect global intermodal transportation.

- Colleen Morton discussed, with a particular emphasis on the Western Hemisphere, how trade agreements can skew the demand and supply of transportation services. She noted that, although trade negotiations are generally a response to business demands for better access for exports and the demands of countries for a level playing field, it is ironic that they often do not deal with the transportation services that make trade possible.

- Ron Kopicki highlighted the fact that intermodal does not work equally well every place in the world, particularly in the developing world where “best practices” seldom exist. Intermodal transportation involves systems interactions and requires a legal framework, a service culture, and government officials who are predisposed to address problems, take action, and make things happen. He believes there is a key role for institutions like the World Bank to encourage and construct intermodal services in these countries, thereby helping them function within global intermodal networks.

- Jay Winter focused on the challenges facing a region like southern California, whose economy is so closely tied to international trade. He expressed a desire for the federal government to identify the nation’s trade and transportation hubs and then work with local communities to facilitate trade growth and transportation efficiencies so that projects like the Alameda corridor are
not stymied by roadblocks that could ultimately harm the national economy.

**Infrastructure Capacity and Connectivity: Federal Perspective**

Capacity and connectivity are critical to moving freight, and various federal agencies focus considerable attention and resources on these two issues.

- Barry Holliday discussed the Corps of Engineers navigation program, which includes deep-draft commercial harbors, shallow-draft projects, the inland waterway, and intracoastal systems and as a system moves in excess of 2.3 billion tons of the nation’s domestic and foreign commerce. He stressed that water transportation is the most economic and environmentally efficient mode of transport, yet the nation is underinvesting in water transportation infrastructure. Funding has trended downward and an increasing amount of funds are allocated to operations and maintenance and less are going to harbor and waterway development, which is cause for alarm and needs to be addressed if the nation is to remain competitive in global markets.

- Jeff High provided an overview of the marine transportation system (MTS) initiative, the focus of a report submitted to Congress in 1999. This report identified seven strategic action areas: coordination, funding, competitiveness and mobility, improving awareness, information management and infrastructure, security, and safety and environmental protection.

- Charles White focused his remarks on recent and pending rail mergers and the implications they raise for connectivity and capacity. He noted that the U.S. rail system has reached capacity because of management techniques and related business policies that have led to downsizing and streamlining, forcing traffic flows onto fewer and more densely packed channels. However, increases in and forecasts of international trade suggest that the nation will have to expand its rail facilities to meet demand—the question is how will this be financed?

- Christine Johnson talked about the recent reorganization within FHWA and the role it plays in connecting the other modes. She noted that, to survive in today’s world, business has to be nimble, has to speed up everything they do, and has to deliver with precision; she asks how and whether government has the infrastructure to meet the demands of a 21st century world of information, communication, and precision. She stressed the need for an institutional wherewithal to develop a concept of operations—how freight moves from end to end—and to focus attention on an information infrastructure (“infostructure”) in the same way attention was focused on the asphalt and concrete infrastructure in the 20th century.

**National Security and Defense**

Intermodalism is important to the U.S. Department of Defense (DOD) for the simple reason that they need to move a lot of cargo, as well a lot of people, often in a short period of time. When responding to a crisis, DOD must move the force and then sustain the force once it is in place. The military faces many of the same challenges as the commercial sector.

- Rear Admiral Bert Kinghorn centered his remarks on the issue of critical infrastructure protection, with a particular focus on the information or “cyber” side, which is the glue that makes the intermodal part of transportation work. Without the ability to pass information between nodes and nodes in the system, efficiencies are lost. He suggested three areas for research: (a) development of a credible business case to which transportation industries can relate and that would help them understand why protecting their infrastructure is not only important but makes good business sense; (b) development of an easily communicated template for vulnerability assessments within the transportation arena; and (c) an effort to build a new legal structure for the commercial arena in which we now find ourselves.

- Jim Caponiti provided an overview of the ready reserve fleet, which is the largest component of the surge fleet, and the voluntary intermodal sealift agreement (VISA) program, an effort that began in the mid-1990s in recognition of the military’s heavy reliance on and utilization of the commercial fleet. VISA is a program that uses the vessel and the intermodal system and the challenge is to figure out how to use the full range of transportation services available through commercial carriers to the government’s maximum benefit.

- John Ledden discussed the Civil Reserve Air Fleet (CRAF) program, which includes more than 36 airlines and 700 commercial aircraft that provide up to 50 percent of the military’s airlift capability. CRAF is a voluntary program that is contractually mandated by national policy, whereby the commercial sector gives the military wartime capability and the government gives the participating commercial carriers peacetime business. The nation’s airlift capability is a combination of civilian cargo and passenger airlift that complements and supplements DOD’s organic fleet.

- William Lucas focused his remarks on how the military faces the challenge resulting from its almost total dependence on the commercial transportation industry (rail and truck) for land transportation within the continental United States. By developing partnerships with
industry, MTMC has made making better use of existing capacity a priority. They are also working with the Defense Logistics Agency to create a virtual organization to work the supply chain issues and improve utilization of available capacity and customer wait time.

FINANCING INTERNATIONAL INTERMODAL DEVELOPMENT

It has long been recognized that transportation investments are engines of economic growth. Over the past century, in much of the world, transportation infrastructure has been nationalized as an administrative function instead of an entrepreneurial venture. In recent years, the situation has changed with a growing trend toward privatization of transport facilities. Private investment and public-private partnerships have become the preferred route for new projects, particularly major intermodal projects. U.S. competitiveness in world markets could be significantly affected by the ambitious projects that are being developed in other parts of the world.

- Barry Ulrich presented a case study on railroad projects in Brazil and Argentina, which are the initial stage of a larger intermodal transportation program. He focused on the challenges faced not only with respect to the infrastructure but also the customer perception that rail is not reliable and the relationship with truckers, which have been the dominant freight mode for years.
- Joe Gurkis talked about various logistics infrastructure development projects in Brazil and the planning model under development that basically integrates various infrastructure investment projects. Brazil now views such investments as economic instead of political and considers them part of beneficial economic development.
- Doug Coates focused on intermodal developments in Asia and how projects are financed. He pointed out that, in Asia, international flows are the dominant trade, intermodal developments focus around ports, specific trade flows and sourcing locations are constantly changing, most countries do not have a developed highway network, and inland intermodal connections have developed only over the past decade.

FINANCING DOMESTIC INTERMODAL DEVELOPMENT

Financing intermodal development in the United States presents challenges to both the public and the private sector.

- Bernie Groseclose focused on options being considered by the South Carolina State Ports Authority as it pursues financing for expansion of its port and creation of a new terminal. He also discussed the harbor-deepening project currently under way that is being cost-shared between the federal government and the state of South Carolina.
- Jennifer Mayer discussed the Transportation Infrastructure Finance and Innovation Act (TIFIA), regarded as one of the most positive components of TEA-21. The TIFIA program involves loans, lines of credit, and loan guarantees, which have very generous features. The program was designed to enable mega projects, the benefits of which reach far beyond the areas where the project is built.
- Peter Beaulieu talked about what he termed a “family of partnerships” that have developed in the Puget Sound region, bringing together all the relevant players to do what is needed to improve freight movement. These partnerships include the regional freight mobility roundtable, a special task force to work on noncapital construction solutions, the public-private interagency cost-sharing effort for the FAST corridor, and the creation of a state freight program.
- The multiple funding challenges faced by intermodal projects were the focus of Jeff Holt’s presentation. He noted that many intermodal projects are multiconstituency projects with a lot of different benefits and a lot of different stakeholders. This makes it possible to parse out the risk and parse out the funding costs. He stressed the need for public outreach—heighten public interest, increase awareness among legislators and state governments—to bring these projects together.

INFORMATION TECHNOLOGY

Today, in both the military and commercial sectors, there is an ever-increasing demand for fast, reliable tracking of freight shipments across all transport modes. Real-time information on shipments from origin to destination, both domestic and international, is essential both to the new logistics processes and to market competitiveness. Such information is also important for safety and security, underlying the capacity to respond quickly to congestion, crashes, natural disasters, or intentional sabotage on any component of the transportation system.

- John Allen focused his remarks on business situations in which device technology can be applied as well as the rationale behind it, and he reviewed a number of the technologies that are available.
- Gary Maring discussed the issue of defining the role of government in the development and operation of the information structure needed for efficient freight movement and logistics. He cited four initiatives currently
under way: the intermodal freight technology working group, the intermodal freight operational tests sponsored by U.S. DOT, the international border clearance program, and efforts to integrate federal investments to address multistate trade corridors and border processes.

- DOD’s global transportation network (GTN) was the focus of a presentation by Ken Wavering. GTN is a system that brings together elements and information from unlike systems and generates information that is useful and meaningful to the military. It provides in-transit visibility of what the DOD assets are and the majority of the commercial assets that are available.

ENVIRONMENTAL ISSUES

The transportation industry faces more and increasingly difficult challenges to get projects approved, and many of these challenges relate to environmental issues, ranging from air quality to water quality to noise to placement-disposal of dredged materials.

- Allan Hendrix highlighted three major issues: air emissions from all modes and the impact on air quality; the need for technologies to reduce noise, particularly from trucks, rail, and at the localized level from airplanes; and water-quality controls. All are critical issues in California, which is the endpoint for intercontinental and transcontinental freight movements, is a major border crossing, and is a major market, home to just over 10 percent of the nation’s population.

- Carol Cutshall focused on what has become a hodgepodge of laws and regulations associated with the permitting process that confronts transportation projects. She cited the duplication of effort that results from different agencies requesting separate documents, the lack of concurrent review by the various agencies, the lack of timely response, inconsistent application of regulations in the field, and the lack of a conflict resolution process. Overcoming these challenges requires joint training and building relationships among agencies, and it may require additional legislation to make agencies recognize the need for change in the permitting process so that better projects can be built while still protecting the environment.

- Tom Wakeman discussed the challenges faced by the port community in getting approval for and undertaking dredging projects. He expressed concern that in some cases suboptimal solutions are chosen because they are the ones that get through the permitting and approval process. Until all parties come together to develop a sensible public policy toward transportation and find a long-term way to deal with divisive issues, suboptimal decisions could undermine both the environment and transportation.

SERVICE RELIABILITY AND OPERATIONS

Shippers expect transportation services to be there and to happen. If a service provider fails to deliver the service, the customer will look else elsewhere. The importance of intermodal service reliability was the focus of remarks by the following:

- Brian Avery, who noted that getting trains out on time is the key. If a train leaves on time, the service is generally reliable; if it does not, it is unlikely to make up the time lost and this has a ripple effect on the other components of the intermodal move.

- Tim Burrack discussed modal service reliability from the perspective of bulk shipping and dependence on the river system for efficient and cost-effective transportation service. Citing the example of inland waterway developments under way in Brazil, he stressed the vital importance of U.S. agriculture to have an inland waterway infrastructure. This enables them to remain competitive in the global market.

- Larry Wetsel talked about the challenges facing the nation’s rail industry, specifically the need to increase service performance, which will be achieved only with massive reinvestments in plant and equipment. He predicted that in 10 years the railroads in the United States will look very different than they do today.

- Don Cameron offered remarks from the perspective of a logistics manager, whose very survival depends on on-time delivery and service reliability; he reiterated the point that transportation infrastructure affects competitiveness.

LABOR AND TECHNOLOGY

The U.S. transportation industry continues to embrace technology as a way to increase productivity and system throughput capacity. Technologies such as global positioning systems and intelligent transportation systems expedite the movement of cargo, while innovations such as the Internet and cyber technologies continue to evolve. Obviously, it takes people to make all this technology work—the best and most modern technology will not function properly without skilled labor to use it. Both labor and management have benefited from technology in a variety of ways, but they have also been challenged by it.

- Richard Hollingsworth questioned whether the infrastructure in southern California can handle increased growth in traffic through the ports without adopting new technology and new processes, noting there are two kinds of infrastructure: physical infrastructure and people-
process infrastructure. To apply reasonable logistics principles to the situation and to realize the opportunities to maximize efficiencies requires that all parties be prepared to give a little to gain a lot.

- Gene Pentimonti emphasized the need for increased productivity and the importance of implementing technology as a way to increase productivity and take advantage of the investments made in the industry. He challenged labor and management to sit down together to address issues of how to practically implement available technology in a way that meets their requirements and allows us to move forward.

- Jim Spinosa stressed the need to ensure there are jobs for labor and that labor is given an opportunity to be part of the solution instead of labeled as the cause of a problem. There needs to be a balance of technology and labor instead of a total displacement of labor.

- Mike Belzer focused on a number of issues facing the trucking industry, most notably the operating conditions and wages, as well as shortages and high turnover among drivers.

- Jon Helmick’s remarks related to workforce needs assessments, workforce recruitment, and alternative education-training approaches. It is crucial to have a workforce that is appropriately educated, trained, and qualified and that has the mindset to enhance the system and meet the challenges ahead.

Luncheon Address

In his luncheon address on the final day of the conference, Robert Krebs of Burlington Northern Santa Fe recalled the work of the National Commission on Intermodal Transportation, which he chaired, and commented on the proposed Burlington Northern Santa Fe/Canadian National merger. He noted that intermodalism, by its very nature, is very complex. On the freight side, market mechanisms best drive intermodalism by heading users of transportation in the directions of the mode that would be most efficient for that particular part of the transportation move. He also noted there is a strong bias in the freight sector to let those market mechanisms work and not have the public policy or public regulations interfere with the market. There is a need to promote intermodalism, to educate and inform the public sector, and to showcase private sector development of intermodal freight systems. He acknowledged there will always be intense and often heated discussions about how various modes will be funded and about the safety of the various modes and the role that safety plays in intermodalism. He also noted the various institutional barriers that get in the way of a true intermodal product that provides the highest and best service for the most efficient cost.

INTERMODAL FREIGHT TRANSPORTATION

“Report Card”: Summary of Responses

In addition to distinguished speakers and panelists offering assessments and case studies illustrating the nation’s state of readiness to accommodate intermodal freight movement, the Conference Steering Committee provided each conference participant with a “report card” (see Appendix A). Based on their individual knowledge and experience, each participant had the opportunity to post grades on progress to date and appropriate or desired future government action on 11 recommendations from the National Commission on Intermodal Transportation’s Report to Congress. Participants were also asked to offer opinions about major intermodal challenges and opportunities in the future, how those challenges can be met or those opportunities can be exploited, and who can and should play a key role in meeting future challenges. A summary of those responses is provided in Appendix A. Although respondents had the opportunity to hear the speakers, view the exhibits, and review the summary of U.S. DOT actions in response to the commission’s recommendations, the general view from the report card responses is that only some or little progress has been made to date on the recommendations set forth in the commission’s report to Congress. In most cases, respondents thought more federal dollars, additional legislation, or even government mandates would be needed in the future to fulfill the recommendations laid out by the commission.

A number of common themes emerged from the responses to and grades given on individual recommendations.

- Commission Recommendation 1: Maximize safe and efficient movement of freight by incorporating individual modes into a National Intermodal Transportation System (NITS).

  View from respondents: The single mode approach to transportation still prevails, with separate administrations and funding and little cooperation or collaboration. Progress to date has not been systemwide and has focused more on highways than other modes. Some respondents question whether government should have a role in making the NITS a reality.

- Commission Recommendation 2: Ensure that federal policies foster development of the private sector freight intermodal system and reduce barriers to the free flow of freight, particularly at international border crossings.

  View from respondents: There needs to be more support to federal agencies with border responsibilities. More cooperation is needed between and across agencies and between the public and private sectors. More funding, more flexibility, and fewer earmarks are desired.
• Commission Recommendation 3: Fund federal infrastructure programs at authorized levels and strategically target these funds for maximum impact.

View from respondents: Again, respondents expressed a desire for more funding and fewer earmarks. Although needs are across all modes, funding tends to continue to be highway focused. More needs to be done at the state and metropolitan planning organization (MPO) levels to recognize freight needs and plan on a regional or multistate basis.

• Commission Recommendation 4: Expand innovative public and private financing methods for transportation projects.

View from respondents: More flexibility and a multimodal approach are needed within innovative financing programs. Greater coordination and cooperation are needed to expand public-private financing in the freight area.

• Commission Recommendation 5: Allow greater flexibility and expand eligibility in use of state and federal transportation funds for intermodal projects of public benefit.

View from respondents: They again expressed concern about the issues of modal (instead of intermodal) focus, earmarking, and insufficient attention to freight. Increased flexibility and more coordination are needed.

• Commission Recommendation 6: Provide federal funding incentives for intermodal projects of national or regional significance.

View from respondents: There was praise for TEA-21 programs such as Borders and Corridors, TIFIA, and Railroad Rehabilitation and Improvement Financing, but respondents believe more money is needed, particularly for intermodal freight projects such as the Alameda Corridor. More needs to be done to make people aware of funding programs and incentives.

• Commission Recommendation 7: Expand the intermodal focus of research, education, and technology development efforts.

View from respondents: Many believe existing programs and research facilities can be improved, expanded, and better utilized. The need for education and training in freight issues extends to the state and MPO level as well as the public. There needs to be better coordination with industry on research needs and less earmarking of research funds.

• Commission Recommendation 8: Restructure U.S. DOT to better support intermodal transportation.

View from respondents: There is still a perception of modal stovepipes or silos instead of one (intermodal) DOT. The U.S. DOT Office of Intermodalism needs to be strengthened. The One-DOT concept does not appear to have filtered down to the state and local levels.

• Commission Recommendation 9: Streamline and expedite the transportation infrastructure planning and project delivery process.

View from respondents: Streamlining infrastructure planning is a daunting institutional challenge; and modal stovepipes can cause delays in the process. Many respondents think the environmental component of the process has delayed efforts to streamline.

• Commission Recommendation 10: Require U.S. DOT concurrence on other federal agency actions that affect intermodal transportation.

View from respondents: Although some respondents think there is a greater need for cooperation and concurrence, others view this idea with caution. Others perceive a continued disconnect among agencies, particularly U.S. DOT, the U.S. Environmental Protection Agency, and the U.S. Department of the Treasury.

• Commission Recommendation 11: Strengthen the MPO progress to accomplish the goals of ISTEA.

View from respondents: In general, respondents think MPOs need to know more and do more in the freight and intermodal areas. Some believe MPOs should follow, instead of take the lead, on intermodal freight efforts.

When looking to the future, respondents think the greatest challenges and opportunities will be in the areas of financing and capital investment; institutional and operating structures; project planning; addressing issues of the global economy, trade flows, and e-commerce; technology and labor; and public education and outreach.

When asked how these challenges and opportunities can be met, respondents again focused on the need for greater flexibility in funding and financing; a stronger intermodal presence within U.S. DOT; finding a way to reduce congressional earmarking, which often undermines a system’s approach to planning; more partnering among agencies and between government and industry; reducing institutional barriers; engendering a broader global vision of transportation and drawing on models and approaches from outside the United States; development of better methods and systems for collecting and managing data and information; improved training and education, particularly in technology and safety; and more public education and outreach about freight transportation.

When asked who can or should play a key role in meeting the challenges, respondents thought parties in all sectors have a role to play in meeting these challenges, be they the public sector, private industry, the military, academia, or research institutions.

**TOWN HALL MEETING**

The conference closed with a town hall panel, with each speaker representing a particular stakeholder perspective on freight intermodalism. Each offered reflections on the conference events and discussions and then responded to
questions and comments from the audience. The following comments from panelists echo things heard earlier during the conference.

**Trucking Perspective**

It is particularly troublesome to me that we don’t have adequate infrastructure or facilities. We don’t have the highways, but to some extent that may be the easier part of the problem to fix, since that can be financed through tax dollars and tax revenues. The greatest deficiency . . . is a lack of cooperation with respect to facilities . . . it makes me wonder where the spirit of cooperation is . . . We need a 24-hour, fully manned operation at the port . . . we need a communications system . . . we need a standard ID card . . . we need depots stationed (inland to serve) major distribution centers . . . we need to reach out to importers and exporters and educate them about the process of the ports.

—Joseph Nievez, Quickway Trucking Company

**Rail Perspective**

One big change that is occurring responds to a point made by Charles White of the Federal Railroad Administration and that is the railroad industry’s longstanding reluctance to participate in government financing partnerships is changing. We don’t have any choice. I think railroads are going to be there with a federal government in a way that we have not been in the past.

—Paul Nowicki, Burlington Northern Santa Fe

**Shipper Perspective**

It is a lot easier to look at the past than it is to guess the future. I also want to say that deregulation has been something that certainly has advanced what we do today . . . What I want to make clear is that as a shipper, whatever problems there are at one particular location, I can always pick up and move to another location . . . One of the issues I have not heard brought up at this conference is the trade imbalance. We have to go after that trade imbalance in the years to come.

—Donald Cameron, BOSE Corporation

**Information Services Perspective**

We’ve heard a lot of talk about supply chain management and logistics and e-commerce and we’ve heard all . . . about what the future is going to look like. The basic fact is that until Scottie starts beaming stuff around, we have to move it from A to B and we have to get to the fundamental execution of the transportation business. Beneath all the buzzwords and things we hear about, we’ve got to execute on basic fundamental performance of transportation services. We’re not doing that . . . We need research, but need it in a time frame that addresses issues of immediate interest to the industry.

—Theodore Prince, Consultant

**State Department of Transportation Perspective**

States are beginning, in some small ways, to think beyond their borders, although admittedly, we have a lot more to do. Freight does not understand municipal, county, state, or even national boundaries and that point has been well made throughout this conference . . . Although many DOTs see themselves as constructors and then maintainers and, in some cases, planners, they don’t really think of themselves as operators. This is a critical area for us to focus on, because operations is what it is all about . . . Service is also our business. I think we’re beginning to move in that direction as we go into more 24/7 transportation operations centers . . . I think we are all concerned about service and, if we’re not, we need to be. We’re all concerned about operations and, if we’re not, we need to be. In this way, we begin to recognize and create some of the commonalities that allow us to take steps that might otherwise be considered too hard or too big to take . . . By getting the message out, we can put transportation issues on a different plane—one where people who don’t think about these issues everyday, as we do, can begin to recognize the challenges we face and the economic impact that will result if we don’t step up to the plate to find new ways to resolve the issues.

—Anne Canby, Delaware DOT

**Port Perspective**

With respect to the MTS, I want to say that the ports of this nation are looking forward to working on an inclusive system where freight, as well as passengers, receive the appropriate recognition and funding . . . The mapping of all the navigational waters in the United States that continues to not get done . . . Research on low visibility navigation systems . . . “intermodal” does not mean driving your car to the airport to catch a plane. That word originated from the marine industry, where we talk about taking the
container off a ship, putting it on rail, and then trucking it to the final destination.

—Tom Kornegay, Port of Houston

Metropolitan Planning Organization Perspective

We try to explain the transportation industry to the public at large. . . . I’m referring to that sort of universal disconnect where the population seems to think that stocked grocery shelves are a spontaneous event . . . it just happens and it doesn’t need vehicles to move things to and from. We do some serious work on that issue and I think we would probably get a grade B for our efforts. We have an intermodal component in the long-range portion of the Regional Transportation Plan. We ought to get a grade A for that, but there is a good chance we could get an F if we relax our vigilance.

—Gerald Rawling, CATS

Views from the audience during the town hall meeting can perhaps best be summed up in the following comment, which reflects much of what was said during the conference:

Solving problems in the 21st century will require that the public and private sectors come together. We are going to see more public-private partnerships. We are going to have to start sharing information. We are going to have to start planning together and this message needs to get out to everybody. That is the key to solving current and future problems.

The goal of the conference was to assess the current state of readiness across the three sectors—commercial, public, and defense—and identify elements of the 21st century action agenda for the global intermodal freight. Clearly, before ISTEA there was a huge gap among not just these three sectors, but also within each individual sector. We have come a long way and attitudes have changed dramatically. That is part of what this conference was all about. It is not just education and sharing information, but it is about influencing attitudes and influencing direction.
Day 1: Plenary Session

Welcome
Charge to the Conference
Innovation and Collaboration *(Keynote Address)*
Intermodal Freight Transportation Report Card
  - Public Agency Perspective
  - Private Sector Perspective
Vision for the Future
Intermodalism and the U.S. Military
M. John Vickerman, *TranSystems Corporation, Conference Steering Committee Cochair*

Thomas Teofilo, *World Trade Center Association, Los Angeles–Long Beach*

**Welcome**

It is a pleasure to be here to recognize and welcome you wholeheartedly to Long Beach and southern California. I hope you find your stay in our community enjoyable and your time at this conference rewarding. It is evident from the conference agenda that you have a comprehensive list of challenging and wide-ranging topics to cover in your plenary sessions, workshops, and exhibits over the next 3 days. Your goal, as I understand it, is to assess the current state of readiness of the nation’s intermodal transportation system and to identify elements of the 21st century action agenda for global intermodal freight movement.

You know this community is committed to port activities. The combined ports of Los Angeles and Long Beach and the San Pedro Bay area rank third in the world behind Hong Kong and Singapore. Over 5.5 million container loads moved through the ports in the past year. The current volume of goods movement is directly related to the

Tom also led the creation of the Harbor District’s Overweight Container Corridor for the movement of extra heavy-weight containers in the Los Angeles–Long Beach Harbor area. This established a right-of-way for the movement of an estimated 110,000 cargo loads per year on triple axles to and from this region. It is clear that Tom is no stranger to intermodalism.

To welcome you to sunny southern California, we are privileged to have with us Tom Teofilo, who is President and Chief Executive Officer of the World Trade Center Association of Los Angeles and Long Beach, which links southern California to the worldwide network of 366 world trade centers in 101 nations and countries, facilitating free and fair trade service to its 650,000 members. Tom was instrumental in establishing the Long Beach International Trade Office in 1993, the Los Angeles Office of Intermodal and International Trade in 1997, and the Metro Riverside International Trade Center and the Orange County International Trade Center in 1999. These offices provide assistance to small, medium-sized, and minority-based businesses and have made a terrific impact in terms of millions of dollars of trade activities and thousands of new jobs in the region.

Women and gentlemen and distinguished guests, it is indeed a pleasure to welcome you to this conference. I am John Vickerman, a principal with TranSystems Corporation and, together with C. Michael Walton of the University of Texas at Austin, serve as cochair of the distinguished steering committee that organized this conference. Over the next 3 days, we will discuss the many aspects of global intermodal freight, with a focus on the nation’s state of readiness for the 21st century.

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intermodal preparedness and the farsightedness of the commissioners and the port staff of our two ports. Trade through our local ports generates well over one-half million regional jobs—some say 1 in 12. More than one million jobs nationally depend on the activities of these two ports. Let me not overlook the value and the volume of business that is traveling through our Los Angeles International Airport, which ranks behind only Atlanta in freight volume.

It is probably not news to you that trade is the leading industry and the driving force for our state’s economic recovery and advancement. Over 50 percent of the growth in California’s economy over the past 4 years has been traced to the expansion of international trade activities. International trade will undoubtedly continue to be the critical component of our regional economy in the years ahead.

I want to say a few words about the World Trade Center Association. Our organization here in southern California has contracted not only with the communities of Long Beach and Los Angeles and Glendale and Pico Rivera, but also with Orange County and Riverside, where our team of experts in international trade promotion is working with small and mid-sized businesses to open their eyes to the opportunities and the profits attainable through international trade.

Why is that important to you? Because trade and transportation are linked and the key that opens all trade doors in our community is the infrastructure and freight-handling capabilities of our ports, rails, and highway systems. These physical supports of commerce must keep pace with the expansion of trade.

Again, I am particularly pleased to be here for the opening of this important national conference that will address the issues of greater efficiencies in freight movement, while supporting the growth of international trade. Long Beach has long been known as the “international city.” To some, Long Beach may be famous for its former amusement park, The Pike, which was dismantled a number of years ago. Others may remember Long Beach as the home of the Miss Universe Pageant, with parades along our palm tree-lined streets adjacent to beautiful San Pedro Bay.

Over the next few days as your conference is taking place, I invite you to enjoy Long Beach and southern California. Visit the Queen Mary. Visit our state-of-the-art Aquarium of the Pacific. Enjoy the amenities of Pine Avenue and Belmont Shore, and, if you have the time, please come by and visit us at the World Trade Center.

Once again I welcome you and wish you a most successful conference.
DAY 1: PLENARY SESSION

Charge to the Conference

M. John Vickerman, TranSystems Corporation, Conference Steering Committee Cochair

Worldwide freight intermodal capability is growing rapidly. In 1999, the U.S. railroads reported a fourth consecutive record increase in intermodal loadings in North America. Over nine million trailers and containers transited the U.S. intermodal system last year. The same is true of Canada. Canada reported a 14 percent increase in intermodal loadings. Railroad-focused intermodalism is due to continue increasing each year and we are bound to have the fifth, sixth, and seventh consecutive record increases.

As we heard from Tom, 1999 was another year of increased business for the ports. The San Pedro Bay ports of Los Angeles and Long Beach alone had eight million 20-ft equivalent units pass through their doors. Last year, the Port of Long Beach alone moved $80 billion in goods through that single port.

Freight intermodalism is not a new product or concept. The institution and its physical and institutional chokepoints are known and have been discussed for many years. Counter to some views, academia, consultants, and private sector industry researchers have made great strides in understanding the emerging industry pressures as well as system components. However, we still have a long way to go as an industry to overcome the lack of important data needed to evaluate and measure the system in a systemic fashion so that we can work toward making important productivity improvements.

With the intermodal network capacity increasingly constrained, increasing port congestion, an unbelievable increase in vessel sizes, deregulation of U.S. modal systems, the newly deregulated Ocean Shipping Reform Act taking hold, and availability of sophisticated information, we are still hamstrung by government and industry that continue to be modally focused at many levels and by fragmented information technology that make quantitative analyses and a systemic understanding hard to come by.

During this conference, we have an opportunity to honestly address systemwide intermodal freight impediments through true innovative public-private partnership discussions. We cannot be relegated to doing less with less and rehashing our old problems and, as Ted Prince likes to say, “listening to the consultants year-after-year talk through their canned presentations. . . .” We simply cannot do this. We have to really talk to the issues of true partnerships in this intermodal system. If we do not do so, the intermodal system will be left to gridlock and the resulting economic penalties that we all will pay.

I would like to give you a little of the history behind this conference. Back in 1994, soon after the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA), C. Michael Walton and I cochaired the TRB National Conference on Intermodalism in New Orleans. We expected about 200 attendees; nearly 600 people showed up. This conference was a first step in efforts to bring together the public and private sectors to get a handle on what intermodalism was all about and discuss areas of mutual interest and concern. In 1996, TRB convened another conference with the support of the U.S. Department of Defense to develop a framework for intermodal transportation research. In 1998, TRB convened yet another conference to examine the educational and training needs of an intermodal transportation industry. This conference is a continuation of those efforts. TRB, with the support of the U.S. Department of Defense, the
U.S. Coast Guard, and the U.S. Department of Transportation, will focus on the U.S. state of readiness for an ever-evolving 21st century global intermodal world.

The focus is at the nexus of three important groups: government, the private sector, and the military (Figure 1).

It is our challenge to understand, articulate, and discuss the nexus of those groups and then record our findings in a conference proceedings. The goal is to assess the current state of readiness across all three sectors and to identify elements of the 21st century action agenda for global intermodal freight movement. Our program is comprehensive, with 75 industry professionals and government representatives covering all aspects of freight intermodalism from technology to policy to funding and the environment. More than 25 poster displays, exhibits, and demonstrations are also offered that highlight the latest thinking in terms of projects, strategy, technology, and programs related to conference topics.

Although we want you to listen to the presentations and view the exhibits, this is not a program for simply looking and listening. We expect and encourage you to actively participate in discussions and help identify and outline an action agenda that can be laid out for government and industry.

We begin today with a plenary session that includes a keynote address from Stephen Van Beek, Director of the Office of Intermodalism at the U.S. Department of Transportation (DOT). This is followed by two panels offering their views on the level of progress that has been made since ISTEA in achieving an intermodal freight transportation system—we will get both a public agency and a private sector perspective from these panels. James Morehouse will then offer a future vision of intermodalism and the challenges that may lead to in the future. This evening, we are fortunate to have with us the Deputy Commander-in-Chief of the U.S. Transportation Command, Lieutenant General Daniel G. Brown, to offer a military perspective on the intermodal challenges of today and into the future.

On Day 2, we have a series of concurrent workshops on a broad range of topics and it will be your decision as to which ones to attend. The topics and case studies to be addressed in these sessions include institutional relationships; cargo clearance, security, and safety; implications of trade policy; infrastructure capacity and connectivity; national security and defense; financing; information technology; service reliability and operations; and environmental issues. The luncheon speaker will be Greg Lebedev, Chief Operating Officer of the U.S. Chamber of Commerce, offering a business perspective on these issues.

On Day 3, we will again be in plenary session, with a panel on labor and technology and report-outs of each of the Day 2 concurrent sessions. We will also have a preliminary analysis of the report cards all participants are asked to complete and submit—more on that later. Our luncheon speaker on Friday is Robert Krebs, Chairman and Chief Executive Officer of Burlington Northern Santa Fe Railway (BNSF), who also chaired the National Commission on Intermodal Transportation that was created under ISTEA. Rob will offer his unique perspective on intermodal issues and undoubtedly will discuss issues relating to rail mergers and other pressures within the industry that are faced by BNSF and other Class I railroads. The day concludes with a town hall meeting that includes a panel of respondents from the public and private sectors.

I would now like to briefly discuss the “report card” that each of you has been given as a means to personally evaluate and report on key issues. The report card gives you the opportunity to grade, evaluate, and assess the progress the nation has made since 1994 to achieve a truly intermodal freight transportation system. The National Commission on Intermodal Transportation submitted its recommendations to congress, following the ISTEA mandate under which the commission was established. The report card lists the recommendations that relate to freight intermodalism. You are asked to assess the progress made in carrying out these recommendations. The committee will then summarize your responses and report back to you, and to Congress, government, and industry your views of how well the findings of the commission have been addressed.

Before completing the report card, you should participate in the sessions, visit the exhibits, and review the materials in your registration packet, including the handout from U.S. DOT that summarizes the initiatives the various agencies have undertaken since ISTEA and as a result of the commission report. We would also like you to use the report card as an opportunity to give your views on the future involvement of government in carrying out the commission recommendations—this could range from maintaining the status quo all the way up to government mandates. The last part of the report card asks your views on what major challenges and opportunities relating to intermodal freight transportation will be faced in the next 10 to 20 years. How can or should these challenges and opportunities be met and who should play a key role in meeting these challenges?

**FIGURE 1** The nexus of three important groups: government, the private sector, and the military.
Stephen Van Beek is the Associate Deputy Secretary of Transportation and the Director of the Office of Intermodalism. He is the department’s leader for promoting and coordinating the development of intermodal transportation systems and fostering better connections between freight and passenger modes of transport. He works with federal, state, and local governments and industry to plan and act on intermodal solutions to transportation problems. Previously he served as deputy administrator of the department’s research and special projects programs administration. He was also a research associate for the Norman Mineta International Institute of Surface Transportation Policy Studies. He has taught at Washington and Lee University and San Francisco State University. Van Beek received his Ph.D. and M.A. in government and foreign affairs from the University of Virginia, and he received his B.A. from the University of California at Santa Barbara.

It is a pleasure to be here. Let me start by saying that, after taking a helicopter tour of this area yesterday, I am most impressed with what I saw and with what this region has done in the way of infrastructure investment to encourage economic growth for this area and for the workers who live here, as well as for the entire nation, by serving as a major global gateway to facilitate the flow of goods that contributes to an improved quality of life for all Americans.

It is also a pleasure to be here with what could be termed a U.S. Department of Transportation (DOT) team, which includes among others Kenneth Wykle, Federal Highway Administrator; Bonnie Green, Deputy Maritime Administrator; and Jeff High, Director of the Waterways Management Directorate at the U.S. Coast Guard. This is a testament to the importance that Secretary Rodney Slater and Deputy Secretary Mort Downey place on this conference. We view this as an opportunity to spend time with the participants and to get feedback on how well we have been doing in carrying out the recommendations of the national commission and in moving forward into a future where we are able to take full advantage of the intermodal possibilities that I will be talking about today. I also want to thank TRB and the Conference Steering Committee for putting together an outstanding conference and encouraging anybody who cares about or is involved with freight intermodalism to be here. The conference has garnered significant positive attention because people recognize that intermodalism is so important for our economy and for the nation.

All of us here have chosen an ambitious assignment over the next 3 days—assessing the freight component of the transportation industry and how well the nation has met the promise of the Intermodal Surface Transportation Efficiency Act (ISTEA). The work we do here over the next couple of days is an assessment of past and present initiatives as well as a road map for the future. What are the challenges and opportunities of the future that the department needs to begin thinking about now? What are the technology changes or process changes like e-commerce and containerization that will be important in the future?

Beginning today, we have the opportunity to shape the future nature of government-industry partnerships for
freight logistics and intermodalism. Indeed, if we are going to effectively manage the forecasts of significant growth in international trade while balancing our other goals, our journey must be one of innovation and collaboration.

Frequently, we hear about where cargo is going in the future in terms of a doubling or tripling of the volume of cargo that moves. However, that is not, by itself, a self-fulfilling prophecy. It requires that we monitor, maintain, and make our infrastructure responsive to the demand that will take place in the future. If we don’t, we are not going to have the level of growth that is key to fueling the nation’s economy.

I am pleased to recognize though that we are not alone in our quest to do this. As many of you heard at TRB’s annual meeting in January 2000, Secretary Rodney Slater challenged all of us to renew our vision and create a climate of innovation for meeting the needs of the 21st century economy and transportation system. He has challenged all the U.S. DOT leaders and staff to envision—with our partners, colleagues, and customers—transportation as it will exist in the year 2025. A summary of the 2025 vision exercise will result in a report to the nation later this year on trends and choices in transportation. This will mirror a report produced by Secretary William Coleman during the Ford Administration, which in 1975 looked forward to the year 2000. This work will help create what the secretary refers as “a new transportation policy architecture.” It will also complement the department’s international transportation symposium that U.S. DOT will host in fall 2000 for our partners and colleagues from around the world. This event will also be intermodal in design and content.

What we do over the next 3 days could provide important input for all these efforts. I ask that, as we go forward, we reflect on the following four points:

- What was ISTEA’s promise when it was passed?
- How well have we done?
- How has the intermodal world changed?
- What changes mean as we reexamine the goals laid out in 1994, when many gathered in New Orleans to consider freight intermodalism and its impact on safety, competitiveness, and mobility?

How many of you were in New Orleans in 1994? That large show of hands demonstrates the degree of continuity we have at this event. It will be interesting to hear your opinions on how well we have done since 1994.

**What Was ISTEA’s Promise?**

Transportation and our economy have undergone substantial changes since the early 1990s, partly because of a very well-performing economy. As President Clinton recently said, beginning February 1, we have had the longest economic expansion in American history. We have an economy that was previously thought to be impossible given the balance between low inflation, low unemployment, and productivity wage gains that are producing income growth over all levels of the economic scale. In addition, we have an underestimated or underappreciated aspect of this growing economy—the flood of venture capital that has created new companies and engines of growth like Silicon Valley and the technology corridors throughout the country. This has been particularly important in adding value in the transportation sector through productivity gains and changes in the supply chain.

Many other developments we now take for granted had not entered the mainstream when ISTEA was passed. Some had yet to appear on the horizon. When ISTEA was passed, shippers still identified themselves chiefly by mode. Supply chains and third-party logistics providers were cutting edge, not commonplace, and the Internet was a new way to track packages. We had not heard of supply channels and efficient resource planning, 4PLs, e-commerce, and business-to-business (B2B). ISTEA was the first time the public sector became aware of what the private freight sector had known for a long time. There are significant cost savings and system efficiencies to be gained if modal biases are replaced with an intermodal perspective focused on the overall mobility of the traveler or the goods from point A to point B. It is these savings and efficiencies that have contributed to the U.S. leadership position in global commerce.

It was also the first time the federal government defined its surface transportation responsibilities as including the facilitation of freight movements. ISTEA prompted U.S. DOT to broaden a strong passenger perspective to include the private sector and its freight concerns in defining policy issues and devising future action agendas. It also prompted U.S. DOT to work with its traditional partners—state departments of transportation and metropolitan planning organizations—as they sought to assume these new responsibilities. It committed the public sector to institutional changes—changes that have not been easy and are not complete—but they remain as essential as ever.

The Transportation Equity Act for the 21st Century (TEA-21) reinforced ISTEA’s fundamental change in promoting intermodalism and efficiencies. Secretary Rodney Slater’s stewardship, both in his role as secretary and previously as federal highway administrator, made sure the law provided a higher degree of flexibility in using federal resources needed to meet the expectations ISTEA created in the freight community. Although ISTEA created the mandate to go forward, it did not provide the public sector all the tools it needed to trail blaze in the freight area. The 1995 National Highway System Designation Act equipped U.S. DOT and its state and local...
partners with the flexibility needed to move them closer to ISTEA’s vision of safe, efficient, and integrated transportation systems. Part of the challenge to this conference is to continue to define the tools needed to translate the vision of ISTEA and TEA-21 into meaningful actions benefiting the intermodal industry and the productivity of the overall U.S. economy.

**How Well Have We Done Since the Passage of ISTEA?**

Secretary Slater believes a visionary and vigilant U.S. DOT must continue to lead the way in transportation excellence in the 21st century. Under his leadership, U.S. DOT’s strategic plans and performance plans have been recognized as the best in government, reflecting the importance of transportation as it relates to safety, mobility, economic growth, protection of the human and natural environment, and national security.

What is our evidence for the best plans in government? Alcohol-related fatalities are at an all-time low. There are double-digit reductions annually in highway rail crossing crashes and fatalities. Our skies remain the safest in the world and they are getting safer. The U.S. Coast Guard continues to save one life every 2 hours. U.S. DOT sees its freight role as a weaver or integrator of the numerous owners and interests who compose this complicated system. Following the secretary’s lead, the Office of Intermodalism focuses on the connections of these component parts and elimination of major bottlenecks at critical connection points. One of our major initiatives includes the maritime transportation system (MTS), an effort to plan for the future and elevate the visibility of the maritime sector, which often, in relation to surface and air, has suffered. We need a greater recognition that maritime is every bit as important to the American economy and the movement of freight and people, sometimes in unique ways, as are the other modes. Led by Administrator Clyde Hart of the Maritime Administration and Admiral James Loy, Commandant of the U.S. Coast Guard, the MTS is a systemic look at waterborne movements, focusing on the critical intermodal connections as goods and people travel from origin to destination.

The NHS Intermodal Connectors Condition and Investment Study, led by FHWA Administrator Kenneth Wykle, is finalizing a baseline assessment of more than 600 intermodal freight connectors along the National Highway System (NHS). The assessment of these connectors and current levels of federal financing should serve as an important tool as we seek to improve system safety and efficiency. It also continues to encourage the public and private owners of the nation’s transportation infrastructure to better cooperate and coordinate as they plan investments to meet a diverse array of commercial and citizen needs. In addition, the recent reorganization within FHWA includes an entity with freight responsibilities.

The Bureau of Transportation Statistics (BTS) has conducted two commodity flow surveys to refine and improve data collection—the first such effort in nearly 30 years. The Office of Intermodalism has been an advocate, innovator, and departmental resource for freight issues. One other aspect that relates to both BTS and the NHS connectors study is working together within U.S. DOT to ensure that, as we develop the data for intermodalism, all our data are better aligned. In addition, we collect more and better data by measuring the intermodal connections in the system, we have a tool within U.S. DOT that can be used in policy analysis and policy development for the benefit of the current U.S. DOT as well as our successors. As we traveled around the country speaking with people in different regions who are attempting to put together better intermodal connections, we found everyone is suffering from a lack of good data. We need to be a leader in this office in terms of providing those data for us, for the metropolitan planning organizations, and for the state and private concerns out there.

The Office of Intermodalism also spearheaded the federal role for funding the Alameda Corridor, which promises not only to improve safety and mitigate congestion by eliminating grade crossings but also to improve the efficiency of railroads as they serve the nation’s busiest Pacific ports. Unclogging this bottleneck means that a significant portion of the nation’s international trade will leave and reach their markets more quickly. In fact, I am very pleased today that Michael Huerta, one of my predecessors in the U.S. DOT Office of Intermodalism, is here. He played a very key role in negotiating these new innovative financing tools that have made the Alameda Corridor a great project. When I toured it yesterday, I learned that work on the Alameda corridor is on time and on budget. As we look ahead to the next reauthorization, I think this success promises to create even more high levels of authority on the financing side that should help launch more projects throughout the country.

We convened four regional meetings during spring and summer 1997 in Seattle, Houston, New York, and Norfolk to address how the projected growth in worldwide containerized trade and the expected demands on container ports and their connections in surface transportation would affect the overall system. In late 1998, we coordinated four national listening sessions to solicit ideas on facilitating intermodal freight transportation through the development of intelligent transportation system (ITS) technologies. We then solicited proposals for potential projects, and funds were awarded for two pilot tests that will link existing ITS systems to collect freight data to better support local and regional planning. I know Christine Johnson is here and will be providing information about that.
The Office of Intermodalism also has led the effort creating intermodal technology workshops that brought together leaders from the public and private sectors to outline a planning framework for increasing freight productivity through intermodal freight identification and tracking technologies. In Reston, Virginia, participants produced a plan of activities and projects that have created an intermodal freight technology working group. U.S. DOT and the private sector cochaired the workshop; to implement the workshop recommendations their goal is to identify and support technologies that promote inner operability, asset and cargo visibility, and system harmonization. A follow-up conference is planned for June 2000 and I hope many of you will attend.

**HOW HAS THE INTERMODAL WORLD CHANGED?**

The integration of technology and transportation is expanding at such a rate that the ability to move information is becoming as critical as the ability to move the goods. Whether making changes in production, in warehousing, or in the destination of goods already in transit, computers and technology play critical and expanding roles in the freight industry. The precision needed by higher value intermodal shipments only reinforces these trends.

The explosive growth of e-commerce has significant ramifications for transportation—so much so that Secretary Slater and U.S. DOT recently sponsored a special 2-day conference in Atlanta to explore the impacts this important and growing market segment will have on the nation’s infrastructure. What we heard was extraordinary. We heard from the president of Cisco Systems, a company that provides a lot of the key infrastructure for e-commerce and early this year had a market capitalization of $430 billion, which makes it the second most capitalized company in the United States. We also heard from Jim Kelly, President of United Parcel Service (UPS), who stated that UPS used to be a trucking company that used technology and has now become a technology company that uses trucks. When you look at their recent partnerships with Ford Motor Company, Nike, and other private companies for whom they are providing beginning-to-end logistics support, it is truly amazing how far they have come, particularly since the strike when some were worried about the health of UPS.

One trend evident from this conference is the increasing role of expedited airfreight carriers such as UPS and FedEx. Their market share of this emerging market segment is due to both the broad distribution and highly sophisticated technology networks they process as well as their ability to consistently provide time-definite delivery service. The resulting higher levels of home deliveries for the future could shift current distribution patterns, as these trucks go directly from the airport to your front door, or they could redefine the role of retailers, who could serve pickup and delivery points—your home-town “portals” to the Internet. The more frequent movement of smaller loads could also change equipment needed by commercial carriers as well as the nature of long-haul, over-the-road operations.

U.S. DOT needs your help in understanding these areas if our transportation network is to remain responsive. Just last week, we began discussions with the Council on Competitiveness in Atlanta relating to the conditions under which private companies will provide us with data so that we can see what their delivery points of the future will look like, which will help us build a system that is responsive.

Another important trend is the business-to-business, or B2B, aspects of technology innovations that have created e-commerce. Real-time or near real-time communications among all parties in a supply chain increase sourcing and distribution options, enhancing the global nature of commerce. How and where market and production centers will evolve have the potential to dramatically reshape the U.S. economic landscape.

One of the most common inquiries I get is from people who are outside hub communities like Memphis and Louisville, who wonder how their suppliers, their shippers, are going to remain competitive in the nation’s economy. It is a good question and we have to come up with answers about how and whether our investments will allow all communities in the country to have access to the global transportation network.

The organization of industry has also tracked globalization. Today, we face the possibility of our first transcontinental railroad, Burlington Northern Santa Fe/Canadian National (BNSF/CN); a U.S. flag fleet with foreign parent corporations, OOCL and Maersk; U.S. motor carriers such as Roadway, involved in international partnerships with their Canadian and Mexican counterparts; and a proliferation of multinational corporations in almost every major commodity segment.

U.S. DOT has been urging the Surface Transportation Board (STB) to take a more systemic, long-term look at the last several applications brought before it by the Class 1 carriers. U.S. DOT continues to be concerned about the potential impact these consolidations, including BNSF and CN, could have on our national transportation system. We are pleased by the STB decision last month, in ex parte 582, to finally begin to look at these larger policy questions.

Looking at this year, the president’s proposed budget for 2001 provides for a record level investment in transportation: $55 billion, the highest level in the history of U.S. DOT and an 86 percent increase over the previous administration’s average. Of this total, $39 billion will be invested in transportation infrastructure. If adopted, these investments in our roads, bridges, airports, and transit...
infrastructure will support economic growth by upgrading system conditions and performance. A record $30.4 billion will maintain highways and build new roads and bridges, including $280 million to improve border crossings and trade corridors, and $96 million in Transportation Infrastructure Finance Innovation Act funding will leverage as much as $2.2 billion in additional state and private financing for transportation projects. The level of spending is needed if U.S. DOT is to carry out aggressive programs of achieving its strategic goals: to increase transportation safety, enhance mobility for all Americans, protect the nation’s environment and security, and support the nation’s economic growth by providing access to new markets and economic opportunities.

The Office of Intermodalism has also changed. It is growing from a concept to an effective advocate for an integrated systemic approach to transportation issues and challenges. The office seeks to facilitate the development of intermodal projects of national or regional significance like the Alameda Corridor. It provides technical assistance to project proponents so they understand what resources are available, including innovative finance options and where they exist. We have and will continue to convene meetings between proponents and U.S. DOT experts to address the specific requirements of their proposals. We also have worked with proponents in the federal, state, and local entities to explore what types of new or innovative solutions can be tried to deliver projects more effectively. This assistance is critical because these projects require higher levels of coordination and cooperation than traditional single-mode solutions. As I go around the country, I see efforts like the Gulf Rivers Intermodal Partnership that is providing excellent leadership and bringing people in the region together to look at issues such as port expansion and landside access and what that is going to mean for the area’s highways and rail.

The office is committed to listening closely to the users of our nation’s transportation system. Communication, followed by action, is crucial to effectively produce policy in today’s changing environment. That is why the office seeks to serve as a voice for all interests involved in intermodal transportation, be they shipper, carrier, intermediary, passenger, state or local government, labor, or average citizens.

**WHAT DO THOSE CHANGES MEAN FOR THE FUTURE OF BOTH INTERMODALISM AND TRANSPORTATION IN GENERAL?**

In the simplest terms, these changes reinforce the need for the U.S. DOT and its public and private partners to strive even harder to plan and coordinate infrastructure investment so that the nation benefits from an integrated transportation system that reflects Secretary Slater’s vision of an intermodal, intelligent, international, inclusive, and innovative system that meets vital national interests. They spur us to find new and better ways to develop freight data. We in the public sector must ensure that our planning and other models accurately account for freight impacts. The private sector needs to help public planners craft the tools so they can understand what is moving through their regions without compromising confidentiality, as in the case of e-commerce.

Together we must identify and overcome institutional barriers. To meet the projected levels of demand, we must develop better processes and procedures to ensure the safety and security of international freight as it moves through ports and across the nation. Together we must coordinate technology development and investment through collaborative public-private partnerships if we are to create interoperable systems that, for example, can allow traffic information centers to alert commercial carriers about weather incidents and recurring congestion, that can allow all the cities or state systems to communicate so that a school bus can tell an ambulance where it is, that can allow a railroad to warn public safety officials about grade crossing or hazardous material incidents, or that can allow a trailer or container to alert public safety officials to the fact that it is being stolen.

We also must find ways, and this has been a major focus for the secretary, to educate the next generation of transportation professionals so they receive an integrated education about transportation and logistics. Given current demographics, we need to recruit from a broader spectrum of society if we are to have the skilled workforce capable of meeting future transportation demands. The skills of these young people will need to match the dynamic competitive technology base and international world they will inherit.

Most importantly, we need to listen to one another. We need to understand one another’s vision of the future if we are to help each other reach common goals. With this in mind, Secretary Slater is holding periodic visioning sessions to explore how our transportation system might evolve over the next 25 years. It is also why he promoted the memorandum of understanding between U.S. DOT and the Council on Competitiveness on transportation and e-commerce. This effort will explore how transportation supports the e-commerce revolution and what can be done to make this relationship even more supportive.

If the past few years of change and dynamism have taught us anything, it is that we are on a journey of discovery and innovation—not one with a fixed destination. We still have a long way to go. The work you do over the next 3 days will provide parts of the road map. When taken with other parts, our course for the future will be set by our collective dedication to realize an integrated, intermodal, international transportation system that safely and efficiently serves industry and the American public.
DAY 1: PLENARY SESSION

Intermodal Freight Transportation Report Card
Public Agency Perspective

Stephen Van Beek, Office of Intermodalism, U.S. Department of Transportation
Kenneth Wykle, Administrator, Federal Highway Administration, U.S. Department of Transportation
William Lucas, Deputy to the Commander, Military Traffic Management Command

OVERVIEW

**Stephen Van Beek**

In terms of the report card on intermodalism, the U.S. Department of Transportation (DOT) takes the Government Performance and Results Act (GPRA) very seriously, and people such as Ken Wykle have been leaders in terms of incorporating the principles of GPRA into U.S. DOT. More than anything else, that is why the U.S. DOT performance and strategic plans were voted the best in government. It is because we have what we call a “culture of quality.” We are using this process to reinvent ourselves and are going far beyond what Congress and other people envisioned when they passed the GPRA. We received the highway grade; however, that is not good enough. In June 2000, we will introduce our newest strategic plan that will help move U.S. DOT forward for the next 5 years and beyond whatever administration follows after us.

An intermodal freight transportation report card, done in conjunction with the TRB and the U.S. Department of Defense (DOD), provides a very valuable tool for all of us to ask “How well have we done?” Many believe the U.S. DOT average, on a scale of 1 to 5, should be about 5.0, but we know there are places where we have fallen short and we want people to tell us what those are and how we can improve and do things better for the future. When you are engaged in a quality process, you need to do that. It is my pleasure to share this session with two distinguished public servants, who will offer a U.S. DOT and a DOD perspective.

**Kenneth Wykle**

Kenneth R. Wykle is the 14th Administrator of the Federal Highway Administration (FHWA) of U.S. DOT. He previously served as Deputy Commander in Chief of the U.S. Transportation Command, which is the military’s unified management group for the Army Military Traffic Management Command, the Navy Military Sealift Command, and the Air Force Air Mobility Command. He has taught military logistics doctrine and operations as college president of the U.S. Transportation Center.

The topic of this conference is one of national significance. You might ask “Why?” Certainly, we are entering a new century, just getting started in the 21st century, but really I think we are also seeing a regeneration of interest and a focus on freight and freight movement, certainly within U.S. DOT. As Steve mentioned, we restructured the FHWA, created an operations core business unit, and within that an element to focus strictly on freight and freight movement. It is time to review the government’s role in transportation and hopefully from this conference we will get some ideas about what our appropriate role is.

We are halfway through the Transportation Equity Act for the 21st Century (TEA-21) and are starting to prepare for the next reauthorization. One of the key things as we
think about global intermodal freight is to look at it from the standpoint of the supply-chain logistics, from the manufacturer all the way to the consumer. Normally, everything we get or consume moves on some mode of transportation, or it may move on several modes in getting from the manufacturer to the consumer.

I believe the United States has developed the best national transportation system in the world. We have made major investments in our physical infrastructure; however, from the standpoint of FHWA, the Interstate era is over. We have basically completed building the 45,000 mi that are in the Interstate system and now it is time to focus on operating and maintaining the highway piece of the intermodal transportation system.

We must use technology across the entire spectrum of modes to leverage the capabilities that we have and get more capability out of the existing infrastructure. In doing so, we must focus on the customers. What do the customers want? How can we better satisfy their needs? We are concerned about the condition of the infrastructure and how we maintain the infrastructure we have.

As we look at emerging issues, as we think about transportation and commerce today, the emphasis is on speed, time. How long does it take to complete the process? Today, time is the key measurement. There is more and more emphasis on so-called “pull” logistics. You ask for it when you need it. “It” is not in intermediate warehouses and it is not prestocked somewhere. You “pull” it as you need it. More and more we see postponement in manufacturing. You wait until the very last minute before you put on selected components so you can be state-of-the-art, state-of-the-practice.

Estimates are that 40 to 45 percent of the items we consume in 2020 will be bought over the Internet. An example comes from the conference in Atlanta earlier this year about a “virtual” company that sells Argentine fishing rods. You order one of the fishing rods in the United States by going to the Internet and clicking onto a company that neither makes nor stocks any of the products they sell. All they do is turn around and pass that request to the manufacturer in Argentina. UPS picks it up and delivers it to your door the next day—a virtual company engaging in commerce that relies on the infrastructure, on the transportation system, to get the items from producer to consumer.

There are many challenges in terms of how we plan and fund this infrastructure—whether there are any capacity constraints and whether there are challenges at the border if the goods are moving internationally. The borders are a major challenge as we move more and more into the North America Free Trade Agreement (NAFTA) and other trade agreements. The U.S. Customs Service, U.S. Department of Agriculture, U.S. Immigration and Naturalization Service, U.S. Drug Enforcement Administration, U.S. Environmental Protection Agency, U.S. DOT—all these federal agencies are at the border. How do we integrate and coordinate the actions of all these agencies?

If we look at just the highway element, I think superior highways have enabled this nation to achieve sustained growth. As Steve mentioned, $30 billion in the budget for 2001—that is up 10 percent over just this year. Keep driving those SUVs, consuming that gas, paying taxes into the Highway Trust Fund, trying to increase significantly the dollars going into research and development, doubling the amount of dollars in the borders and corridors program, doubling the number of dollars for community systems preservation programs, and certainly more dollars are going to the states through the normal apportionment process. TEA-21 gave us 40 percent more dollars through 2003, guaranteed over the life of the bill. Steve commented on the U.S. DOT appraisal of the National Highway System intermodal connectors, which comprise fewer than 2,000 mi of a 160,000-mi National Highway System but can be one of the prime bottlenecks to the efficient flow of transportation. An estimated 600 connectors go into our seaports, airports, and rail yards—less than 2 percent of the total system. We can make a major impact if we can improve those connectors in terms of efficiency and effectiveness.

The borders and corridors program contained in TEA-21 provided grant dollars to improve the transportation and trade corridors, primarily those going north and south. In large part because of NAFTA, $2.0 billion in requests were submitted, for only $140 million in the program—one of the reasons U.S. DOT has asked for this program funding to be doubled in the 2001 budget. Another challenge for U.S. DOT is that congress likes to earmark the dollars in these programs, making it more and more difficult to develop a coherent national system because of the “patchwork” effect that can result from earmarking. With respect to quality and condition of the infrastructure, it is improving all the time. Less than 8 percent of our national system is in poor condition and we are improving that quality every year. Among the challenges faced are the multijurisdictional approaches and infrastructure and infostructure linkages. How do we link this technology I talked about earlier to the physical infrastructure that we have?

When looking at rail, we have to ask what is the role for government? Rail is certainly a growth area in terms of intermodalism, and a lot of capital—private capital—goes into sustaining and building the rail infrastructure. What can government do? It can encourage and foster innovation ranging from doublestack technology to tagging cars for inventory management. Some of the challenges, most notably service and mergers, are more complex, such as the decline in service and difficulty in making just-in-time deliveries. Reliable, dependable, consistent deliveries are what rail customers want and need. We need coordinated public-private investment and, as...
was mentioned earlier, attention to highway-railway grade crossings. Safety is a significant issue. We now have up to 30 trains a day, with as many as 100 cars per train, traveling on tracks that go down the middle of many cities and towns. Delays for people trying to get across the tracks and the probability of crashes and accidents need our attention. There is also the need for good connectors to ensure efficient movement between truck-rail and ship-rail.

On the maritime side, U.S. DOT has focused its attention and efforts through the maritime transportation system (MTS) initiative. A report was submitted to congress in September 1999 and two groups were established to coordinate future activities: an interagency committee for the MTS that includes representatives from the many federal agencies with responsibility for some aspect of the MTS and the MTS National Advisory Council, which is composed of private sector and nonfederal representatives. The challenges faced in terms of funding, dredging, infrastructure, equipment and facilities to service megaships, landside access, the environment, and the trade-offs between speed and productivity and size are significant. Landside access and the ability to handle the volume carried on megaships is among the constraints to improving productivity. The megaships come in and discharge containers, which must be cleared and distributed from the ports—the connectors are a key part of that equation. This is just a sample of the challenges in the marine mode.

With airfreight, overnight delivery is key, particularly for high-value, priority cargo. The aviation system has evolved into a hub-and-spoke concept, and, to be able to work effectively in terms of getting into and out of these hubs, again you need the landside access and the connectors. There is a great application of technology in the airfreight business in terms of tracing and tracking the cargo; however, there are still significant challenges in the future. Fred Smith, Chairman of FedEx, has said “The future of airfreight is on the ground,” whether it be delivery in the white trucks with purple and orange markings on them or delivery in the big brown trucks. Connectivity is the key to getting the freight in and out of the airfreight hubs. This service is also affected by the hours of service when airfields and airports are operational as well as environmental issues relating to noise and congestion. These are challenges faced by both the federal government and local communities.

What Are Some of the Future Challenges?

High on the list is leveraging technology, taking advantage of technology to get more capability out of the existing infrastructure and getting full deployment of intermodal transportation systems so that we have a complete link throughout the supply chain. This is especially critical at border crossings and ports of entry, where it is vital to expedite and speed the flow of freight across the borders and through our ports and airports and in the process collect and analyze real-time data. In that regard, I want to share another interesting piece of information offered by the chairman of Cisco Systems. Cisco has the technical capability, at the close of every business day, to balance their books. Many companies do this only on an annual basis and then often have a 3- to 5-month lag time before they can close out their books. If you can leverage technology, you become more competitive and you get an edge over your competition. Real-time data are key.

With respect to infrastructure, early planning in terms of public and private partnerships is critical. Freight has to be a consideration early in the process and when identifying and setting financing options and priorities. Multijurisdictional coordination is essential. Right now, freight planning occurs at the metropolitan planning organization, city, or state level. How do we plan it across state boundaries? If we are going to have these regional and national freight corridors [i.e., the Freight Action Strategy (FAST) for the Seattle-Tacoma corridor in the Pacific Northwest, a major north-south corridor along future I-69], all of which involve more than one state, how do they come together? A coalition has been formed among the states in the delta region to plan and execute construction of the I-69 corridor. More of this type of coordination and preplanning is needed for freight corridors. It is critical that freight concerns be addressed early in the planning process. With respect to institutional development, the focus again is on multistate, regional, and binational intermodal freight coalitions that come together to work the issues and find the best way of getting the infrastructure and the capability needed and to develop tools to evaluate freight improvement options.

What Is the Current State of Readiness?

As noted earlier, many areas still need work, and in other areas real progress has been made. Freight will continue to be a focus across all modes as we move into the 21st century and as companies strive to attain and retain the competitive edge. How can they add value? How can they reduce costs? They can do it through end-to-end management of freight movements and by becoming increasingly intermodal, wringing all the efficiency they can out of the transportation system. We have third-party logisticians; there are even fourth-party logisticians to take care of the entire supply-chain process for the manufacturer. This is where you see the virtual companies. Here is another example from the Atlanta symposium—this one is from Home Depot. In many cases, Home Depot
does not build or provide the items that people want in their homes. Customers come in, they view a Home Depot showroom, they look at the type of cabinets they want for their kitchen, they select the style, the color and so forth, and Home Depot electronically transmits the order directly to the manufacturer. The goods come from an outside supplier and are shipped to an intermediate staging area, where an installer picks them up and then installs them in the customer’s home. The only thing Home Depot did was set up and host the showroom and transmit the order.

From a government standpoint, the Intermodal Surface Transportation Efficiency Act (ISTEA) was the foundation for intermodalism. Enacted in 1991, the legislation recognized the importance of intermodalism to the nation’s transportation system. It brought reality to what had been an abstract concept to many in the public sector and it provided some insight and direction to what the public sector could and should do to support intermodalism. For the first time, it also provided for innovative financing, recognizing that the federal and federal-state funds were not sufficient for what needed to be done. During the ISTEA era, the public sector went from a grade of D to a C in terms of the readiness of the transportation infrastructure. TEA-21 reinforced ISTEA by continuing to emphasize intermodalism; however, it targeted specific funds for specific systems, such as the borders and corridors program and grants directed at improving and maintaining the Interstates and bridges. TEA-21 also provided 40 percent more dollars for highway infrastructure, and it continued the innovative approach to funding and helped move the public sector a little closer to a grade of B in terms of improving the state of readiness of the intermodal transportation system.

Where Are We Going After TEA-21?

We hope the next reauthorization bill will continue to focus on efficiency and equity and add a focus on effectiveness. How do we improve the effectiveness of the system? A priority should be development of an infrastructure that links information technology to the physical infrastructure already in place. Also needed are further innovative financing options. More and more $1 billion plus projects are now under way or planned. These include the Central Artery Project in Boston, a $10.8 billion project, the cost of which recently went up to $13.2 billion and is still rising; the Alameda Corridor at well over $1.0 billion; the I-15 project in Salt Lake City at over $1.0 billion; and the replacement of the Wilson Bridge in the Washington, D.C., metropolitan area at over $1.0 billion. The cost of these infrastructure projects is high and we need to find new and different ways to finance them.

With respect to institutional development, more effort must be made to broaden the perspective beyond the local or state level to a regional, multistate corridor or even nationwide level. This will require more efforts aimed at forging partnerships and alliances between government and business, so that collectively we can maintain and improve the overall system. How do we make the system more intermodal? We squeeze out the inefficiencies; we make it efficient, reliable, dependable, predictable, safe, and consistent day in and day out so that this new economy will continue to thrive and grow.

Will we ever earn a grade of A? We don’t know, but that is our goal. We want to be the absolute best we can be. This will require all of us working together to get the maximum productivity out of the nation’s transportation system. Thank you.

DEPARTMENT OF DEFENSE PERSPECTIVE

William Lucas

William R. Lucas is Deputy to the Commander of the Military Traffic Management Command (MTMC), the senior civilian with responsibility for all aspects of MTMC’s missions and functions. Before assuming his current position, Mr. Lucas served as the Acting Assistant Director of Transportation, Office of the Deputy Chief of Staff for Logistics, Department of the Army, responsible for directing Army transportation policy programs, resource allocation, and strategic planning. He has held a number of previous MTMC assignments, as Special Assistant–Freight Traffic Division, Program Manager for the Defense Freight Railway Interchange Fleet, and Chief of the Freight Automation Office.

It is a pleasure to be here to present the U.S. Department of Defense (DOD) perspective on the progress that has been made in intermodalism since the national commission report back in 1994. As long as there have been armies, generals have had to deal with the friction created by the ability to deploy a force to a field of battle and, once there, to be able to sustain it. Therefore, it is no surprise that advances or shortfalls in the intermodal system and strategic mobility and logistics really shape the foundation of our modern warfare. After all, if you can’t get your combat power to your place of business, your odds of winning are nil.

The fundamental need for power projection has forged historically close relationships between the military and the transportation system. In many cases, an Army’s power projection requirements have been the driving force behind transportation infrastructure and technological
developments. The U.S. military has long recognized that it is only through an optimal combination of transport modes that effective strategic mobility and logistics are possible. Such multimodalism has been an integral part of what we call the defense transportation system (DTS). The DTS comprises not only DOD’s own organic transportation assets—aircraft, ships, and rolling stock—but also the vast infrastructure of strategic highways, railroads, and ports both here and abroad. Through the DTS, the military shares much of the transportation system with the private and public sectors. However, the way we use it tends to be a little different. The intermodal transportation system generally functions like a pipeline with a fairly smooth flow. On the other hand, military deployments are massive surge movements, sometimes on short notice, that tend to clog the system.

To illustrate, you may recall that during the Gulf War, it took 6 months for the buildup. Virtually every Navy sealift vessel, as well as a hastily assembled fleet of merchant ships, was needed just to get sufficient combat power in place to begin the war. Since Desert Shield, the mobility enhancements in airlift and sealift that have been procured are based on an established target of trying to get five and one-third divisions to a theater in 75 days. However, the strategic vision of the new Army Chief of Staff is a stretch goal of being able to get one brigade ready to fight in 96 hours, one division in 120 hours, and five divisions in 30 days. This has enormous implications for our future challenges in meeting power projection in (a) what is delivered—it is going to have to be smaller and self-sustainable; and (b) how it is delivered—it is going to require a very fast and agile infrastructure.

We have come a long way from the days of the Cold War when we expected to fight the next war in central Europe, largely with troops and equipment already in place. If we ever needed to rely on a national and international intermodal transportation system it is now, which brings us to the present day and the DOD perspective on how much intermodalism has progressed.

From our perspective, there are really two distinct dimensions to the intermodal freight system: the hard system and the soft system. The hard dimension of the intermodal freight system includes, of course, the physical infrastructure—containers, chassis, tractors, and on and on—in short, the hardware, the real estate, and other tangible aspects of the intermodal system. This hard dimension can also include, and today there is a lot more emphasis on, information systems that have become so indispensable to the efficient movement of freight—electronic data interchange, real-time tracking and visibility systems, and intelligent transportation systems to name just a few. The soft dimension of the intermodal freight system includes the regulations, policies, techniques, and procedures as well as the interpersonal relationships that really make the system work.

Let me first talk about how we in DOD have tried to advance intermodalism in the national transportation system in the past several years from both the hard and the soft perspectives. Then I will address how we see the private and public sectors responding to the challenge.

For many years, we have witnessed the trend in the commercial freight world toward intermodal standardization based on the use of containers. We have also known that a by-product of this trend is that specialized modal equipment traditionally used by DOD during war is giving way to this intermodal equipment. A prime example of this is the fleet of militarily useful rail cars. Many of these flatcars, whose average age is 30 years, are nearing retirement and as they retire they are not being replaced at the same rate. We project that by about the year 2010, if we do nothing, we will have difficulty meeting the mobility challenge.

Similarly, there has been a trend toward deep-well cars and spine cars. When you look at some of our outloading installations, you find that we do not have the material handling equipment available right now to make maximum utilization of that equipment. We are doing a couple of things—one on the organic side. We have acquired about 1,500 flatcars that we have pre-positioned at our early deploying installations, but, more importantly for the longer haul, we have established a joint government–rail industry group to recommend alternative solutions to these problems.

About 10 years ago, DOD began to study the feasibility of using containers in the intermodal freight infrastructure to deploy actual combat units. The study suggested that, given the right mix of containers, flatcars, and container handling equipment and the development of new techniques and procedures, it was possible to move a large amount of oversized equipment from a stateside military installation to an overseas theater of operation and get it there on time. However, it is one thing to show something on paper and quite another to demonstrate it in reality.

Then in 1995, the U.S. Transportation Command (USTRANSCOM), with money from a Joint Chiefs of Staff exercise fund, decided to test the concept of intermodal deployment. Exercise Turbo Intermodal Surge 95 took place between Fort Carson, Colorado, and Oakland, California. Among other things, it showed us that the more intermodally compatible our equipment was, the more easily we could use the intermodal system to augment, not replace, our own strategic lift assets. Our workhorse, the heavy truck called the palletized load system, is capable of carrying a 20-ft International Standards Organization unit.

We have also adopted the use of smaller connectable containers, called Quadcons, four of which can be connected to form a 20-ft container, to facilitate the storage
and movement of unit equipment and supplies. The Army has already acquired over 4,500 of these and the Marine Corps has bought some as well. From a units perspective, it facilitates deployment far forward to a tactical area of assembly because you can break the Quadcon down into component pieces and make it a secondary load on the back of a truck. We have also recognized that the 40-ft flatrack is a key piece of equipment that now makes the entire fleet of intermodal rail cars militarily useful.

Turbo Intermodal Surge, as well as later containerized deployment exercises, also pointed out deficiencies in our installations and their ability to conduct efficient rail and intermodal operations. Railheads and loading docks were designed to be mode oriented, as opposed to intermodally oriented. With some funding from the Army Strategic Mobility Program, we have already invested about $30 million to improve the outloading capability at a number of those installations.

Intermodality within DOD includes more than just deploying the equipment. Virtually all the ammunition, as well as many other classes of supplies, will be expected to move in containers from depots and warehouses as far forward as possible to the battlefield. The new container roll-on/roll-off pallet, which is an intermodal innovation unique to the Army, will be moved in containers from depots and warehouses directly to where it can be easily offloaded in the tactical area of assembly. So far, about 13,000 of these units have been purchased.

Because most of our supplies are shipped in 20-ft boxes (and that is a doctrinal issue we have), we recognize those boxes are in somewhat short supply, but that is the way the Army is set up for the time being. Because we have to ship them in 20-ft boxes, we are faced with the problem that most container cells on ships are not really reinforced to carry two boxes of that size. So, we have looked at devices like the container link where you can link two 20-footers together to form one 40-ft unit, which can then be disconnected for onward movement into the theater of operations.

As you can see, advancing intermodalism from a DOD perspective means shifting our paradigm. This shift has been most apparent in the soft dimension of the intermodal system. To really build a national intermodal transportation system, we must begin to think intermodally. Many logistics officers in the military are still skeptical about the intermodal system’s capability to deliver. A lot of that is based on their Gulf War experiences where we had mountains of containers and nobody was sure what was in them. They have an uncomfortable feeling that their equipment will be disappearing into a temporary black hole as it transits the intermodal system. They will have no direct control during that phase. Therefore, the issues of unit integrity and in-transit visibility become paramount. We need to be able to assure them that their equipment will arrive when it is supposed to where it is supposed to and that it will be in the same condition it was when it left. Confidence is key to the future success of the intermodal system. It has got to start at the top with a commitment by senior leaders to gradually reshape the way DOD thinks about transportation. To quote from the Joint Doctrine: “Efficient and effective use of intermodalism and containerization is critical for mobility and transportation support to single service or joint operations worldwide.” This means we are dedicated to establishing the key doctrinal and regulatory changes needed to embrace intermodalism.

Changing doctrine, committing to an intermodal way of thinking is a good start, but the real changes take place where the DOD transports and logisticians interface with their commercial counterparts. The kind of practical experiential learning that has taken place over the past 6 years, with events like the annual turbo intermodal surge exercises, have been critical. Intermodal carriers, like Maersk–SeaLand and APL, have formed teams and pooled resources to provide door-to-door transportation services and deployment exercises, most recently in a major exercise from the United States to Thailand in 1999.

Military transporters have worked side-by-side with their civilian counterparts to solve real-world problems and document the solutions to those problems. We are building a body of knowledge and techniques and procedures that will enable us to refine and improve our ability to deploy intermodally.

The private and public sectors have been extremely supportive. One of the programs is called VISA—the Voluntary Intermodal Sealift Agreement—which you will hear more about later in the conference. One of the moving forces behind this program was then Lieutenant General Ken Wykle when he was the Deputy Commander in Chief at USTRANSCOM. It basically was a combination of elements from the U.S. DOT; DOD, and the U.S. flag carriers to come up with a contingency system that focused not so much on acquiring ship by ship but on acquiring intermodal capacity and playing on the strengths of our intermodal partners.

As I mentioned earlier, the rail industry is working with us to solve problems of emergency access to railcars. Access to seaports is also an ongoing concern. Port infrastructure and processes are designed around a commercial customer base, and DOD needs short access to key strategic ports in wartime, particularly now that we have closed our military ocean terminals in Bayonne, New Jersey, and Oakland, California. Again, we have joint government and industry programs and organizations like the National Port Readiness Network in place to work on these issues.

We understand that the primary concern for commercial intermodal carriers is profitability and growth for their shareholders, and a more efficient and effective intermodal system will certainly contribute to this. We
have also found the U.S. commercial freight industry to be unwavering in their support of the national security.

In completing our intermodal report card, we were asked to reflect on major challenges and opportunities for the next 10 to 20 years and I will discuss a couple of them. As part of the strategic responsiveness vision, we have to accelerate the deployment time line. We will become lighter, smaller, more agile, and more logistically supportable and deployable without sacrificing sustainability and lethality. But, even with a lighter, more deployable force, we are still going to be challenged. We still will challenge the availability of intermodal transportation assets as well as strategic assets. We might easily create serious temporary imbalances in and shortfalls of key intermodal equipment. When you look at numbers like 44,000 TEUs, it seems like a drop in the bucket, but when you start to look inside those numbers and see things like an early surge requirement for 15,000 flatracks and you know there are only 24,000 available commercially and 2,400 are available from the military, that’s cutting it pretty close. We are also concerned about the availability of other specialized equipment such as reefers.

What is the solution? It could be the outright purchase of some large number of containers; however, that is not the preferred choice, because we would have not only acquisition costs but also the life cycle costs. We hope to find some innovative solutions working with industry, where perhaps we can help offset some of the expense of purchasing and managing the equipment or have contingency contracts that give us early ready access to equipment or possibly some sort of a lease-back arrangement.

Even if we had enough containers and intermodal assets available, we still have the issue of infrastructure. We have to work on improving the infrastructure of our installations to accommodate full-scale operations, but that is a serious commitment of strategic mobility funds. Therefore, we will also be looking for alternatives to this capital-intensive approach. This may involve things such as DOD’s use of existing commercial intermodal facilities located within convoy range of major deploying installations, an expanded VISA-type program to provide short access to loading tracks, marshaling areas, container-handling equipment, and stevedoring. Not all installations have the same intermodal deployment requirements, so perhaps a combination of infrastructure upgrades and an expanded contingency contract would be able to handle our future containerized unit equipment workload.

The key to meeting these challenges lies in the very nature of intermodalism and what gives it its strength—intermodalism implies connectedness. This strength comes from the shippers, transportation providers, third-party logisticians, and federal, state, and local governments working together to solve transportation problems and creating an efficient and robust intermodal system that benefits everyone. Programs like VISA bring intermodal service providers and DOD planners together to solve strategic mobility problems. Intermodal deployment and logistics exercises, like Turbo Intermodal Surge, bring deployers, military transporters, and civilian experts together to learn from each other’s best practices.

In addition, intermodal now extends into the acquisition community in the design of new weapons systems and support equipment. More and more new systems are being designed with intermodal transport in mind. Intermodalism may be a way of thinking about the movement of freight, but for DOD it is also becoming a way of thinking about power projection. The defense community is just beginning to understand, much less exploit, the vast potential of the intermodal system. With your help, we will be able to use it not only to augment our own strategic transportation assets but also to do our part in contributing to the realization of a truly national intermodal transportation system. Thank you.
DAY 1: PLENARY SESSION

Intermodal Freight Transportation Report Card
Private Sector Perspective

Joanne Casey, *Intermodal Association of North America, Moderator*
Edward Emmett, *National Industrial Transportation League*
Steven Branscum, *Burlington Northern Santa Fe Railway*
Greg Steffire, *Rail Delivery Services, Inc.*

OVERVIEW

Joanne Casey

It is a privilege and a pleasure to moderate this private sector panel on behalf of TRB and I also thank the sponsors: the U.S. Department of Defense and the U.S. Department of Transportation. We have been charged with assessing the effectiveness of various intermodal freight transportation initiatives and I doubt that 3 days is enough time to accomplish all that—we have a challenge in front of us and I think you will find the panelists are willing and able to rise to that challenge.

Our participating industry executives bring a wealth of experience and knowledge. Most of you probably know these individuals already. I did a quick calculation—there are over 150 years of collective transportation experience sitting on this panel. I say that only to tell you that these folks know this industry, know these issues, and have lived and breathed it as I have for more than a decade in terms of the current structure that we are operating under and I use the Intermodal Surface Transportation Efficiency Act of 1991 as the benchmarking for that structure.

We are actively involved in the public-private partnership issues you will hear more about throughout this conference. Although progress is evident, many challenges remain and we want to address those as well. We are here to talk about the home runs, base hits, strikeouts, and any other kind of analogy you wish to use. It is the continuing evolution of our nation’s intermodal transportation system. I will not launch into specific issues, because I prefer that our speakers address them from their own modal and customer perspectives.

SHIPPER PERSPECTIVE

Edward Emmett

Ed Emmett is President and Chief Operating Officer of the National Industrial Transportation League, the nation’s oldest and largest shipper association. Between 1979 and 1987, Ed was Chairman of the Texas House Committee on Energy and member of the House Committee on Transportation, and he represented the state of Texas on numerous national committees relating to energy and transportation policy. He then moved to Washington, D.C., to serve as a commissioner at the then ICC (Interstate Commerce Commission). He currently serves on the Board of Advisors of the U.S. Merchant Marine Academy Center for Global Logistics in Transportation, the Business Advisory Committee of Northwestern University’s Transportation Center, and the Board of Directors of the Intermodal Transportation Institute at the University of Denver. He graduated from Rice University with a B.A. in economics and from the University of Texas at Austin with an M.A. in public affairs.

As the first speaker, I have an advantage because I get to raise all sorts of questions and then let the next four speakers answer them. One thing I love
to do in life is raise the edge of tents and roll in grenades. I will try to do a bit of that today.

Each of you has a report card, a technique that I find fascinating. I joined the National Industrial Transportation (NIT) League in 1992 and the entire discussion of intermodal transportation policy from the very beginning had minimal involvement of shippers. In other words, the people who actually owned the freight, the people for which the entire system actually works, the people without whom there would be no reason for any of the carriers to exist, for the most part, were not involved, were not invited to the early meetings.

Having said that, I will tell you that the U.S. Department of Transportation today is extremely interested in shipper viewpoints and for that I am pleased. They have gone out of their way to get shippers involved. If you look at the list of participants at this conference, there are not very many shippers here. Why not? Because shippers do not care. Perhaps that sounds harsh, but the truth is shipper viewpoints and for that I am pleased. They have a lot to offer—what if we change the weight laws and the configuration for trucks if the container or trailer they are hauling includes a rail component in the move? Would you be willing to allow heavier trucks if the railroads got to carry that container or that trailer for some period of time?

We still hear the safety argument; however, in my view, the safety argument does not make any sense against heavier trucks. Everybody says heavier trucks are unsafe. But, if you put 25 percent more trucks on the highway and they weigh 80,000 pounds, are you better off than if you have the same number of trucks but they weigh 25 percent more? The answer is you do not want to get hit by a truck. If you get hit, you do not care whether it weighs 80,000 pounds or 90,000 pounds—it does not matter to you. The idea is not to get hit in the first place. I think all those who fund and talk about truck safety and heavier trucks being bad need to think about what the really safe message is, and the message is to carry the freight more efficiently.

Now I would like to talk about ports. Ports have traditionally looked at the ocean carriers as their customers. That has got to change. Obviously, they have to be nice to the ocean carriers, but more and more they are going to have to look at the shippers as their customers. Even more so, as we end up with fewer and fewer railroads, we can see a time when the railroads become the dictating force as to which ports handle what kind of traffic. For example, if you are a railroad and you serve four ports on the East Coast and you have to invest heavily in intermodal facilities, are you going to invest heavily in all four ports, or are you going to consider putting all your effort in one port—hence making that the rail connection? Guess what? That is where the ship has to go if it is
going to make that rail connection. I think the railroads could actually be dictating to the ports what type of traffic they have.

The title of this conference is interesting. It is the Global Intermodal Freight Conference. We must find a way to reach out to our global partners and who are some of those other partners? We have one represented by Tim Rhein; however, we have got to find a way to get the foreign flag ocean carriers heavily involved in this process, because when we talk about global intermodalism, we have to find a way to engage the foreign flag carriers who are very critical partners. Certainly, you have got the airfreight component, but most of us are thinking ocean to rail to truck. If that is the case, it is disturbing to hear members of congress say, “Well now we can change the rules because the U.S. flag carriers have all been bought and these foreign guys, we’ve got to treat them differently.” No, we cannot and if we do, it is a critical mistake. We must treat the foreign flag ocean carriers as our partners, just as we do our domestic railroads and just as we do our domestic trucking companies, or we will be in a world of hurt in the very near future.

I also want to introduce the issue of new technology. Something is going to come along that is going to change everything we do here today and probably everything we do 10 years from now. Just as containerization has dramatically changed the intermodal business, there is something else out there that is going to change it again in the future. Unfortunately, I do not have a clue what it is—if I did, I would be off starting my initial public offering (IPO) and making a fortune. Despite not knowing what is going to trigger change in the future, whatever we put in place now has to be flexible enough to adjust to that unknown when it happens; otherwise, we will find ourselves locked into old technology when the new technology arrives. We cannot afford to let that happen.

We are already seeing the impact of e-commerce. If you want to really understand e-commerce, those of you who have teenagers or have grandkids who are teenagers or have access to teenagers, go see how the world in which they operate is run. They think nothing at all about getting on that computer and buying this and buying that and they use your credit card or mine to do it. Nevertheless, more and more is being done that way. It is changing the way we are doing business.

Let me give you one example of what I predict is going to happen. We talk a lot about rail-truck intermodal facilities. I think we are going to see more and more rail-air intermodal facilities. I see the day coming where, just like you have unit trains of coal running out of the Powder River Basin, you are going to see unit trains of containers running out of Los Angeles–Long Beach, out to the middle of nowhere where there is an air strip. It is going to go straight from the train to FedEx, United Parcel Service (UPS), all those final delivery systems because the one piece of the e-commerce that we do not appear to have a good handle on yet is the fulfillment of orders, and that is going to happen. There is no reason for those goods to be carried all the way into a major city, put in some warehouse that may be owned by Amazon or whoever, and then taken out of that warehouse and transferred somewhere else. They can go directly to one intermodal facility; it will be rail-air.

The exchanges will obviously shape the way we make decisions in intermodal transportation. What do I mean by an exchange? Well, at least twice a week somebody new comes in and says, “I have a new dot.com and it’s going to allow shippers to match up with carriers.” I say, “Oh, an exchange,” and they all say, “No, it’s not an exchange—we’re a value-added product.” I try to get them to explain what makes them different from an exchange or an auction site, and I have not gotten good answers yet. But, whatever we want to call those people, they are out there and more and more that is how business is going to be done. I do not know which ones will survive, which ones will be the good ones. But, those will dictate also the selection of carriers, and selecting carriers determines a lot about intermodalism.

Briefly, back to the global nature of this conference. The NIT League, which has always been a domestic organization, will soon launch the Global Shippers Network. You will be able to go on at no cost, click on the area of the world you want, and hit the icon; you can go find out who represents the shippers in that area. If you want to find out the regulations for a particular country and we have access to them, you can get that. All of that is going to be done. Why? Because today, shippers are truly global. That is why the title of this conference is about global intermodalism. More and more we find a decision made by J. C. Penney in Plano, Texas, has a ripple effect all the way over to Thailand where the sourcing occurs for whatever it is that is being bought. In fact, when a retailer signs up with Standard & Poors or some similar outfit, that has an effect that goes all the way back into Asia. What happens if suddenly we start sourcing more from Africa instead of Asia? That is going to have an effect on our intermodal system because then you are going to have all these containers coming from a different direction that you have not had in the past. Everything is going to be interrelated. These types of conferences are good and that is why I definitely wanted to be here.

In closing, let me say that I look forward to the day when we really do not have conferences on intermodalism. Instead, we have conferences on freight transportation and everybody just understands that is intermodal.
OCEAN CARRIER PERSPECTIVE

Timothy Rhein

Timothy Rhein is Chairman of American President Lines, Ltd. (APL). From 1995 to 1999, he was Chief Executive Officer and President of APL, Ltd. In his career at APL, he served as President and Chief Executive Officer of the company's domestic freight operation, APL Land Transport Services, which includes North America's most extensive doublestack container train network, a large intermodal marketing company, and an automotive logistics company. He also served as President and Chief Operating Officer of APL, which was one of the world's largest shipping lines providing ocean and intermodal container transportation services in Asia, the Americas, Europe, and the Middle East. Other key APL positions Mr. Rhein has held during his career include Senior Vice President of Marketing and Logistics, Vice President-North America, Vice President–Logistics and Vice President–Marketing. Before joining APL in 1967, Mr. Rhein was Captain in the Army Transportation Corps, where he served in Germany, Vietnam, and the United States. He was awarded the Bronze Star for his service in Vietnam and is a graduate of the University of Santa Clara; he has done graduate work at the College of William and Mary.

Intermodalism is a subject that our company and I personally have been very deeply involved in for more years than I care to admit. APL's history with intermodalism goes way, way back, even to the 1960s with the inauguration of overland common points—there probably are not too many here who even know what that is, so I will not go into it. It is old history.

In the 1970s, more innovation came out of our company, such as the liner trains and the interior point intermodal. In the 1980s, of course, the doublestack train was introduced by APL. The history is evident. And in the 1990s, we had the inauguration of the on-dock rail terminals. The one right down the street here in Los Angeles is the largest and finest and most sophisticated in the world. It allows three full doublestack trains to be simultaneously loaded and discharged, thereby eliminating a tremendous inefficiency in the supply chain—namely, the transfer from ocean terminal to the rail system.

Technically, all modes are intermodal. We have always acknowledged that. But, in our world, the carrier world, our primary concern is the connection with the railroad system. When we talk about intermodalism, that is where most of our focus is and you will find that many of my comments relate to that.

Our company is arguably the largest container-carrying company in the Pacific. We handle over one million 20-ft equivalent units (TEUs) per year in and out of the United States, 60 percent of which are what we call intermodal in that they use the U.S.–Canadian railroad systems. Using intermodalism, particularly in the eastern part of the country, saves 7 to 10 days in total transit. As any shipper will tell you, you can figure out what that is worth to you very quickly—just in terms of carrying cost. Intermodal is a time saver, but, as noted earlier, our biggest challenge is service reliability. We must respond to the needs of the shippers as we know them and recognize first and foremost that they are looking for a seamless process. They want to know what capacity we are going to have, where we are going to have it, what condition it is going to be in, and how we are going to keep them informed. The intermodal network is part of our network.

We expect strong growth in international trade, and if you look beneath the surface of what is fueling the American economy today in terms of consumption, you have to get beyond the IPOs and the Internet. It is the availability of cheap goods, primarily from Asia, that are being consumed in this country that is fueling our economy. That is where ocean shipping comes into play. It is the largest business in the world—roughly a $4.0 trillion business by container ship alone. The supply chain represents about 15 percent of that, give or take. In short, there is a huge amount of money that is spent globally on what we call global transportation, which includes intermodalism.

In terms of capacity, we are being asked to stay ahead of the market, stay ahead of the curve, and continue to invest in the hardware and software of this business. As you heard from the military, they would like us to provide the equipment. I don’t blame them—everybody else does. They want it to be clean with no holes. They want the network to provide service everywhere and at the same time—it has to be fast, frequent, and reliable.

At the same time, we are supposed to do this for next to nothing, and, in reality, we are one of the cheapest bargains in the world. Our service represents less than 2 percent on the average of the retail value of the goods that we carry. It is important to note that we do carry retail goods. We are not carrying coal or grain or lumber or automobiles. We carry the stuff you find at Target, Wal-Mart, and Safeway.

Our customers, of course, are interested in safety and the environment—we all are. But they also view ship accidents as a negative and derailing as a negative. This is an area where we have some synergy with the railroads. We do not view either one as an act of God, although one could argue that a storm in the North Atlantic that knocks 10 containers off a ship could be—but nonetheless, we are looking at it as something we can prevent.

We are also being asked to reduce pollution, particularly on the West Coast of the United States with the dis-
charge of ballast. There is also a call to reduce or eliminate congestion (much of it blamed on trucks) on the highways of the Los Angeles basin—our response has been to eliminate thousands and thousands of truck moves by loading trains on dock. In our view, more and more trucks on the Interstate highway system is not the proper use of the Interstate highway system. Freight should move across this country on trains—not on single or double-driver trucks going 2,000 mi to deliver a load. A lot of it happens, and a lot of it happens because of the service reliability issue.

Another part of the seamless process is information and we could spend a lot of time on that. Clearly, we need to simplify the information exchange. We have government agencies that are causing a roadblock at the ports—this includes Customs, the Department of Agriculture, and in some cases the Department of Commerce. We have to get to a point in our sophistication where we are guaranteeing delivery, much as UPS and FedEx do. You will not find anybody in our industry willing to do that and the reason is that we do not control the whole process, and even when we do, we do not do it as well as we should. We need to capture information once and early in the process. We have the capability of capturing that. For example, we have 30 offices in China. You will not find anybody in the United States who has 30 offices in China. This gives us the capability to capture import information at the earliest possible step in the process. But, I have to tell you, we have to enter it, and reenter it, and rework it many, many times before it is finally in the hands of the importer on the shelf, and that is because our systems and our intermodal modes do not connect well.

Our customers do not want to carry inventory. They want to eliminate the paper and do Internet to Internet or computer to computer. They want freight to arrive just in time. They do not want to rehandle it and they do not want it misrouted. A lot of our corporate customers really want to stick to their core competencies. If they make shoes, that is what they want to do. They want to outsource a lot of the transportation and logistics functions and there are third-party providers and now fourth-party providers, and there are a lot of transportation companies with assets that are doing logistical work. We are one of them.

I have talked a lot about what we think the shippers want and need. The carriers also want to reduce costs and improve productivity. There have been tremendous innovations in this business. We now are building 8,000-TEU ships that are too big for the Panama Canal. That is another innovation of our company and it is now the standard in the industry. We are building intermodal on-dock rail terminals that I told you about—the one down the road here is 260 acres—the largest in the western world. Rates have been reduced by over 100 percent in the past 15 years because of productivity and technology and efficiency. But the weakness on data, including computer transfer, is because we have no standardized systems and again, as I mentioned before, we use different codes and different connectivity.

Standardizing the cargo movement with the railroad movement with the truck movement, and interchange agreements and even liabilities among the modes, remains undone and is a critical need for the future if we are really going to build an intermodal system in this country for the 21st century.

We also need to eliminate the inappropriate tax regime. We are being threatened with a harbor tax for dredging. In our opinion, that is an improper application of taxation against the carrier. This is a public policy issue and an infrastructure issue, and the dredging of the harbors serves everybody—not just the carriers. If you witness the size of international freight that comes and goes from the United States, again safety and environmental issues speak for themselves and we want to link the modes. Frankly, the carriers, like APL, that have these 30 offices in these foreign countries that are manufacturing the goods want to be able to control and document the entire move to the consignee’s doorstep, or actually to the shelf in his store if we can. That is the direction in which we are going.

The community has needs as well. Reducing congestion, saving fuel, reducing emissions—we understand this. We also want to recognize that reducing the wear and tear on the roads, including the Interstate highway system, is a priority. Therefore, I am not sure I agree with my cohort Ed Emmett on allowing heavier trucks. I would rather see more of this freight move on railroads and less on the highway.

Furthermore, infrastructure needs to be developed, but not just for highways. Most of the comments that I have heard today talk about development of highway systems and bridges and expansions of the Interstate highway system. The connections we have here in Los Angeles are a good example.

Improved economics attracts business. The ability to have improved economics for a shipper or a customer requires an efficient operation and that is why communities have an interest in fixing and improving the existing system, again supporting business needs, which in turn provides new sources of taxation.

Let me talk about successes that we have seen over the past 10 years. We have already talked about on-dock rail. This is a tremendous opportunity—APL ships 60 percent of its freight intermodally and about half of that goes through the port of Los Angeles. The tens of thousands of truck moves that are not taking place today that are not congesting your highways in Los Angeles, that are not threatening accidents, that are not emitting the fumes that gave Los Angeles its reputation for smog—on-dock rail is a tremendous technological change. The Alameda Corridor—I never thought it would
succeed and I am happy I was wrong—it is a tremendous example of a joint effort among the federal government, the state government, and the ports of Long Beach and Los Angeles. That is where we see the future—in connections like that. Eliminating trucks, eliminating congestion, and cutting the cost out of the intermodal process, and, of course, information technology. I also want to note the tremendous success we have had in cooperation with the U.S. military—with military traffic management command, the military sealift command, and the U.S. transportation command.

I would like to also mention the need for establishing some successes in the intermodal connections, which for APL is the ocean-rail connection, that I do not believe has a high enough priority with this group. We need federal funds for improving intermodal access. We also need innovative financing, low-interest loans, or tax incentives to stimulate intermodal investment.

Other successes include the deregulation of the shipping industry, a subject we could talk about for hours. Bear in mind that we are now signing individual confidential contracts that discriminate between shippers. That is a tremendous change from the Shipping Act of 1984, where everything was controlled by cartels and there was no negotiation whatsoever. We did not even have service contracts until 1984.

There are some new inland terminals the railroads have built, and I take my hat off to them for that. That is good and we need more. Productivity is up and, as I mentioned earlier, we now have 8,000-TEU ships. Thirty years go, the biggest ship was 800 TEUs. Now ships are ten times bigger. At the same time, the 747 is still the 747, and a railcar is still a railcar.

In summary, the intermodal product is still a good one. We market it more than anybody. We work very hard and spend a lot of money and do a lot of unnecessary things to make it look good because it is our livelihood. But there are failures. The Department of Transportation (DOT) structure—I read the report from 1994—one of the strong recommendations was to eliminate the modal strength of DOT and create an office of intermodalism. That has not really happened—the office is there, but with all due respect to Mr. Van Beek and his staff, it has been invisible. What happened to the original recommendation? Regulatory paperwork still clogs and slows the system. We do not tie in Customs or Agriculture or Commerce or anybody else. We have not achieved any U.S. labor synergies. We have strikes with a contract where there are no strikes, we have resistance to automation on the waterfront and modernization, and we work only 4 hours in the morning and 4 hours in the afternoon and 4 hours at night. The rest of the world operates on 24/7. We still have railroad crews changing crew in the middle of nowhere because we achieve a certain number of miles. These are just a few examples.

Finally, the failures—in my opinion, the railroads are still inadequate. They are not building the network for the future. They only react. They invest billions of dollars in buying each other, which may be a good investment, but that puts tremendous pressure on them with the heavy debt load and shareholders who want to see returns quickly—not 10 years from now. So, I am somewhat sympathetic to their dilemma. Intermodal is really not a high priority for most railroads. I will take my hat off to Burlington Northern Santa Fe, they appear to prioritize it more than most. But, nonetheless, most railroads treat it like added traffic. The difference is that intermodal is high value, high reliability, requiring cargo handling, and the railroads must differentiate intermodal freight from coal, grain, and chemicals. The requirements of the business are entirely different. The value of the business is entirely different. If we are going to succeed with intermodalism, that connection has to be made. The leadership can come from this group and that is why I am very please to have had the opportunity to address you today. Thank you very much.

RAIL PERSPECTIVE

Steven Branscum

Steven Branscum is Group Vice President of the Consumer Product Business Unit of Burlington Northern Santa Fe Railway. He began his career in 1980 with the former Santa Fe Railway in the industrial engineering department, where he held various positions in Texas and Kansas. In 1989, Steve was named General Director of the Intermodal Planning and Control Unit in Chicago, where the intermodal business unit was actually formed and he was later appointed to the position of Assistant Vice President of Intermodal Hub Operations. He received his B.A. in industrial engineering from New Mexico State University and completed graduate studies at the University of Missouri and Washburn University in Topeka, Kansas.

I am pleased to address this group about intermodalism from the rail perspective. A couple things—I think I disagree with most of the issues raised by Ed Emmett. I agree with most of the issues that Tim Rhein raised, with one or two exceptions. I will address most of these issues in my formal remarks and, if not there, during the question and answer period. I will try to be a little more upbeat about the intermodal industry, particularly the rail side of the intermodal industry because I think there are some real success stories and some real positives that need to be presented.

From the rail side, I think the intermodal business is one of the rail industry’s brightest spots. In recent years, it has
really been the growth machine for the industry and I think it will be even more so in years to come. It has already reached a very substantial level today. In 1999, intermodally, we moved over nine million loads of freight in the continental United States. That is one load every 3.5 s—when a truck or a trailer is taken off the highway and moved in line-haul service over the rail system. With that kind of volume out there and the growth that has gotten us to that point, shippers are clearly demonstrating momentum toward intermodal for a multitude of reasons.

Why are we seeing this growth? Why is intermodal the growth engine of the rail industry? Why has it grown to the level it is today? The cost differential between an intermodal move and a pure truck move is significant and is one of the major reasons shippers move more and more toward intermodal. They see true value in the intermodal product. Today, the difference in highway rates and intermodal rates is somewhere between 15 and 30 percent. There are a number of factors that determine what the difference really is. The single largest factor is probably the length of haul and, in general, the longer the length of haul, the greater the savings. As far as service reliability, customers want consistent service and times that are competitive with trucks. As Ed pointed out, service is not what it needs to be. I think he was speaking more to the carload side of the business than intermodal, but I realize there have been intermodal problems as well.

Let me give you a few service facts about the intermodal service on the Burlington Northern Santa Fe (BNSF). In 1999, we handled over three million intermodal loads—a third of those were handled in the United States and on all those loads we averaged 90 percent on time. If you dissect those three million loads into some of the different market segments that we deal with, particularly the service-sensitive end of the market, the less-than-truckload (LTL) shippers and the partial shippers, we were over 95 percent on time with these shippers during 1999. If you take that segmentation even a step further, for UPS, our largest customer in 1999, we handled almost 400,000 trailer loads of freight and we were over 99 percent on time with those loads.

Let me offer a couple examples that speak to the service reliability and consistency. In the middle of last year, we introduced a product called Ice Cold Express, which is an intermodal product—it is a RoadRailer service that is targeted to perishable or temperature-controlled freight. In the past 20 weeks, we have been ahead of schedule or on time, moving over 2,000 loads of perishable, temperature-controlled freight 100 percent on time or better. A recent press release highlighted the fact that BNSF recently received an award from Anheuser-Busch for moving their loads for over 1 year service failure-free.

To give you an idea about the competitiveness of intermodal schedules relative to truck, the length of the schedules is not driving those high on-time percentages. Chicago–Los Angeles is the key intermodal lane on the BNSF, the highest-volume lane. In that lane, we offer a third-morning, a fourth-morning, and a fifth-morning product. We are very reliable with those products. In a shorter-haul lane, like the Chicago–Dallas lane, we offer a second-morning and third-morning product. We are even handling a fair amount of airfreight in our intermodal world. One of the speakers offered a quote by Fred Smith saying that the future of airfreight is on the ground. I think that is true and we are handling a larger and larger amount of freight that is sold as an air product but moving not only on the ground but on the rail.

I also want to mention some of the other benefits to intermodal. Intermodal is environmentally more friendly than truck. It consumes less fuel, produces less pollution, and reduces highway congestion and wear and tear on the highway infrastructure. As far as capacity, there is a big benefit to intermodal that I do not think gets a lot of attention—specifically, that is the ability to move large volumes of freight in any given time. When the 8,000-TEU megaships call on ports and discharge thousands of units at a time, there is absolutely no way that freight could ever be handled exclusively by truck. It is impossible to deploy the number of drivers and tractors to do that. It has to move by rail. Similarly, again responding to comments from a previous speaker, when there is a need to deploy large volumes of freight for the military in short order, that type of movement can be handled only in a rail environment. These are but a few of the benefits; however, the bottom line is intermodal on rail is much more flexible than traditional rail and it provides a much better value than a pure highway move.

There has been steady growth in intermodal in the continental United States over the past 10 years—about a 4.5 percent compound annual growth over a 10-year period. Another factor on a longer time frame than this is that for 17 of the past 18 years, the intermodal industry has set new volume records. The only year that there was a decline in volume was 1994–1995. With that one exception, we have had nearly 18 years of record-breaking volumes.

What is driving the growth? There are many factors that drive the growth, but one of them is improved intermodal networks. I know there is a lot of controversy surrounding rail mergers and the problems that they cause, but they do, in fact, create better intermodal networks, where more single-line routes can be offered and more truck-competitive services provided. With respect to shippers, Tim mentioned the demand, that retailers and others in need of transportation services are looking for lower-cost alternatives in transportation. They are continually looking for better service, or at least consistent, reliable service at a lower cost. That is driving them toward intermodal. On top of that natural drive that exists, there are driver shortages in the trucking industry...
and rising fuel costs that are adding to the high demand for intermodal services. Last, but certainly not least, as our logistics business matures and the transportation infrastructure in the United States matures, there is a rationalization of freight to the most efficient mode. This is driving more and more freight to an intermodal-type move that involves ocean, rail, and truck.

What are the keys to sustaining the growth that we have seen and actually improving upon it and dealing with some of the service issues that do exist? Well, service is a given. Service has to be there. It has to be consistent and reliable. Not only does it have to be consistent and reliable, but I think it has to be provided in a more differentiated manner. I think the key players in intermodal transportation—the ocean carriers, the railroads, the trucks—have to work better together to customize services for particular segments of business. For instance, airfreight moving on a ground environment. They not only have to customize services for segments of business, but in many cases, for individual shippers.

With respect to supply-chain integration, historically railroads have been involved only in moving raw materials to manufacturing plants and moving products to distribution facilities. However, as the product becomes more reliable and there is more and more demand for lower-cost alternatives, shippers are using intermodal services for moving merchandise direct to store, vendor direct to store. Railroads are getting more and more involved in the supply chain. All the major forces in the intermodal world—the ocean carriers, the trucking community, the rail community—need to work together in a more cooperative manner to make intermodal moves and mode integration more transparent to shippers.

Thus far I have talked at an industry level and I would like to talk a little bit more specifically about BNSF and how it fits into the intermodal world. Last year, we moved 3.2 million intermodal loads, distributed across really three market segments. We moved about 900,000—almost 1 million—loads of very service-sensitive freight for the LTL and parcel industry. We moved slightly more than one million loads of full truckload freight, and we moved about 1.3 million loads of international freight, import-export freight, in conjunction with our ocean carrier partners. We are the only railroad that really provides differentiated services for these different market segments and we market to these four diverse market segments: (a) the LTL parcel; (b) the asset-based truckload carriers like J.B. Hunt, Schneider, Swift et al., and also intermodal marketing companies or brokers that primarily get involved in the transportation of full truckload dry product; and (c) the international steamship lines or ocean carriers. As you consider these different market segments and how I have described them, with the LTL and the full truckload, we are dealing in a wholesale environment. We are dealing with other carriers.

Ed made the point that shippers were not involved a lot in intermodal transportation. He also made the point that they do not want to be. They just want the service to be there and I understand that completely. However, I think it is critical that they become more involved in intermodal transportation, to ensure on the one hand that we, the carriers, have a clear understanding of what their needs are and, on the other hand, that we are able to educate them about the considerable capabilities of the intermodal network and the benefits of using intermodal. I think the more they become involved, particularly in the buying decisions they make, the more and more they will gravitate toward an intermodal product.

Tim mentioned investments made by the rail industry and we have certainly been the leader in that regard. Since 1996, BNSF has spent between $2.2 billion and $2.5 billion a year to partially maintain, but more importantly to expand, the infrastructure in our rail network and to significantly increase the number of assets we deploy for all types of rail services, including intermodal. For example, BNSF spent $265 million in the past 4 years on intermodal facilities, including building five new intermodal facilities in the past 7 years—one in the Dallas–Fort Worth area, one in Chicago, two in southern California (San Bernadino and Los Angeles), and one currently under construction in northern California (Stockton). BNSF is not alone in investing in intermodal. The Norfolk Southern has recently built, or is in the process of building facilities in Atlanta, Bethlehem, and Harrisburg. The CSX has built or is in the process of building new facilities in Atlanta and Chicago. There is considerable investment in the intermodal product by the rail community.

There is also a fair amount of joint public-private sector funding of intermodal projects, the most significant being the Alameda corridor. There are several metropolitan planning organizations (MPOs) making significant strides toward an improved intermodal infrastructure. One is a joint public-private project in Chicago that happened to affect one of our intermodal facilities, the largest intermodal facility we have in the Chicago area. The primary road structure that accesses that facility is Kedsey Avenue. Historically, it has been a very busy thoroughfare because of the truck traffic in and out of our intermodal facility and also the normal ground transportation of the passenger vehicles. It was a very congested street to get down. A project was developed and funded to include street widening, addition of turning lanes, and installation of stoplights at the entrance to our intermodal facility, all of which have resulted in improved traffic throughput, both for automobiles and for the trucks entering and exiting our facility. These investments have been made for two principal reasons: to improve service levels and to build infrastructure that will enable growth of the intermodal product.
How have we done? Examples of volume improvements and growth of intermodal product on the BNSF system include the following key lanes: Chicago to California is up 49 percent in the past 4 years; Texas to California is up 56 percent; Chicago to Texas is up 54 percent. If you take all lanes together, it represents 52 percent growth in a 4-year period.

While experiencing this significant growth, we have also substantially improved on-time service. In the 3 years from 1997 to 1999, we improved the service from slightly below 80 percent on-time performance to slightly over 90 percent in 1999. Another fun fact about service reliability—one of the things UPS has done for the rail industry—is to really energize them to do new things, meet new thresholds in terms of service. They have challenged all the railroads that handle their freight to have extended periods of time or streaks of handling freight for them with no service failures. In 1995, Conrail had a streak of 61 days without a service failure for UPS and that record holds today. During that 61 days, they moved 35,000 units. As I stand here today, BNSF is on our 96th day of failure-free service for UPS. We have moved over 105,000 trailers in that 96 days and that represents 120 million packages that we have helped UPS provide to their customers service failure-free. I think that is evidence that intermodal service can and does work.

I would like to wrap up and talk about how we can improve upon the successes I have described. There is plenty of room for improvement. There needs to be improved mode integration between the major entities that provide these services—the ocean carriers, rail carriers, and truck carriers. Often, it is simple things like getting all the carriers that get involved in these services to utilize electronic data interchange. We need to continue to invest capacity in the infrastructure, but, more importantly, I think we need to look at technology, work simplification, and process improvements, because there truly are great opportunities for improving the product; we also need to look at getting more throughput—moving more freight without continued investment in the infrastructure, although ultimately that has to happen as well. There also needs to be continued coordination between the private and public sector for more projects like the Alameda Corridor and the CATS project that is going on in the Chicago area.

In closing, I think the state of the intermodal freight industry is solid. The growth I described for you and the successes in service have been driven much more by the private than by the public sector. But I think that is the way it is supposed to be. However, I think the public sector does play an important role and I think it has provided a positive role in helping intermodalism move in the right direction. The future of intermodal is bright and I expect to see continued strong growth. Thank you.

**Motor Carrier Perspective**

**Greg Steflre**

Greg Steflre, Esq., is nationally known as a transportation attorney active in both legal and freight transportation circles. In private practice in LaPalma, California, Greg represents clients in connection with deregulated transportation issues—an environment we have all learned to play in since the 1980s. He also handles multimodal transportation and business and legal aspects in the use of independent contractor fleets by transportation companies—something that is a growing concern and interest to many of us in this industry. Greg is a founding member of the Board of Directors of the Intermodal Association of North America and he is currently a member of the American Trucking Associations Executive Committee. He has served as past Chairman of the Intermodal Conference of the American Trucking Associations. He is a member of the Good Movements Advisory Committee of Southern California Association of Governments and was a member of TRB’s policy committee that studied and reported on impediments and opportunities in intermodal marine container transportation. He frequently lectures at colleges and universities, speaks at freight conferences, and testifies before congress and the California legislature on multimodal issues. He also has written numerous articles and was one of the lead witnesses in the overweight container hearings that were held in Congress.

My interest here today is to tell you that freight transportation is all about execution, but you cannot do it without capacity. Nothing that has been said today has, in any way, given you the clear and absolute statement that we are in deep trouble on capacity in this country. We are not going to keep the economy moving without greater capacity and all the words and all the wonderful thoughts and all the government acts are not going to do that. In a trucker’s view, that means drivers. Although Ed Emmett said every move is, in a sense, an intermodal move, the reality of life is that every move involves drivers. One way or the other, if you got it, a driver brought it. We cannot meld any more drivers. All Jim and I do is trade drivers together. We are not going to get them any more with a 4 percent unemployment rate. It is not going to happen. How do we solve the problem? Real simple—we have to develop productivity. Are we talking about how we can do that? This is tough productivity.

In fall 1998, the intermodal rail system in this country almost froze. There are some who argue that, in fact,
it did freeze, but the reality is we reached capacity in fall 1998. The over-the-road trucks barely, and I mean barely, were able to hold it together. Even though they moved every extra load they could possibly move, we still left a ton of freight here on the West Coast. If we ran out of capacity in 1998, how do we square that with the projections by the Asia–Pacific Economic Cooperative (APEC), which suggests that, by 2007, we will nearly double the number of truckloads moving out of the ports of Los Angeles and Long Beach on a weekly basis? Today, we move approximately 125,000 truckloads out of the ports of Los Angeles and Long Beach on a weekly basis. If you take the APEC numbers, which are projections based on a huge sustained economic international growth curve, we are talking about 200,000 to 225,000 loads. Folks, we do not have the drivers to move them. We do not have the physicality to move them. More importantly, even if we had the physicality, we do not have the drivers. We can always buy trucks. We can always buy track and trace. We cannot buy drivers. We have to increase productivity. Ports can no longer afford to have only a 6-hour day, 5 days a week open hours to landside access. We have to move freight on a 24-hour a day, 7-day a week (24/7) basis and neither ports, nor any other terminal, nor any customer can afford to say our receiving hours are 4 hours, 3 days per week. It is not going to happen because their freight will end up sitting.

What do we as a group have to do? What does TRB have to think about? Well, I can guarantee you that, from my perspective, TRB must concentrate and the government must concentrate on trying to figure out how to take the public sector and get them to cooperate on defining how to resolve productivity issues. Those are hard issues. The opinion of many in the market is that we are at 75 percent of total land transportation capacity in this country. The last 25 percent is the hardest 25 percent, because invariably that 25 percent is dramatically, and in many cases negatively, affected by labor agreements that cannot be easily changed or worked around. What does that tell us? How do we meet and how do we sustain this economic growth? I do not know—somebody smarter than I has to figure it out.

We say capital investment is important. BNSF made a huge capital investment on triple tracking and increasing system speed. How did the public market react? They knocked the stock down to the floor because nobody likes capital investment in freight transportation. When you look at the transportation index on the public boards today, and it is not because the companies are not good—they’re great—it is because nobody likes capital investment. Then who is going to make the capital investment? Who is going to offer incentives to private business—businesses run based on how their stock runs—to make capital investments that are necessary to expand capacity? I do not know, but my best guess at the moment is that it is going to have to be the government.

Ultimately, productivity is the only answer. We have to find a way to increase productivity and I have just a couple simple suggestions that may or may not ever be realized. First, every core intermodal terminal in this country that pushes freight through must work on a 24/7 basis. We can no longer afford to have limited hours of work. There must be a process, and the government must be actively involved in this at a federal, state, and local level, of giving shippers and receivers incentives to ship and receive in off hours. There has to be a way to do that. They must be incited. I am not sure what that is—maybe a negative incentive. Maybe it is an environmental issue, but they have to do it. We have to take high-volume intermodal terminals and we have to get them out of this crushed urban environment. You look around here—look at the rail yards in southern California. Try to figure out how you get from here to there.

We have heard about the Alameda Corridor—let me quickly give you my bad news about the Alameda Corridor. The Alameda Corridor was perceived originally and conceived to take all rail traffic and all truck traffic and put it in a single, non-grade-interrupted run from here to Los Angeles—right? What was the first thing that was dropped out of the Alameda Corridor? Trucks. Trucks were knocked out of the Alameda Corridor. Now we are moving trains on it. I am not impressed by that. If my tax dollars went into $1.4 billion or $1.8 billion of asphalt moving, you are not going to see any change in the Harbor Freeway or the 710 Long Beach Freeway because of that project. To me, it is a terrible waste of money. That is just my opinion, for what it is worth. We have to find some way to knock off the bunching of freight shipments and find some way to reduce the amount of unloaded past miles. It is all about data—sharing freight among the parties and they just will not do it voluntarily. Thank you.

**INTERMODAL SYSTEM PLANNING PERSPECTIVE**

**James Hertwig**

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I was asked to provide an assessment of how effectively public agencies have responded to policy, planning, and research and development challenges within the private sector and how freight moves both domestically and internationally. I am not going to take the time to talk about some of the problems that have already been discussed today and I am not going to talk about trucks. I am going to talk about a success story in which industry, government, and academia came together to provide solutions.

In summer 1998, I was asked to participate on the Florida freight stakeholders task force, and in particular to be a member of the executive committee and chair the highway subcommittee. The Florida freight stakeholders task force was a result of the governor’s transportation intermodal summit. The task force was to be a private and public partnership that would address the needs of Florida’s intermodal freight transportation. The task force was organized into five subcommittees: rail terminals, seaports, truck terminals, and airports, with the fifth committee covering freight transportation policy. The five subcommittee and task force chairmen formed an executive committee to manage the work of the task force. Our objectives were quite simple:

1. Identify, prioritize, and recommend freight transportation projects for fast-track funding.
2. Develop recommendations for the 2020 Florida statewide intermodal system plan that will address Florida’s freight transportation interests.

First, it was necessary to establish geographic boundaries and criteria for project definition. This led to the development of the Florida strategic freight network. This network includes the Florida Interstate highway system; primary freight facilities including seaports, railroads, intermodal terminals, airport facilities, and highway freight facilities; and road connections between the Florida Interstate highway system and all the freight terminals.

The second step in the process was to develop a prioritization methodology to evaluate freight projects for freight selection. To be eligible for consideration, projects had to be located on this strategic freight network. They had to facilitate freight movement and have a public benefit-cost ratio greater than one.

Once the project became eligible, it was then prioritized with other projects using a scoring system that took into account the following criteria: benefit-cost ratio, stage of development and environmental compliance, time to complete the project, current level of service, safety rating, neighborhood impact of the project, and finally current freight volume.

The Florida legislature appropriated $10 million to fund a pilot fast-track program for freight projects recommended by the freight task force. To identify these projects, the Florida DOT identified freight projects currently existing in the public sector work programs. In addition, the task force solicited applications for fast-track funding from the task force members, MPOs, ports, and airports. The response included 17 projects totaling $101 million. The task force recommended six projects for the limited $10 million in resources. All these projects have received funding and are moving forward for completion. In addition, five projects representing $72 million were considered highly worthy and were submitted to the newly established Florida DOT fast-track funding program.

To meet the second part of our objective, the task force recommended the following for inclusion in the 2020 Florida statewide intermodal system plan:

- Establish the Florida strategic freight network as part of the intermodal systems plan;
- Adopt the Florida freight stakeholders task force process for prioritization and selection of future freight projects;
- Establish a Florida freight advisory council within the Florida DOT;
- Establish freight mobility committees in the largest MPOs;
- Create a Florida freight project investment bank to fund freight projects; and
- Fund research, planning, and productivity studies.

I am happy to report that all these recommendations are moving forward with the necessary legislation. In conclusion, the blending of private sector and public sector professionals within the task force created an effective team for dealing with the freight transportation issues. I learned valuable information about the MPO process and have a better understanding of some of the inherent political and planning constraints that our public sector representatives must overcome, such as “freight doesn’t vote.”

I leave you with this question: “If Internet companies have forced private industry to begin thinking, talking, and now planning, in dog years (7 human years to a single dog year), when will the government recognize that current planning processes will some day have to further change?” Thank you.
I have been a professional management consultant for 33 years. For the first 10 years or so, I dealt largely with the transportation industry—you and your predecessors, some of whom are long retired or more. I have dealt with the U.S. Department of Transportation, the U.S. Department of Defense, the Maritime Administration, and the Urban Mass Transportation Administration and a whole lot of other agencies, some of which are not even around anymore. I have been to a lot of conferences like this and I have listened to a lot of panels like we just heard this afternoon.

After about 10 years, I got into physical distribution—that is what it was called back then—and then into supply chain. Now I spend much of my time trying to think about what the future is going to look like 5 or 10 years out, or even 20 or 30 years out as the case may be. I think the exchange I heard and the panelists I heard today represent an anachronism. I believe the kind of attitudes that have us dealing with individual modes as if they were entities unto themselves are gone. Those kinds of things simply are not going to be tolerated in the economy of the 21st century. Anybody who has their feet solidly planted in 20th century solutions for a 21st century problem is going to miss the mark badly. That is going to affect you personally, your careers, your government, or whatever it is you are dealing with.

I am going to share with you why I think the 21st century is going to be so dramatically different, and at the end of this I hope you will think and some of you will rethink your positions that are hardened in issues that are 20 or 30 years old. The conversations I have heard could have taken place 25 years ago. I am not sure we have made a whole lot of progress based on what I have just heard. I think you need to wake up as a group and as a conference. I think you need to wake up and smell the coffee brewing, understand how the 21st century is going to be so dramatically different from anything you have ever known, that the solutions you are stuck with as you exit the 20th century have got to be blown up. We need to rethink it with a clean sheet of paper, because the 21st century is going to be a clean sheet of paper.

The 21st century is going to be different from anything we have ever known. This is not just a continuation of a line that started in 1900. We are actually going through a major transition and there is plenty of evidence of that.
First of all, everything is global. There is no such thing as an individual country organization or a country company or a continent or a theater organization. There are some niche players, small, but if you are a player, you are going to be global in whatever business you are in—whether it is telecom or airlines or freight, whether it is retailing or wholesaling or telecommunications, or chemicals, or pharmaceuticals, or food. You are fundamentally going to be global. That means you have got to operate on a global scale for everything you do. One of the major impacts of global is that we no longer will have this constraint of regional country boundaries and suddenly all sorts of doors open. As we begin to look at the optimization of businesses on a global basis instead of in a lot of little countries, they will get far more efficient. They will be far more powerful. They will be far better. They will be global. If you are not global, you are gone.

The second thing is, if you read the front page of the Wall Street Journal on any day, you will quickly find there are mergers and acquisitions and alliances taking place in almost every industry. They are consolidating the players in every industry so there are typically a handful, often only three, of significant global players remaining standing at the end of the merger wave. Those three will be very powerful, very strong, very smart; if they get through their transition problems, which, by the way, are very significant in many industries, they will be very powerful.

Considerable evidence says there is room for about three large players in any business with global market shares above 10 percent. Then there is room for a series of small niche players in the 1 to 2 to 3 percent global market share areas. To have a 20 percent market share in the U.S. market and a 4 percent global market share probably leaves you fatally vulnerable. So, think about that as you go forward. This is not just your industry—these are your customers. These are the folks who are doing all the things we just talked about. That is why Wal-Mart is in Europe. That is why Wal-Mart is here.

All of this is fairly predictable from what you have seen. The wave I am now going to talk about was not as predictable. How many of you have been in the business for more than 10 years? Everybody? Okay. Remember the days before we had fax machines and used teletype. Remember the days before we had voice mail, before we had e-mail, before you carried around a laptop computer, before all of these presentations were in PowerPoint? Two years ago that would not have existed. Think about all of that technology, before cell phones. Think of all that technology. Has it changed the way you do business? That is only about one-tenth of the technology that already exists and is in a pipeline coming at you—one-tenth. Ten times that change will occur in the next 10 years. The change is not just going to be doing the same thing we did before a little faster or a little easier or a little more electronically. It will be doing different things that will allow us to solve problems that we could not solve before. That is what the technology is going to do. Good companies are going to apply that attention in the places where it adds the most value.

Fundamentally, the most dysfunctional processes we have are government, medical delivery systems, supply chains, and incorporated in supply chains is a subelement called transportation. In a subelement called transportation is something you are dealing with today called intermodal. It is a dysfunctional process. The transportation system of the world is reasonably dysfunctional. Its roots come from 17th century sailing ships. Its acronyms are about how we pass data and handle cargoes and so forth. Its operating infrastructure was built in the 1940s and 1950s. In some cases, it is not strongly dissimilar from what we used in World War II. Do you really think that is going to be the cutting edge in the 21st century in a new environment? Maybe not, when technology starts getting applied to it all. The supply chain is a terribly dysfunctional process, something most of you already know.

Fundamentally, each entity in the supply chain appears to operate as if it is all by itself and deals with everybody else at arm’s length—whether it is upstream or downstream, whether it is carrier, whether it is mode, or whether it is a supplier or manufacturer or distributor or retailer. Everybody operates in his own environment and deals with everybody else at arm’s length. As a result, we have a massively dysfunctional process that moves stuff in many cases two, three, or four times as many time miles as it would really take if we knew where it started and where it was ending up. We tend to buy and sell things back and forth—for no particular reason, in many cases—because we do not know where it is going. We certainly do not plan and manage things like transportation movements and infrastructure particularly well—today’s notice for supplying my trucks and vessels for tomorrow. We have inventory that is a year’s worth in that pipeline from mother earth where all raw materials come from, to the final consumer who is the only source of revenue. There is a year’s worth of inventory. We handle things two and three times as many times as we need to. I have a client for the box of crackers that was handled 38 times between the time it was manufactured and the time it reached the consumer.

Automobiles are handled and rehandled dozens of times before they reach the ultimate consumer. All of that is very expensive. It is very dysfunctional and the main issue is, it is not operated as if it is one process from mother earth to the final consumer. It is operated as a series of disjointed processes by individual companies, individual carriers, individual modes, and so forth.

Think about the technology statement I made a minute ago. If I have ten times more technology than I have seen in the past few years, and I start applying it, where is it going to get applied? It is going to get applied to using...
that technology to fix the horribly dysfunctional way that we operate that supply chain. It will not operate as a series of dysfunctional, isolated decisions along the way or as one supply chain from mother earth to the ultimate consumer. Has anybody ever reengineered something when you took out the barriers and began to break it down? It will operate 50 percent better or more than it does today.

The money in the pipeline—everybody takes 30 to 60 to 90 days to pay their bills so it is not unusual or unexpected that we have a year’s worth of money tied up. Freeing up all that cash has some interesting implications for investment payoffs.

But perhaps the worst thing is that the supply chain, by and large, delivers horrible service. Railroads and truckers, by the way, often cannot tell you what day something is going to arrive, and in some cases not what week. It certainly is not consistent from time to time, but those are tactical things and my issue is much broader than that.

How many of you in this room are consumers? When was the last time you were so pleased with a consumer transaction, so pleased with an event that you took the trouble to write an e-mail or make a phone call or write a letter to the company involved to tell them how wonderful a job they had done? This is, by the way, not to compliment an employee who solved a problem, but to say the processes were so smooth and I just love it—I really am excited about your company. Who has written a letter like that or anything similar? This is an aggressive group, but I only see a few hands.

What is the other side? How many of you have written a letter or made a call to tell a company how bad the service has been? Anybody here? We have about 10 times as many hands. I have done this with audiences for years. It always comes out that way. Fundamentally, nobody is delivering memorable service; in fact, in many cases we are delivering bad service. We will come back and talk about the implications of that later.

The supply chain is too expensive, takes too long, costs too much, has too much inventory and has too much handling in it, has more money in it than it needs to have for receivables and inventories, and delivers bad service. Do you think the technology and brains might get some focus on this subject? I challenge you that it will and it is going to shake the things you are talking about to their roots as that happens.

Let’s talk about how it is going to be different. Instead of arm’s length, stand-alone entities in the future, we are going to have relationships with other players up and down the stream. Long-term, solid relationships that, like good marriages, will handle good times and bad times and will overcome problems and solve them and work together over a long period of time. In its linear form, there will be an information conduit from the ultimate consumer, which generates all revenue, all the way upstream to mother earth and with everybody in between, so that we operate on the same information at the same time and act in parallel instead of sequentially waiting for some other person downstream to tell us to do something. If we do that, it will be at three different levels:

1. **The transaction.** When I scan something across a retail checkout counter, I can automatically tell somebody to chop down one more tree for the packaging and everything in between. There is no reason today I cannot do that.

2. **The forecast.** I need to forecast because there are processes that just have inherent characteristics. I make paper in big rolls. I sell Kleenex one at a time. So, I need to buffer these things with some sort of planning. Guess what? Everybody there has a forecast. They have more than one forecast. I have a sales forecast, a marketing forecast, maybe a promotion forecast, an operating forecast, a financial forecast, and they probably do not relate to one another. Almost assuredly, the forecasts among the players there today do not relate to one another. If we all got together based on this really good information about what the consumers are really doing, and with confidence and the goodwill that we have developed by sharing information with each other already, and begin to build the next layer, the logical result would be a forecast of what is going to happen at the consumer level, from which we can all operate. We do not use a single number. We understand that it may rain today or it may not and that will change your behavior and therefore I have to have a range around the forecast. Depending on what happens, it can be toward the higher end or the lower end. Not unlike what we do when the news media project who is going to win an election. We monitor what happens minute by minute in the process and determine whether we are tracking above, toward the upper end, or toward the lower end of our forecast and then adjust instantaneously as necessary along the way.

3. **The sharing of information.** The third level is sharing what new products are desired and needed by the consumer. We go through a process of launching new product introductions and old product deletions in a coordinated, logical way instead of shoving new products downstream to the shelves of the retailer, by whom we are charged, and who then turns around and shoves them back when they do not sell. It is going to get more efficient because we are going to move this information upstream and downstream.

From carriers and from government agencies, I heard the appeal for information earlier in the process. I can get anything I want out of this if I am a partner in it. If I am one of those long-term partners—but you know what you have to do to be a partner? You have to trust each
other. I am not going to share information with you if I do not trust you. Think about that. Let that one sink in a little bit. I have to build relationships so that I trust the other players in my supply chain between mother earth and the consumer enough that I am going to share my most intimate information with them without thinking I am going to get stabbed in the back.

Guess what? There is another industry that, like you, has been antagonistic toward the players upstream and downstream for a long time—the grocery industry. They are now about 8 years into a program and they are not done yet. However, they are making progress and they are trying. If they can do it, you can do it. You could actually begin to trust each other enough to begin to do the right thing for the 21st century instead of the expedient thing based on history. As a result, the goods conduit is going to be much more efficient. We are going to move stuff with fewer ton-miles of transportation. That means fewer trucks, fewer rail cars, less handling, fewer warehouses, less inventory, and less storage space. We are going to need less money in the pipeline, we are going to require less time, and there is going to be fewer errors. Reliability of the service is going to basically move toward the inherent capabilities of each of the players up and down the stream. I can do it a lot more efficiently and save a lot of money. Funds are going to flow pretty much instantaneously when there is a checkout and a scan and the consumer pays. Everybody upstream gets his or her allocation on a prearranged basis. There are no invoices upstream, no rooms full of people doing discounts and adjusting bills and trying to figure out what the right number should have been in the first place. That is all going to go away.

Brave new world of the 21st century—are you ready for it? Is your industry ready for it? Are the processes of the 21st century going to be ready for it? I do not think so. The focus is going to be on consumers because that is the only thing that counts and the unit of a consumer is one individual human being, one soul, one memory bank. It is about what they liked and did not like about the solution the supply chain provided them, and they are going to buy that supply chain or one of the two or three competing ones on a global basis. They are going to vote with their decisions as to who wins and who loses.

Let’s talk for a minute about consumers and you are all consumers. Generally, consumers in the 21st century are going to be very value driven. There is almost complete transparency of information. There are no secrets. Nothing much gets hidden. We are going to have to produce the best value. It does not mean the lowest price. It means that, in the eyes of that consumer, it is the best overall value proposition. It is the best overall mix of service, caring, product, price, delivery, reliability, reputation, and 6 or 10 or 15 other factors that I did not name. The point is low price is not going to be the sole determinant.

Retailers should be the most powerful business players in the entire supply chain, because they have the relationship with the consumer. If they really understand and embrace and provide customers with what they are looking for, they become the captains of the supply chain. Wal-Mart kind of does that. Amazon and others are kind of doing that, but they are not there yet.

How many of you, as consumers, have been asked by someone you have dealt with, “What could we do to serve you even better? What would you like in the future? How would you like to do business with us? What can we do to make you a happier, more satisfied customer?” Do you get a lot of telephone requests around the dinner hour asking those kinds of questions, or is it more often someone trying to sell you something? How many of you have had an organization reach out to you and really try to get an in-depth understanding of you as a human being, a consumer? Only a handful of you; however, that is a start. It is slowly beginning to happen, but boy is it slow in coming.

What is the role of a brand? If it is Coca-Cola, maybe you go in and you buy Coke. But, right next to it is something that beats Coke in taste tests and it is half the price—pretty can, everything seems about the same—which do you buy? Which do you buy today or in the next recession? Most of you have been through a recession in your lifetimes. It will happen again. The bubble will burst. What is the real brand when I walk into a Walmart store? It may be the Walmart. It may not be the individual branded products on the shelf. It may be Walmart itself—I go to Walmart to get whatever it is, so if it is on Walmart shelves, it sells. If it is not, I never get a chance to buy it. I buy whatever is on the shelf.

Consumers are smarter. There are transparencies. Anybody here bought a car recently? Did you know more about the dealer invoice and the pricing structure and the features of that car than the salesman with whom you dealt? That is just an example.

Time is the most valuable commodity in the 21st century. Let me repeat that: time is the most valuable commodity in the 21st century. Anybody here believe that you are working less than you did 10 years ago and getting paid more? Nobody does. Good people are absolutely scarce. Finding enough truck drivers is tough, let alone finding good people with minds. There just are not enough to go around. The result is that we are being worked harder, we are being offered more, and in some cases we get paid more (or less)—that is not the issue. It is a matter of how much time it takes. How many of us, as we get older, want to spend more time with our families recreating or doing what we want to do? Over time, time becomes more valuable. As a result, the consumer of the 21st century will often trade off time for money. For example, how many of you bought at least one thing on-line from a retailer?
Almost everyone—trust me, eventually the rest of you will do the same.

Recently, I was buying a couple of books for my daughter. I am on-line, I have got the two books—a total of $15.00 in merchandise cost—and then I close out the shopping cart, hit the button, and find that I am being charged $5.00 for shipping. Why is that one-third the cost of the merchandise. Then I bit my tongue and I said, “Oh, it is only $5.00. Is it not worth $5.00 for me to walk out the door, let alone to go down to the store to buy it?” I just paid a 33 percent premium to have it delivered to my doorstep.

It has been estimated that 1.5 billion new parcels will be created by the e-tailing industry for deliveries to people’s doorsteps. Does the 21st century infrastructure of United Parcel Service, FedEx, and the U.S. Postal Service have the ability to meet that demand, to provide that service? What are you going to do if you are getting four, five, or six parcels a day at your doorstep? What are the security issues? There are all sorts of interesting issues to consider. Time becomes so valuable that people, in some cases, will trade off time for other fairly expensive things. We need to think about how that plays. What does that have to do with the transportation system? There will be people who happily pay a premium to have it there today or tomorrow. There are others who will say, send it by the U.S. Postal Service and it will get here in a couple of weeks.

Basically, I have been talking about existing channels. How many of you do the family grocery shopping in your family? Quite a few of you. How many of you who did not put your hands up know the person in your family who does the family grocery shopping? Now, try to put yourself in that mind. How long does it take to do the shopping each week—1.5 hours, 2.0 hours, maybe longer? Is it something you look forward to with great anticipation? It is a great, fun experience? Suppose I allowed you to pull up on your personal computer at 4:00 p.m. on Thursday afternoon and it shows you 300 items, which is about all you buy in the course of a year at a grocery store—300 individual items. It is already calculated what your usage rate is, based on past history, and as a result, it can suggest what you probably need. All you have to do is hit the enter button after adjusting your order and it will automatically be delivered to your kitchen counter at 8:00 p.m. in the evening, charged on your Visa card, and all you have to do is put it away. It takes you 15 minutes instead of 2 hours. Does that sound like a fun service? It saves time, although it does cost more. There are companies out there who provide that service. If you do not already use such a service, many of you probably will. You will get attached to it once you find it works very well. It sells for a premium today, but do you know what? All I am doing is item pick, no different than when supplying to the back door of a McDonald’s restaurant. I have the technology to do that for a cost that is significantly less than the cost of the grocery store infrastructure today. If I now told you that you could do all that and save 10 percent, how appealing would it be? Save time and 10 percent versus save time and spend 10 percent more. Many people will change their way of shopping.

If you do not remember anything else from this session, remember this point—our basic push mentality in all businesses on all products and all services is fundamentally flawed, because push assumes that if I have a transaction today and a transaction tomorrow and a transaction the next day they are all independent of one another. The fact is they are not. The consumer who is involved in each of them—and a consumer can be a purchasing agent in an organization or any decision maker—that consumer has a memory that consumer makes decisions. They remember whether you did it right or you did it wrong. They remember whether they thought they got a good deal or a bad deal. They remember whether it was on time or late. They remember whether the service was good or bad and they chalk it up. Even when we are in business, we basically behave as consumers and make decisions in part based on past experience.

Think about your own experience. If you have bad service, probably the first time you just let it go but make a mental note that you were not very happy with that experience. The second time, psychologically most of us will reach out in some way to communicate the service failure to the organization that did it. It could be as clear cut as a letter to the president in the hope that the problem will get fixed. More likely, it is an offhand comment to a customer service representative or a driver that gets completely passed over. Somehow you psychologically want to reach out and tell them they are screwing up. The third time, you begin to show bias against them. Maybe you do not buy from them or shop from them. You do not recommend them. Maybe you even badmouth them. All sorts of negative things begin to happen. Three strikes.

What are your customer service goals—90 percent on time, or 95 percent on time? What kinds of goals have you set? Start thinking about the rule of three—think about how many times you have disappointed your customer. I do not care whether it is a real consumer or whether it is the dock foreman where you deliver the container. They remember.

The good news is, the opposite works. Once you really impress them, they will remember. The second time, they will tell you and thank you for it. The third time, they will begin working on your behalf as an advocate, as a positive factor in the marketplace.

If there are going to be relatively few large global companies and we are going to compete for the ultimate consumer, whoever it is, we better figure out a customer...
service, customer satisfaction strategy and execute it so flawlessly that we do not start driving customers away. There are only two or three choices and if we drive them away from Hertz, they go to National. If they get driven away from National, they go to Avis. There could be three big airline conglomerates. There could be three big shipping companies. Whatever the industry sector, it is by and large going to be three. If we begin to disenfranchise folks, they are going to go someplace else. Once they have gone, all the king’s horses and all the king’s men and discounts will not bring them back. Has anybody gotten a discount coupon from an e-tailer? “We’re really sorry we screwed up over Christmas—here is $100.00. Please give us another chance.” What is the probability that works? Think about it.

Let’s move to industry. Competition is global. I think we have made that point. Everything is going to be global and you are a part of it. Products are changing. Things are moving much more rapidly. The average half-life of a computer today is about 3 months. Managing the life cycle of that—how much inventory we are going to have, how we are going to sell out, what we do with the old inventory, and what we are going to do with the next one that is going to come in behind it—how do we manage that all through the process? It requires extraordinary thinking. The information will be there; the technology will be there; but, among other things, we have to start being reliable. When we say we are going to deliver it on Thursday, we better deliver it on Thursday. The folks from Wal-Mart have a wonderful presentation that illustrates what the variability in delivery cycle time costs them. The fundamental issue that makes a Wal-Mart system work is they demand and get precision. They do not care how long it takes to get something—it could be 4 days or 5 days or 6 days—but it has to be exactly at the time agreed to.

Variability requires you to carry the inventory you need to be in stock for that variable amount of time and that is what drives inventory. They are going to take half their inventory out by increasing variability of the supply-chain infrastructure and what you are talking about is dead center in the middle of that reliability. You are going to be under a lot of pressure.

We have overcapacity in most industries because we have globalized. The safety capacity that we have built up in the past in every different country around the world is suddenly lumped all together and now we have enough capacity to build almost anything we want. There are very few industries that are undercapacity. I argue that even for the transportation system, if we operate it properly—like 24/7. The automobile industry has so much overcapacity that we are not going to have inflation in automobile prices and that is why General Motors and Ford are fighting over the Korean automobile capacity. We have lots of overcapacity and we will have it for a long time.

Therefore, the long-term trend is deflation—not inflation. However, that does not mean we do not have some shortages here that are going to create some inflation—oil in particular.

Supply-based rationalization—if you have not been through it—everybody who has power is doing exactly what we expect them to do. They are going to look upstream and say, I am the customer, you are the provider; therefore, I have power over you. That means I can decide I am no longer going to do business with 20 of you. I am going to do business with one or two or typically three. For example, Wal-Mart is going to have three brands of a given item on the shelf, one of which may be the Wal-Mart brand—maybe that is the fourth one.

People are going to have three carriers. They are going to have three (or fewer) providers of almost everything they really need. Therefore, rationalization adds fuel to the fire that creates even more consolidation quicker; the haves get stronger and the have-nots fall by the wayside. The stronger you are, the better you are, the more you win, the more infrastructure you have, the more sophistication you have, the more likely you are going to win next time. If you ever get a significant lead on your competitor, you will ultimately drive him to the wall.

The economy is digital. Everything that can be digitized will be digitized. Anything you do that has to do with paper and communications and data that is not already digitized is going to be digitized. If you are going to read a book, there is a high likelihood you are going to read it on one of these screens in the not too distant future. Although you may not want to give up your hard copy of the Wall Street Journal, you are probably going to learn how to read it on the computer screen. We have to be thinking about the implications of that for your business.

Roles are changing. I can no longer easily determine who is a distributor and who is a third-party provider. I cannot easily determine who is an original equipment manufacturer (OEM) and who is making component subassemblies that get bolted together. For example, your PC is made up of 30 or so parts. A recent Wall Street Journal article about General Motors indicated they are basically going to do the same thing. They are going to cut the cycle time to 4 to 10 days or something like that so you can order a car and build it. You are not building a car from scratch—you are simply assembling these big chunks of subcomponent parts and therefore the real power in that industry is going to shift from the OEM to the parts suppliers. By the way, why am I selling it through a dealer when I can do the whole thing on the Internet? Car dealers are an anachronism. They are one of many in the economy that will ultimately go away because they do not have a real purpose. There will, instead, be fairly sophisticated repair facilities, although it is likely that reliability will improve so there will be less and less need for repairs and less maintenance.
Think about whether and how the issues I have raised are going to change the fundamentals, because there are going to be many parts of the economy that are going to go away and they are going to be replaced by other kinds of things that are even better. The reason we said trading communities will evolve is that none of us can handle an infinite number of relationships. For example, we are not going to go out and surf the web and look at every website. We are not going to have auctions with hundreds of players at every one of them. We are going to tend to settle on a limited number of relationships that we, either individually or as organizations, can manage. They are going to be upstream, downstream, two levels upstream; they are going to be sideways; they are going to be in cooperation with competitors; but there are going to be only a limited number of relationships.

What we are really saying is: Think about who your trading partners are going to be and pick them carefully. If you pick wisely, they will give you great strength. If you pick poorly, they will drag you down.

Everything I have said creates something that we call a “trigger point”—a term I have used since the late 1970s. A trigger point is simply an event in an organization’s life that is so stunning that it causes you to stop and think about how you are really doing things. The changes you make after a trigger point are not just business-as-usual changes but fundamental changes. Pearl Harbor was a trigger point. It got us into a war. A heart attack for an individual is often a trigger point—it changes his or her lifestyle. A merger, an acquisition, a major service failure, sometimes a new chief executive officer, and other kinds of events are trigger points for companies. What it does is create a window of opportunity that has a very limited life, typically no more than 2 years. From the time the trigger point occurs and we recognize it, to the point that we have to finish fully, completely, whatever changes we are going to make. Trigger points are essential for breakthrough change. You cannot do really breakthrough things without a trigger point.

The problem is, most companies do the wrong thing. They hit a trigger point, and they run around like a bunch of ants; they undertake tens, dozens, hundreds of initiatives and try to change everything at once. They spread their resources, they lose their focus, and, as a result, they do not get a lot done.

I had one client in the telecom industry that had 640 projects going. We were brought in and given a description of the situation and then we asked the company “What results did you get?” We were sitting with the executive committee and none of them could stand up and name any one of the 640 projects that could be deemed successful.

Companies tend to “spread the resources” and often they focus on the wrong things—they focus on reducing the waste, reducing the cost, reducing the inventory, or improving customer satisfaction. We have an 85 percent customer satisfaction level now. We will get it up to 90 or 95 percent. Big deal—95 percent is not acceptable; we have to target and go for 100 percent. We have to go for things that will really be distinguishable in the marketplace. Too often, we waste a lot of resources doing the wrong thing.

Successful companies tend to use trigger points as an opportunity to do something really, really important. First, whatever business you are in, wherever you are in the supply chain, try to get out and put yourself in the shoes of the ultimate consumer of that product or business or service and understand what is really important to them. It is probably not what you think it is. It is almost assuredly not what your salesman is telling you it is. It is probably not what your supply-chain partner downstream is telling you it is, because they do not know. Go find out for yourself what is really important to the decision maker that drives revenue to your business. I think you will be very surprised at what you learn.

Once you understand that, you can map your supply chain all the way back upstream—look at how it works and very brutally and honestly evaluate what is good and what is not. There are going to be three categories:

1. A lot of things that are absolutely non-value added, that are stupid, that when you look in an overall context and consider the technology that you could bring to bear, you are going to ask, “Why in the world do we still do this?” Then just eliminate it.

2. There are all sorts of things that we all do in our organizations because somebody long ago made a decision and it got internalized in the bureaucracy. For example, somebody long ago made a decision that the company will receive only during certain hours. Maybe we ought to reevaluate those decisions and, again, eliminate the things we should not be doing any longer.

3. You outsource the things that are nonstrategic, the things that are not critical to satisfying the needs of that consumer. Those of you in the transportation industry are the recipients of that—almost nobody operates their own transportation system. With a few exceptions, nobody operates their own port, nobody operates their own railroads, nobody operates their own telecom companies. By and large, they do not even operate their own computer departments anymore. All those functions are outsourced. What they focus on is what is really important to the consumer for their business and their role in the overall extended enterprise. We focus all our attention on what is really important to the consumer, to our customer. If we do that, we will be successful and have a legitimate role in the future extended enterprise supply chain.

Partnering with other players upstream and downstream, we put together something that is a behemoth—
that is stronger than the competing supply chain of whoever else in the world is trying to do what we are doing. Therefore, it requires world-class alliance partners. Nobody does it all. Every movement is an intermodal movement. Nobody satisfies from the raw materials source to the ultimate consumer with one mode of transportation. The sooner we recognize that we are all in this together (and we either contribute to this or we become redundant), the better off we are.

The extended enterprise is going to produce some huge benefits—most importantly, time. Cycle times are being reduced by 90 percent regularly, whatever it is. Earlier we saw some data about the Gulf War and 180 days to deploy were going to be reduced to 30. Everything we are doing is going to get time compressed by a variety of forces. It is time to start thinking about how we take 90 percent out. Do not even think about taking 10 percent out; figure out how to take 90 percent or more out. The inventory is being reduced in many cases by 90 percent. The pipeline inventory, raw material source from mother earth and the ultimate consumer, not inventory on my books, is inventory on everybody’s books.

You put it all together in an effort to get beyond 20th century thinking. The 21st century thinker asks, “Why do we do it?” Why do we have orders and invoices and collections and transfer payments against those invoices? Why do we even do those things? Does it add value? Probably not. Ninety percent reductions in such things is where technology really has its largest impact. What is interesting is if you look at how you manage the rest of the processes, the ones that are often considered the “can’t change them” kinds of things, like manufacturing. For example, I have a manufacturing plant that is cranking out 100,000 units and think that is about all I can get out of it. I need to ask, “Why are we cranking out 100,000 units?” I go back and look at it and find there are actually 3,000 different skews, 20 of which produce most of the volume, 50 of which are 99.5 percent of what consumers really want anyway, and all the rest break into your production cycle and do all sorts of other things. If I sort that out, even if I continue to do all of them but do them in a different way or modify the order basis or use a different plan or a different set of machines or something like that, I can often increase the throughput of a manufacturing process by 50 percent or more—in some cases doubling the output. I can double the throughput in a warehouse. I can reduce the inventory by half. I can reduce the number of handlings. I can reduce the number of ton-miles things have to go.

I challenge the intermodal industry to quit saying they are out of capacity and need more infrastructure. Maybe you do, but I think it is based on 20th century thinking and not 21st century thinking. Take the 21st century, look at it, and then tell me what infrastructure you really need. Think about breaking down the barriers between the modes, and then tell me what infrastructure you really need. Think about 24/7 operations everywhere, all the time, and then tell me how much more infrastructure you need. If you have a problem with the union, face the problem head-on.

Do not tell me 25 years from now the same issues I heard 25 years ago about the various modes—25 years ought to be long enough to solve even the most impracticable union problem if we have the management guts to do it. Think about how much throughput you are going to get in the intermodal process in the 21st century.

Why must we do this? Because I have to be one of the top three in worldwide market share in whatever business I am in or I am not going to be here, or I am going to be a niche player. Lots and lots of academic research will tell you that you have to be one of the top three. That means that everybody with global market shares with typically over 10 percent—there could be four or five in some industries, but in most cases, it is three. That is what it is all about. I am either going to be one of the top three, or I am not going to be here.

The decisions are strategic. There are a few chief executive officers in the audience and I hope you are listening. Let’s talk about how we invigorate people to get out of the 20th century mindset and into the 21st century reality about how we are going to have to run our businesses.

The challenge is, are we at the trigger point? I think we are. We can ignore it. We can go home. We can pet the dog, kiss the spouse, and go on to retirement in the next year or two and ignore it. The rest of us have to live with it, which means we probably are not going to just sit down and do nothing.

I think the worst choice is the middle road. It says we are going to dissipate our corporate and shareholder assets trying to fix a problem but not really tackling it. We are going to work around the edges. We are going to make a little improvement here and a little improvement there—not enough to do anything strategically important, not enough to beat the competition—only enough to survive for a little while longer. Maybe if we retire in 3 or 4 years, we can get away with that.

I challenge you to seize the opportunity. We have got to find dramatically new ways to do things that will serve us well in a 21st century environment, in the new millennium, in a technologically enabled world that is global and that is very consolidated and will have a handful of big players in every business worldwide. We either do that or we do not have a purpose for being here. I hope I stirred things up, because that is what you asked me to do.
INTRODUCTION

Kenneth Wykle

When asked to introduce this evening’s dinner speaker, I very quickly accepted because I have known Dan Brown for many years. First of all, he is a great American and also a great public servant and it is my pleasure to have the opportunity to introduce him. As with most military people, he and his wife have traveled around the world and sacrificed a lot from a family standpoint through all the moves and impacts on family. It is a real tribute for him to be with us tonight.

Dan has been on the front line during periods of many national crises. In the early part of his career, he served in Vietnam at the U.S. Army Vietnam Headquarters in the water section. More recently, he served in Desert Shield–Desert Storm, commanding the Seventh Transportation Group. For Somalia, he was Chief of the Combat Arms Assessment Branch that went over to assess the performance of our army. Earlier in his career, he served in Germany and later he had the opportunity to serve twice in Korea.

What can I tell you that is not in his bio? Not very much. I did have the privilege of promoting Dan to Brigadier General. I pinned on his first stars down at Fort Eustis, Virginia, and it was a real privilege to do that. Later in his career, I guess he was so excited about me pinning on his stars that he started to follow me in terms of rotational assignments. I commanded the 19th Support Command in Korea and Dan went over there and commanded it. He changed the name of it—made it a two-star command. Then he came back to Fort Eustis, Virginia, and served as Commander of the U.S. Army Transportation Center and school. He then moved up the road to the Combined Arms Support Command at Fort Lee, Virginia, and then ended up at U.S. Transportation Command as the Deputy Commander-in-Chief. The U.S. Transportation Command is the unified command that is charged with bringing together the modes within the U.S. Department of Defense. Along with the civilian transportation capability, this makes up the defense transportation system that we as a nation are so dependent on in periods of crisis and other times when our nation has a need for a lot of transportation assets.

PRESENTATION: INTERMODALISM AND THE U.S. MILITARY

Lieutenant General Daniel G. Brown

It is a real pleasure to be with you this evening and to be surrounded by so many distinguished transportation professionals. Many of you have not been around the U.S. Department of Defense (DOD) or associated with the military and I would like to give you at least my perspective of where the DOD, and particularly some of the armed services, are going with intermodalism and where that fits in.

Simply stated, my message to you is that, although intermodalism is not new to the U.S. military, we have
now reached the point where it is essential that we integrate intermodal transportation systems into the way that we do business. The reasons are simple. We are undergoing a critical transformation in the way we conduct military operations and this transformation cannot occur without a fundamental revolution in the way we perform logistics. In effect, increasing intermodalism is a major key to achieving what many of us refer to as the revolution in military logistics.

Some of you may not think in terms of the military leading revolutions, but that is, in fact, what we are in the process of doing in the U.S. military. The concept of intermodalism is not new to our nation’s war fighters. For example, during the Spanish American War, we used intermodal transportation to get our soldiers from their home station to the port of embarkation in Tampa, Florida. We even used railroads, although to our chagrin, there was no rail-to-ship interface at the port. Railcars were backed up all the way from Tampa to Savannah, Georgia. They were also waiting to discharge their cargoes. It sounds familiar with some of the things that I heard today. Not deterred, we loaded our troops aboard the conventional intermodal workhorse of the time—that is, the mule. These beasts of burden later served as the primary mode of transport throughout the war, and we used them to a lesser degree to help our infantry soldiers and their many loads.

The loading and unloading techniques used were cutting edge technology and state-of-the-art back then in Tampa, Florida. In fact, when our steamships dropped anchor in Cuban waters, they expeditiously discharged their four-legged transporters by leading them up on deck and ceremoniously, or maybe unceremoniously, kicked them off the ships. That was one of the first exposures we had to intermodalism in the U.S. military.

Now, to go from ship-to-shore operations was really quite simple. We merely had the wagon master stand ashore. Many of these operations were done under the cover of darkness. The wagon master stood next to a fire and he blew his whistle, and these poor burdened beasts then swam all the way to shore. That was the military’s first exposure of ship-to-shore discharge operations over what we now refer to as logistics over the shore.

Although our military concepts of intermodalism have come a long way since Teddy Roosevelt’s time, we need to develop ever faster and more efficient transportation. The situation I described during the Spanish American War was not unique to that war but was merely indicative of the challenges that routinely confront us when we do go to war. Similar stories can be drawn from World War I when we deployed nearly 88 percent of all the forces through the port of New York, with the result that nearly 200 ships were backed up. In that case, and in that particular deployment, we had railcars backed up all the way from the port in Bayonne, New Jersey, to Buffalo, New York. Eventually, the War Department had to issue a directive that all units deploying overseas would turn in their equipment before departure. They drew up new roles for drawing that equipment. As a matter of fact, units would stop drawing equipment in the United States and they started picking up their equipment over in Europe. It was the first exposure to what we refer to as pre-positioning stocks, which has become an integral part of the way we deploy forces.

What we do now is look at what we refer to as the strategic mobility triad. That is the combination of airlift, sealift, and pre-positioned stocks. Each of those modes of transportation has an advantage or a disadvantage—whether it be cost, speed, or quantity of service. Much of what we are about at DOD is trying to come up with the right weight between airlift, sealift, and pre-positioned stocks in order to deploy our forces quicker and faster.

Similar analogies can be drawn from World War II or Vietnam, when we had ships waiting—in many cases for over 200 days—to be assigned berths for discharge. Even during Desert Storm, which by every measure was a great deployment success, we were plagued by nearly 48,000 containers that often congested the ports because we could not readily transship them. In many cases, we did not know what was in those containers and frequently had to open them before we could give final disposition instructions.

Why All This New Interest in Intermodalism?

The answer is simple—we have no other choice. Increased use of intermodalism is essential to the execution of our national military strategy. I would like to walk you through a little bit of what my thoughts are and why I make that statement.

As many of you know, the military has been undergoing great change since Desert Storm. The active force in the past 10 years since Desert Storm has decreased 33 percent. The active military has decreased in some services even greater than that. The budgets since Desert Storm are down 29 percent. Although we have reduced the size of the active military by nearly one-third since Desert Storm, we have had 41 deployments in the past 10 years of military forces to execute and support our national military objectives. That is an over 300 percent increase. Between 1953 and 1989, we deployed only 10 times in support of our national interests—that is a significant change for a force projection military.

To a large degree, we are basically a continental United States—based forced today with a limited forward presence in Europe and Korea. We project forces worldwide by using that strategic mobility triad of airlift, sealift, and pre-positioned stocks, and we project them worldwide to meet our national interests.
From a strategic deployment perspective, two major factors are at work that appear to be irreversible and they are having a major impact on the way we deploy armed forces:

- First and foremost is the fact that forces must now deploy more rapidly than ever before in order to quickly support worldwide missions. There is an increasing relationship between the speed with which forces deploy and their very relevancy to provide humanitarian support, to deter aggression, or, when deterrents fail, to win our nation’s wars. That is the mission of the U.S. military forces. It has not changed. What has changed is the speed with which it must occur in order to be relevant.

- The second factor that affects our deployment capability may be less evident but is equally important, and that is the fact that the mountains of supplies that many of you see in movies about the military do not exist. They have gone away. They went away because the fiscal resources forced them to go away—in many cases not because the military wanted to draw down their stocks. It is very similar to what has occurred in industry. As the mountains of supplies have gone away, to a large degree we have moved from a supply-based system—that is, a system that basically warehouses stocks—and we have transitioned to a distribution-based system, one that I frequently refer to as a transportation-based distribution system.

In many ways, we have become more dependent on the civil sector than ever before. Each year we spend in excess of $2.0 billion in the commercial sector to ship DOD cargo around the world and we already outsource the delivery of our food and most of our medical supplies. That increase of what we call third-party sources or outsourcing is increasing throughout the DOD and more and more we are shifting key functions over to the civilian sector.

Truly our commercial partners are becoming a critical part of our wartime force structure. They provide 90 percent of our passenger airlift capacity and nearly 35 percent of our cargo airlift capacity. Over 50 percent of our strategic sealift capacity and nearly 90 percent of our surface transportation needs within the continental United States are provided by the civil sector. We also rely heavily on our commercial partners from the railroad, trucking, and shipping industries to move our forces and material from their mobilization sites to their ports of embarkation. As a result, we are vitally interested in what is happening in the commercial sector. A professional partnership between a strong commercial transportation industry and the military remains absolutely crucial to our national defense now and in the future.

During a contingency, DOD needs to rapidly move vast amounts of personnel, equipment, and supplies over long distances and across national boundaries. We define the requirement as being able to surge and deploy in excess of two army divisions and a marine expeditionary force in a matter of weeks. We are looking at moving over 7,000 containers a week with a high degree of confidence that the intermodal system will work as well in war as you talk about it needing to work in peacetime.

Why Intermodal?

First, because that is where the industry is moving. We depend on the commercial transportation industry, both in peacetime and in war. Intermodalism is essential if we are to meet the new deployment requirements of our war-fighting commanders.

Ten years ago, during Operation Desert Storm, we deployed nearly 8,000 mi and took 205 days before we went on the counteroffensive. We want to now be able to deploy a five and one-third division force, several hundred thousand people, the same distance and close in 75 days. Wishful thinking? No, that is a reality. That is the capability we are almost reaching today. It is unheard of in modern military terms in any kind of capacity since World War II. By the year 2002, we will have 110 percent more strategic surge sealift—that is nearly 10 million ft$^2$ of surge sealift—compared with what we had in Desert Storm; 110 percent more surge sealift for a military that deploys nearly 89 percent of all its force by sea means we will now deploy divisions, combat forces of 18,000 to 20,000 people, simultaneously instead of sequentially as we did in Desert Storm. We are talking in terms of moving 40,000 people a week through ports of debarkation and joining them with their unit equipment that comes by sea.

Are those increases unique to increased sealift? Not at all. There are a number of increases that we have had in a number of different areas. The ready reserve fleet is a fleet right now of about 84 ships. It is in the best condition of any time since I have been in the military. It is the right kinds of ships, roll-on/roll-off ships, in the right locations to facilitate a force projection military.

When we went to Desert Storm, an ongoing dialogue said the military units could not get to the port of embarkation and therefore we should reduce the readiness of the ready reserve fleet and spend less money on the maintenance of that fleet. The reality was that, when we deployed to Desert Storm, only 25 percent of the ships that were activated arrived at the ports of embarkation on time. Our forces could get to the ports faster than our ships. That is not the fleet we have today. Those are not the same capabilities. We have activated 117 ships in the past several years, with no notice; 115 of those ships, or 98 percent of them, arrived either before or by the timeframes that we are looking at. We have a fleet
that can join up with our existing fleet and deliver forces on time.

We have also pre-positioned equipment throughout the world. Tonight as we sit here and enjoy our dinner, there are three fleets—one in the Mediterranean, one in the Indian Ocean in Diego Garcia, and another in the Far East—that are pre-positioned with combat equipment, some of it intermodal, that can deliver forces throughout the world with equipment that is at a high degree of readiness. To a large degree, what we do is to deploy our soldiers by air and to join that equipment by sea. It is the right equipment in the right places and it gives our country heretofore unheralded capability.

We have made a number of other substantial improvements in the areas of infrastructure to our ports of embarkation, staging areas, marshalling areas, and so forth—the types of things people who are involved with intermodalism are interested in. More importantly than that, we are interested in and have redesigned our force structure. Our armed forces are being redesigned so that they can rapidly deploy. This is the case for all the services. This is a new capability that offers unheralded options for our national defense and our international interests.

**What Will Intermodalism Do for Us?**

It will give us speed—speed that will enable us to further reduce our supply stocks in peacetime and continue our move to a distribution-based logistics system. It is all about speed. If you are trying to sell something to the DOD right now and you are in the transportation business, come to sell us whatever can put velocity into the system—something that will take down mass, that will draw down the mountains of supply and put speed into the process, speed that will enable us to further reduce our order ship time and our customer ship time and our customer wait times. In the past 48 months, we have reduced order ship time for repair parts in the army by 55 percent. That is not miniscule. That is capability. That is putting velocity into a supply-based and a distribution-based system.

We want speed also to save us dollars—dollars that we will seek to reinvest in modernized equipment designed to help meet the challenges in the future. Like industry, we are interested in doing recapitalization and our equipment is aging. The average age of our trucks is over 30 years old. Many of our ships, like the C-5 transport, are going to have to be around for another 20 years. We have got to do recapitalization of those projects, and to a large degree we are looking at things that save us money. Speed can save us money.

In wartime, we want speed as well. We hope to use intermodalism to deploy the force more efficiently and faster. For example, there is some indication that merely by putting some of our equipment in containers, unit equipment, we can deploy the force to a major theater by nearly 2 weeks, and we are doing some analysis on that right now.

Because we are transitioning from a supply-based system to a distribution-based system, we must now deploy and throughput our supplies simultaneously with our forces. That may sound like a little thing, but in the past we deployed forces strategically; we operationally throughput them. We did the reception, the staging, and the onward movement, and we built up to 30 to 60 days of supply stocks, and then we went and fought. That is what we did in World War II and that is what we did in Desert Storm. That is not the way the U.S. Armed Forces are designed now. They must now strategically deploy operationally throughput and tactically fight all simultaneously and that means the forces and the supplies have to be deployed simultaneously, not sequentially.

Because we are transitioning from a supply-based system to a distribution-based system, we must now deploy our supplies very quickly. How are we going to do about doing that? It is a four-part strategy: (a) we are looking at our doctrine—what commercial industry might call policy; (b) we are looking at redesigning our organizations and our force structure; (c) we are looking at redesigning the training that force structure must then apply those new policies and doctrine to; and (d) we are buying the right technological enablers to give to that force to train and use differently. We are interested in technological enablers that can put speed and velocity into the deployment process.

**Have We Made Some of the Right Investments?**

I think so. Let me share with you just a couple examples and I am going to go back to Desert Storm. During Desert Storm, we deployed nearly 850,000 tons of ammunition. During Desert Storm, we deployed nearly 850,000 tons of ammunition. I do not know how many of you have seen 1,000 tons of ammunition, but it is a lot—850,000 tons is 103 ships of ammunition. It is ammunition that takes about 9 months to load and to deploy.

During Desert Storm, we did not have much in terms of intermodalism. Here is how we moved ammunition. We loaded a pallet of ammunition at a depot in the United States. We lifted it up with material handling equipment, we put it on the bed of a truck or in a railroad car, we blocked and braced it, we tied it down, we put a tarp on it, and we sent it by rail or by truck to a port of embarkation. We went through the same download process. We then loaded it on a self-sustaining breakbulk ship. It takes about 3 weeks to load an ammunition ship. That ship then traveled at about 18 knots. It took several weeks to go 8,000 mi. At the destination, it took about 10 days to unload the ship. Then we went through the process of uploading it on trucks.
To move 850,000 tons of ammunition looks something like this—a truck convoy of 50 trucks of ammunition leaving the port of debarkation every 6 hours, 24 hours a day, 7 days a week for 8 months. That is what moving that quantity of ammunition looks like—very manpower intensive. In every case, most of that ammunition was handled five times after it left the port of debarkation. We were talking today about frequencies—I think Jim was talking about Nabisco or somebody with crackers today picking up something 31 times. That is what it took.

That is not the system that we have invested in or have bought for the future. Bill Lucas talked a little bit about the system we are building. We are building an intermodal system. He talked to you a little bit today about something called the CROP—a container roll-in/roll-out platform that allows us to put 16 tons of cargo inside a 20-ft container without blocking and bracing in its own secure devices. What if I told you we have a device that can put 16 tons of cargo, be loaded at a depot, and load that container within 2 minutes? Take all the advantages of a container ship and a ship that travels not at 18 knots but at 23 or 24 knots, that can be discharged in 2 days instead of 10 days, and that can transfer the cargo from the container ship onto a surface mode of transportation in 2 minutes. When you went from an on-the-road capability to what we call an off-the-road or tactical capability in rough terrain that could make the transfer of that container from one mode of transportation without material handling equipment and without additional people, and could do that in 2 minutes? That is the system. That is not only the system we are in the process of buying, it is the system we are fielding.

What Does It Mean in Terms of Velocity and Speed?

What it means is instead of that first pallet, which took 75 days to get from a location in the United States to somewhere in Saudi Arabia, we now can do that same process in 35 days—an over 50 percent reduction in time. That is speed. That is velocity. That is intermodal transportation. When you can mix up the right kinds of trucks by surface with sealift and have in-transit asset visibility on top of them, you begin to put some power into the deployment process. That is what we are looking for in terms of speed—it is intermodal transportation at its very best and it is quantifiable improvements that are seen not only in the pocketbook and in reduced force structures, but also on the battlefield, when you can have a system delivering ammunition 40 days faster than the system used just 10 years ago. That is the system we are buying and fielding, and we are fielding and using it in places like Bosnia, Kosovo, and the Republic of Korea tonight.

There are many examples of a force projection military adapting the age of intermodalism. Following are just a few: the conversion of military cargo units into intermodal transportation units that can work at airfields, seaports, and rail heads without having different kinds of equipment or different kinds of personnel and people; the adaptation of intermodal packaging concepts, such as strategic configured loads, the loads that we package in the United States that can then be used far forward on the battlefield; the procurement of special handling equipment designed to process containers and facilitate the rapid loading and unloading and procurement of nearly 10,000 20-ft containers and nearly 25,000 ISU (individual shipping unit) and 90 small package shipping units; the fielding of cargo tracking devices such as radiofrequency tags and two-dimensional bar code labels; and the procurement of movement tracking systems that tell us the exact location of our fleet of trucks.

Tonight in Kosovo and in Bosnia, we have something we call MTS—the movement tracking system. It is very similar to what commercial industry has and we know within 10 m where those trucks are. They are good not only for transportation, they help us achieve major changes in the way we deploy the force and have become a major means for communication.

All these and many other enablers are being tied together with an in-transit visibility system called the global transportation network. No intermodal system would be complete without a modern finance accounting system. Here too, we are at least beginning to make some progress. Thanks to a new freight payment service called Power Track, DOD has reduced payment time to nearly 200 commercial carriers from 50 to 70 days as it has taken them to be paid in the past, to nearly 2 days, which is what they are currently getting paid for, all within the past year.

In many ways, force projection is the synchronization of all the modes of transportation in an attempt to gain maximum throughput of whatever the supported commander desires. One of the measures of merit to the warfighting commander is whether we can push the right amount of things to the right place at the right time.

When I talk about intermodalism, I am not just talking about containers. I am thinking in terms of troop movements through airfields, or moving rolling stock and several combat divisions through the commercial seaports, and moving and marrying the right equipment and the right people as quickly as possible from the fort to the foxhole.

Equally important to us today and as important as we have had in the past is an intermodal network that allows us to deal with high up-tempo modern conflict. Just as private enterprise is seeking to get these goods to market
more quickly, strategic agility is the new benchmark of military strategy, not just strategic mobility. Transitioning the military to an intermodal system is not as easy as industry sometimes suggests. Nor is it as difficult as the military sometimes implies.

I will not give you the standard spiel tonight that our challenges on a global scale are more daunting than anything private enterprise might face, although this is the case some of the time. Most commercial enterprises do have short communications. They do have fixed transportation networks on hard surface roads, and generally they do know where their customers are and their customers do not change locations each day. Rarely does K-Mart have to use their containers for perimeter defense, living quarters, or an expedient field shower, although I will tell you that all three of those work just great and it is not too shabby living inside a container.

I offer that there are few seasonal rushes that compare with moving, on a few days notice, a city the size of Richmond, Virginia, to the other side of the world with American lives and interests at stake. Clearly, there are differences, but I am convinced the similarities more than outweigh the differences. To survive in today’s competitive environment, successful civilian and military transportation organizations must be flexible and efficient on both a national and a global basis. Does that sound similar to some of the things Jim was talking about on a global basis today?

Industry is leading in just-in-time delivery concepts and merging the manufacturing and transportation systems in ways never before envisioned. At DOD, we are merging our maintenance, supply, and transportation programs in ways we never dreamed just a few years ago. Our ability to synchronize the movement of cargo such as ammunition through all modes of transportation, all types of weather, and all types of terrain while significantly reducing manpower and material handling devices is rapidly becoming the envy of militaries throughout the world.

Industry has been forced to streamline organizations and reengineer processes and drive down costs while increasing productivity. The ongoing budget debate over military costs is clear evidence that we face many of the same pressures within DOD. Industry has learned that it has to enter into partnerships with its shippers and, to some degree, even its competitors. So, too, are we learning that in the military.

We are coming to those same conclusions in the military and are outsourcing many of our noncritical support functions. In addition, over the past 5 years, we have seen an expansion of our peacetime and wartime partnership agreements with the commercial transportation industry. Some of you are involved in those. They are everything from the Civil Reserve Air Fleet to the Voluntary Intermodal Sealift Agreements.

However, as an integrated intermodal system, much remains to be done. We still must be able to capture commercial movements in our in-transit visibility system—the global transportation network I referred to earlier. We all must deal with labor issues, ramp space issues, highway congestion, congestion at the ports of exchange between modes, foreign carrier competition, and the fact that information management systems cannot always keep up with the speed of transportation. Velocity management, whether in the private sector or the military, includes information management and what we call in the military command and control. Data entry, the old garbage-in, garbage-out problem, continues to plague us in the military, just as it plagues those of you in industry.

The greatest of all challenges facing the military as it integrates intermodalism into its ongoing business practices is probably cultural. Technology does not overcome cultural resistance. Just as customers must be shown that a more efficient transportation system can help them reduce stocks, so too must the warfighters be convinced that reducing the mountains of supply will not adversely affect their operational readiness and, in fact, will improve their deployability, mobility, and combat readiness.

From a DOD standpoint, I see three major areas of focus within the international framework: policy, information technology, and the need for standardization.

- The first of these, policy, is key to the following two, because without clear policy we can never achieve a seamless transportation system that is efficient and effective.
- Second, information technology is as essential as the intermodal platforms themselves. Until we improve our ability to exchange accurate data in real time, we will reach a point where our finite number of transportation platforms cannot operate any more efficiently. Information is time and, whereas time means money to industry, it means lives in the very relevancy of the future of the U.S. military in some regards.
- Third is the need for standardization. It is essential that services build intermodal systems that are both compatible and interchangeable if we are to develop an integrated system that can function in a joint environment. It makes little sense to buy modular containers that can fit in an aircraft but not on ships or trucks. In the age of joint service operations, it makes little sense to buy fleets that are not capable of moving the palletized cargo racks of another service. In-transit visibility technologies such as linear bar codes, two-dimensional bar codes, smart cards, radiofrequency tags, satellite tracking devices, and optical memory cards all must fit into a common operating system. With few exceptions, we can no longer invest in service unique transportation systems. Systems that move by air must be just as compatible with moving things by sealift and truck transport. Cargo that is not
stowed in containers must be designed for rapid discharge and rapid loading.

My vision for the defense transportation system of the future is a seamless origin-to-destination distribution pipeline, efficiently bypassing many of the current echelons of support and aided by information dominance, leveraging information technologies, coupled with technological breakthroughs in the commercial sector and predictive maintenance systems that prove to be combat multipliers, which in turn, will lead to reduced logistics footprints. I envision a system that maximizes throughput of units and sustainment, bypasses support nodes, reduces handling, and increases velocity time definite delivery while stabilizing customer wait time and delivery consistency and providing methods to evaluate our new distribution-based logistics system.

In-transit visibility, speed, and flexibility will characterize this system. Our ability to deliver material on time and harvest the power of information will reduce logistic response times and will enable us to transition from reactive to predictive logistics. In effect, we will have a combat multiplier. Our force structure is undergoing a transformation with a revolutionary design created to precisely distribute units and sustain them anywhere in the battlefield.

The challenge for the United States Transportation Command is to ensure that the defense transportation system aggressively supports this strategy. This can be accomplished only in partnership with those of you who are here tonight from academia and business. A close relationship between the commercial and military transportation industries will continue to be key to our success.

I began this evening with some historical examples of military attempts at intermodalism, most notably from their failings. Let me close with a recent example of a very successful military foray into the world of intermodal transportation in today’s environment.

The challenge was great. The mission was critical. Move a task force of the first cavalry division from Fort Hood, Texas, to Bosnia. A transportation group in Rotterdam began the initial planning. Task force equipment was moved by motor convoy, rail, and air to Beaumont, Texas. Long convoys of vehicles concentrated at the Beaumont docks. Port operations were kept apprised of the arrival of cargo by scanning bar code labels and radio-frequency tags. The cargo was mostly from Fort Hood; however, some cargo was from Fort Carson, Colorado; Fort Raleigh, Kansas; Fort Sam Houston, Texas; and Fort Polk, Louisiana. Helicopters flew into the ports, some from as far away as here in California. Army reservists from New Orleans began loading the cargo at the port of Beaumont, while soldiers prepared to fly to Bosnia. The cargo was loaded on one of the military’s new large roll-on/roll-off ships. If you have not seen a large medium-speed roll-on/roll-off ship, it looks like a small aircraft carrier. It is about three football fields long and 15 stories high. The vessel cleared port and steamed to Wilmington, North Carolina, where it picked up cargo coming out of Fort Bragg, North Carolina, and also included movements by air. The helicopters flew to commercial airfields where they went to maintenance checks and then flew to their final destination.

We have come a long way from the port of Tampa and the Spanish American War and also from some of the problems we had in World War I, World War II, Desert Storm, Vietnam, you name the deployment. With strong partnerships and definitive far-reaching efforts, we can accomplish the intermodal goals and rewarding shared successes.

Thank you, ladies and gentlemen, and may God bless you!
Day 2: Concurrent Panel Sessions

Institutional Relationships: Case Studies
Cargo Clearance, Security, and Safety
Implications of Trade Policy for Global Intermodal Development
Infrastructure Capacity and Connectivity: Federal Perspectives
National Security and Defense
Preparing for Change (*Luncheon Presentation*)
Information Technology
Financing Intermodal Development
  International
  Domestic
Environmental Issues
Service Reliability and Operations
In the February 17, 2000, issue of the Journal of Commerce, there was an interesting opinion piece by Ted Prince entitled “Paralysis by Analysis on the Intermodal Front,” which really sets the stage for this session. He talked about the fact that as we have moved from a construction era to one of operations capacity enhancement and from being system builders to system managers of intermodal freight, we have to look to intermodal freight and logistics management as a key component to overcoming capacity problems. He also points out that our fundamental freight intermodal problems have gone unsolved. One problem is a lack of initiative that fails to transcend the institutional barriers—industry, government, and academia need to come together to develop new solutions to intermodal transportation problems.

Yesterday, Jim Morehouse presented his vision—an information technology–based approach to dealing with these issues and problems. Even this information technology–based approach is based on trust evidenced through partnerships, coalitions, and alliances, without which all the technology in the world cannot enable us to overcome the barriers. This panel of distinguished experts will focus on institutional relationships. They will present their stories of successful collaboration between the public and private sectors and share their experiences in overcoming institutional logjams and leveraging public and private energy and resources to identify and eliminate bottlenecks in an effort to gain greater capacity from our existing transportation system.

Michael Huerta is a Principal of Cambridge Systematics and Director of the firm’s Washington, D.C., office. He leads the firm’s freight and intermodal transportation practice and has nearly 20 years of experience in high-level public management and transportation. Before joining Cambridge Systematics, Huerta served as the Chief of Staff of the U.S. Department of Transportation. His responsibilities in that capacity included serving as the Chief Strategist and Policy Advisor to the Secretary of Transportation as well as the day-to-day manager of the Office of the Secretary. Before that, he was Associate Deputy Secretary of Transportation and Director of the Office of Intermodalism for the U.S. Department of Transportation, in which capacity he facilitated financing for several high-profile projects, including the financing package for the Alameda Corridor here in southern California. Before his service in Washington, D.C., he served as Executive Director of the port of San Francisco and Commissioner for the city of New York Department of Ports, International Trade and Commerce.
It is a pleasure to be here to talk about institutional relationships. When I first accepted the invitation, I planned to provide an overview of innovations that are taking place at the state and local levels and incorporate intermodal freight transportation planning into the broader transportation planning process. However, as I was working to identify those innovations and listening to yesterday’s presentations, I heard a great deal of discussion about what are appropriate roles for the federal government. Wouldn’t it be great if the federal government did this or that?

I have a unique perspective on that issue. For a number of years, I headed the U.S. Department of Transportation (DOT) Office of Intermodalism; however, I came to that job with absolutely no experience in the broader transportation issues. I was a port director in San Francisco, and in 1999 when the Intermodal Surface Transportation Efficiency Act (ISTEA) was enacted, I was standing on the sidelines saying, “You know, this thing does not work. It does not support the interests of freight.” I was complaining, showing up at national forums, and making all kinds of noise and basically making a lot of people uncomfortable. Finally they said “Okay, you go fix it!” I accepted that challenge and for about 4 years worked through a lot of the issues and problems associated with intermodal transportation. Now I am back in the private sector, where I help clients with the complexities of how to incorporate intermodal freight into transportation planning.

Knowing that you will hear about specific case studies and examples of state and local successes, I decided to concentrate my remarks on the issues and challenges that have been dealt with at the federal level and leave you with some thoughts about what we, as intermodal advocates, need to do if we want the intermodal ideas and initiatives to become common or accepted practice.

With that opener, I ask: “What is an appropriate federal role in intermodal transportation?” What do we want from the federal government? When the National Commission on Intermodal Transportation published their report, they identified a range of important initiatives, three of which I will mention that were talked about in many of the presentations yesterday:

- We need to maximize the safe and efficient movement of passengers and freight by incorporating modes of transportation into a national transportation system. We have to think more about the trip and less about the mode. What that means is everything needs to be thought of as one integrated and unified system.
- We need to expand funding. There are a lot of dimensions to that. It would be nice if there were more money—we would all like to see more money. Even if we had all the money in the world, are we able to use it to fund the freight projects and the freight initiatives that we would like to pursue?
- We need to restructure U.S. DOT to support intermodal integration. Tim Rhein talked yesterday about how the Office of Intermodalism is largely invisible and that for U.S. DOT to demonstrate the leadership needed to support and develop intermodal freight transportation, an overall restructuring of the department is needed. However, are we absolutely sure that is what we want? The reason I ask that question is that, since ISTEA was enacted U.S. DOT has attempted a wide range of initiatives aimed at responding to problems and questions presented to them by the intermodal freight transportation industry. Over the past 10 years, however, support has been very mixed, with some things being implemented and others not. The more ambitious proposals involving prioritizing, funding, and institutions have been the most controversial and have engendered a great deal of debate.

I would like to talk about what some of my experience has been on these issues and then talk about what we may think is the federal role in intermodal transportation.

Let’s first consider a national intermodal transportation system. ISTEA called for the designation of a National Highway System (NHS) and for designation of intermodal connectors that would connect the NHS with intermodal facilities throughout the system. It was intended to be a constrained system. In fact, U.S. DOT identified an NHS in collaboration with state DOTs and sent a report to congress. Congress really did not like the intermodal connectors part of the report and suggested doing more work in that area—not unlike the view of some in the industry who thought there had not been enough focus on intermodal connectors. Although the work on the intermodal connectors has gone through several iterations, overall there has been widespread support for the NHS and a recognition of the need to address intermodal issues.

Contrast that with a companion initiative the U.S. DOT announced in 1994—something called the national transportation system. As initially conceived by Secretary Frederico Pena, it was intended to be a designation of a constrained system of infrastructure across all modes of transportation, to identify facilities that represent federal and private authorities, and that should be the focus to advance the nation’s trade and transportation agenda at a national level. When it was announced, the reaction was unqualified, with strong, strong opposition. Being responsive to what they heard, U.S. DOT backed away from it, saying perhaps we do not need to go through the process of actually designating a system in the same way that we are talking about designating a NHS. U.S. DOT decided instead to call a planning framework, representing the federal government’s opinion about what it believes are the core facilities. That idea also landed like a lead balloon. The response was strong indifference—if
you want to express your opinion that is fine, but industry is not sure it is really interested in your opinion, and you might as well keep it to yourself.

That brought forward another initiative, trying to understand the performance of the system—where do we have significant congestion? Where do we have significant bottlenecks? No one could really argue with that, but there was definitely a significant sense of unease about the federal government suggesting that elements of the system perform in one way or another. A report was produced on performance measures and, I think it is fair to say, the initiative was abandoned altogether. What played back from the transportation community was clearly a very strong sense of relief that this initiative was behind them and that they could move on to the planning of the transportation system as called for in ISTEA.

What were these concerns and what did they suggest? A very significant concern and issue was whether it is an appropriate federal role to set priorities in modes of transportation other than highways. People have a clear understanding of the federal government developing a constrained system of highways as a result of the Interstate system. The NHS, being a larger system, was regarded in many ways as an extension of that. However, when you started to look to other modes of transportation, what was heard back from the transportation community was that is inconsistent with what state and local economic development goals might be. This particularly played out as it related to airports and seaports. If you ask local government officials, mayors, or governors what their port is, 9 of 10 are likely to say it is an economic development facility before they will say it is a transportation facility. Consequently, there was a great deal of concern expressed that if the federal government is going to designate which of these are key facilities, that may be inconsistent with what really is a local government function to stimulate economic development in a region.

ISTEA was a paradigm shift. It transferred planning authority from the federal to the state and local level, giving them the authority to make the decisions and linking planning with funding decisions. There was concern that if you put the federal government back in that mix in any form, you are setting up a process whereby the federal government designates winners and losers. Remember the question Ted Prince asked yesterday? Is it a valid role for the federal government to be picking among regions of the country as to what is important or expressing an opinion to that effect? That was a concern and raised valid questions of the roles of various levels of government.

As a performance measurement tool, it was an extension of the concern that people had about a planning framework. It was viewed as not being sufficient to really take account of differences you see all around the country in terms of what their unique local needs might be. We might say that a facility on a volume basis performs in a certain way, but that would ignore very valid concerns that this is a key facility for us not because of its volume but because it provides a level of access. We require access to the system and how do you balance those needs?

This debate about the national transportation system initiative raised some very valid questions—most notably, what is an appropriate federal role when it comes to developing a system across all modes of transportation?

Consider the funding questions: flexibility and expanded eligibility. Who remembers UTIP in 1995? I think UTIP crashed and burned because it had such a miserable acronym—Unified Transportation Infrastructure Improvement Program. It was conceived as a single funding program for surface transportation and was opposed by virtually everyone. Concerns were raised about losing the visibility or the funds dedicated to particular modes of transportation. UTIP did not get very far and, ultimately, I think it suggested that people are more comfortable with funding programs designated to specific needs instead of a large funding program with total flexibility in terms of how you might spend it.

There has been a lot of discussion about expanded eligibility for rail freight over a number of years. The department test marketed this concept during consideration of the Transportation Equity Act for the 21st Century (TEA-21) and, not surprisingly, highway interests strongly opposed it. However, it also received only lukewarm to relatively negative support from the railroads. The reason for that was that the railroad’s concern had more to do with whether this was a way of taxing them—if we are going to be eligible for federal funding, does this mean you are then going to come and attach some new form of taxation to support these investments you are making? The highway interests, naturally, were concerned that highway funds would be diverted from their intended purpose.

Over the years, there has also been talk about expanded eligibility for FAA airport funding programs to cover access projects, primarily to airports. We got very significant opposition from the airlines, probably the most virulent across all the modes of transportation. Critics of the airlines sometimes remarked that the airlines believe they have accomplished intermodalism if they deliver your baggage to you. The issue though is that airlines are concerned about being perceived as a deep pocket. If you are going to allow the use of airport funds for other purposes, they view it as a slippery slope with no end.

TEA-21 offers some expanded eligibility for rail projects in credit programs—we will let you borrow money, not necessarily in the grant programs. Of course, there are new programs for borders and corridors and they represent a significant step in expanding funding options for intermodal projects.

Some of the concerns raised related to funding flexibility, seen as a violation of the basic premise of the trust
funds, that the beneficiaries pay for what they receive. Fuel taxes fund highways. Airline ticket taxes fund airports. An extension of that is the mismatch between who pays and who benefits. There was also a concern that this was a larger smokescreen for reducing the overall levels of funding for transportation. I think this was a valid concern because our colleagues in the administration were arguing, “... if you do not have these barriers and walls between the funding screens, you are going to get so much more efficiency out of your transportation investments, so we can reduce the funding levels overall.” It was a bad political argument because everyone said, “You are doing it. You are reducing the funding levels and you are trying to say that it really does not make much difference.”

Uncomfortable questions were being asked about how to spend public funding—and what about private beneficiaries? This is an issue particularly with respect to freight, because so much of the freight transportation system is within the purview of private carriers. A lot of questions are raised, such as: If you are not making an investment in a publicly owned facility, how do you deal with ensuring that it provides a public benefit? Those are questions we continue to work through even today.

Finally, another big issue with TEA-21 reauthorization was the question of whether more funding should be dedicated to freight and trade-related purposes—specifically, the very real political factor that nothing would be added to the program in the way of expanded eligibility unless you first gave every state more money. The result was that 49 of 50 states got more money in TEA-21; the exception was Massachusetts (although I think a lot of people believe they have paid through the Central Artery Project in Massachusetts).

What about restructuring? A lot of initiatives have focused on restructuring U.S. DOT. In 1991, the National Association of Public Administration proposed a Surface Transportation Administration that would blend together and combine the institutions that currently administer FHWA, the Federal Transit Administration (FTA), and the National Highway Traffic Safety Administration. They also had safety in the companion Safety Administration and FRA concept.

Later in 1995, U.S. DOT proposed an Intermodal Transportation Administration that was much broader and actually picked up the functions of the Maritime Administration as well. I lived through about four rather unpleasant months on that one. It was quite interesting. We announced this proposal. Rob Krebs, in his capacity as Chairman of the National Commission on Intermodal Transportation, was right there to say, “This is exactly what we recommended and yes, I support it.” The American Association of Port Authorities (AAPA) came forward in support and no one else. I was quite pleased with the AAPA support—in retrospect it was perhaps a gesture of sympathy directed at me because I had come out of the port community and they figured they should support one of their own. The proposal did make it into legislative form and was introduced in both Houses of Congress. However, it was introduced by what those familiar with Washington, D.C., refer to as the congressional kiss of death. A member introduced it “by request,” which is a member’s way of saying, “I really hate this, but they twisted my arm and made me get this thing out in front of you.” Consequently, it did not go anywhere.

More recently the department put forward an initiative called One DOT—a collaborative effort within U.S. DOT to identify where there are issues, projects, concerns, and programs that cross modal lines and then attempt to develop administrative mechanisms to deal with them and be more supportive of the needs of clients. They have come up with blended offices in certain metropolitan areas of the country, and I think it is fair to say that significant progress has been made in collaboration within U.S. DOT. However, this is not the restructuring that many have argued is needed, particularly if you want to support the needs of intermodal freight.

What were the concerns raised about restructuring? The foremost concern was fear of losing expertise in modal distinctions. FHWA knows a lot about highways. It is the best civil engineering organization in the world relating to highways, and you lose that if you start to mix other modes of transportation. There was concern about loss of visibility of smaller modes of transportation. This was a major issue of transit proponents—if you take away FTA, what does that suggest in terms of the visibility of transit because everyone knows those state DOTs are just going to build highways? The issue of modal advocacy was and is a valid concern—you need someone who can advocate on behalf of the interests of certain modes.

There was also a concern raised that restructuring could result in too much focus on making the system efficient and not enough focus on choices. How do you ensure you have a range of modal choices available to serve your transportation needs and what about basic accessibility? What is basic accessibility? Is it access to one mode, or is it access to several?

A final and interesting point raised was “It does not work well the way it is, but we are more comfortable with the devil we know.” In fact, a couple of intermodal commission members reached that conclusion. Nonetheless, the commission supported the notion of a restructured DOT.

What do we want from the federal government? We appear to be saying the following:

- We want the federal government to provide leadership but not to set priorities.
- We want a little more funding flexibility, but do not take our money.
• Restructure yourself, but keep everyone where they are because we know them, we know how to deal with them, and we are comfortable with that situation.

What have they done in response to that? The Office of Intermodalism has focused its efforts on advocacy, consensus building, and technical assistance. Steven Van Beek yesterday called it a weaver and integrator of programs that might benefit freight transportation. There has, in fact, been some funding of freight needs but so far there have been no large-scale funding programs dedicated to intermodal freight transportation. There have been significant changes in management and program administration but within the organizational and program structures that exist today and with a greater focus on operations of the transportation system.

Are we comfortable with that as a level of progress so far at the federal level? If the answer is “yes” then what we need to do is focus on making the existing program structures and the existing roles work better. Support initiatives like One DOT and figure out what else needs to be done to support the U.S. DOT initiative. If we are not comfortable with that, then we need to ask the question we heard about yesterday: are we at one of those trigger points where you really have to look at dramatic institutional change to respond to the changes in the market?

Some issues to think about as we consider that question are the following: although some might think the progress to date has been modest, it has been extremely difficult to get there. It is true, we have seen dramatic and innovative changes at the state and local levels of government, but is that sufficient? People yesterday appeared to be saying we need to see more from the federal level. If we want to see more change at the federal level, we need to find a community consensus not on what are the changes we would like to see—we have talked about those for 10 years—but instead focus on how we get there. By the way, we cannot forget about Congress in this whole thing, because a lot of this will require legislation.

This has been an overview of some issues the federal government has struggled with over the years in trying to be more intermodal. A lot of progress has been made, but there is a lot more we need to think about. Thank you very much.

TRANSPORTATION ECONOMIC PARTNERSHIPS

Jerry Ellis

Jerry Ellis is regarded by many as the “inventor” of innovative transportation financing partnerships at both the state and national levels. Her vision and leadership have led to many firsts for the state of Washington, including a public-private venture to develop and finance the Tacoma Narrows Bridge, the first significant suspension bridge in the United States in 25 years and the state’s first new toll facility in 30 years. She is Washington’s chief negotiator for the fixed price design build agreement that is being financed and developed by United Infrastructure Washington, a subsidiary of Bechtel. She also represents the state in overseeing the project financing, which will include another first for Washington State—the use of the 6320 nonprofit corporation as the structure for the privately financed project. In 1991, Jerry was the recipient of the WTS Achievement Award as Washington State DOT’s first woman executive who pioneered issues vital to rural and agricultural development, mobility, growth management, and trade and economic development. In 1998, the Women Transportation Seminar (WTS) also honored Jerry with the local leadership award for outstanding steadfast leadership on public-private initiatives. The Engineering News Record has named her Newsmaker of 1994, again for Washington State’s Public-Private Initiatives program. Last year she was awarded the 1999 Public Sector Entrepreneur of the Year Award by the Public-Private Ventures in Transportation Division for her perseverance and leadership in the Tacoma Narrows Bridge project.

This is the second or third time I have had the opportunity to come and share my insights with groups like this and I believe we have made significant progress. Today I want to talk about a couple of specific examples of progress in forging institutional relationships. The first of these is the Tacoma Narrows Bridge project alluded to earlier and it is an example of financing a major transportation infrastructure. The second also involves financing, but it focuses on developing substantial and broad-based collaborative relationships among local jurisdictions as well as the state, the federal government, private partners, and ports.

Let me begin with an overview of the Public-Private Initiatives in Transportation Act. Washington State, like every other state in the union, finds itself with a much greater list of needs than it has money in the checkbook. The Act was authorized in 1993 and was probably the most innovative program undertaken in the state of Washington in terms of trying to find a way to entice private investment into meeting public infrastructure needs. It also authorized the developers themselves to impose user fees or tolls to recoup that private investment in terms of public infrastructure.

We have made substantial progress in terms of the Tacoma Narrows project, with the June 15, 2000, signing of a major development agreement between Washington State DOT and United Infrastructure Company,
which is a subsidiary of Bechtel. They will be responsible for the development of the project and its financing. Through a joint venture, we will conduct the design-build construction as well as the long-term operation and maintenance of the facility.

As you go up the peninsula, there are very few ways to leave the peninsula. There is Highway 101, which does the whole loop and is a lovely tourist road, but it does not necessarily lend itself well to the movement of substantial freight and goods. On the Kitsap peninsula, you have the Bremerton Naval Yard as well as the Trident Submarine Base. In Pierce County are Fort Lewis and McComb Air Force Base. There are some clear issues and relationships between the movement of goods, not only in terms of the private commercial sector but also in terms of the military.

As a result of legislative dictates, we had to do a substantial origin-destination study as well as identify the users and provide them an opportunity to cast an official formal advisory ballot on whether they wanted this project and would be willing to pay tolls for it. It was in a seven-county area and was supported by 53 percent of the population.

What does this have to do with freight? For example, a condensed condenser from one of the nuclear Trident submarines was traversing the bridge—it was being surpluses and taken to its final destination. Those of us in the state DOT wished it had not made an interim stop on the bridge, where it left the truck and made substantial holes in the deck. The existing Tacoma Narrows Bridge is a four-lane, non-divided, no-shoulder substandard width bridge. When that object found its way to the pavement, the bridge, as our major connector, was closed for several hours and then was very reduced in terms of service level for a substantial period of time while it was being repaired. We thought February was bad, but on July 8th, a cement truck turned over on the bridge and provided another reason to close the structure down and then go to reduced service mobility for a period of time.

The public-private partnership itself is scheduled for its record of decision within a couple of weeks. The actual public-private partnership project that is being undertaken by Bechtel will include a new suspension bridge, reconfiguring the existing bridge from four lanes to three lanes. The new bridge will have three lanes and it will have shoulders. They will be standard width lanes. Because of the area we live in, we will undertake seismic retrofit and will be putting a new interchange to remove some of the bottlenecks on the western side, what we refer to as the peninsula side. As I indicated, we will be adding overall capacity of two additional lanes. It is a design-build construction that will be undertaken by Bechtel. With financing in place, we anticipate construction to begin this fall and for the new bridge and all the activities I just mentioned to be completed in late 2004. This is a fixed-price design-build contract being negotiated between the joint venture and our developer. It must bear our stamp of approval, as well as substantial public and local jurisdiction input in terms of the design structure.

The financing of the project involves a $3.00 maximum initial round-trip toll. You might ask, how did we arrive at $3.00? If you have to take a project of this nature and magnitude to a public vote, one of the things the public will demand to know is how much is it going to cost us? To demonstrate how much of a risk taker I am, this was before we had anything other than the most preliminary of engineering instruments upon which to base initial toll rates. It is our goal to maintain that for at least 3 to 5 years and then increase only for purposes of inflation or increased maintenance costs. The state has contributed $61 million in hard dollars to the project—about $11 million for development and a $50 million contribution to the construction of the project. It will be a 6320 that will be under the auspices of our developer, UIW, on a tax-exempt debt basis. Perhaps the most important thing to note is that this is private debt. It is not guaranteed by the state. It is not an obligation of the state.

We hope to wrap up financing by this fall and have the new bridge in place by late 2004 or early 2005. The construction estimate is $350 million. Total private financing will be in excess of $700 million, given soft costs as well as capitalized interests and other needed efforts. That is one of our major projects in terms of putting together a financial public-private partnership using construction techniques such as design-build to gain as much cost savings and efficiency as we can.

Turning for a moment to the DOT and its focus on freight. We, like everyone else during the 1990s, have had to make some changes in terms of how we do business. It became obvious that freight, and hopefully it is not the flavor of the month or the flavor of the decade, required greater attention. In fact, we were asked and there was greater and greater pressure on DOT to find ways of addressing freight issues in all decision-making processes. We were also asked to assume the leadership role or to be the catalyst in bringing together a lot of the private freight industry as well as local governments and our port partners. Clearly we had to begin looking at freight as part of how we do business, as part of our long-term planning, and to look at the securing of public-private funding for a lot of those projects that have a clear freight benefit.

Among those projects are highway system plans. Our mobility program now pays greater heed in terms of what the benefit or the costs or the values are in the 1990s, looking at the freight goods transportation system based on gross tonnage and also looking at all-weather roads. Development of the truck system obviously is one of the more vital components in terms of the efficient movement of freight and goods.
Within our rail program, we are looking at high-density rail lines, the abandonment of short lines, particularly in eastern Washington, which is a highly developed agricultural area. That whole effort came into being in terms of how we, in fact, saved some of those lines and thereby saved wear and tear on the existing farm-to-market roads. At the same time, as there was more and more congestion pressure in the central Puget Sound area, we had to look at additional passenger rail without getting into a situation where it could interfere with freight rail. This has led to a very substantial planning and project identification effort that involves a lot of partners such as Amtrak, Burlington Northern Santa Fe, and Union Pacific as well as the public ports and commuter rail. The latter is now a program funded by the taxpayers of central Puget Sound to increase and enhance the use of rail. The Milwaukee corridor was a right-of-way that existed in eastern Washington, creating another east-west movement, that has now drawn legislative attention in terms of how to bring that back into operation.

With respect to marine and river ports, a number of efforts went on through the 1990s, in cooperation with the Washington Public Ports Association, whose members are among my best friends and associates. In the early 1990s, I was in charge of looking at innovative financing, in addition to running the department's economic development efforts and the business line as far as freight movements. During this time, it was nearly impossible to get the ports individually or as an association to willingly come to the table to be part of either a collaborative planning process or, heaven forbid, to look at how we might pull our funds to develop some of these needed projects. I was told, “Quite frankly, Jerry, we don’t have a problem. You folks may have a problem, but our stuff is moving just fine, so thank you very much. We will go on with our business and please go on with yours, and life will be marvelous.” What happened in central Puget Sound was that life stopped being marvelous very quickly. As we experienced more and more congestion, it became more and more difficult to get in and out of the ports of Seattle and Tacoma, at least with any degree of predictability. In addition, ISTEA came along and in Washington State we started looking at putting together a group to send out a lot of the enhancement funds to the local jurisdictions and some of us thought the ports should be at the table. They were not in the beginning, but they are now. We also now have an effort in which we are doing more planning together, in terms of the relationships, in terms of our marine cargo forecasts, which previously were essentially a function and analysis done by and for the ports. Now we are a joint funding partner and work together in terms of making sure we have an integrated system and finding out what the potentials are in terms of impacts.

All this activity has led to some major efforts now under way. One is what we call the FAST corridor. Peter Beaulieu will talk about it this afternoon in another session, so I will simply say this is one of the major efforts of the state in which we are bringing together several partners to resolve port access and grade separation problems facing us in central Puget Sound. It started with the formation of the freight mobility roundtable, where parties came together not as decision makers but to find common ground in a positive manner instead of airing differences. The entire FAST corridor effort includes 15 projects with a total price tag of about $470 million.

Another major effort is the Cascade Gateway at the border of Canada and Washington. We have been successful in securing TEA-21 funds under the border crossing program. This effort involves the Whatcom County Council of Governments in the Bellingham area as well as state DOT, U.S. Customs Service, U.S. DOT, and others to find a solution to the bottlenecks that exist in terms of both time and effective movement. Again, this is an effort in which we are bringing together people with a common purpose and an understanding that, in some cases, we have to fund and pool our resources to be able to accomplish the greater good.

The last example is the Freight Mobility Strategic Investment Board (FMSIB). The state of Washington has moved to institute or institutionalize the importance of freight and the need for investment to ensure efficient freight movement in the state. This came about through various efforts and included a group of about 60 people, which was really too large of a group to make meaningful decisions, but it did provide a common platform for identifying projects to be undertaken and developing a basic underlying policy that gave a focus to freight. After that was the Project Prioritization Committee, which I chaired. Policies and concepts are marvelous things, but when we begin to “slice the bacon,” all hell breaks loose. Suddenly, what we all committed to in terms of strategic corridors first, the farm-to-market road in Walla Walla becomes a priority project, and so it goes. However, we were able to develop some criteria and made the FAST corridor our highest priority.

FMSIB now stands as a small but separate independent agency, controlled by a board made up of public and private members and with a focus strictly on freight and freight investment. It was established in 1999 and funded for $342 million over 6 years for several of the priority projects that everyone had agreed to. I am not going to take the time to go into the fact that those funds are now in jeopardy, given that voters of Washington State have moved to a different place in terms of what they want to pay for—their car registration or their tags. This will be a problem for us to figure out in terms of overall funding. Nonetheless, as a result of all those efforts and an enhanced look or focus on freight, we have been able to make substantial progress.
I have worked in public-private partnerships and put together financial packages for longer than I care to admit. It is tough. It is extremely tough when you face countermanding cultures between the private sector that must look to its bottom line and the public sector that, although sometimes it cannot define it well, says that public stewardship is, in fact, our only responsibility. The challenge is to put together effective partnerships, particularly financial partnerships, and I believe that from this day forward we will have to look at financial partnerships. The days of our colleagues in the public agencies, or those in the private sector, or the ports or local jurisdictions, simply saying we really need this, how can we go to the federal government or the state government to get the money, are gone. We are going to have to look at innovative financing approaches. There has to be an understanding that there is a mutual sharing of the risks, of the responsibilities, and the costs as well as the rewards and the benefits. This is standard Business 101 for the private sector. This is how you put together deals and the reason you put together deals. There is always the understanding in negotiating those deals that there is a good tool or a good contract or a good deal developed when you have those benefits and the risks somewhat in balance.

In negotiating these sorts of deals, we in the public sector, and I know this is an extremely difficult thing for many of my colleagues, must have the ability to sit down in a private setting and figure out if there is a deal or possible deal that meets the criteria laid out. Once there is a clear understanding of what the deal is, it must be approved and be transparent enough to be acceptable in a public arena. Among those negotiating activities is obviously some determination that the private sector does this and does it much better than the public sector ever has. It is because we simply have a hard time grappling with this issue of public versus private. I say “versus” deliberately. We still think in the terms that if we are able to arrive at something that benefits both, somehow the public sector has left more on the table than it should have. This is an attitude that we have to begin to get over if we are going to be able to put together some of this infrastructure funding that is needed. We have to look at who benefits and how much, who should assume what risks and what costs and then, obviously from my side of the table, what public policy factors should be applied.

We also have to learn to be prepared to walk away from deals. In the public sector, there are some instances when we have gotten so caught up and so enamored of putting together these public-private partnerships and overlooked the fact that we may have a deal that really is not very good, but somehow we do not think we can back away because it is a public-private partnership and that is a good thing. Sometimes it is not. The public sector has to become comfortable with also putting on business hats.

Successful partnerships, successful negotiations have to be based on market and political realities—not on models, not on what we think our technical analysis might tell us. The private sector has to deal with the bottom line. One of the things that happens is government has a tendency to plan in 20-year time frames, and we can keep a lot of people busy doing that for 20 years. We fund in very short annual or 2-year increments. But we do have a tendency to want to go on in terms of our long-term models and plans. The private sector person has got to have delivery this Friday afternoon. So many times, that is the difference between a bottom line and long-term planning. We have to begin to understand those market realities and our private partners have to begin to understand our board of directors, our stakeholders in the political environment. Thank you.

GREATER COLUMBUS INLAND PORT

Benjamin Ritchey

Benjamin Ritchey has more than 20 years of transportation policy freight operations and program management experience. He is the Vice President and General Manager of Battelle’s transportation market sector and also serves as program manager for a multimillion dollar technical support contract with FHWA’s Office of Policy. His recent work has focused on management of two major congressionally mandated projects—the truck size and weight and highway cost allocation studies. Mr. Ritchey also works on energy and environmental issues and on assessment and deployment of transportation technologies. Mr. Ritchey is also Chairman of the Greater Columbus Inland Port, a group that serves as a freight facilitator and a broker for the Columbus, Ohio, region. In his capacity as chairman, he commands a unique army of public and private volunteers.

I will be talking about something that is very localized and basically operated by the private sector—the Greater Columbus Inland Port (GCIP). GCIP is not a port in that there are no big ships coming up to a wharf or dock. Instead, it is an entity of private interests who are all interested in freight. We are associated with the Columbus Chamber of Commerce, so there is clearly an economic development aspect to what we do. It is operated, organized, and led by the private sector. Membership on the commission does include public sector as well as private sector, but the public sector people tend to take a back seat in leadership, because the purpose of the group is to foster and advocate for solutions that represent a collective of freight interests in the Columbus area.
Who is GCIP and what is our purpose? Our basic mission is twofold:

- To promote central Ohio as an efficient, cost-effective location for the distribution of products and materials throughout the United States and the world; and
- To advocate and facilitate continued development and coordination of the region’s freight transportation needs.

Established in 1992, the group includes private sector people from corporations such as The Limited, Lucent Technology, McGraw-Hill, Bath & Body Works, Abercrombie & Fitch, and other manufacturers whose names you might not recognize but whose products you are probably familiar with. We have railroads, trucking companies, and freight forwarders as well as the public sector—primarily state agencies and the local metropolitan planning organization (MPO). We also have regional Chamber of Commerce people not only from the Columbus area but also from the surrounding counties.

What do we do? We have five principal areas of endeavor: (a) cooperative marketing programs with coastal ports, (b) an intermodal rail enhancement program, (c) facilitation of information technology, (d) cooperative demonstration projects, and (e) a shipper association.

Why would a port such as Long Beach enter into an agreement with an inland port in the Midwest? Because we are a central point of contact for their current customers or potential customers in central Ohio. We have direct access to their customer base. They can call us and say they are coming out for a visit and we, in turn, can organize a meeting with 10 to 15 private sector companies, perhaps focused on a particular issue or topic. For a port marketing department, this kind of assistance is very important. What do we gain from partnering with the coastal ports? Our members, most of whom are private sector freight interests and shippers and receivers of freight in the central Ohio region, can collectively do a better job of getting and improving the services they require. For example, if we can knock off a day or two of transit time between Columbus and southern California by better integrating the international water and domestic surface movement of goods, that is exactly what we do. We bring the different players together.

To arrange for service and have it work and sustain itself has been somewhat problematic. For example, we have a third party involved in rail intermodal, who is very interested in improving service between central Ohio and the ports of New York and New Jersey. We are working with that third party now to better understand how we can facilitate our end of it. In the case of bulk commodities, we make an effort to pool collective shippers together and help arrange services. We organize general cargo shippers in an effort to get better service and lower transportation costs for our members. For example, The Limited has goods coming from Asia into Columbus and then being distributed out of Columbus to the rest of North America. The Limited has a fixed amount of container tonnage that will move in and out of the area. GCIP piggybacks some other shippers such as Honda and McGraw-Hill with The Limited to negotiate better service and rates. This is another reason why ports and others are interested in our activities, because we can organize and bring shippers together.

GCIP has four committees:

- The information technology has sponsored and hosted events to showcase information technology. They offer services to the members with regard to new software that may be coming out and new Internet advances. For example, we have a meeting coming up that will feature speakers on e-commerce and how it deals with the freight issues.
- The distribution and services committee serves as a point of contact for carriers or other service and facility providers who want to have a meeting in the Columbus area. For example, British Airways came in and, with a 3-day notice, we were able to deliver 22 individual companies to attend a meeting to talk with them about airfreight coming into Rickenbacker Field, a former military air base that now serves commercial carriers. (The Ohio National Guard is also still at Rickenbacker, but we are trying to build it up as a dedicated air cargo airport.)
- The workforce committee deals with some interesting issues. In central Ohio, we have unemployment of 2.1–2.3 percent. For all intents and purposes, we do not have an unemployment problem. What we have is a labor shortage. Because the freight-related industries—including companies like The Limited and McGraw Hill—need middle- to low-skilled labor for their warehousing and manufacturing and distribution services, the labor shortage is an issue common to our membership. GCIP brought up the issue and has been dealing with it so much that it has become an issue that goes beyond freight. It is an example of what an organization like this has done for its membership.
- GCIP also has a committee that works with the Mid-Ohio Regional Planning Commission—the local MPO—as a sponsor or advisor to a number of freight studies. We play an advisory role by encouraging industry to work with the public agencies. One example is recent work done with regard to congestion issues in the Columbus area.

Where do we take GCIP in the future? This group of freight interests is organizing to educate public sector decision makers, mostly at the state level but also at the MPO and city level, about the importance of freight to the economy. How many jobs does it create? What does
it generate in terms of economic benefit? How can we work together to resolve freight-related problems such as congestion? We are also getting involved in an advisory role about how to spend highway money. What share should be allocated to passenger issues? What should be spent on freight issues? This relates directly to our efforts to educate the decision makers.

GCIP is very involved in economic development and helping find effective ways for the Columbus region to compete with Pittsburgh, Indianapolis, Cleveland, and Cincinnati. This involves marketing the area and really goes back to our roots within the Chamber of Commerce. Among the advantages central Ohio offers are the exceptional land-air connections available at Rickenbacker International Airport; United Parcel Service’s large distribution hub operating from two facilities in the Columbus area; the NATP (North American Trade Point), the only United Nations Conference on Trade and Development designated trade point in North America; and numerous international trade consultants, freight forwarders, customs brokers, and international shipping companies.

One of the major GCIP efforts had been to transform the former Rickenbacker Air Force Base into a dedicated air cargo facility, making Columbus a major U.S. gateway for airfreight. We are competing with major cities and airports in Chicago, New York, and Atlanta. This has been a major challenge; however, it is in our best interests to continue this effort.

The major issues GCIP deals with are not unique to the Columbus area: the impact of highway congestion on freight productivity; prioritizing freight projects and integrating freight into long-range transportation improvement plans; finding strategies to finance local freight improvements, particularly when rules for infrastructure financing are somewhat restrictive; and adapting to a changing economy that has gone from regional to national to global. Related to this last issue is the growth of e-commerce. GCIP has been able to convince local political leaders to encourage and support e-commerce incubator companies. This effort is about a year old and in 10 years perhaps we will know whether this has contributed to the region’s economic development goals.

With respect to long-range planning, GCIP brings together on a quarterly basis the private sector, the freight interests, and the public sector (state, MPO, local) to encourage dialogue and mutual understanding of how the others operate. As Jerry mentioned earlier, it is the public sector’s 20-year planning horizon versus the private sector’s need to get freight out this Thursday or pay-roll out on Friday. These people operate in different worlds. GCIP works hard to encourage them to listen to and appreciate one another. We have had some incremental success in that the private sector has gotten more engaged with regard to the planning process for infrastructure improvements. GCIP members meet on a somewhat regular basis with officials from Ohio DOT to offer advice during the planning process, particularly when capital projects are being selected.

GCIP is a part of the Chamber of Commerce, which is interested in economic development. We have been organized to recognize the importance of freight in central Ohio and to act as facilitators and advocates for freight. Thank you.

PORTWAY PROJECT

Robert James

Robert (Bob) James is policy advisor at the New Jersey Department of Transportation and staff liaison to the Port Authority of New York and New Jersey’s (PANYNJ) Portway project. He has more than 20 years of experience in transportation policy, process, planning and program development, legal and legislative analysis, definition and resolution, and intergovernmental and public private sector relations. His recent contributions include providing leadership management support for successful New Jersey DOT initiatives including the New Jersey International Intermodal Access project, the Dredged Materials Beneficial Use Task Force, and the State Transportation Infrastructure Bank. Before joining New Jersey DOT, Mr. James worked for PANYNJ as a policy advisor and as a principal business and intermodal planner. He also worked for the Office of Transportation Policy in capacities such as strategic planning specialist and executive speechwriter and as supervisor of intelligence, liaison, and policy analysis.

I will talk to you about the Portway project generally and about some of the partnerships and institutional issues that come up in a very dynamic project that has a mix of infrastructure improvements focused primarily on intermodal access. These intermodal access features deal primarily with accessibility to the port, but they also deal with accessibility to a number of major intermodal facilities that are clustered in a 12- to 17-mi area in northern New Jersey. They also include a major air cargo facility, several major freight intermodal transfer facilities, a number of major locations for trucking firms, and some areas for economic development. There are also a number of underutilized brownfield sites in the Portway zone, because it is one of the oldest areas for manufacturing and freight transfer in New Jersey. These sites portend to provide a chance for a renaissance of freight activities tied to the global economy, and it will be an important element in the Portway plan.
Portway began in 1996 as an imperative forced upon the state as it weighed the consequences of expanding its channels and becoming a major hub port. It also came about because a good friend of mine liked to look at railroad maps and knew a lot about railroad history. He looked at the intermodal area and said, “Wouldn’t this road work better if you connected this here and that there, and you went here?” Sure enough, he was right. I worked with him to add some background to the proposal and we began to move it forward, with the approval of our commissioner, through various political channels in New Jersey and finally won the solid support of the Governor’s office as well as most major economic development groups. Certainly, the opportunity and endorsement for going ahead from the local communities had a tremendous impact on this effort.

There are two primary factors involved with Portway: 
(a) you have an old infrastructure that has not been improved in 50 years. This infrastructure is the front door to port, rail, and trucking facility transfers in the greater New York region. (b) You have a growing global economy in the area that is very much changing the demand quotient. As most of you know, the port of New York–New Jersey is already a major hub port, but it is also going to be a major center of activity as a result of expanded action by Maersk–SeaLand.

In addition, because of the Conrail purchase, we will have two railroads operating where one railroad previously operated and they both intend to double their business. Hence, there is a lot of rail and intermodal movement in the area. The key nexuses or connectors to this intermodal activity are the trucking firms that serve the drayage function of transferring containers to and from the port and from the rail facilities to the ultimate customers, shippers, and warehouses.

There is a lot of freight activity and the general regional economy in New York and New Jersey has done very well. We look forward and we see tremendous pressures on demand. When dealing with demand, the place to start is the front door and Portway is literally the front door to intermodal transfer and intermodal transfer opportunities.

The major goals of Portway are to achieve efficiency, synergy, economic development, and economic sustainability. When you are trying to do a lot within a major project, then certainly there is the new transportation paradigm. Portway starts at the New Jersey seaport. There are two major facilities that represent the bulk of the New Jersey seaport operations, and, in fact, the bulk of the entire seaport operations in the New York–New Jersey area. The northern New Jersey seaport, as part of the port of New York and New Jersey, is the largest container port on the East Coast. It handles more than 2 million containers a year and 2.8 million are projected for 2010. That estimate was made 3 or 4 years ago and it is likely to be surpassed. We currently handle 20 million tons a year through the port. As a result of this activity, directly or indirectly, 166,000 jobs are created.

The New Jersey seaport handles about 95 percent of the entire port volume in the port of New York and New Jersey, and it provides, or at least has the opportunity to provide, integrated rail, truck, and warehouse facilities. The intermodal picture involves more than port service. There are the railroad factors. One million containers currently move through rail terminals each year along the proposed route; and the railroads want to add 50 percent more trains and they want to double this business in less than 20 years. There are several railroad yards directly along the Portway route, which are served by the improvements to the “front door.” Another part of the intermodal picture is trucks and warehouses; 15,000 trucks travel through the port each day; 2 million trucks per year carry intermodal containers in this area, and the projection is for about a 4 percent annual increase for quite a while.

The intermodal picture would be incomplete if we did not mention air cargo. Newark Airport, which is located directly adjacent to the port, is the eighth largest air cargo facility in the United States, handling 1.14 million tons a couple years ago and growing. Growth in the 1990s was at about a 10 percent clip. New facilities have been created at port Newark for air cargo and we will also see those new facilities produce efficiencies if we can capture them in the access system.

The ports that serve the seaport in this area have not seen any major improvements since the 1950s. I am not talking about the Turnpike—I am talking about the access road. It actually goes back to the 1930s when great pieces of infrastructure like the Holland Tunnel and, for those of you who are familiar with the area, the Pulaski Skyway were built. The main problem is to deal with the congestion that has built up over the years and also move forward to deal with the issues of demand.

Portway improvements aim to create a dynamic new intermodal corridor. The corridor must be capable of serving as the surface transportation match point for the new super-container ships that are coming into the port. Portway aims to cut the trip cost on the landside in half. Trips through the Portway system between the railroad yards average 30 to 50 minutes. As Warner Wolf would say—if you are familiar with northeastern sportscasters—that is too long. Costs average more than $70 per hour and that is too expensive.

Portway means improvements to existing roads via public rights-of-way that currently exist, private rights-of-way that will be added to provide direct access to railroad facilities, a new river crossing to add completion and redundancy to the system, and a new Turnpike exit that will either be a new front door for Port Newark-Elizabeth or a major connecting point between Port Newark-Elizabeth.
and the port facilities at Bayonne and MOPI, the military ocean terminal. We have some sense this was abandoned by the military and is now coming into private use. One of the major private uses at MOPI will be new port facilities that will be integrated with existing port facilities, hopefully in the not-too-distant future.

Some Portway connections are in progress. For example, Remus Avenue, which is the major road that leads from the port northward to a Turnpike exit, is about to begin a major reconstruction. That project is slated to begin in 2000 and to be finished in about a year. A major part of that is a bridge that spans the Oak Island railroad yard. This bridge was initially constructed as a trolley access to the port during World War II when it was a submarine base. We have gotten a lot of mileage out of that piece of infrastructure, and it needs to be replaced.

The project will also cover the “twilight zone” of transportation in northern New Jersey—Charlotte’s Circle and Tonnelle Avenue Circle. This is a series of ancient highways that run between Newark and Jersey City in Hudson County that serve as both major urban thoroughfares and a major freight nexus in the area going to warehouses up and down this particular corridor. Quite often, this corridor turns out to be the trip from hell for both the freight industry and other people in the adjacent localities.

Portway will move forward in several distinct phases. Phase one is a series of projects that were developed under independent utility—hence, they are going first in a number of projects that are additive. You start out at the port. There is an Express Rail flyover being built by the port authority that will end the conflict with on-ground traffic at the port. The railroad will then be able to come in at all hours of the day and not conflict with ground traffic, giving greater flexibility to the capacity of Express Rail, an on-dock railroad facility run by the port authority. There are the bridge improvements for putting in new crossings to link into an economic development zone, and then there are a series of railroad yards that basically handle domestic intermodal at the easternmost point of the port. About 600,000 containers come into this area from the West Coast each year via mini-land bridge.

Phase two, if it can be built, and there are a number of environmental questions here—will extend from Croxton yard. Croxton yard will be accessed through the Charlotte and Tonnelle Avenue circle through a private right-of-way that will provide direct truck access into the rail yard and thus alleviate traffic not only within the circle but also along the right-of-way. We would like to extend that principle further northward to Little Ferry yard, which is a major CSX terminal up to the north, to create a full system. This location also gives us the potential option of linking into the Turnpike and actually creating a new right-of-way that could be a freight route parallel to the Turnpike. If the concept works out, this is the best way to go.

Phase three, which actually becomes phase two out of necessity, is improvements to the existing and potential port facilities at Bayonne. The idea is to get quick access to the Turnpike without going on local roads, improving railroad connections into the port, and generally building up the capacity of this port facility. This is probably the best port location in the New York region, because it sits right on a channel that can be dredged to 30 ft and easily maintained. There is also an area of about 100 million ft² available for development for ancillary port and other freight and warehousing activities.

Portway depends on partnerships with communities, businesses, developers, freight companies, and the state of New Jersey and other public-private sector entities. The partnership with the communities involves focusing on (a) the entrepreneurial elements of the community, (b) businesses that are already in the rights-of-way, (c) taking a proactive role through brownfield redevelopment, and (d) looking to ports in other areas, where manufacturing and value-added services tie directly to port activities and can be advocated in advance. As far as the business community goes, we have talked to firms and facilities along the right-of-way, the trade associations and the local entrepreneurs. The developer community and freight interests also need to be taken into account.

In this process, New Jersey DOT has taken the lead. This project is part of a larger area that is an international intermodal corridor. It applies both to Portway and a broad region in northern New Jersey that includes major highways such as the Turnpike, the Interstate highways, and also mass transit facilities and older roads like Route 1 and Route 9 that need rehabilitation. An assistant commissioner has been put in charge of specifying, prioritizing, and developing the international intermodal corridor in northern New Jersey, understanding what is going on with all the activity here, and advancing priority projects such as Portway.

Another very important New Jersey DOT function is internal scoping and development. We tried doing Portway as a public-private sector partnership right from the start. We had a new statute similar to the Washington statute to get it going. However, there did not appear to be enough benefit deriving to the public sector to advance the partnership at this time. I think one of the reasons for this is that the DOT had to come to grips with the project internally, to understand what needed to be done and begin looking at the broader role the DOT would most likely play. The question of whether public-private sector partnerships will emerge from Portway remains to be answered. As the state gets smarter in its management role, it is very possible.

Former Congressman Robert Rowe, sometimes referred to as “Mr. ISTEA,” was able to get included in the
TEA-21 legislation funding for a university-sponsored center that will examine and promote international intermodal corridor development. We are negotiating with the center to prepare background information in the areas of economic development and modeling. We also have a partnership with the North Jersey Transportation Planning Authority, which is very important because they are the local MPO responsible for preparing the transportation improvement plan in which the Portway projects need to be included. They also conduct their own brownfield studies, in which DOT partnered with them to maximize local economic development partnerships.

We have several projects of independent utility under way—about $90 million worth of projects out of the $750 million Portway project that will take place over the next couple of years. These projects include the Doremus Avenue and Doremus Avenue Bridge improvement, and the Port Authority–sponsored Express Rail improvements. We also have guaranteed in the Turnpike budget that monies are set aside and available for a new freight-focused access to the port.

Another key immediate challenge is a financing plan. As we get further into this, we realize this will have to be a partnership. Initial thinking is that we need to establish goals among the partners. A hypothetical goal, for example, would be 40 percent state funding, 40 percent federal support from loans and grants, and a 20 percent local and private sector contribution. For example, the Conrail Way, which would be a private access to the Croxton railroad yard, could be supported by the railroads directly or through fees for access along that specific route.

Another important key factor will be proactive community outreach. We have done a fairly good job in dealing with the establishment in New Jersey, the trade associations and the Governor’s office, in establishing support for the project. We have used various means to let the locals know about it and we have had some meetings aimed at avoiding potential conflicts that may develop with local projects. We are about to finish up the concept development for phase one and begin concept development for phases two and three; therefore, the time has now come in our process to become very proactive in community outreach.

Broad benefits are possible from Portway. One of the most beneficial aspects is that it can reclaim brownfields to save greenfields and grow new jobs. What is important is that it also allows New Jersey to concentrate its distribution facilities in one area, thus reducing the distance that trips are traveling and the amount of energy that is used. It puts an economic development engine in an area where employment is still very much a real concern. Portway improvements can energize existing businesses and attract new industries such as remanufacturing.

Portway is critical access for the 21st century. It will provide a truck route to relieve congestion. It will be an intermodal freight corridor to support economic development and create jobs. It has the solid support of the governor and was mentioned in the state of the union address last year.

Portway is a marrying of interests. We have something old—the infrastructure that needs to be improved. We have something new—new bridges, new access to the turnpike, new flyovers to Express Rail at the port. We have something borrowed—more than likely it will be the money required to cover a lot of these costs and some of the projects that are already under economic development. We have something blue—the people who are operating out there in the corridor under current constrained conditions. We hope a partnership will produce a happy marriage and show proudly for the state of New Jersey, the region, and the country. Thank you.
Cape May is at the southern tip of New Jersey. It is a resort community. The Coast Guard boot camp at Cape May is built on a World War II airfield. It is not a resort community. As a seaman recruit at Cape May in December 1965, I am sure I was wondering if I would ever be introduced at a prestigious national conference by a Coast Guard Admiral. At the time, it was five below zero and blowing 20 knots, and a Chief Boatswain’s Mate was yelling at me—times are better now. In all seriousness, thank you for the introduction and I am truly honored to be here and to have been introduced by Admiral North. Unfortunately, I do not bring you a happy message.

I work for XL Specialty Insurance Company (Intercargo), which insures cargo, and I run a cargo crimes investigations program called Operation Intercept. In 3 years, that program has recovered $4,300,000 in stolen cargo, but it has investigated nearly $17,000,000 in losses. Cargo crime is epidemic in this country. Fifty percent of our inland and ocean marine losses in the past 2 years were the result of cargo crime of one type or another. It is my perception that cargo crime may be as bad or worse in some parts of this country as it is in almost any other country in the world.

Throughout recorded history, cargo has been moved from point to point and placed in storage, and thieves have stolen it. Bandits, highwaymen, and pirates beset early cargo carriers, and when Lloyd’s of London was formed
in the 1600s, one of the recognized perils of transit was cargo theft in all its variations. As the technology changed, so changed cargo theft. When we used wagons, they stole cargo from the wagons or they stole the wagons. When we used ships, they pirated the ships and stole the cargo, sometimes stealing or sinking the ships. Early rail was beset with robbers, much like those who still climb aboard slow freight trains near the U.S.–Mexico border, but the overall character of cargo crime changed dramatically during the past 10 years, building on events that occurred in the 1950s and since 1985. In the 1950s, we invented the intermodal system, and in the 1980s we invented practical personal computers. Together, these inventions changed the face of cargo crime in the decade of the 1990s and beyond.

In a cynical sense, the current state of cargo crime is indirectly the fault of two famous and respected Americans: Dwight Eisenhower and Malcolm McLean. Eisenhower was the driving force behind the creation of the Interstate highway system, which he thought was necessary to ensure the efficient movement of troops and materials to all parts of the continental United States in order to be able to best resist an invading army. The creation of that highway system made it possible for interstate trucking to compete effectively with the railroads and opened the door for another innovator, Malcolm McLean. In the mid-1950s, when McLean first drove a truck aboard a ship in New Jersey and took it to Texas by sea, intermodalism was born. The concept of moving cargo by different modalities within the same box or trailer became viable. The incredible efficiency and speed of the intermodal system has not only opened the door to intermodal world commerce, it has also provided great opportunities for cargo criminals. Further, the sudden practicality and popularity of computers and high-value consumer electronics made it common to ship loads of cargo worth well over a million dollars in containers. Price increases on cigarettes raised the value of a container of smokes from $100,000 to over a million dollars. With ample targets as a result of the booming economy, and plenty of ammunition, cargo criminals have been having a turkey shoot.

Two primary characteristics of the intermodal system have changed the face of cargo crime. The first is that the system is so efficient that stolen cargo can now be moved extremely rapidly around the world. A load stolen in California can be exported from New York within a week, or it can cross the border into Mexico within 12 hours. Freight forwarders, who often see only the paperwork, are used, generally without their knowledge, to move stolen cargo through legitimate cargo transportation systems. Given the incredible volume of cargo on the move, and the limited resources available to the U.S. Customs Service, most cargo moves in and out of this country without ever being checked once the doors are closed and seals are applied.

The second characteristic, which also serves to prevent certain kinds of theft, such as pilferage, is the innocuous character of containers. Without the paperwork, there is no way to tell what is inside. If the cargo is stolen computers, and the paperwork says miscellaneous furniture, it will likely be treated as miscellaneous furniture throughout transit and may well exit the country with that designation. On the other hand, the innocuous character of containers should prevent theft because cargo thieves should not be able to tell which container holds valuable cargo and which does not. This being entirely true, one would expect cargo to be stolen in proportion to its frequency. In essence, we should have more theft of foodstuffs than anything else because there are more containers holding food than there are holding computers. Our statistics show, however, that of the $10,000,000 in investigations we conducted last year, $4,172,600 were for computers and consumer electronics (24 claims) and $300,500 were for foodstuffs (six claims). These data suggest that most high-cost thefts occur because of inside information. I guess this means we can blame Eisenhower, McLean, and insider information.

Unfortunately, the fault lies also with the participants in the intermodal system, primarily as a result of the common practice of passing the buck. Shippers play their part when they pass the buck to truckers (if it gets stolen, the trucker will pay the loss). Truckers play their part when they pass the buck to underwriters (it’s insured). Underwriters pass the buck when they repeatedly underwrite bad risks (maybe it will get better this time), and, in the long run, consumers pay the price and criminals get the bucks. By refusing to implement good security practices, even the most elementary efforts to protect cargo in storage and transit, shippers, carriers, and underwriters are subsidizing the cargo theft industry. This frequent refusal to accept responsibility leaves the door open to thieves. Shippers who mark their boxes so that thieves know they are valuable (does anybody here not know what is in a box with “cow” markings?), carriers who park valuable loads in abandoned K-Mart parking lots, underwriters who place premium ahead of prevention, government that inadequately supports law enforcement efforts to fight cargo crime, and law enforcement that embroils itself in turf issues and is frequently uneducated about cargo crime yield a pattern of inadequate response to the problem that ensures that cargo crime will not only continue, it will worsen in the decades ahead.

Four things need to happen to give us any chance of winning this war:

1. First, and foremost, we must provide additional support for law enforcement cargo crime task forces in all our major cities. Tomcats in Miami has 21 full-time officers and is so overworked they cannot provide a full investigation for any loss under $200,000. Los Angeles has
at least four cargo crimes task forces: Cargo Cats, Bad Cats, the FBI, and CTIPS, and they are all overworked, notwithstanding the ongoing divisions and political issues that make their jobs more difficult. Chicago is politically immobilized and has no real multidisciplinary task force. Memphis has its act together and supports an outstanding task force, Atlanta has nothing at all, and the Columbus, Ohio, police department, in one of the primary transshipping locations in the country, thinks cargo crime is the same as automobile theft.

2. Second, insurance companies, shippers, carriers, and law enforcement must join together to share information, much as they do through the National Insurance Crime Bureau. That particular group is too bureaucratic and single-visioned for this job and has no focus on cargo crime, but a group must be found, or a new one created, to combine and compile information on cargo crime that is accessible to law enforcement, investigators, shippers, carriers, and insurance companies. Current efforts, like Cargo Tips at the American Trucking Associations, are noteworthy, but they leave out some of the key players and are not interactive enough to serve as investigative tools. Understand this—we have been talking about $10 billion in cargo crime in the United States annually for about 5 years now, yet that figure is unsupported by any hard data. We really do not have a clue about the financial impact, either directly or indirectly, and that is the least of the problems. Police in Texas recently found five stolen loads in a warehouse. They spent 6 months trying to find the owners and underwriters of the cargo, but, without a central database, finally gave up and sold the cargo at auction. A load of batteries went begging in Chicago, and although a load of computers was partially recovered in Los Angeles, it was recovered only because an insurance company personally notified Cargo Cats of the loss. Salt Lake City Police had the loss recorded as automobile theft.

3. Third, cargo crime must be more strongly criminalized by statute. Organized crime is shifting resources to cargo crime because it is easy and because the penalties are minimal or inconsistent. Neither state nor federal courts are consistent in their handling of cargo crime, and the options available to those courts that do pay attention are too limited.

4. Finally, we have to stop passing the buck. Truckers who do not follow good security practices should not be insured. Shippers who are careless about how they hire personnel, how they protect information, and how they choose carriers should feel the pain of cargo crime instead of dumping it on somebody else, and underwriters need to wake up and realize they cannot allow the drive for more premiums to overwhelm the requirements of proper security and loss prevention.

I can tell you this right now: small drayage carriers in the Los Angeles–Long Beach market are not insurable for cargo theft at any kind of reasonable rate. The same is true in Miami, and it is becoming true in New Jersey and New York. Without extraordinary security precautions, valuable cargo cannot be reasonably insured against theft in most of South America, most of Central America, any of the former Soviet republics, much of Africa, and parts of the Far East. Computers and consumer electronics, tobacco products, and other high-value cargoes are rapidly becoming potentially noninsurable as insurable risks because of both the concentration of value in each shipment and the risk of theft. The cargo crime situation in this country is grim and truly out of hand in some cities here and in many overseas.

I am going to shift to an entirely different picture—still cargo crime, but a different type of cargo crime. This is a true story, it is still happening, and it gives a real sense of the global implications of cargo crime and some of the incredible complexities of dealing with it. This crime is called barratry, an old English term meaning the illegal seizure or theft of cargo by the master and crew of a vessel.

In June 1999, a U.S. Coast Guard law enforcement detachment, working in cooperation with the British Navy, arrested the vessel China Breeze off the coast of Puerto Rico. She was carrying 8,800 lb of cocaine, and her arrest turned out to be the eleventh largest maritime cocaine bust in history. She was registered in Panama and shown as owned by Moccha Marine Ltd. Lloyd's List (January 26, 2000) states that she was in fact owned by an individual, Elias Kellis, who is now reportedly in jail, and was the same person who owned a vessel called Kobe Queen through a Greek company called Nominator. The prior master of China Breeze, although not at the time of her arrest, was a man named Yuri Livkovsky. He later became master of Kobe Queen I. He was not connected to the drug smuggling charges placed against China Breeze.

The story now moves to Kobe Queen. At about the same time, in May 1999, five steel brokers in Europe and the United States chartered the Kobe Queen through a chartering broker called Reliant, a Greek company. Chartering means that each of the brokers contracted for a percentage of the vessel’s capacity, and Reliant made the arrangements on their behalf. Under the chartering agreement, Kobe Queen was ordered to pick up steel and chemical cargo in Turkey, to make a stop in Greece, and then to proceed on to Dakar, Senegal, to discharge the chemicals. The steel was destined for three ports in the Caribbean. With her owner in jail, Kobe Queen was being managed by a Ukrainian company named Babush. We theorize that Babush, knowing that the sister ship, China Breeze, had been arrested, and that the owner of both ships was Greek, determined to order the vessel to bypass the assigned Greek port in order to avoid possible arrest, and then ordered the Kobe Queen to proceed.
In late September, we discovered that Babush had lied, and that the vessel had bunkered and received food from a barge off of St. Charles Cape Verde Islands on September 3, 2 days before Babush told us the vessel desperately needed supplies. Attempts to address this issue with Babush failed.

Throughout September and October, we continued to try to negotiate with Babush. Every morning we read voluminous e-mails on our home computers, spent the trip in to work on the cell phone discussing the matter, and spent 3 to 4 hours every day working the case. It became all-consuming. During the course of this investigation, over 1,000 e-mails were sent to and from Intercargo alone. Figuring in the other parties, over 12,000 e-mails were sent. We had communications translated into Ukrainian, we sent FedEx packages, we sent telexes to the ship (confirming her general location by the location of the satellite receiving her responses), and we retained an international investigative firm to research the people involved and the issues. Among a great deal of useless information, the firm told us the vessel was suspected of drug smuggling, that the owner was in jail, and that Babush were bad people—Russian mafia, they said. In October, another party, Crescent Marine, was retained by Babush to negotiate on their behalf but they eventually discovered they could not trust Babush and withdrew—we had spent hours working with them on the matter. By late October, all the cargo interests, except the Dominicans, were working together, with Intercargo using John Alder and Fireman’s Fund using MRC in London. We tried to keep everybody informed and on board and the copy list on e-mails extended more than a page.

We discussed the problem with a number of steel brokers and determined that if Babush and the crew wanted to sell the cargo illegally, they would likely have to go to a semilegal port where they could bribe port officials into allowing the cargo to be sold illegally. No legitimate port would allow sale of the cargo, nor would it allow the ship to berth without Hull P & I insurance because the ship was not covered for any sort of liability, such as oil spills or sinking in midchannel. The nearest likely place, with any sort of market, was Lagos, Nigeria. In early November, we notified all the Lloyd’s surveyors in Africa, South America, Europe, and the Caribbean that the vessel was wanted. On November 18, we were contacted by Lloyd’s agents in Lagos, who advised us that the ship was anchored outside of the harbor and was requesting docking space to discharge cargo. I got this news on the cell phone while I was driving to work and nearly drove off the road. We were yelling and shouting, “We got it, we got it!” We immediately retained counsel in Lagos, and, by heroic efforts and a judicious use of funds, counsel was able to generate an arrest warrant from the Lagos courts in 24 hours. Then we had to wait—nobody would take a boat out to

directly to Dakar, where she discharged 2,100 million tons of chemicals on August 3, 1999. Radiant, realizing that Kobe Queen had broken her charter agreement and failed to stop in Greece, withheld $123,000 (U.S. dollars) from its payments to Babush. In retaliation, Babush ordered the vessel to stop about 200 mi off the coast of Dakar near the Cape Verde Islands. At about that time, American P&I Insurance Company canceled insurance on the vessel because it had questions about the possible connection between the ownership of China Breeze and Kobe Queen and their inability to get Babush to answer questions about the matter. The vessel was drifting, and uninsured, with cargo on board.

Late in August, we were notified that the steel cargo we had insured on the vessel had not been delivered to consignees in the Caribbean. It was rumored at the time that the vessel had been seized by Senegal authorities on suspicions of smuggling drugs, but this turned out to be a misinterpretation of the experiences of her sister ship, China Breeze.

After some research, we discovered some of the actual circumstances and sent Jurgen Schulze of the firm of John Alder and Associates of New Jersey, to Istanbul, Turkey, to negotiate with Radiant and Babush in an attempt to get the cargo moved forward. On September 5, Babush told Jurgen the vessel had been drifting for a month and was out of food and bunkers and needed to be supplied. They demanded not only the $123,000, but an additional $80,000 for supplies. Jurgen worked through two marathon sessions and obtained a memorandum of agreement whereby cargo interests, whoever they were, would pay $123,000 when the vessel arrived in port in the Caribbean and $80,000 once the cargo was discharged. Babush demanded that cargo interests also agree not to arrest the vessel and further demanded original letters from every cargo interest, on their letterhead, confirming the terms of the agreement. At this point, we did not know who else had cargo aboard. We found the terms distasteful, especially because cargo interests really did not owe anybody anything, but Radiant had backed out entirely and we had over a million dollars at stake.

Jurgen returned to the United States and began to research the other cargo owners and insurers, finding that Fireman’s Fund, AGF/MAT of Belgium, and a Breffe & Henke of Germany company also had cargo insured aboard. We later discovered that two Dominican insurance companies had also insured cargo on the vessel. Until this point, Intercargo had remained in the background, not wanting Babush to know that an insurance company was involved. Jurgen had passed himself off as representing our client, Global Steel, and continued to do so while he contacted and arranged the support of the other steel companies and insurance companies with cargo aboard the vessel.
the ship because the incidence of piracy is so bad in Lagos that anyone approaching a ship in a small craft is likely to be shot. Two days later, we were advised that the ship had bunkered from a barge, purchased supplies and charts, and left the port area. Through the use of more funds, the Lloyd's agents were able to obtain copies of receipts for fuel, food, and charts purchased by the ship and found that she had bunkered 680 tons of diesel fuel and enough food and water for 30 days. She had also purchased charts for South Africa, the Mozambique Channel, Madagascar, the Red Sea, and the Persian Gulf. At this point, we realized the game was up and Babush had no intention of allowing the vessel to proceed to the Caribbean, so we took more drastic action.

Intercargo went public and identified itself and its role to the other cargo insurers. Working with three other insurers, we offered a reward of $100,000 for anyone providing us with information leading to the arrest of the vessel and recovery of the cargo. By this time, we knew the full value of the cargo aboard was $4,500,000, of which we had insured about 22.3 percent. We contacted the vessel master and offered him the reward if he would return the vessel to the Caribbean. We offered to provide funds for his family and to fly the crew home from any port to which he would take the vessel. At the same time, we attempted to obtain help from Interpol and the U.S. State Department without any luck whatsoever. German police were also contacted, without result. We met with the FBI, and talked with the U.S. Drug Enforcement Administration and got nowhere. The master refused to cooperate, telling us he took orders only from Babush. We reminded him he had bills of lading directing the cargo to the Caribbean, and he told us he had to take orders. In desperation, we told him that if he did not cooperate, we would declare his vessel criminal through the world press and would ask the Ukrainian government to withdraw his license. In response, he shut down his telex system entirely and refused to respond in any way to communications. According to AT&T, his last telex communication came from the South Atlantic.

Meanwhile, Babush disappeared also. We sent investigators to their offices in Odessa and were told by neighbors that they were bad people. We checked the homes of their owners and found them empty; we attempted to trace their corporate records and found none. We checked registry and licensure records in Greece, the Ukraine, and Cyprus and found no record of any company named Babush. We found the home of the captain and interviewed his wife and parents and were told he was due home in late December, but they were unable or unwilling to tell us where he was. We filed complaints with the Ukrainian Maritime Ministry, and we attempted to trace bank accounts and funds back to Babush and its owners. We found that the funds used to buy the fuel in Lagos came through a British intermediary, and we had investigators in London visit them. They were convinced not to cooperate with Babush in the future, but none of these efforts succeeded in flushing out Kobe Queen.

Suspecting that the ship was bound for the Indian Ocean, we figured Babush intended to try to sell the ship and cargo to ship breakers in India or Bangladesh and that they might try to do so under a different vessel name. Ship breakers are kind of like the elephant graveyard for ships. Old vessels are brought in close to shore at the highest tides of the month and driven ashore at maximum speed on mud flats or sand bars. Once the tide goes out, hundreds of people descend on the vessel and cut it to pieces, and after a few months, nothing is left. The parts of the vessel are sold in salvage or as scrap. In Alang, India, there are over 100 ship breakers; there are more in Karachi, Pakistan, and Bangladesh. Knowing this, we notified every Lloyd's agent and port authority in Pakistan, India, and Bangladesh that the ship was wanted. We heard nothing for over 40 days. Finally, four of the insurance companies paid their claims, leaving the status of 29 percent of the cargo, which was insured by Dominican insurance companies, uncertain.

On December 24, 1999, the Kobe Queen, renamed the Gloria Kopp, was arrested by the Indian Coast Guard about 13 mi offshore from Pondicherry, India, 30 mi south of Madras (which is now called Chennai). The vessel attempted to escape, and the crew was taken at gunpoint. The vessel was then towed to Chennai. On December 25, at 2 p.m., as we were sitting down for Christmas dinner, I received a call from a representative of the Fireman's Fund, telling me that when the ship was taken by the Coast Guard, Captain Livkovsky had hanged himself in his cabin, leaving a note that he felt abandoned by Babush. We knew the captain had a wife and children and all of us involved were affected by the news.

First notification of the find had come from Wilson and Company, Lloyd's surveyors in Chennai, who claimed the $100,000 reward. Almost immediately, other claims against us and the vessel began to pour in. The Coast Guard demanded the reward and other unspecified amounts. The port authority demanded funds, Wilson sent us a bill for $28,000 for nothing specific; people who had looked for the ship but not found it sent us bills for their time. Seeing that the situation was getting out of hand, we sent a representative to Chennai to represent the four cargo interests who had participated in the search. He spent two agonizing weeks trying to get cooperation from anyone. He found that the crew had convinced the Coast Guard that the entire problem was the fault of cargo interests. The Coast Guard had
14 men with AK47s on the ship guarding the crew and was demanding that we feed and supply them. Four other Indian government agencies—drug enforcement, customs, immigration, and the port authority—were involved.

We hired counsel and went to court to obtain formal arrest of the vessel and cargo and to request permission to bring the ship to shore to discharge the cargo into another vessel. At this point, it was discovered that the vessel’s main engine had cracked two cylinder heads from being operated with salt water cooling and that one of her two generators was also dysfunctional. As a result, the vessel was no longer self-powered and her unloading gear could not be used. Further, the port was really not capable of discharging the cargo, and the port authority went into court and got an order banning the vessel from entering the port, because she had no power and no Hull P & I insurance.

We had an arrested ship, sitting 6 mi (9.7 km) out in the harbor, with a crew aboard who had not been ashore in 8 months, no main engine, intermittent power, and guys with guns on the decks. Meanwhile, Babush stayed missing, and although the new owner was identified in the ship’s papers, he never showed up and never presented anything to the court. For a week, our surveyor was not even allowed onboard, but he was finally able to confirm that the cargo was aboard and intact, at least as far as could be seen by surface examination. During that visit to the ship, he was made to stand in the hot sun for 4 hours on deck while the Indian Coast Guard “approved his credentials.”

The court ordered each insurance company to prove it had paid its claims and had the right to claim against the vessel and the cargo. Documents were obtained from all the companies, including the Dominicans, and presented to the court, but later investigation found the Dominican insurance companies had lied, had not paid their claims, and had no right to the cargo. As a result, we cut them out of the loop entirely and told them they would have to appeal to the court in India on their own. They failed to do so and their cargo was declared abandoned.

Today the Kobe Queen is still under arrest, the crew is under guard aboard (and we are feeding them and the guards by court order), the captain’s body was taken back to the Ukraine by his wife and the Ukrainian ambassador, the Indian Coast Guard has sued us for $500,000 and was found in contempt of court, the Chennai High Court is accepting bids on our behalf for sale of the vessel and cargo, and three crew members have become ill and are demanding medical care at our expense.

Final bids are due on the 26th—I will be available after this session for anyone wishing to purchase the vessel and inherit this problem. Thank you.

NATIONAL SECURITY

Stephen Flynn

Commander Stephen Flynn is Associate Professor of International Relations at the Coast Guard Academy. He has been a guest scholar in the foreign policy studies program at the Brookings Institution and an Annenberg Scholar and Resident at the University of Pennsylvania. He is also a Senior Fellow with the National Security Studies program at the Council of Foreign Relations, where he directs a national study group on globalization and the future of border control.

That is a tough act to follow, but it is a nice segue for my presentation on incorporating security into the global system for intermodal freight movements. What we heard from Alan’s story are a couple of key elements for those of us looking at this industry and thinking about issues of security, enforcement, and regulation: (a) the political boundaries are certainly something we in government have to pay attention to, but they are not something criminals have to pay attention to; and (b) the private sector is often the one who gets caught in the middle of all this and often is left with the biggest responsibility to try to handle this. Why? Because we just cannot get there from here in terms of how governments typically operate in today’s world. The very changing nature of intermodalism and supply-chain management has made political boundaries basically obsolete, but that is still how we have organized ourselves to try to manage problems of enforcement in crime.

Shortly after the new year, the mass media gave wide coverage of the story of three illegal immigrants who perished their stowaways in a canvas-top container originated from Hong Kong and bound for Seattle. This story was followed by a string of news reports of stowaways discovered in containers arriving in the ports of Los Angeles and Long Beach, all alive but in several instances dehydrated after several weeks at sea.

Just last week, Senator Dianne Feinstein pointed to these incidents, along with a record of seizures of illegal drugs and automated weapons in the port of Oakland, as evidence that “we need much more coordinated federal oversight and additional personnel and technology at America’s seaports. Not to do this is really to create a number one target for those who would wish to put our country in harm’s way.” This was said last week at the Seaport Commission hearings.

Advocates for greater global intermodal development should find the Chinese stowaway incidents and the media and political interests they have generated to be worrisome. The value of modernizing intermodal transportation
networks is tied directly to the expansion of trade and globalization and the corresponding willingness to reduce barriers to cross-border traffic of people and goods. The rise in security breaches is leading to calls for this traffic to be tightly controlled so that the bad can be filtered from the good. In short, not doing enough about security is likened to road support for initiatives designed to facilitate the free flow of trade; however, placing too much emphasis on security could end up undermining the hard-won efficiencies achieved by the intermodal revolution that are so important to the global economy.

How can we extricate ourselves from this conundrum? I suggest a starting point is to acknowledge that exercising tighter physical control over the port of entry is largely meaningless as an end unto itself. Instead, what is central to the public interest is that a capacity exists to advance effective security, law enforcement, immigration control, public safety, and collection of customs duties and fees. First, if we can identify ways to provide these public goods and look beyond our ports of entry as a primary locus of our regulatory enforcement actions, we may have the best of both worlds: improve security and improve the transport of flows of goods and people. This can be done if we are willing to embrace initiatives for managing and policing global intermodal freight networks that place greater emphasis on point-of-origin controls and that provide for near real-time tracking and accountability movements throughout these networks.

A focus on security in the intermodal freight industry is long overdue. Indeed, the private and public sectors who interact with this industry should share the same kind of interest in security that has long been showered on information technologies and the Internet. There is a near-universal recognition that exploiting the information revolution is key to fueling the expansion of the global economy. There is also growing recognition, highlighted by the Y2K problem we recently went through, that many critical elements of our lives depend on the smooth operation of the information age infrastructure. This growing dependence on increasingly sophisticated infrastructures is widely, if somewhat belatedly, seen as a potential vulnerability for the national security posture in the United States.

Cyberterrorism is getting a good deal of attention at the White House, the Pentagon, Langley, and in boardrooms around the country. The result has been the creation of a growing public-private partnership to develop concepts and technologies to protect and defend the information infrastructure against tampering and exploitation. I argue that we need a similar kind of effort for the intermodal industry. However, against a backdrop of robust national conversation about how to derive the full benefits of the information revolution, while tempering risk, the global transportation logistics revolution has been running its course with hardly a whimper. Terms like supply-chain management, warehouse management, and intelligent transportation systems are familiar to this audience, but they are foreign to most politicians, much of the defense establishment, the national intelligence community, the mass media, and the public.

For too long, intermodal issues have been mired in the policy no man’s land created by a large and very fragmented industry, as well as the overlapping local, state, regional, national, and international jurisdictions. The National Commission on Intermodal Transportation helped to improve the situation, particularly in raising the profile of the huge economic stakes associated with America’s dependence on low-cost and reliable transportation. However, the security stakes link to the intermodal freight industry remains poorly understood. This is worrisome because, as lack of understanding persists, intermodal vulnerabilities may ultimately create a dangerous Achilles’ heel.

To date, intermodal modernization has been driven largely by the dictation of the market. To maximize profits, private companies seek out efficiencies that reduce cost. In most instances, where capital costs tend to be very high, the important way to accomplish this is to concentrate operations, reduce overhead, and maximize synergy between components. There are those in the industry who rail against regulatory requirements that presumably interfere with the bottom line and therefore pose a threat to competitiveness. However, when purely market factors determine the development of the infrastructure, important law enforcement and national security interests may be placed at risk.

There is substantial evidence that transportation networks are being exploited by criminals. Conservative estimates place nearly 100 metric tons of cocaine entering the United States last year via commercial air and maritime carriers. Smugglers have gravitated to commercial carriers because they know the odds of successful interdiction are minuscule. In the United States, it takes five U.S. Customs agents an average of 3 hours to inspect a single container. We had over 4 million containers enter the United States in 1996. Maritime container trade is expected to at least double in the next decade. In Hong Kong, more than 500,000 containers are transshipped to all corners of the earth every month. If smugglers can fill just 18 containers with cocaine and smuggle them into the United States, there would be enough cocaine to feed our national habit for an entire year.

Although thugs seemingly benefit from the smooth and efficient operation of large-scale transportation networks, there are others who would reap large political advantage by disrupting it. A growing number of cases suggest that terrorists are finding the transportation sector makes a very attractive target. In summer 1997, New York narrowly averted a disaster with the timely arrest of three men involved in a plot to detonate bombs in the
busy Atlantic Avenue subway station in Brooklyn that includes 10 subway lines and the Long Island Railroad terminal. Just 4 years earlier, the police broke up a terrorist cell that planned bombings of the Hudson River tunnels. Overseas, a March 20, 1995, sarin gas attack in the Tokyo subway station killed 12 and hospitalized hundreds.

Instead of targeting the intermodal transportation infrastructure itself, America’s adversaries could exploit it to smuggle weapons of mass destruction. Why should a rogue state or a terrorist organization invest in ballistic missile technologies when the weapons of mass destruction could be loaded into a container with a small Global Positioning System device and sent anywhere in the world. Hypothetically, based on current practices in the U.S. Customs Service, Osama Bin Laden could have a front company in Karachi load a biological agent into a container, ultimately destined to New York–New Jersey, with virtually no risk that the container would be intercepted. Under this scenario, he could use a Pakistani exporter with an established record of trade with the United States. The container could be sent via Singapore or Hong Kong, and it could arrive in the United States at the port of Long Beach or the port of Los Angeles and be loaded directly onto bonded rail and truck for the transcontinental trip. Because the entry port is Newark, the U.S. government does not require the cargo manifest to be on file until it actually reaches the East Coast. The carrier has up to 60 days after the goods have arrived to make changes to the manifest, including what and how it was actually shipped. The container could be diverted or the weapons activated anywhere en route long before it was visually identified to be in the country.

My best scenario for Bin Laden if he contracted me would be to ship two boxes to the port of Los Angeles. I would set one off, and then I would say there is another box in the port. Finally, a longshoreman would come in and clean up the mess. We will have shut down trade and also shut down mobilization capacity in most of our Pacific-based operations, which need to run through the same port. We have no plan for dealing with this kind of thing.

In short, for drugs, thugs, and terrorists, the global transportation logistics network provides an unparalleled means to move about and wreak havoc with virtual impunity. The public will not tolerate the situation. I suggest over the long run that serious thought be given to incorporating security into the modernization of the intermodal freight industry. Accordingly, attention will be required at three levels:

• First, we need a security regime that provides strategic depth. Specifically, governments and the private sector must work together to create the capacity for a point-of-origin system of safeguards and inspections by placing primary reliance on the port of entry approach. The premise of this recommendation is that, once the river of commerce arrives at our borders, it cannot be effectively policed. Targeted measures that reduce the risk of smuggling and terrorist activities when goods first enter the streams of trade is a more practical approach to take.

• Second, trade needs to be increasingly more transparent. Manufacturers, freight forwarders, carriers, importers, and retailers who use the global transportation logistics networks must be willing to closely track the movement of goods and people throughout these networks and make relevant information readily available in useful formats to regulatory enforcement authorities. This will enhance the ability of those with authority to conduct virtual audits of these movements and to act quickly when they have intelligence about potential compromises. This is not a call for creating new layers of red tape but a suggestion that border control agents move away from 19th century paper-based regulatory enforcement processes and toward 21st century information-age tools. Most of these tools are in place, particularly in the private sector, where firms have invested in the kinds of communication, data management, tracking, and navigational technologies that can help improve the overall efficiencies of their operations. Too often there is a tendency on the part of border control agents, in the United States and abroad, to not think about how best to apply technologies that can achieve the ends of trying to ensure the public safety and security and collect duties and so forth, with the logic of the system itself and how it operates.

• Third, appropriate incentives and sanctions must be marshaled to promote and sustain a new regime within the private and public sectors. Incentives for the private sector should include conditional facilitation for those participants in the global transportation logistics networks who embrace the first two elements—that is, tightened port origin security and in-transit transparency. Once this capacity is verified, these shippers and carriers should be allowed to move through the equivalent of a trade and travel “E-Z lane,” where they garner the benefits of low transportation costs and faster movements by reducing the risk of delay, spoilage, and wreckage at border entry points. Regulators and enforcement officials would continue to conduct spot checks to ensure compliance, but the overwhelming majority of these goods and people will be allowed to travel with few restrictions. Private sector actors who are unwilling or unable to ensure point-of-origin and in-transit security and transparency would be subjected to the slow lane of traditional inspections and administrative hassles as they move across borders. Similarly, private sector actors who have signed up to the regime but are found to have failed to comply with its mandates would, at a minimum, face the sanction of being placed back in the slow lane.
The essential argument being advanced is, going back to the Internet analogy, that there has been about a 10-year battle by the National Security Agency and the FBI to put a clipper chip, an encryption key, into web communications. What they recognized, somewhat belatedly as the use has proliferated, was that one of the basic forms of surveillance, wiretaps, could no longer apply if people were on the net. What they tried to do, after the fact, was go in and put this security system on as the system was being modernized. Finally, just this past fall, the Administration threw its hands up in the air because, as probably most of you know, the encryption technology we are trying to prevent from being distributed actually was put on the web, PGP encryption technology, for anybody who wanted to sign up and download the thing. It took 5 years after that event for the government to acknowledge that we could not do this; hence, they have simply given up.

A core problem with organized crime is that you have to prove the conspiracy of a crime. The very nature of organized crime is that the hand is not in the cookie jar. What you have to show is that people have come together in the conspiracy and the only way you can do that is with an informant or by surveillance. However, as technology has changed, we have no ability to do surveillance anymore. Basically in today’s environment, we find ourselves saying, “Well, I guess we will live with organized crime and the inability to do surveillance,” while the kind of operations that Alan just described continue to proliferate.

In the intermodal industry, there is an opportunity to start thinking about putting security into these systems and making sure they cannot be infiltrated by bad guys, both in terms of cargo theft and putting into cargo shipments things that could do tremendous damage, such as weapons of mass destruction. The private and public sectors will have to work in cooperation; however, it appears that at present the private sector does not want any interference, does not want any government involvement in security, because it will slow down the flows and disrupt the bottom line. The repercussions of that may be that, at the end of the day, the logic of the marketplace may prevail and government can no longer provide security for that system. Then we are going to be back in the Middle Ages, where the private sector will have to hire its own security to essentially ride posse with its goods as it moves through the global transportation network because the public sector can no longer do it for them. That clearly is not a desirable end state.

In the interim, we are also faced with the reality of increasing backlash to globalization, as observed recently in the response to meetings of the World Trade Organization. If the public starts to believe that public goods are not being managed as we speed up our global economic interaction, they may be much less supportive of facilitation. That would be a problem for this industry and we are already seeing signs of that. If the neoprotectionists can point to security breaches, such as terrorists coming into a port or drugs and weapons flowing in and out of ports, you are not likely to get a whole lot of support for further facilitation initiatives.

The bottom line is that the private sector has a vested interest to work with the public sector to get this right, and the public sector clearly has a vested interest to get this right, because we cannot do it within our own narrow jurisdiction. Most of the action is taking place in the private sector and will require excellent cooperation. Thank you.

CRIME AND SECURITY IN U.S. SEAPORTS

John McGowan

John McGowan is Executive Director for Field Operations in the U.S. Customs Service, and is currently detailed to the Interagency Commission on Crime and Security in the U.S. Seaports. He has held numerous positions during his 30-year career with Customs, where he was directly responsible for the control of crime and security to air, rail, and sea terminals around our country. He has a very intermodal perspective from the federal government side.

I am here to talk about the activities of the Interagency Commission on Crime and Security at U.S. Seaports. However, I would first like to comment on the previous presentations from the perspective of U.S. Customs. Alan Spear spoke about an event that basically involved people who were not who they said they were, who were masquerading as someone else, with intentions that were not as originally stated. Commander Flynn spoke at a higher level of the system that moves goods around the globe and how it functions logistically versus how it functions through other methods—guarantees for transparency, safety of movement, security of movement, and what needs to be addressed to enhance that.

Customs is not interested in holding on to our red tape. Fifteen years ago, we went forward and paved our “cow paths” by automating a number of systems. We continued to do the work we had been doing for 200 years the same way, but we did it in an electronic medium instead of on paper. We are more than willing to take the next step and change what we do and how we do it. We have enabling legislation that took 5.5 years to get through the congress. We are ready to use it to its full extent. We are stymied and we have a scheme that is unfunded. Why? Because not enough people understand
the next steps, not enough people understand that to make this breakthrough statement about how the control agencies are going to control goods entering or departing a sovereign nation, it is still going to be a function that occurs at borders, at ports of entry and ports of exit. Not enough people understand much of what we do, how intrusive it is, how onerous it is, or how it can be changed and how it can be enhanced, and that to do so is going to take money and it is going to take strategic thinking to get the monies into the flow soon.

To borrow an Immigration and Naturalization Service term for a moment—malifides. Does everybody know what that is? I do not even know if that is a real word or a real translation from Latin, but it is what the Immigration and Naturalization Service uses to talk about people whose intent is different than what they say. Someone personally shows up at the border and has a tourist visa, but his intention is to overstays. His intention is to illegally enter the United States. He is a malifide—he is not stating his true intent. That is what we deal with on a regular basis that costs us inordinate time and effort. The good news is that only a very small percentage of the people you encounter are malifides; the bad news is the inordinate cost in time and resources that are spent when you run across somebody who is a malifide.

Now let me get on to my presentation on the Interagency Commission on Crime and Security at U.S. Seaports, which was established in April 1999. It was an outgrowth of the discussions and activities surrounding the marine transportation system referred to by previous speakers. The commission is cochaired by the Departments of Justice (Office of the Attorney General), Treasury (U.S. Customs), and Transportation (Maritime Administration). Other federal agencies, some of whom were control agencies and some of whom had issues with control agencies, are also involved. The Department of Defense and Joint Chiefs of Staff are represented because of the strategic involvement on outload ports. The Office of Management and Budget; the Departments of Agriculture, Commerce, Labor, and Health and Human Services; and the U.S. Environmental Protection Agency also have an interest in what are the control functions and security aspect of the ports. Although this is a federal commission, we also gather inputs from state and local governments and from the private sector.

The objective of the commission is stated in the memorandum of the commissioners who are establishing the commission. It will look at the nature and extent of crime in seaports, the overall state of security at seaports, and the mission and authority of the various agencies—how they are interlinked, who has what authorities, what is their mission, why do they have those authorities, and how do they carry it out. It is also looking at the effectiveness of coordination between the federal agencies and the state and local authorities. Do they communicate? We

needed input from stakeholders and recommendations to enhance the state of security in seaports.

In the past year, a dozen on-site visits have been made to major U.S. ports. Staff have also conducted focus groups with over 45 groups and conducted interviews with more than 300 people. Input was also gathered from more than 1,000 other people who had business at our offices or by phone or letter. The commission also established a website, put notices in the Federal Register, and met with everybody who uses a port or who makes their money in a port, including freight forwarders, terminal operators, and vessel and carrier operators. Observations were made at the 12 ports and there was also some benchmarking on what is going on in Europe—specifically in the United Kingdom and the Netherlands—to see how other people run their ports and how they function. They have the same control functions and security functions but different underlying legislation.

We found that most of the crimes at seaports are federal crimes, with no reporting mechanism. State and local jurisdictions do not report seaport crime, and they do not report transport crime. They report crimes against things and persons. If it is a robbery, it is a robbery. If it is a theft, it is a theft, but they do not distinguish it from any other thing that happens in their jurisdiction. Therefore, it is very difficult to try to get a handle on state and local crime that might occur in seaports. For the most part, those state and local authorities say this is a federal crime so it is your problem, not ours. Statistics reveal that a lot of things that go on in seaports fall under the various federal statutes and the federal environment.

One of the first recommendations from the commission will focus on standardization, some sort of mechanism for better reporting and better collection of information so that the actual threat and the actual vulnerability can be better assessed.

Internal conspiracies involving contraband such as cocaine and marijuana were found to be a huge problem in southern Florida, particularly the port of Miami, but it is spreading to other ports. Basically, people who do not have the right to do so are accessing the cargo to remove their contraband—someone at the other end had similarly accessed cargo to place the contraband. You have a legitimate shipment going from a legitimate manufacturer to a legitimate consignee and somebody is getting a free ride along the way for their contraband. Something is put in at one interim point and taken out at another interim point in the cargo movement—an internal conspiracy.

There is a need for more intelligence and information sharing among agencies. Increasingly we hear about the need for better communication, coordination, and cooperation, but in the case of seaport crime, we found this was to the extreme—nobody was talking about what each of them was doing within the same environment.
There need to be more vulnerability assessments at ports. Ports often do not understand the threats facing them, because they have not been told by the various federal agencies why or how the seaport environment was vulnerable. They have not been briefed by Customs on what Customs was encountering in the port as a locust. They have not been briefed by the U.S. Department of Agriculture on what the threat of pests was in its entirety, or on a scale from 1 to 15 in the ports throughout the United States.

There are no accepted standards for physical security—how high should the fence be, how many illuminations should you have in the lighting environment, how many gates are appropriate for what throughput. Nothing like that exists right now. If somebody were to ask what is the assessment of security at seaports, it goes from fair to poor or from fair to none. There are individual exceptions. You have very secure private terminals; for example, the oil terminals are exemplary and could perhaps be held out as a benchmark for others to look at—the way they identify who gets on their terminals and who stays on their terminals and what they do while they are on their terminals. However, it is not security driven—nobody goes off with 63,000 barrels of oil in their back pocket—it is safety driven. Nonetheless, it is the same control aspect.

Access to seaports is relatively uncontrolled. I recall working in Newark, where there was a public boat launch ramp. You could drive through an active port—anyone could drive out and launch their ship, their vessel, or their little runabout into the Newark Bay.

Coordination and cooperation among agencies are fragmented, which inhibits the sharing of information mentioned earlier. There is a need for coordinated action and activity among the agencies.

Security-related meetings are not held in most ports. There are lots of business meetings and meetings with ad hoc groups to discuss problems such as paving, gates, and other operational aspects, but rarely, if ever, do people come together on a regular and routine basis to focus on port security agenda.

Equipment and technology are lacking at many ports. The technology is out there for nonintrusive inspections and U.S. Customs is becoming interested in being able to scan full containers. You may recall that Commander Flynn mentioned it takes five inspectors 3 hours to discharge a container looking for contraband. If Customs had a scanning device that could do that in 15 minutes, it would be an enhancement to productivity and to security. The technology exists, but it is either not funded, it is underfunded, or it has not been deployed in the right place within specific ports.

There were some common themes that came out of the port visits and the focus groups. The crimes they most often concerned themselves with were vandalism, theft of their equipment, destruction of their facilities, pilferage, stolen automobiles, and things like that. We heard a lot about cargo theft and cargo crime, but for the most part, with the advent of global intermodalism, it often does not occur on the port anymore; however, the information about what container to steal generally does come from the port. Somebody on the inside is telling somebody on the outside—the frequency with which the high-value load gets ripped off versus the container of dishwashing detergent is not a result of blind luck. A lot of coordination is needed to know what is in a container, where it is parked, when it is unattended, and when it is moved, before it disappears.

A lot of the equipment that contains high-value cargo is found in or near the port environment, which suggests that a lot of it is destined to foreign locations—a load is lost after leaving the port of Los Angeles, but an empty truck is found in New York. What was going on? The Interstate highway system was the conduit that enabled the movement, but the seaport was the ultimate outlet to a foreign market. Thieves most likely changed the nature and the condition of the cargo to a point where it was not identifiable as stolen cargo and it went for a good sale.

There are a lot of recommendations with respect to controlling port access by identifying people through identification cards. This is a big topic with organized labor in U.S. ports. They do not want criminal history checks performed on them, but when I listened to people representing the insurance industry, they said that everybody should do preemployment screening. Everybody should have the ability to do some sort of background checks. What the commission is going to have to come to grips with is the depth of the recommendations. Many people believe there should be deep criminal history checks done on everybody who works in a port, everybody who works in the receiving clerk’s office, everybody who works in the shipping clerk’s office, and everybody who works for the insurer—all these people should be investigated to the nth degree. However, when you look at that cost and expense, maybe it is the right people have to have such background checks done only when there is cause. Identification procedures and control of access to areas where critical information is gathered and stored, to cargo makeup areas, and to cargo breakdown areas do make sense.

The need for cooperation includes getting more information from the federal agencies, who should take the lead in gathering information, but not through regulatory action or legislative action. The stakeholders are looking to federal agencies for guidelines, through consistency, through a commitment of time and resources in talking about what they know that we do not know and vice versa. When talking about cargo crimes, there is little interest in sharing information about what is happening in a particular port because that might put the port at a dis-
advantage if it gets the reputation of being a criminal-laden port. Although such information should not be broadcast, it should nonetheless be gathered and analyzed, so that aggregate trends can be shared among users—this may be an appropriate role for the federal government.

The commission staff is evaluating the observations, identifying significant issues, and preparing recommendations through the three cochairs from the departments. These will be presented to the Attorney General, the Secretary of Transportation, and the Secretary of Treasury, who in turn will convey them to the White House for action. There is considerable congressional interest in the findings and recommendations of the commission, which is focused on coming to grips with the observations.

One final comment relating to a recurring theme heard at this conference—specifically, port throughput, the speed of cargo transfers, and so forth. From my perspective in Customs and from the perspective of a lot of the federal agencies who look to the ports to be a controlled point, give our issues the same weight you give your issues when you are thinking about what you are building. I looked at the mission of the Transportation Research Board and what they are supposed to be doing. If we go back and review some of the comments made by Commander Flynn, I suggest that the future work, the future action agenda, should be how to achieve the desired throughput in ports, while keeping the necessary border and port of entry controls that an autonomous nation requires for both inbound and outbound movements. Thank you very much.

CARGO THEFT AND LIABILITY

Jeff Black

Jeff Black represents the Technology Asset Protection Association (TAPA). He is currently employed with Micronpc.com after 18 years as a criminal investigator for the Idaho Department of Law Enforcement. He joined Micron to establish a fraud unit within the security department and has moved up through various management positions to his current position as operations and support manager with the responsibility for physical and logistical security, investigations, planned operations, document systems, risk management construction, and leases and contracts. He is also a former Coast Guardsman.

I am here today to discuss the formation and guidelines of TAPA, the Technology Asset Protection Association, which is composed of the security directors of the top 60 high-tech companies in the United States. The organization was founded because we were all "mad as hell and not going to take it anymore." We came together in summer 1997 as security directors and said, “Because of cargo theft, we are unable to get the raw materials to manufacture our products for shipment to our customers. As a group, what are we going to do about it?”

All of us had gone to various law enforcement entities and various other organizations seeking help. As a group, we realized that approach was not working and that we would have to step forward, take things into our own hands, and do something about the problem—the result was TAPA.

The combined revenues of the companies within TAPA total about $760 billion. TAPA is a nonprofit organization, initially organized by representatives from Intel, Compaq, and Sun Microsystsms. We now have 135 members representing 60 high-tech companies. Currently, we are generating a lot of interest throughout the United States and around the world. We have had three feature articles in the Journal of Commerce. We were a featured article in the Investors Business Daily, and we have been speaking and publishing in various logistics and security trade venues and publications.

We have ongoing liaisons with different freight forwarder and carrier groups, including Cargo 2000, Air Transportation Association, National Cargo Security Council, American Trucking Associations, and insurance underwriters, the latter a relationship we are developing throughout the world. We recently had a law enforcement summit in January 2000 in Washington, D.C., that brought together the FBI, U.S. Customs, and U.S. Treasury Department and asked them to work with us to determine how to work out these issues.

Among our objectives are the development and utilization of common tools for freight security, regulations, contract language, and auto-protocol. We are separating our rates from our security guidelines. Historically, when we were talking with our transportation carriers, it was always about rates. What are you going to do for us? Contractually, we were obligated when there was a loss to a certain recovery. What we are doing now is separating the rate conversation from what are you doing security-wise. We are increasing security awareness and communicating best practices.

One of the things we are doing is benchmarking within our own group. We have all signed nondisclosure agreements with one another and are using a company called Asset Management Group. Within TAPA, we have our own benchmarking group, which measures where we are from our losses on a quarterly basis. We also identify our best practices and distribute that information to our membership. We communicate information on the volume and the attractiveness of high-value cargo to criminal elements, particularly violent criminals. We develop performance
measures of existing supplier bases and create a market niche for interpreters.

We are telling companies out there that if they are adopting best-known security practices, we will work with them and we will move our supply chain toward their companies. If they are not willing to work with us as an organization or as individual companies concerning their freight security guidelines, there are other companies out there that will do that. We are trying to establish some standard forms to evaluate effectiveness. We are constantly pursuing further improvement and setting future agendas about where we want to go as an organization.

In forming freight security regulations for 1999, TAPA basically massaged the model developed by Intel and adapted it to fit the various organizations that represent TAPA. One important issue we are discussing is product packaging. One of the things that drives security directors nuts within the industry is that we more often than not list everything that is inside the box on the label. Thieves at various parts of the supply chain can look at that box and find that is what they want, they take it. I am sure everybody in this room can spot a Gateway box—a great big black-and-white cow box. You go into a United Parcel Service terminal or you go into a freight forwarder and you can see that Gateway box all the way across the room. The same thing with the packaging used by Dell and Compaq. The companies are telling the bad guys what is inside—security directors are looking internally at what we can do as organizations to minimize that.

This year we are working toward developing an independent auditor pilot program with volunteer freight forwarders and carriers that would minimize multiple audits on the freight forwarders and the carriers throughout the United States. Right now, Intel goes out and audits a freight forwarder, then I come in and audit that same freight forwarder. All my competitors go in and audit that freight forwarder. From a security standpoint, our organization proposes to hire independent contractors. TAPA will establish the guidelines and has already established the protocol. The contractors will go in and perform the audit and then report back to TAPA on the findings from a particular audit. This will minimize the impact on that particular carrier as well as the time that each individual member would have to spend to go out and do this.

TAPA is considering classifying facilities in three basic categories, depending on the level of threats. The threat level of a transportation company in Boise, Idaho, is totally different than one in Miami or in Los Angeles, Seattle, or Chicago. We are looking at the environmental as well as the historical data concerning the area where a freight forwarder or a logistics company is located. We are looking at trucking operations on a 1 to 4 scale. What are they hauling? How big a company is it? Where are they located within the United States? We are doing an assessment protocol using a quantitative score with no weighting. We are also looking at what we call the V-3 philosophy—value, volume, and vulnerability—when we assess a company. We realize that, within the business, we must look at each of the groups being audited in a different light. We know we can set a national standard and expect every carrier out there to meet that because, depending on what they are hauling, depending on the volume they are hauling, and depending on exactly where they are located in the United States, it is going to have an impact.

When we started Micronpc.com several years ago, we were dealing with just-in-time inventory where we would have sometimes 15 to 20 days of inventory on site. Now, we all know that inventory is the work of the devil, so we are constantly trying to reduce the amount of inventory we get on-site and we went to barely just-in-time inventory. We have supplier hubs across the street and we qualify the product over there and we bring it in on time. Now we are moving into just barely just-in-time inventory where our goal, in a sense, is to get our inventory down to having on premises no more than 3 to 6 hours of inventory in a manufacturing cycle. Our competitors, of course, are doing exactly the same thing, so the disruption within the supply chain is absolutely huge. It is not just that when we are working with a vendor hub and therefore do not own the product until it gets to our facility. Quantum owns the hard drives until they get to the supplier hub and before they get over to us. The issue is not that if we lose a truckload of Quantum hard drives between the Bay area and Boise, Idaho, we are going to file a claim with our insurance carrier. The issue is that we do not have a truckload of Quantum hard drives put in the PCs being sold to customers. From one aspect it is an insurance issue, but insurance does no good if we do not have the parts in our hands to put in the PC to put on a truck to sell to the customer.

The customer impact on just-in-time processing is huge. In a direct-market model, everything we manufacture is sold before it goes out the door. We must have that customer commitment that when we tell them a PC is going to be on their doorstep or it is going to be in their business at a particular time, it is going to be there. As soon as our supply chain gets interrupted, it has a tremendous impact that both we and our customers can appreciate.

With respect to vulnerability, one of the things we are doing as an organization is looking at what is valuable and what is hot in the black market, and how, in a sense, that has an impact on us. As the price of D-RAM dropped all the way down to about $5.00 a megabyte, hard drive prices went up. They became the absolutely hottest item out there. That is but one example of how we look to see what is the hottest product out there on the market and how are we going to protect it.
For those who are interested, I can provide a copy of the freight security guidelines electronically. It will give you an idea of what we are looking at and how we are rating, in a sense, companies throughout the United States. We talk about the freight security requirements, the contractual language, the standard assessment protocol. We talk about the consequences, the corrective actions that need to be taken. We talk about training the employees within the companies with whom we are dealing. We talk about the investigations and the investor’s role in responsibilities for the losses.

We believe that freight security models, contractual language, standard assessment protocol, and freight security requirements must be incorporated as elements in our contracts in order for this to be successful. The high-tech industry will not be able to sustain the losses that we have in the past and we are not going to do it. We are taking on a new role with respect to audits. We are going to start rating companies. We are going to determine who is providing the security out there so that we can get our product to market and we can get our raw goods into the manufacturing sites.

We are moving forward on this. When we started this organization, no one believed we could do it. After 2 years, people are starting to listen and they are starting to realize that we, as an industry, with respect to that $740 or $760 billion worth of revenue in this country believe we can have an impact on how freight is handled within the United States and outside the United States, as reflected by the fact we are also expanding into Asia, Latin America, and Europe. Thank you very much.
DAY 2: CONCURRENT PANEL SESSIONS (PANEL 1C)

Implications of Trade Policy for Global Intermodal Development

Tay Yoshitani, Port of Oakland, Moderator
Jesse Browning, University of Washington
Colleen Morton, Institute of the Americas
Ronald Kopicki, World Bank
Jay Winter, Foreign Trade Association of Southern California
and Steamship Association of Southern California

OVERVIEW

Tay Yoshitani

The focus of this session is very broad and establishes a very large framework within which this panel can move around. It will be interesting to hear the different perspectives on this topic. The panel was asked to focus on issues relating to trade policy, the increasing globalization of markets, and the economic interdependence resulting from multinational business activities and worldwide and multimodal transportation systems.

INTERNATIONAL TRADE ORGANIZATIONS

Jesse Browning

Jesse Browning is Director of Global Trade, Transportation and Logistics Studies at the University of Washington. He teaches courses and guides research at the university relating to international trade, logistics, transportation, and regional and economic development. He also serves as a U.S. delegate to the Asia–Pacific Economic Cooperation transportation working group and is the U.S. representative to its Human Resources Development Steering Committee. He is also a member of the Transportation Research Board’s International Trade and Transportation Committee. Before his current position at the university, he founded and was principal of a business producing material handling equipment and systems for domestic and international markets. He holds eight patents relating to environmental controls, material handling systems, and computers. Browning has an M.P.A. degree from the University of Southern California at Los Angeles and a Ph.D. in economic geography from the University of Washington.

My presentation focuses on international trade organizations and how they facilitate intermodal transportation. I will focus mostly on the World Trade Organization (WTO), what is taking place in the European Union (EU) and the European Commission, and also what is happening in the Asia Pacific region, specifically the Asia–Pacific Economic Cooperation (APEC) organization that represents the Pacific Rim economies.

Global trade transportation and logistics studies at the University of Washington is a graduate interdisciplinary program that brings together students and faculty from 15 different departments on campus. The purpose of the program is to take students who are getting a degree in another discipline such as business, civil engineering, international studies, public affairs, geography, and tie them into what is going on in global commerce. The program was developed about 6 years ago, after a meeting with industry leaders and government leaders in the Seattle area—people from the ports, from the carriers, people like Boeing, Microsoft, Weyerhaeuser, and others—and listening to what they thought they
needed in the way of students coming out of the university. Their view is that, although research is important to them, they would really like to have people who understand what is happening in global commerce. The program was designed with that in mind and we are doing a number of things to make that happen. The reciprocal of that, of course, is the need to reach out, tie in, and network with people in industry and outside of academia.

In addition to getting a degree in their major program, students receive a formal certificate from this program. A post-bachelor student can come into the program as a nonmatriculated student and get a certificate on the way to another degree at some point in the future. We have a spring seminar series and an annual conference that provides networking opportunities for the students.

Our approach is to use a system’s perspective to look at the socioeconomic systems, the markets, products, and infrastructure moving from the macro scale—what is happening at the global level—to the more specific issues of what is happening at the regional level. We look at political and technological changes taking place and the impact that has on the regions as well as the intermodal transportation system, supply-chain management, and electronic commerce. A lot of time is spent looking at what the customers’ needs are, because that is what drives everything.

The program gets students involved with what is happening in the global scene, what is taking place with the world’s structural change—the whole process of globalization. Although some out there are against globalization, it is nonetheless happening and we need to focus on how to explain it, address it, and take advantage of it. For example, we look at how political change is taking place in the former Soviet Union, how the Chinese economy is moving more and more to an open market system, and how technology change—the container revolution, the doublestack railcars, and so forth—is really facilitating the movement of goods and services in ways it did not do before. There are also new information technologies that are helping change take place. Much of this technology came about as a result of cooperation and coordination between the computer industry and the telecommunications industry, which brought a wide open area of new products—cell phones, the worldwide web, the Global Positioning System, intelligent transportation systems (ITS), and a number of others. All these things affect what is happening on a global scale as well as at the regional level, with changing manufacturing locations that in turn result in changing transportation patterns.

In the past, the back and forth Atlantic trade dominated a lot of what was going on in the world. Now, however, a lot of trade has shifted to the Asia-Pacific region, in large part because of the manufacturing that is occurring in east Asia. More recently, this manufacturing has been moving down to southeast Asia, and eventually it will probably move more into south Asia, India, and eventually into Africa, where manufacturing can take place, with lower costs and labor available. These shifting patterns have had a significant impact on ports, specifically those on the West Coast. They have also affected the East Coast ports and Atlantic trade, as they change. The cost of shipping goods from southeast Asia through the Suez Canal to Europe and to the East Coast are about the same as they are shipping from Singapore across the Pacific to the western United States. There is concern that West Coast ports could lose some of the future container traffic as it goes in the other direction, via the Atlantic instead of the Pacific. One big unknown in this regard is the impact China’s ascension into WTO will have on the trade patterns. Their economy is expanding very rapidly and expectations are that it will continue to expand—a dynamic situation that we need to better understand.

The international organizations that are doing things to facilitate trade and intermodal transportation include the International Chamber of Commerce, the Organization for Economic Cooperation and Development, the United Nations Committee on Trade and Development, the World Bank, WTO, and the General Agreement on Trade and Services (GATS).

WTO is a rules-based trade organization that came out of the General Agreement on Trade and Tariffs (GATT), among those organizations formed toward the end of World War II to help economies that had been ravaged during the war achieve economic growth and to encourage economic development. There are 135 member economies in WTO and its objectives are to reduce tariffs and eliminate trade barriers.

During the recent WTO meeting in Seattle a lot of people, including nongovernmental organizations, who did not think their voices were being heard with WTO, came to town to express their concerns about issues such as human rights, the environment, and labor. There were a lot of protests, with these groups trying to get their message across. Mixed in with them were a number of irresponsible people promoting violence and mayhem and causing things to get really out of order. There was a lot of naivete within that group about what WTO is doing. After the meeting, Michael Moore, WTO Director General, presented a good summary of what happened and what is planned. He stated that, despite the temporary setback in Seattle, the organization’s objectives continue to be to negotiate the progressive liberalization of international trade, to put trade at work more effectively for economic development and poverty elimination, to confirm the central role that the rules-based trading system plays for the member governments and to manage their economic affairs cooperatively, and to
organize WTO on the lines that more truly represent the needs of all the member economies. In short, he said the organization is trying to become more transparent and listen to the needs of those who are less advantaged than others. Moore stated that there is no less of a sense of urgency about these objectives now than there was before the ministerial meeting. Far too much is at stake and the longer we delay in launching negotiations, the more the poorest among us lose. Therefore, WTO is addressing the lesser developed economies in the process.

GATS is headed up in WTO by a Council for Trade and Services. The air service and land transport services are two areas that really have not been well addressed by WTO. A number of papers about land transport services have been put out for discussion and eventually they will get to that. With regard to the air services, this is something they have not paid too much attention to because the International Civil Aviation Organization and the International Air Transportation Association have formed bilateral and multilateral agreements among many of the carriers around the world. So, there is not a lot of concern about that.

There is also some concern in the marine services area. After the Uruguay Round, there were several years of negotiations that concluded in June 1996 and failed to agree on a package of commitments. More than 30 countries had made commitments, but a number of larger developed economies had not agreed to the terms, so the talks were suspended. In Seattle, they hoped to come up with an agenda for discussion and have now set a restart date in Geneva. It will be interesting to see what comes of that. The negotiations are intended to deal with four areas of maritime transport: international shipping, transporting passengers or freight between ports in different countries, dealing with auxiliary services such as cargo handling, and access to and use of port facilities.

EU is doing a number of things with regard to intermodal transportation. The director general for transport stated their motto as follows: “Transport unites people and makes regions and countries more affluent.” One of their projects is called Infolog Martrans. Last June, in Seattle, the U.S. Department of Transportation (DOT) Office of Intermodalism, in cooperation with EU, brought together the Infolog Martrans project and ITS America to discuss what is going on and how new technologies can help improve intermodal freight transportation. The project is a global information network for intermodal transportation and supply chain, with the idea that transport and logistics are vital for trade, economic growth, and development. They are dealing with awareness—the use of information and communications technologies should enable transport and logistics; interconnectivity—the different information systems should be able to communicate; interoperability—the communications should be based on agreed common languages; and accessibility—the services should be tailored to meet user requirements at low cost. They have developed a number of software programs to make this happen, including VITC (virtual intermodal transportation change) and EDI log-in, which is an intermodal tracing and tracking system.

APEC is made up of 21 economies that circle the Pacific Rim, all the way from Russia on the western side of the Pacific down through Korea, including Vietnam, Singapore, down to Australia, and then around through the Americas side, with Chile, Peru, Mexico, the United States, and Canada. APEC was established in 1989 in response to a growing interdependence among Asia Pacific economies. They are promoting business cooperation and have held a number of meetings over the years. Perhaps the most significant was in 1994 with the resulting declaration to have free and open trade investment by 2015 and 2020—among developing economies by 2015 and among the lesser developed economies by 2020. Over time, the leaders have held additional meetings on various themes. The next meeting will be in Brunei in late 2000, when they will continue to advance APEC’s agenda on trade and investment, localization, and facilitation. The bottom line in APEC is doing things to facilitate trade, with the understanding that increased trade will improve prosperity and promote economic growth throughout the region. APEC has 10 working groups, one of which is focused on transportation and meets twice a year.

Leading up to a ministers’ meeting in Victoria, British Columbia, in 1997, there was a study done within APEC called the congestion point study. It identified all the bottlenecks that exist in moving freight and goods throughout the Asia Pacific region. It identified the difficulties in Hong Kong and Taiwan; in the Pacific Northwest, in the corridor between Seattle and Tacoma; and in the Alameda Corridor here in the Long Beach–Los Angeles area. They also cited a number of best practices for marine ports and airports. At the ministers’ meeting, they determined that the findings of the congestion point study warranted creation of an intermodal task force. The intermodal task force is cochaired by the United States—Gary Maring from the U.S. DOT Office of Freight Management is one of the current cochairs. At the most recent meeting in Hong Kong, there were reports from Japan on the intermodal freight survey and from Canada on a seamless passenger flow questionnaire. Another project is under way to identify intermodal skills within all the member economies—what the demand side is, what the supply side is, what is needed, and what kind of training is taking place.

Another area that is dealing with intermodal transportation is the support exports group within the APEC
transportation working group. They have completed six themes and are now at work looking at what they can do in the future. One consideration is the take-up of electronic commerce, benchmarking and performance measures, and landside intermodal connectors. I thank you for your attention.

ROLE OF TRADE AGREEMENTS AND POLICIES

Colleen Morton

Colleen Morton is Vice President and Director of Research for the Institute of the Americas. Her primary responsibilities include overseeing the institute programs, research, and outreach activities. Her areas of expertise include trade and the environment, trade liberalization, infrastructure finance, and the political economy. Before joining the institute, Morton was Executive Director of the U.S. Council of Mexico—U.S. Business Committee and Director of Mexico Programs for the Council of the Americas in Washington, D.C. At the Council, she was responsible for all North American Free Trade Agreement-related efforts, including extensive public speaking and coalition activities, congressional and federal government relations, environmental analysis, and analysis of the agreement; she also provided analysis of Mexican affairs to Rodman and David Rockefeller. Before joining the council, she held a number of trade-related positions as a trade policy analyst with a Washington, D.C., law firm. In 1990, she received the Woman of the Year Award from the Washington, D.C.-based Women in International Trade. She has an M.A. in international political economy from the University of Washington and a B.A. in international relations from Carlton College in Minnesota.

There are a number of ways one can look at the topic of global intermodal development. What I will focus on today is the relationship between trade policy per se—the actual negotiations—and how that interrelates to the development of intermodal networks. Clearly, the increase of global trade and globalization implies the need for a lot more transportation infrastructure—how do you plan that infrastructure, how do you make sure it actually makes your country or your system more competitive, how do you actually put in place systems that create greater efficiencies and lower costs?

I am going to focus on how trade agreements can skew the demand and supply of transportation services, with an emphasis on the western hemisphere, in part because the Institute of the Americas focuses on the Americas. We try to facilitate investment in infrastructure in five different sectors—energy, health, telecommunications, transportation, and mining—with transportation.

The agreements that affect the western hemisphere include GATT and WTO, which have already been mentioned by Jesse. There are also the Free Trade Area of the Americas (FTAA), which is currently being negotiated; the North American Free Trade Agreement (NAFTA), which was completed in 1993 and went into effect in 1994; and MERCOSUR (Mercado Común del Cono Sur), which includes the southern cone countries of Argentina, Brazil, Paraguay, and Uruguay, with Chile and Bolivia as associate members. The Andean community includes the five countries of the Andean region. In the Central American and Caribbean community, there are a number of different agreements. There is also a proliferation of bilateral free trade and investment agreements, many of which deal tangentially with issues affecting the supply of intermodal services or the facilitation of delivery, particularly with respect to customs facilitation.

Generally speaking, trade negotiations are a response to business demands for better access, for exports, and countries’ demands for a level playing field. However, in my research on this topic, it struck me as ironic how little trade negotiations in the past have dealt with transportation services and how little this part of negotiations has progressed when, in fact, it is transportation services that make trade and goods movement possible. In fact, what we see in multilateral, regional, and even bilateral forums is the systematic exclusion of many transportation services from the scope of the negotiations. There are a number of interesting reasons for this. In some cases, the sector is already significantly liberalized—for example, in the bulk commodity shipping sector, where there are no serious barriers to trade or transportation services. More importantly, there are serious barriers that countries find very difficult to address, particularly domestic opposition to liberalization of certain types of transportation services, where unions are very strong, where domestic interests are very strong, and where it has not been possible to politically balance those interests against the interests in favor of liberalization.

There are other kinds of agreements—shipping conferences, cargo sharing, bilateral agreements, aviation bilateral agreements. Again, there are domestic interests, which are usually encapsulated in law, such as the Jones Act domestic cabotage law in the United States, which require acts of Congress or acts of legislatures to repeal and which, generally speaking, are politically sensitive.

Another reason transportation services often have not been effectively addressed in the international trade forum is because of the close interrelationship between transportation services and basic infrastructure. Basic
Infrastructure—roads, ports, airports—is, in the minds of many people, linked very closely with national security concerns and the ability to respond to threats and crises. For example, for many years in Latin America the military was in charge of different aspects of the transportation infrastructure, such as in Brazil, where the Air Force still runs all the country’s airports. Another factor is that services in general have only recently begun to be taken up in international trade negotiations. Services per se are a relatively new feature and therefore not that much progress would have been made.

The most important factor may be that liberalization of transportation services would bring about very diffused benefits to the overall economy, but there are very concentrated costs. The people who would be put out of work or the people who would suddenly face a lot of international competition are very easily identified, whereas the people who would benefit are a much larger group of consumers and the political weight and negotiating strength of those two groups are not equal. Therefore, one has to expect that further negotiations to liberalize trade and transportation services are not going to be easy. This is particularly the case with the new structure of WTO, where you have basically a consensus-based negotiating structure where all countries of the world sit at the table—it is going to be very difficult.

When trade negotiations have tried to deal with transportation services, it has almost uniformly been in a mode-specific manner, with no overlap allowed among the negotiations in different modes or, for that matter, between transportation services and other types of services. This means there are very few trade negotiations specifically aimed at liberalizing intermodal services or facilitating multimodal shipments outside of some special cases such as EU and APEC.

A number of agreements have been drafted and signed by a few countries, such as the United Nations Multimodal Transport Convention, which was launched in the 1970s with only about six signatories; it never went into force. In 1989, there was a land transport convention signed in the southern cone, but it focused primarily on highways and, although it functions fairly well, it is not really intermodal.

Structured trade negotiations themselves militate against the facilitation of intermodal services, because the negotiations maintain an arbitrary division among the modes. There is some discussion within various groups—for example, the WTO Council on Services—and some private sector groups that are interested in influencing those negotiations. There needs to be a new approach to these types of negotiations at the multilateral level. To date, no one has been willing to step up to the plate to really force that through, least of all the United States.

I would like to offer a couple of remarks about the changes in the global supply-chain requirements and the impact that has on infrastructure requirements, particularly in Latin America. If you look at the evolution of supply-chain models, you now have a case where customers expect to be able to order a product the same way they would order a car or a pizza. That car has to be delivered to them in about the same time they would expect to have a pizza. In other words, the compression of time frames and the degree of customization of products are having a huge impact on the way supply chains are structured. That has concrete and serious ramifications for what governments and countries are trying to do to respond to these new trade patterns.

To illustrate some of the growth in trade within the region, there was a 20 percent growth rate in 1995 and 18 percent growth in 1996 of intra-American exports as a percentage of total exports. In the Andean region, it was 12 percent in 1995 and 11 percent in 1996. For MERCOSUR, it was 20 percent in 1995 and 21 percent in 1996. These are astounding rates of growth and they are much, much higher than gross domestic product growth. They are reflective of these trade agreements that have been put in place to facilitate access to each other’s markets. They are putting incredible pressure on very limited transportation infrastructure in these regions, because most of the countries of Latin America traditionally have been oriented toward transporting goods from their ports overseas to Europe or Asia. They have not been oriented toward exporting to each other, and their links between these countries are primarily highway links. Railroads are very neglected in most of Latin America. Basically it is a situation in which the weakest part of the infrastructure is where most of the growth is occurring. Within the NAFTA area, growth has been high for a long time, and it is likely to get higher in terms of the interpenetration of the countries of the North American region.

In a declaration from a ministerial meeting held in New Orleans in 1998, there was a stated commitment to improve the amount of coordination and information sharing, and there was a recognition of the need to develop an integrated transportation infrastructure in the region. But, as one Latin American transport minister pointed out, the Latin American ministers have a history of being great on rhetoric and short on delivery. There are a lot of obstacles to the development of more integrated transportation networks in Latin America, not the least of which are the Andes Mountains, which pose a major obstacle in terms of trans-Andean railroad connections. It would require either very deep or very high tunneling and is extremely expensive; to date little work has been done to move that process along.

The ministers and the governments of the region have been taking steps not just on the trade policy side but in a lot of different areas to try to respond to this trade growth. One step is in trying to reach out for other types
of financing for intermodal projects and for transportation projects in general. In most cases, the governments of Latin America have difficult physical and budgetary situations, so they have been forced to deregulate, to privatize, and to turn over most of these assets to the private sector. A lot of that has already happened. Argentina has completely privatized its railroad industry. The ports are pretty much privatized. Chile is in the process of selling off a number of ports. There are a lot of road concessions in most countries of the region, including Chile, Argentina, Brazil, and Mexico. Mexican road concessions and toll roads had a very rough period at the beginning, but now they are back on track. The Mexicans are privatizing their ports and have privatized their railroads. This process is expanding to the rest of the Andean countries as well. Peru is doing some of the same things, and so are Bolivia, Venezuela, and Ecuador. Colombia has also had quite a bit of success in privatization. This will help alleviate, to some extent, the financing pressures. However, the World Bank has estimated something like $14 to $18 billion needs to be spent per year just on basic transportation infrastructure, and that does not really get into all the bells and whistles of intermodal facilities. It is just the basic maintenance, basic expansion of the highway systems and networks, and some upgrading of ports. There are tremendous transportation challenges facing Latin America.

The problems with the rail system make the development of intermodal approaches very difficult. The connections between rail systems in Latin America are almost nonexistent, unlike in North America where there are common standards, with the same gauge in all three countries. There are a lot of cooperation and linkages between the railroads of Canada, Mexico, and the United States. In Latin America, that is not the case. Brazil and Argentina, for instance, use different gauges and the railroads do not necessarily meet where they are supposed to meet. There are bridges missing. Most of the railroads exist to carry products from the interior to the ports. They do not exist to connect countries in Latin America.

There needs to be massive investment made in the ports as well. The ports have been neglected, particularly during the 1980s when there was no money to spend on anything, and many of the ports are encumbered by very rigid labor laws and requirements. Labor liberalization is a major issue, because for private sector investors to be interested in taking over the ports, one of the first things they want to know is that they will have the right to fire people. In many of these countries, that has been very difficult to do. The governments have not been able to initiate this sort of privatization because of the strength of the unions and the strength of domestic interests. It has happened and is happening, but it has not been easy.

The river routes, which are extremely important in Brazil, are still really in their infancy. They could be a major focus of transportation between all the countries of MERCOSUR, but huge investments need to be made. The development of additional river ports, dredging, and expansion of the river system give rise to huge environmental concerns. For example, some of these rivers in Brazil require a lot of dredging, which would go through very sensitive ecological reserves; hence, the government of Brazil is facing enormous challenges in trying to get the approval of their own congress. The Brazilian Minister of Transportation has been frustrated because his own foreign ministry issued a declaration saying they were never going to develop the Parana and the Pantanal because of environmental considerations. He wants to be able to deliver soybeans from the interior of Brazil down to the port of Santos at the least cost. The most effective way to do that is with interconnections between the river system and the rail system.

Let me talk briefly about the adoption of new technologies. There are a lot of technologies out there to speed customs clearance processes and to track railcars, trucks, and so forth. Some are being put in place and deployed but generally only by companies that are already integrated. They are not being used to integrate various components of transportation systems that are not already under one corporate roof, so to speak. For instance, Federal Express and United Parcel Service, the major international players, already use all these technologies in Brazil, much as they do in the United States. However, the Brazilian companies are still extremely fragmented and the individual modes are not linked using these technologies. If there was a forum or a way to develop incentives to promote the adoption of these technologies among these modes in Latin America, you would see a huge boost in productivity in the region.

Between 1960 and 1990, the number of kilometers of paved highways in Brazil doubled, but the number of kilometers of rail declined. This is the pattern throughout the entire hemisphere—a decline in the number of kilometers served by rail. The only place where it began to go up, again toward the end of the 1980s and the beginning of the 1990s, was in Mexico. Almost everywhere else it has declined and they have been putting all their money into highways. In Brazil, they have gone from 12 000 km of paved highways in 1960 to 161 000 km of paved highways today—an enormous effort. However, the Brazilian minister acknowledges there has been overdevelopment of the highway system at the expense of the river ways, the ports, and the rail systems. In a sense, there is a built-in bias against intermodalism in Latin America, simply because the other modes are severely underdeveloped, inefficient, high cost, and not in the right place at the right time. One bright spot is that the railroads are in private hands almost everywhere in
the hemisphere now. This is a fairly recent development, with Mexico privatizing its railroads just last year. Huge investments in the railroad systems of Latin America are expected in the coming years, which should dramatically improve the productivity and the intermodal potential for the region.

Mexico is taking a very strategic position, trying to place itself as a hub, not only north–south between Canada and the United States and the rest of Latin America, but also east–west. It is part of NAFTA and a number of other trade agreements. Latin America also just signed an agreement with EU that will probably come into effect later this year or early next year. A number of agreements are under discussion with Asian countries. Mexico is putting an enormous amount of resources into transportation infrastructure and into trying to develop intermodal approaches. For example, in the port of Ensenada, they are developing a number of intermodal facilities and connections via rail into the United States. They already have very tight linkages with the North American rail system and the privatization of their airports is also going to be aimed at facilitating intermodal connections.

Trade negotiations in the region have dealt with transportation services in a number of ways. In NAFTA, the trucking sector was to be liberalized; before NAFTA, there were a number of barriers and the NAFTA negotiations opened up the trucking sector, particularly between the United States and Mexico, because Canada and the United States were already pretty open. However, the United States has chosen not to implement this part of the agreement and Mexico has taken the United States to dispute settlement. There is no resolution in sight and now Mexico has added the bus part of the agreement to the dispute. There was no rail under NAFTA, because by that time rail had pretty much been privatized—rail has been overtaken by events. In the maritime area, there was some liberalization in terms of the investment in dedicated port facilities; however, this has also been overtaken by the privatization of ports in Mexico, which has opened up opportunities for foreign investors. One issue relating to maritime is domestic cabotage—the Jones Act laws and restrictions still apply to Mexican domestic cabotage. With respect to air transport, Canada and the United States have an open skies agreement. There is a bilateral agreement between the United States and Mexico. In addition, under NAFTA there is an agreement on the delivery of specialty air services that went into effect in January 2000. In sum, there were minor liberalizations under NAFTA, but most have been overtaken by events with the privatization of various facilities.

Under the more recent FTAA, there were eight business facilitation measures signed, two of which applied to express shipments. They basically commit the 34 governments of the region to try to develop systems to expedite customs clearance of express shipments and low-value shipments. The approach in these negotiations was to go after one focused problem at a time. The next issue that Federal Express and United Parcel Service would like to see addressed is ground delivery, because they would like to completely control the delivery of their shipments from client to client.

The other subregions in the area are basically all connected through highways, and within the region of Central America the highways are well integrated. Trucking is well integrated within MERCOSUR and the southern cone as well as within the Andean region. Trade between the regions is basically carried out through maritime shipping, again because the landside connections between the regions are very weak and very sporadic.

A range of things remain to be addressed in the Latin American and in the western hemisphere context. The minimum required infrastructure investment is estimated at $14 to $18 billion, under difficult financing conditions in Latin America. Private banks generally are not interested in providing long-term tenders to private transportation projects. A lot of work needs to be done on the regional harmonization of standards for vehicles, containers, safety, liability, and so forth. Labor liberalization still has a long way to go. Domestic cabotage remains, particularly between regions (within regions it has been opened up in MERCOSUR and the Andean region). Customs reform is probably one of the biggest issues, particularly for express shipments and simply to facilitate the rapid movement of land shipping. A new forum needs to be developed where governments of the region can specifically address intermodal issues. The deployment of advanced information systems across modes and between the public and private sectors is probably the factor that would result in the most dramatic increase in productivity in Latin America. Thank you.

INTERNATIONAL INTERMODAL PROJECTS

Ronald Kopicki

Ronald Kopicki is a principal privatization specialist with the World Bank in Washington, D.C., where he leads the bank’s supply-chain development efforts and has worked on several intermodal projects in Mexico, China, Nepal, and Africa to develop intermodal service networks. Before joining the World Bank, he worked for CSX Corporation for 12 years, where he helped develop its intermodal surface network. He has written several books on railway privatization logistics and supply-chain development and is currently leading the bank’s efforts to complete a port reform toolkit, which we will hear more
There are some fundamental deficiencies and defects in most of the countries where the World Bank is active. Intermodal does not work equally well in every place in the world; for example, there are no “best practices” in Benin. The countries the World Bank works with are stuck between a rock and a hard place. The problem they face in a globalized economy, where the developing countries must try to compete or keep up with the more advanced supply chains in developed countries as well as meet customer demands and standards that are becoming increasingly tight, is a service gap. Either that gap is filled with inventory at substantial cost or the logistics cycle time has collapsed. Part of the solution is accelerated intermodal development. There is a trade-off between the supply-chain visibilities on the one hand and intermodal quality service development on the other. Unfortunately, with respect to supply-chain efficiency, the gap is getting bigger and developing countries who want to sell their products into a global economy have to address that problem.

Intermodal transportation involves systems interactions and there are many elements in the intermodal transportation to make it work right. In the developing country context, addressing this pyramid of functionality is absolutely essential. You need a service culture. You need to have government officials who are predisposed to address problems, take action, and make things happen. You have to have a legal framework. You have to have freight processes that make borders ports. You need a fundamental infrastructure and, equally important, you also need a microinfrastructure. You have to have access to intermodal technology. You have to have an organizational framework, an organization model that encapsulates and can manage intermodal transactions, and you need corporate strategies developed by private firms that are intermodally oriented.

Some problems are small, and others are fundamental. For example, consider the legal framework—there are a whole set of issues with regard to instilling responsibility and end-to-end liability for handling the cargoes, insurance coverage, security, and action that the intermodal service provider can take against shippers or consignees who have not paid their freight bill. There are issues of price equalization. Equally important are trade process issues—interface with the international banking system, the issue of trade credits and ownership transfers, customs clearance issues, tax collection issues. Carriers in developing countries shoulder a lot of these responsibilities. For example, in Brazil, carriers are liable to pay taxes as well as to collect them. In other countries, they are responsible for other aspects of how the government gets paid. Those obligations are assumed by intermodal carriers when they enter some of these markets. Hazardous material handling is another key aspect.

In some of these areas, government leverage and the definition of the rules under which intermodal service providers operate are absolutely essential. The intermodal challenge in going cross-border and opening these intermodal markets to new entrants is that it involves synchronizing and integrating a whole set of triangular issues across borders; a lot of policy alignment needs to be done. Who should do this work and how should it be done? These are fundamental issues and intermodal transportation per se is not the primary focus or among the issues on the table right now in many of the various forums.

Another important aspect to intermodal service is a service network development. The first aspect has to do with putting the service network in place. In a lot of the countries where the World Bank is active in Latin America and Africa, not much progress has been made in the underlying economics of a hub-spoke configuration of linking a different cargo-carrying capability in a particular way and configuring it to minimize handling cost. The next is development of the interior gateways to the network structure for movements between the ports of entry and interior points. Lowering transaction costs and increasing the cycle time are also critical. The next step has to do with putting together a door-to-door delivery service. There are relatively few countries in the world outside of North America and Europe that have those services available today.

The next aspect involves putting in place systems that allow for the proactive, anticipatory, midcourse correction adjustment to these movements as they are taking place.

There are several different ways intermodal organizations can be configured and can do the work of providing intermodal services. The model sanctified in North America is what I call the vertically and horizontally integrated intermodal company—these are the Burlington Northern Santa Fe and United Parcel Services of the world. The work of managing those companies is done within a corporate shelter. The control systems or command and control systems are hierarchical and the ownership is single ownership under a single corporate entity. The sources of comparative advantages—local brand and economies of scale—are developed in these big networks.

At the other end of the spectrum is a model akin to the Internet—a loose network structure with affiliation and linkage either on movement-by-movement or some other basis. We have the benefit of very flexible and responsive linkages. We have partners that can be developed across borders. Ownership is diverse. The advantages are agility and quick responsiveness. Some of these other models of intermodal network development are worth exploring.

There is a role for an institution like the World Bank to begin the process of constructing intermodal services,
perhaps by developing an intermodal “pulpit.” Some donor countries have indicated their intention to help fund such an effort to be used in scouting out intermodal systems and how things are done in Australia, China, and so forth. On that basis, we can begin to address best practice, best policy, best foundation issues and come up with some templates for intermodal legislation. In terms of the rules under which the service is provided, such legislation is emerging. These things can be extracted to establish protocol standards and regulations, to recommend best practices, and hopefully encourage people to get involved in such projects. The goal is to find the microinfrastructure foundation for global intermodal networks. That foundation will involve a set of dry ports, which are intermodal bill-to-points, akin to zip codes, of intermodalism for the 21st century. Information is fundamental—in fact, essential—and the architecture that connects all these dry ports must be open and competitive, allow brand new applications software to be bolted in place, and invite Standard & Poor’s and friends of the world to come and bolt their solution technology in place.

The idea is to have a flexible and globally aligned supply chain to address this issue of cross-border freight activity. What you need are integrated business processes, trade practices, and information systems standards that are global; access to information that is open; microinfrastructure; and some hooks for new private sector entry into this intermodal business. Thank you.

TRADE GLOBALIZATION AND REGIONAL ECONOMIES

Jay Winter

Jay Winter is President and owner of an association management company, International Association Services, Inc., located in the Los Angeles–Long Beach area. In that capacity, he is the Executive Secretary of the Steamship Association of Southern California, and they represent all the steamship lines that work in the port of Los Angeles and Long Beach. He is also Executive Secretary of the Foreign Trade Association of Southern California. Before these roles, he worked for Bulk Systems, for Transmarine Navigation, Automar, and Marine Terminals Corp. He received his B.A. degree from Stanford University as well as a graduate degree from the School of Business at Stanford.

Southern California has been blessed with growth in trade since the end of World War II that has probably been unmatched in this country. There are a number of factors to this growth, although the population growth here and the development of Asia have certainly been the two key factors. The liberalization of trade, initially under the Bretton Woods agreement, then the Kennedy Round, and more recently the GATT Round, has made this port complex today far and away the largest in the United States. The Japanese, in effect, became the mentor of the rest of Asia. The three “tigers” followed in the 1980s and 1990s, and then came the giant of them all, China.

Today, two-way trade between China and the two southern California ports represents in the neighborhood of 20 to 25 percent of our business. In terms of 20-ft equivalent units, that represents anywhere between 1.5 and 2.0 million units a year that are passing through these two ports. If China receives permanent normal trade relations this spring from the U.S. Congress, many people expect not only a continued surge on the import side but also significant growth in export trade.

The impact of this growth on southern California has been multifaceted. The challenge of building these port facilities has been tremendous. In the past few years, the two ports were spending in excess of a million dollars per day just on new projects. The area that has been the toughest in the past 10–15 years has been not the ports themselves but what lies behind the port—the roads, the rail, and the infrastructure.

Most of the audience are familiar with the Alameda Corridor project. That project was first conceived back in the early 1980s as a way to avoid aggravating the local communities with coal trains. With those days of the energy shortage, coal was going to be the savior of the world. Back then, management of the port of Long Beach said they would not be able to build coal terminals in the port with all the train traffic; therefore, an effort had to be made to consolidate rail traffic. Then they became aware of grade-crossing issues and they turned to a trench concept. About the time the energy crunch fell apart and oil was flowing again and reasonably expensive, along came doublestack trains. The Alameda Corridor is one of the most massive projects that has ever been undertaken as a public works project. It has cost of $1.0 billion. It is well into construction. They are digging the trench now. They are meeting challenges that people did not expect.

The items that really challenge the region today relate to the impact this growth has on local communities. Not everybody views trade as a good thing or a wonderful thing for their community, particularly if all the local citizens sees is a lot of trucks, noisy trains, grade crossings where they have to wait 20 to 30 minutes for a mile-long stack train to go across, air pollution problems, and the list goes on. These are the real challenges of the future—to make sure remedies can be found so the citizens do not rebel against the growth of intermodalism. For example, here in southern California where expansion of the air-
port facilities is needed, it is being fought tooth and nail. They want us to expand the airport out in Palmdale, which is about 100 mi away, and they want to have a high-speed rail link—one of these ideas that falls into the category of “build it and they will come.” It is clear that most people do not want to go all the way to Palmdale to catch an airplane.

Along with these challenges has been the imposition of what amount to trade barriers by local and state governments. The result is a patchwork of environmental and other regulatory constraints, particularly here on the West Coast. California, in particular, has a history of not waiting for the federal government to act—on automobile emissions and other air-quality issues. That is certainly where it began. In the last decade, this has come to have an impact on ocean transportation, as the region is faced with stack emission issues from vessels—both particulate and nitrogen oxides. The state has imposed its own oil spill cleanup requirements as a result of the Exxon Valdez not only on tank vessels but also in the past year on nontank vessels.

Another challenge first faced several years ago was a plan by the state of California to mandate port working hours. The state saw this as a possible solution to congestion problems. Fortunately, the idea was defeated. Another example from several years ago was Proposition 65, which requires signage wherever there are carcinogenic substances present. Someone asked whether the emissions from vessel stacks were carcinogenic—at one point they wanted to see Proposition 65 signs on the stack funnels. Diesel exhaust is a huge issue out here. The trucking industry, the railroad industry, and the shipping industry are all faced with it. Right now, there are more restrictions being placed on the bulk handling and the dust emissions that come from the bulk facilities. You can no longer have an open pile—everything bulk is likely going to end up being covered here in the two ports in the future.

This past year, another issue came up out of the water, specifically ballast water. The federal government and International Maritime Organization have been tackling the handling of ballast water for some time, trying to find rules and regulations to control the introduction of invasive species. This, in part, grew out of the problems resulting from the zebra mussel infestation in the Great Lakes region. While this was being discussed, the San Francisco Bay area had an infestation of a little creature known as the Chinese mitten crab. No one knows for sure how it came into the Bay area. Those in the shipping industry think some restaurateurs brought it in because it is a delicacy in Asia. The environmentalists think it came in through ballast water. It is a very serious problem in the San Francisco Bay and the tributaries behind it. These little creatures multiply very quickly. They have burrowed into the levees in the Bay area. They have clogged the water system for the whole state of California. As a result, this past year the state of California was not willing to wait for the federal government and the U.S. Coast Guard to come up with regulations—the state passed their own regulations. The state of Washington is about to adopt a set of ballast water regulations. It is troublesome to have this patchwork of regulations and laws coming down, and there are times when it would be preferable for the federal government to come in and unify the way some of these issues are addressed. The ports have also had to deal with stormwater drain-off, chassis licensing issues, and so forth.

In spite of these issues and challenges, today the economy of southern California is booming and, depending on which economist you talk to and how they count the jobs, international trade, with the activities related to it, is the largest employer in southern California. Southern California, with its two ports, has become the most massive public transportation logistics hub in the United States. Over 50 percent of the merchandise handled in this region either comes from or goes beyond the Rocky Mountains. The Alameda Corridor is a response to this demand for improved surface transportation. The railroads are facing challenges today, particularly as they expand passenger rail service on tracks that had not been used for passenger service for years. Suddenly, freight and passengers are starting to bump into each other.

In California, and more specifically here in southern California, there are also challenges from labor agreements and the labor force. Labor is still dealing with the issues of the 1950s and 1960s. Labor is going to have to come along to meet these demands and challenges, not so much from the carriers but from the communities. Facilities will have to be more fully and efficiently utilized and that is going to require more technological innovation. This is a concern for the unions, particularly the threat of job losses. It should be noted, however, that historically the growth with which this region has been blessed has more than offset any job losses.

In the future, we would like to see the federal government (a) identify the nation’s vital transportation hubs, whether they be air, rail, or sea; and (b) work with local communities to facilitate trade growth and transportation efficiencies, so that projects such as the Alameda Corridor are not stymied by endless roadblocks that could ultimately harm the entire nation. The federal government and U.S. DOT can and should play a vital role in this area. This also applies to airport expansion, which is needed here and in other parts of the country.

Fortunately, in Los Angeles and Long Beach, the seaports had the foresight some time ago to put in place environmental impact reports and they have been able to follow them. There have been some hefty price tags on the work, but it has helped facilitate growth. Thank you.
The Report to Congress on the Marine Transportation System (MTS) and Its Intermodal Connections indicates at least a doubling of U.S. international cargo movements in the next two decades. By volume, the ports of Long Beach and Los Angeles rank numbers 1 and 2 among the nation’s container ports. One-fourth of the nation’s waterborne international trade flows through these two ports.

Capacity and connectivity are critical to port access and to moving the freight. The Alameda Corridor is a $2.4 billion mega-project to build a 20-mi high-capacity rail corridor, consolidating rail traffic to and from the two ports and rail yards in the greater Los Angeles area. When completed, rail capacity will increase from 3.5 million to over 12 million containers. The project is on target for completion by December 2002.

However, we must not forget that many of the problems related to port access and connectivity are not going to be solved by the Alameda corridor. What is really driving this train is California’s projected population growth over the next 25 years. A recent article in the New York Times suggested this could be an increase of 18 million people—equal to another New York State—on top of the current population of 34 million. In the Los Angeles region alone, this could mean an additional six million people.

How do we cope with this crush of people? How do we meet the demand for roads to get them to and from work, for goods to maintain America’s high-paced lifestyle that demands ever more energy, for consumer products, and for recreational opportunities? It is a tall order and, realistically, the only way to address the challenge is to marshal federal and other public sector resources and get industry and academia involved.

We have significant tools to help us leverage the financial resources. Information technology is the crown jewel in today’s world. We need to use it rigorously to identify problems and choke points and to ameliorate negative results. Information technology and intelligent transportation system applications are increasingly focused on intermodal freight operations. Although the challenges facing us are real, all is not gloom and doom. Labor Department statistics indicate that productivity is rising faster than it has in over 40 years. We can and must harness this productivity to achieve our goals. Representatives of four federal agencies will talk about vital aspects of meeting this intermodal freight challenge.

Barry Holliday is Chief of Dredging and Navigation in the Operations Division of the U.S. Army Corps of Engineers in Washington, D.C. He came to Corps headquarters from Wilmington, North Carolina, where he served as Chief of the Navigation Branch in the Construction—Operations Division of the Wilmington District from...
I will discuss the current status of the U.S. Army Corps of Engineers (USACE) navigation program; how we link with the MTS, which Jeff High will address in more detail; and some of the challenges we will see in the future. Yesterday’s discussions emphasized the need for cooperative efforts among government and industry as we move forward to improve our intermodal capabilities.

The USACE navigation program includes 299 deep-draft commercial harbors, with deep draft defined as greater than 14 ft, and over 600 shallow-draft projects. Our inland system consists of 28 waterway segments, everything from the Columbia–Snake system on the West Coast to the Gulf and Atlantic intercoastal waterways, to our mid-America inland river systems. This waterborne transportation system provides an efficient and economic corridor for moving in excess of 2.3 billion tons of the nation’s domestic and foreign commerce. For every dollar invested to improve navigation infrastructure, the U.S. gross domestic product increases more than $3.00.

Yesterday, Jim Morehouse spoke of consolidation within industry. I contend that it is true in government as well. We can no longer speak of navigation channels or dredging as a single entity. We must think in terms of water resources infrastructure and watershed management. Clearly, the public expects this of us and I think the MTS initiative addresses this reality as well.

Although my focus today is on navigation and the MTS, I would like to put this in its proper perspective in relation to the consolidated whole. The water infrastructure provided by USACE provides an annual rate of return to the nation of about 26 percent. The benefits include flood control and prevention of flood damage, reduced transportation costs, electricity, provisions for recreation, and water supply services. Navigation continues to be our largest business area, representing over $1.2 billion of our $4.0-plus billion civil works budget in fiscal year 2000. In the Water Resources Development Act of 1999, several key deep-draft harbor projects were authorized. Chief among these are improvements at Oakland, Jacksonville, Tampa, Brunswick, and Baltimore. The Act also authorized improvements at Savannah and the lower Columbia River to Portland, subject to the chief’s reports. A number of harbor projects were also authorized in Alaska, which focused more on the isolated communities and the support that is so critical to these regions.

We currently have nine lock-and-dam projects under various stages of construction. New larger locks are already in operation at our Byrd and Winfield projects, while dam rehabilitation and other work will continue for a few more years. We are in high gear on construction at Olmsted lock and dam at Montgomery Point. Work is in the early stages at five other projects, and we also have major rehabilitation under way or planned at five sites on the upper Mississippi and at London locks and dam on the Kanawha River in West Virginia. In total, these projects represent $4.4 billion in new inland waterway investment. Clearly, we have an active lock improvement program under way of which we are rightly proud. We are keenly aware of the long lead time these projects require and the continued funding challenges ahead. Therefore, we have to keep our focus on needs well into the future.

Traffic volumes vary, but generally the trend is up as our population and economy continue to grow. Traffic is projected to increase from 630 million tons today on our inland system, to perhaps 830 million tons by 2020. It is critical that our inland waterway infrastructure be ready to handle this traffic. Water transportation is the most economic and environmentally efficient mode. If this freight is pushed onto already congested highways and railroads, consumers pay more, we are less competitive as a nation, and our air quality further deteriorates.

Despite the scope of our navigation program, it is becoming increasingly clear that the nation is underinvesting in water transportation infrastructure. USACE is looking to address this problem in cooperation with our federal and nonfederal marine transportation partners in order to maintain the U.S. position as the world’s preeminent economic superpower. We believe the nation’s future needs investment in water transportation, even over the short term, is unprecedented in recent history. Certainly, over the next 20 years, the demand on the MTS is expected to grow by two to three times current use. Information technology is changing the world and is serving to accelerate the revolution in unitized cargo. Ships within the world fleet are becoming larger and faster, and competitive pressures within the marine transportation industry are acting to increase the demand for channel deepening and maintenance dredging.

However, our funding has trended downward and an increasing amount of funds have been allocated to operations and maintenance activities with less for harbor and waterway development. There is cause for alarm with this change. We do not think there has been adequate attention paid to overall national needs for marine transportation, including the systemwide research and development needs of intermodal linkages. These trends need to be
reversed and additional monies must be appropriated for marine transportation activities. In this regard, we are working with the U.S. Department of Transportation (DOT) and other marine transportation stakeholders to develop ideas for modernizing and improving the MTS. The leadership of Secretary Slater and the direction of the Interagency MTS 2020 effort reflect a bold, forward-looking image of a world class marine system that is absolutely critical to the future of the United States in the 21st century. We have developed a navigation strategy that addresses this challenge and some of the changes we have seen, but I caution you that we must be very careful not to continue thinking in a mindset of the status quo. The government has always been good at reacting—the time has come to be proactive.

The changes mentioned yesterday by Jim Morehouse—globalization, consolidation, and technology—demand that we step out of our box and begin to evolve a forecast for the future. It will not be extensions of past and current growth lines. In some cases, it will be a whole new curve starting somewhere that we have not yet even conceived. Consider, for example, today's projections of Latin American trade that could be as much as a seven-fold increase. What will that do to our Gulf of Mexico and southeastern ports? What will it do to our roads and our railways? As a result of this Latin American trade growth, there are changing modes of commodity movements in the barge and inland system. We are seeing different modes moving barge loads of commodities back and forth from the Latin American countries. What does this mean for the future of our inland system?

One of the single largest challenges for us in the future with respect to infrastructure is dredged material disposal. We have large disposal facilities today that are full or nearly full, and the changes that are going to result in placing dredged material in the future are clearly going to be a challenge. For example, in Charleston, there are plans for a 1,100-acre disposal area to be developed into a port facility; if successful, this will drastically change the way we do business as far as maintenance dredging in Charleston Harbor. This is but one example of a situation that is applicable to several areas of this country.

If we do not use the standard of pumping into an upland site, our future applications will probably be more open water focused in this area. The material is uncontaminated and would be suitable for ocean disposal. However, along with that comes the domino effect of increased demand on the dredging capability of specific types of dredges, whether they be hopper dredges or bucket and barge dredges. This is significant for us in forecasting requirements in the future. Will there be enough of these types of dredges at the times of year when we can operate? If you are not familiar with the concept of dredging windows, there is probably no project that we operate in today that does not have some sort of environmental restriction that forces us to dredge sometimes in as little as 2 months of a 12-month period. These dredging windows, and Charleston is no exception, force a lot of dredging to be done in a short period of time, thus saturating the minimum number of dredges available. We have to keep a close watch on this as some of these dramatic changes occur in the future. It is just one part of the forecasting issue that we need to address.

In our navigation strategy, we have developed a series of action items, acknowledging that this is a dynamic process and that there will always be room for change. Perhaps the most important item is the regional sediment management schemes we are developing. We have also outlined a short-term strategic focus for our research and development activities, with the most important elements being the connections to reducing cost, reducing sedimentation, and improving our ability to manage and be proactive in the future. The two principal focus areas are sediment management and navigation system efficiency. These are not mutually exclusive just to USACE but will be leveraged through the MTS process with all the federal agencies that are subscribing to this program.

One of the specific activities we are looking at is how to address a rather troublesome challenge for zones of rapid sedimentation. Our military base at Sunnypoint, for example, is a very vulnerable zone, as is the Cape Fear River in Wilmington, North Carolina. This is clearly a problem area that we need to address so that we can manage that system instead of reacting to the shoaling. USACE believes the regional sediment management concept is going to be the answer that will put us in a much more proactive mode in the future. Currently, because of environmental regulations that are ever-changing and the demands and expectations of dredged material as a resource for beneficial uses, there is a lot of change going on right now within our system as far as what we do. We are trying to develop some models and tools that will enable us to not just react to shoaling and where to place material but instead operate within a management scheme that enables us to look at whole regions of the country. We could then, for example, identify a series of small projects that intermittently get dredged and one regional disposal site that could be used as a repository for good, clean sand, and when we need to place that material on a beach we will have that nearby repository.

Today, we normally spend an inordinate amount of money on a small project, pumping on the adjacent beach that eventually ends up washing right back into the channel. We have got to get out of this mode in the future. This can be broadened into an inland system or even a much larger regional system with deep-draft ports included. The benefits of this are obvious. You get
the beneficial resource of dredged material for shore protection and other environmental enhancement opportunities. It gives us a chance to forecast the dredging requirements, and thus we can budget more properly in the future.

We think a critical link in our knowledge base and our future is the ability to understand global activities. The International Navigation Association is one of the valuable assets we use to ensure that we know what is going on in the rest of the world and can benefit from research being done in other countries. Thank you.

MARINE TRANSPORTATION SYSTEM

Jeff High

Jeffrey High serves as Director of Waterways Management at U.S. Coast Guard headquarters. He oversees the U.S. Coast Guard waterways management plans and policy, port security, vessel traffic management, and Great Lakes pilotage. He is a U.S. delegate to the International Maritime Organization’s Navigation Subcommittee, a member of the National Port Readiness Network Steering Committee, and cochair of the Interagency Working Group on the MTS.

I am going to talk about the MTS—some of the key points from the report to Congress and some of the specific strategies and initiatives. I will also briefly discuss the coordination process. The key elements I will focus on include capacity, information technology, financing, and infrastructure.

We define the MTS as waterways, ports, and their intermodal connections, including vessels and vehicles and MTS users. Everything is intermodal and the MTS is proof of that. We also see it as a subsystem of the nation’s overall transportation system. The MTS initiative was designed to ensure that the U.S. MTS can support the level of traffic expected in the 21st century and can do so in a safe, environmentally sound, and efficient manner for the full range of users.

What are the challenges we face? By tonnage, 98 percent of U.S. overseas trade moves by sea and this trade is expected to double or even triple by 2020. The result will be more congestion at the nation’s ports, where commercial traffic will compete with other users of the MTS. Much of this trade volume will be carried on so-called megaships, which will require deeper channels, vessel traffic services, and changes in berth size and design and will further stress an aging infrastructure that provides the landside intermodal connections. There is also the issue of uniformity and enforcement of international standards. National security concerns must also be addressed, ensuring we have the capability for projecting U.S. forces and for maintaining the nation’s economic lifeline of imports and exports. Perhaps the greatest challenge is addressing and coordinating the fragmented waterways responsibility.

We conducted a series of regional listening sessions with participation of an interagency team—the U.S. Coast Guard (USCG), the Maritime Administration (MARAD), USACE, the National Oceanic and Atmospheric Administration (NOAA), the U.S. Environmental Protection Agency, and a number of other federal agencies—in an effort to lay out the issues and concerns of the industry and other stakeholders. We took the outputs of those listening sessions and made them the focus of a national conference in fall 1998, hosted by Secretary Slater, to which a number of high-level representatives from industry and the public sector were invited to talk about MTS issues and formulate a vision that would be the basis of the report to Congress. Secretary Slater then created a congressionally mandated task force on marine transportation, with two-thirds of the members from the private sector and the others from various federal agencies. The task force was co-chaired by USCG and MARAD and was supported by a number of support teams that assembled the MTS report to Congress.

The report identified seven strategic action areas: coordination, funding, competitiveness and mobility, improving awareness of the MTS, information management and infrastructure, security, and safety and environmental protection. For each action area, there are a number of recommendations—things we are and will be working on through a new interagency committee on the MTS (ICMTS) and a nonfederal MTS National Advisory Council (MTSNAC). The coordination process is what is going to make all this happen.

I will present selected recommendations from the MTS report and then drill down to some agency strategic plans, starting with U.S. DOT and more specifically the USCG and the Marine Safety and Environmental Protection program. This will serve as an example of how the recommendations and activities tie together. Keep in mind these are only examples of what is occurring within USCG and that complementary activities are occurring in MARAD, USACE, NOAA, and the other agencies.

There are three principal elements to the coordination action item:

- USCG serves as the secretariat for the ICMTS, which was established in November 1999. This group is essentially a follow-up on the interagency efforts that have been under way during the course of the MTS ini-
tiative. The first major effort of this group is development of an MTS implementation plan to provide a road map for carrying out recommendations contained in the report to Congress.

- MARAD serves as the lead agency on organizing the MTSNAC, a concept that was approved by both the Office of Management and Budget and the General Services Administration.
- Local and regional stakeholder committees will also be established, several of which may tie into harbor safety committees.

The other coordination activities include regional dialogue sessions and continuing efforts to coordinate research and technology activities. The latter activity continues what was originally a federal agency research and development coordination effort, which includes biennial research and development coordination conferences. The first MTS research and technology coordination conference, hosted by MARAD, was held in November 1999. The next one will be held in November 2001.

Funding is a very important element in the future of MTS. I wish I could say we have billions of dollars to spread around and get things done; however, that is not the case. The funding task force outlined the following action items: coordinate the federal funding processes, define the MTS funding mechanisms, and forecast the demands. This is a reasonable approach, because before you get the money, you have to determine what you need it for and explore innovative funding mechanisms. MTSNAC and all private sector stakeholders are likely to be involved in the funding issues. A first step in this area is taking a look at what is in the current budget for things related to the MTS—to establish a sort of baseline. USCG is also looking at innovative funding processes and how to fund various MTS activities.

With respect to information management and infrastructure, the recommendations included better systems for hydrographic and weather information, an area NOAA is aggressively pursuing. Unfortunately, funding appears to be an issue even for the PORT system that NOAA has developed. The stakeholders have made it very clear that they need and want better information.

A second information area is tracking cargo, passengers, and vessels—a topic that has been a focus of the Commission on Seaport Crime and Security. If we can improve our method of tracking cargo through the system, we will have a better opportunity to combat cargo crime and terrorism threats. The third information area is waterways traffic management. USCG has been working on a project to determine the requirements of what mariners need in terms of operational information, a demand that has been coming from our stakeholders.

Let me shift now from the MTS report to how it relates to selected federal strategic plans. The U.S. DOT strategic plan has five main goals, two of which are economic growth and trade and mobility. If you read the USCG strategic plan, you find the goal to “facilitate maritime commerce and eliminate interruptions and impediments to the economic movement of goods and people, while maximizing recreational access to and enjoyment of the water.” Drilling down a little deeper, into the organization I work for—GM, the marine safety and environmental protection command—we include a goal to “maximize the availability of safe, efficient, and environmentally sound waterways for all users by eliminating interruptions and impediments that restrict the economic movement of goods and people.”

In short, we understand that our water transportation system is limited and we have to find ways to increase the capacity of it. If that means better underkeel clearances, if that means better information systems or ways to operate in bad weather and low visibility, then that is what we have to do. For example, USCG is working on (a) vessel traffic management—the water version of the air traffic control system; (b) an automated identification system, which has a transponder that tells a ship where it is with respect to the rest of the world and with respect to other ships; and (c) ports and waterways safety assessments—looking at each port to determine what is needed to improve safety. Together these amount to rules of the road—traffic separation schemes, underkeel clearance information, better ways to manage the traffic.

Last fall at the International Maritime Organization meeting, we talked about the carriage requirements for the automated identification system around the world. We are looking at a universal standard so that everyone uses the same kind of technology—the ship that goes into Rotterdam can come into New York or Singapore with the same kind of technology, technology that will be implemented around the world. In the United States, this effort will start in 2001 in New Orleans, with hopes of completing the nationwide effort by 2007.

Ports and waterways safety assessments are processes whereby we use stakeholders at the local port level to go in and look at various factors. We look at a risk-tree diagram and determine what the risks are in the port and what can be done to reduce or eliminate them. We prioritize the severity of the problems in the ports and that gives an idea of whether to go after vessel traffic systems or other mechanisms to improve the safety in a particular port. In this regard, I want to mention the local harbor safety committees formed to formulate ways to improve and address issues of safety, security, environment, dredging, and so forth—local stakeholders partnering for success.

The regional dialogue sessions in seven regions of the country are designed to go back to those we heard from during the regional listening sessions to ascertain whether
we are on the right track in the approach we are taking. It will also be an opportunity to build in the regions the kinds of coordination processes we heard so much about yesterday. We are crossing state boundaries. We are crossing other boundaries. We need to find regional ways to solve problems and this is one of the ways we are getting at it.

We started with the MTS, and we looked at some sample initiatives. The next step is to publish and distribute the implementation plan so that government and stakeholders can see where we are going and hold us accountable. Thank you.

**RAIL CAPACITY AND INFRASTRUCTURE**

*Charles White, Jr.*

Charles White, Jr., is Associate Administrator for Policy and Program Development at the Federal Railroad Administration. White is responsible for developing railroad policy for the United States and helping to promote U.S. railroad industry participation in other nations developing railroad networks. White has almost 30 years experience with the U.S. rail systems and has participated in all the major railroad mergers, which have reshaped the U.S. rail system, since 1970. He has successfully reorganized a number of important regional railroads undergoing bankruptcy reorganization and has served as an advisor to a number of nations now transforming their transportation infrastructure.

An event happened over the last month or so that has changed the whole focus of what I am going to talk about today. The U.S. rail system is at a public policy crossroads of very significant importance, caused by the announcement of the merger of Canadian National and Burlington Northern railroads. In fact, the Deputy Secretary of Transportation has identified this issue as the most important issue facing U.S. DOT and this administration for its remaining time. I would like to talk about that issue and what implications it raises for the Department of Justice or at U.S. DOT. There are very few duplicative services affected—there are probably less than a score of shippers who will lose two rail services. However, it has come at a critical time in the U.S. rail industry and it has come as a culminating effect of the greatest railroad gamble in the past 50 years—the Staggers Rail Act.

Most in this audience are transportation experts, so you know what I am talking about. But, for some who may be in the maritime field, I will briefly touch on the importance of the Staggers Rail Act. In 1970, we had about 40 Class I railroads, and we had almost an infinite combination of routing alternatives available to shippers. However, we also had uniform pricing. We really had a public utility kind of rail system in which tariffs set the prices. There was very little negotiation between carriers and shippers except for the routing. But we also had 25 percent of our rail trackage operated pursuant to bankruptcy courts. We had an industry that was canning itself because it could not raise any capital, and we faced the possibility of great bankruptcies throughout the Midwest—the Rock Island and Milwaukee were teetering at that time. I think we faced a national calamity of major proportions if the rail industry went down. We faced nationalization.

What the Congress did was an act of courage. Instead of nationalizing, it lifted regulation dramatically from the rail sector in the hopes that it would stay in the private sector. It worked. The railroads’ health came back. They were able to act like businessmen with the shippers and negotiate contracts. They were able to make rational decisions based on economics and business policy. However, what was not foreseen was that those business decisions and business policies also favored long-haul, single-service systems. The longer the carrier could maintain its control of the traffic, the better off it was, and the better contracts it could make. That triggered an unexpected merger movement and, as you know, it boiled our system down from 40+ to a handful of mega-carriers. The mega-carriers reached somewhat of a state of equi-
librium. We had two giants in the West—Union Pacific and Burlington Northern; three giants in the East—CSX, Norfolk Southern, and Conrail. Conrail was the product of the failed northeastern railroads that were taken into the government’s protection. Government ownership federalized Penn Central and its six other affiliated and related regional railroads, and they were reorganized with a great labor buyout and then sent back to the private sector with, at that time, the biggest public offering ever. We were left with a situation of three in the East, two in the West, some degree of instability because it was three and two, and the instability was taken out of the system by a Conrail split and the CSX/Norfolk Southern acquisition of Conrail. So we now had balance in the United States—two in the East and two in the West—and two in Canada, all of which were struggling to absorb their prior mergers, their prior relationships that brought them to that state.

The industry is in an unhappy state with its shippers, because the big mergers that created those four were being digested. It is just a matter of time. The railroads learned that you cannot simply merge giant systems and have stability immediately. However, they are working toward bringing the benefits of those mergers into place. This was when a totally unexpected event happened—one of the western carriers announced its combination with one of the Canadians to create a transcontinental rail system and, as a result, upset the equilibrium of the remaining structure. Some people disagree whether that necessarily is causing a crisis or whether it is a matter of perception, but that is irrelevant. The fact is that the remaining ladies of the dance who do not have a partner are talking to each other and they are making no bones about it that the remaining western giant is talking with the two eastern giants. I cannot tell you what the outcome is going to be, but the four players left by the sideline—the Canadian Pacific and the three giant American railroads—responded immediately to the announcement of a merger with a nationwide ad, saying this is intolerable, the timing is bad, the industry cannot take this, and the government should delay it.

Far more important than that, however, is the reaction on Wall Street to supermergers. Wall Street has categorically said it does not want any more big rail systems because they appear not to work, they do not reward the stockholders, and the capitalized values of the U.S. rail systems have gone into the toilet. The combined Norfolk Southern and CSX capitalizations have managed to make the $12 billion that they paid for Conrail disappear. That value is gone. It is off the books. The stock of Norfolk Southern is worth a little bit more than a third of what it was before the mergers began and CSX is dropping just as fast. This is happening at a time when the U.S. rail system is at capacity.

This session is about capacity. The U.S. rail system has reached capacity because of the management techniques that its legitimate business policies have led it to and that is to downsize, to streamline, to shrink the industry, and to force traffic flows onto fewer and fewer—but more densely packed—channels. They have been a great success. The rail system has shrunk and it is concentrated heavily on the trunk lines.

However, the surge in the economy that you have heard about and great increases in international trade that are forecast are going to call upon our country to greatly expand its rail facilities to meet the demand. The question is, how is that going to be financed? Rail systems are extraordinarily capital intensive. It takes about one-third of their revenues just to maintain the physical plant in top-notch condition, never mind to expand. If our financial community is telling the railroads that the return for the investor is just not there, where will they turn to get reasonable wherewithal to maintain the physical plant and to increase it in this era of growth that you are all experts in? That is where I am pessimistic.

The Surface Transportation Board is not only looking at this merger, but it has done something unprecedented. It said it will consider crossover effects and future impact effects much unlike what it has done for the past 25 years. In other words, it is inviting the world to come in and talk about what is going to be the reaction to this great merger that is pending before it. U.S. DOT is going to be the leadoff witness. We are preparing the testimony now for the secretary or the deputy to lead that off. At U.S. DOT, and I think throughout Washington, this is now known as the “end game.” The U.S. rail system is, by force of this merger, in the end game of defining what it wants to look like. Many scenarios are being talked about, and the most likely scenario is a western-eastern merger, forcing the remaining eastern railroad to link with the remaining Canadian railroad, and we will probably have two transcontinentals. Two transcontinentals in the United States may be not enough for this economy. It may not be the best breakdown of rail systems. It will certainly raise very difficult issues in terms of regulation. How do you regulate a duopoly when one is winning and the other is losing? Does the national economy tolerate a duopoly in the United States? It might have in Canada when they had two railroads, two transcontinentals, but this is a very much bigger economy.

It raises one question in my mind that I think is inescapable. If the duopoly cannot maintain its physical plant and grow with the needs of the country, are the days of private railroading over? Can an economy like the United States tolerate a critical infrastructure element in the private sector? I do not know the answer to that, but I am afraid that is an issue coming over the horizon that we should think about.
There is another issue that is equally as troublesome. What will be the relationship between these giant railroads and their shortline partners? Our shortline railroads are increasingly weak, increasingly vulnerable, increasingly unfinanceable, and increasingly necessary if we are going to have some kind of a network to service these high-volume trunk lines. Furthermore, the railroads are moving toward adopting a much heavier car system, the 286,000-lb car, which a lot of the shortlines, being slough-offs to begin with, cannot transport safely over their infrastructures. That is an issue that I think is going to plague the rail industry for the coming years.

What U.S. DOT is going to present to the Surface Transportation Board is certainly not a group of answers. We have no answers; however, I think we have very significant questions for the next 25 years, and those significant questions cannot help but be interwoven into the context of what you are talking about today—the connectivity and the capacity of the overall transport system in the United States.

I will leave with one other comment. U.S. DOT is not looking at the Burlington Northern Santa Fe/Canadian National merger as a railroad merger. It is looking at it as a significant piece at a significant time, as a One DOT approach. Our merger team is made up of guys from maritime and highway and even the St. Lawrence seaway. It is not a railroad case. It is a transportation case, and I submit to you it might be one that port people and maritime people really should focus on. Thank you very much.

INTERMODAL CONNECTORS AND BORDER INFRASTRUCTURE

Christine Johnson

Christine Johnson is Program Manager of the Operations Core Business Unit at the Federal Highway Administration (FHWA) and Director of the cross-cutting Intelligent Transportation Systems (ITS) Joint Program Office within U.S. DOT. Within FHWA, Johnson provides leadership for defining the new operations for FHWA and has responsibility for its deployment, freight, and logistics policy as well as current efforts in work zones, value pricing, the Manual on Uniform Traffic Control Devices, and travel demand management. As Director of the ITS Joint Program Office, Johnson has been instrumental in shaping federal intelligent transportation system program strategies and policies and in bringing intelligent transportation systems to the forefront of modern-day transportation in the United States.

Often when I am before a national audience, I am wearing my ITS hat. You heard Administrator Wykle yesterday talk about the fact that FHWA has undergone a reorganization that really is unprecedented. We have not had this kind of a shakedown for at least 30 to 40 years. In that change, we identified five core businesses, one of which was operations, standing side-by-side with building and maintaining our infrastructure. As a part of that new core business, which I argue is a watershed policy statement, is a focus on freight logistics, not highway size and weight issues, not the regulation of the safety of trucks, but freight logistics, which cuts across all the modes and recognizes the role of FHWA in connecting the other modes.

We are now in the process of laying an intellectual foundation for an essentially new core mission within FHWA. I am not going to go through what was already discussed yesterday about the kind of change we are in the midst of. It is not an evolutionary or straight-line change—it is one of revolution. Those that appear to survive in this new world, whether it be in the medical world, in education, in the manufacturing world, in the new communications world, or even in government, are those who are nimble—they can literally turn on a dime with new information. Think of the kind of change that Charles White just talked about in the previous presentation. Can we turn immediately on what the implications are? Those who can move with information are surviving.

Second, those who are surviving are in some way speeding up everything they do, whether that is baud rate, whether that is getting something invented and to the shelf, whether that is reducing the cycle time of manufacturing something, or whether it is speeding up the delivery to the manufacturing line or the retail shelf; speed is important as never before.

Finally, survivors demand and deliver with precision. We have tolerated, by today’s standards, a lot of slop in our world, a lot of slop in our budgets, a lot of slop in just putting something together. We used to add a 50 percent factor to the design of our bridges. That is no longer tolerable. We cannot be too early. We cannot be too late. We cannot be over budget. We cannot be under budget. We cannot have the merchandise on the shelf too early, and it is no good if it is even a little bit late. Precision is extraordinarily important. We call all of this just in time.

I am still amazed when I have conversations with business people who are developing business plans based on a window of 15 minutes. If a product arrives at an assembly line or a retail shelf ahead of that 15-minute window, it either does not have a place to go or it messes up the way they are planning all their assembly; if it is late, it shuts things down or they lose profit from the retail sale. That is just amazing to me when I think of that 15-minute window juxtaposed to the kind of highway system that
We have today. I ask you, is that a picture of survival, given those kinds of conditions?

We at FHWA are, of necessity, asking the question—will this infrastructure match the 21st century world of information and communication and essential precision in just-in-time delivery? We are very seriously asking how well we are matching the infrastructure that we have today, and that we plan to have, to the demands of a just-in-time era. Just as some may argue that the two worlds are going in exactly opposite directions, as logistics becomes ever more dependent on speed—and I would really underline the term “reliability”—you can probably tolerate any amount of time, but you cannot tolerate an ever-increasing variance, and that is exactly what we are experiencing.

The infrastructure is becoming more unreliable and the period that it takes to get a fix of that infrastructure is increasing. We talk in terms of going from the concept of fixing a geometric condition, for example, to execution or construction in 15 years—not 15 minutes. That is not unusual. When I was at the New Jersey Department of Transportation, that was a standard planning time frame, from the time it went into the planning process to the time we actually broke ground.

I think before we talk about how we are executing that management, it is important that we not make the mistake of just speeding up what we used to do, or doing more efficiently what we used to do. I think we really need to take a look at where we can be more effective in the world we are going to.

To use a highly simplified version of an end-to-end movement, I would define the points of leverage of a container movement as ship to marine terminal to truck to end point. If we were to focus, as my agency has done for the past three decades, on that third component—the truck movement—and continue doing what we have done, adding more lane mileage either by widening the road or by extending some part of the network with new highway infrastructure, we might take a half-hour to one hour out of the total time for that transcontinental container move. However, if we go to the second portion of that move, into the terminal, and maybe improve the information, we could cut as much as one day out of that timetable. Therefore, the leverage is much higher in that component than in continuing to lay asphalt and concrete.

If we go to the fourth part of that movement, into the metropolitan area end point, where most cargo is destined because that is where 70–80 percent of the population lives, and if we add some infrastructure and a lot of information and at least guarantee the travel time as opposed to a plus or minus 2-hour window, we would be far ahead of the curve. In sum, I think we need to target our focus as we go into this era of information and speed and nimbleness as we try to match our infrastructure to this new world.

I think the points of leverage are going to be in the paperwork and processing. This is not unlike what we were told yesterday. I think we will need to focus on our borders, focus on our urban traffic congestion for greater reliability, and then focus on the physical infrastructure connections at our intermodal terminals.

We have just completed a study of the connections at our intermodal terminals—the National Highway System (NHS) connections. Overall, we have about 8 percent of our NHS with poor pavement condition at any given time. However, we have found at our truck and rail terminals and at our ports between 12 and 15 percent of our pavement is in poor condition. That is something we need to worry about. If we take a look at the geometric adequacy of our physical infrastructure, we find that between one-third and one-half of our terminals are suffering from one to three geometric deficiencies. These deficiencies can be in the form of too narrow a road to support a particular kind of movement, too short or too tight a turning radius. It can be any number of problems simply categorized as inadequate geometrics to support the kind of movement that we need to support in today’s world.

If we go on to look at our border conditions, we recently had a study by the General Accounting Office (GAO) that documented what we already know—there are miles and miles of delays now, before the forecasts of doubling and tripling of traffic at our borders. Average delays are 2 and 3 hours, sometimes extending to 4 and 5 hours at border crossings. Some of those problems are with the infrastructure. We do not have adequate connections that match, a critical issue on both sides of the border. However, that is not the primary problem that GAO found. The primary problem was exactly what we heard last night—namely, that we have dysfunctional processes and they are amenable to technological fixes. In fact, we have experimented with some of those fixes and found that we can read what is on a container 100 mi (161 km) out and make a decision about whether we are going to detain that truck for various kinds of inspections or whether we are simply going to let it pass through and reduce the kind of delay that we have. Unfortunately, we are not yet in a position to fully deploy that kind of technology.

Let’s now look at tomorrow’s challenges and raise the same questions the other speakers have raised. If we move to greater load centering at our gateways on our coasts and substantially increase the volume on top of what is already coming in, do we have the physical surface infrastructure to match that, assuming of course we get the marine infrastructure that will allow that kind of load centering? The answer is no. But, worse, do we have the capability of answering the more difficult question: Are we investing in whatever surface capacity we need at the right places? We have got to have a marriage between our rail capacity, our highway capacity, and our marine
capacity in the world that has been forecast for the future. We indeed have serious physical capacity problems that need to be addressed.

I have not even mentioned something that so far has not been discussed and that is air cargo. Although air cargo represents a small volume portion of global trade, it is an extremely important and growing component of global trade. I look back to my days at the New Jersey Department of Transportation and air cargo at LaGuardia. If we see a doubling of that air cargo, where is it going to go once it gets off the plane? It will go on to the Van Wyck Expressway. We have landside problems in handling our air cargo that are as serious as those associated with marine cargoes. We have a mismatch of ground capacity to air capacity as well as increasing terminal and air traffic congestion.

Now let's move to the destination end of this cargo—the other end of either the rail trip or the truck trip, most often in our metropolitan areas. In the past 10 years, we have gone from fair to middling to poor and maybe worse. Keep in mind, this is where the 15-minute window is occurring. Where 20 years ago about one-third of our peak period, defined as 4 hours, was in congested, stop-and-go conditions, and therefore unstable conditions, it is two-thirds today. Over the last 10 years, we have seen 100 percent growth in congestion in our major metropolitan areas, and 400 percent growth in our smaller urban areas. The real challenge is occurring in our smaller urban areas. Let me add a piece for those of you who are not traffic engineers. When you reach this point and have any incident, whether that is a flat tire, somebody moving at a different speed than the flow of traffic, or any similar event, you can take out anywhere from one-third to one-half of the capacity of that freeway system for any of 20 or 30 minutes, or even 1 hour depending on how fast we can react to it. This is where we get a plus or minus 2 hours on delivery time.

We ask the question: How are these problems being addressed? If we suggest that the Intermodal Surface Transportation Efficiency Act was a period when we focused on what the problems of intermodal transportation were and the Transportation Equity Act for the 21st Century is the era in which we have begun experimenting with solutions, I think we have good news. We can point to successes, but we also look at the mainstream and say there are miles to go before we succeed, and we really need to begin focusing on the next legislative agenda and the next policy agenda based on what we are learning today.

We are having some tremendous successes in freight planning, in planning infrastructure projects for freight. We have seen examples in the Pacific Northwest and in the southeastern region of the United States. But, by and large, the going is very tough. What our NHS connector study has found is that the planning process in the infrastructure world is dominated first by construction, not necessarily information infrastructure, and it is dominated by passenger concerns. We can advance a project if it has clear benefits for the passenger world. Incidentally, if it has a good productivity benefit, that is all well and good. If it has productivity benefits alone or predominantly is tending to go nowhere, we have few, if any, analytical tools. Florida was one of the pioneers in developing tools that will function in this world of local decision making, and those decisions are local in the sense that often the costs of a project are borne absolutely locally and the benefits are distributed across the state and often across a multistate area. We have worked with several multistate corridors where I think the future is and found it difficult to keep them together. We have no existing institutions that will allow those states to work as a team in multistate, end-to-end investments.

Moving on to freight financing, we have again seen a number of successes—the Alameda Corridor is a good one. As I listened to the briefing on this project yesterday, I understood that the stars were aligned there. Everything was in the plus column. We have seen a number of others. However, if we look in the mainstream as opposed to those on the leading edge (and sometimes the bleeding edge), we are seeing problems. The NHS connector study has shown that many times those connectors, those infrastructure pieces, are orphans. A recent KPMG study focused on the fragmentation of funding as being very problematic. The GAO study focused on the fact that the fragmentation of the funding and the nonownership or the lack of national interest at the border were extremely problematic. In the one experiment that we have going as part of the borders and corridors program, we have needs grossly exceeding the amount of money available.

I want to restate the three “I’s” that FHWA Administrator Wykle suggested will become the challenges of the 21st century: institutional development (freight does not recognize borders); information technology (electronic data interchange legacy systems and lack of standards); and infrastructure (freight volumes are increasing and physical capacity and infrastructure must be improved).

I would like to close by suggesting themes that will shape the solutions to these challenges and form our future legislative and policy agenda. I think the first will be geography. We need to consider whether it may be time to shift from an interstate focus to one of the nodes themselves, or the metropolitan areas, because that is where we have the greatest points of leverage. That is where the unreliability is occurring. That is often where the intermodal terminals are. We need to shift from working state by state to finding institutional underpinnings for multistate coalitions and multistate corridors. We need to shift from connecting the states to focusing on our global gateways at our borders.

In our planning world, we have learned well how to plan for capital and capital construction. We have not
developed the institutional underpinning or the wherewithal to develop a concept of operations, to conceive how freight is going to operate from end to end in a region. That simply does not exist. We do not have a mechanism to weigh national interests along with local concerns. In addition, we do not have institutions that underpin this kind of planning. I think we need to refocus on funding and ask whether we need to focus specific funding on freight movement in the United States and focus it in a way that it will reflect national interests, regional interests, and local concerns in appropriate proportions. That funding needs to be flexible and multimodal, and it needs to work end to end.

Finally, I think we need to have as great a concern in the infostructure or information infrastructure in the 21st century as we have had in the asphalt and concrete world of the 20th century. Infostructure can cut time in the future as much as asphalt cut time in the latter half of the 20th century. Infostructure can yield better precision and it is subject to the kind of measurement we are going to need.

I conclude with the suggestion that, as we begin to talk about these themes, we be willing to think beyond the way we solved problems in the 20th century. We can do more than survive. We can prosper in this just-in-time world. Thank you.
I am Deputy Director for Logistics and Business Operations at the U.S. Transportation Command, located at Scott Air Force Base in Illinois. Our job is global air, land, and sea transportation for the U.S. Department of Defense (DOD) and a whole lot of other people around the world in peace and in war. The purpose of this session is to review lessons learned and demands on the intermodal system as military commercial partnering for intermodal freight movements increases.

To set the stage, I would like to give you a 40,000 ft view of why intermodalism is important to DOD. It really dovetails well with Bill Lucas’s opening remarks yesterday and with General Brown’s comments last night.

Intermodalism is important to the DOD for a very simple reason—we need to move a lot of stuff. The wartime planning strategy against which we size our mobility forces is based on the ability to fight two nearly simultaneous major fatal wars on opposite sides of the globe, and clearly mobility and transportation are a key part of that. It is a big movement requirement. We thought Desert Shield was big. This two-conflict deployment has to close in about one-third of the time. We took 205 days at the height of the buildup to close the force that ultimately commenced Operation Desert Storm. This two-conflict force has to close in less than 75 days.

At the height of Desert Storm, we averaged an aircraft landing on the Saudi peninsula about every 11 minutes and a ship strung out for about every 50 mi (80 km). Imagine then the demand that a two-conflict set of requirements puts out there. It is not just moving the force, but it is sustaining that force once it is there. Clearly, if we are going to be successful in this, we need a transportation system that can bring both mass and speed to the fight, and intermodalism is a key part of that.

We look at intermodalism as a critical part of our force projection strategy and really we talk in terms of end-to-end throughput capability. You can call it fort-to-foxhole if you would, or origin-to-destination. You pick the description. We talk in terms of throughput, bringing together the infrastructure, the assets, and the information technology. We invest a lot in the pieces to make all this happen. At the end of the day, our measure of success is our ability to close that force when it is required, sustain it once it is there, and bring it home at the end.

Yesterday, Bill Lucas mentioned the importance of doctrine and, in fact, that is really the linchpin of everything else we do. Once something is in doctrine, then training force structure and all those other things that enable something to occur take place. Everything we do is measured against mobility and readiness. Equally important are security and safety in transit visibility and in the end-to-end focus.

DOD has invested big bucks on the various pieces of this system—more than $1.0 billion in the past decade on basic infrastructure, which includes our depots, our installations, our key strategic ports, and key nodes in our system. With respect to the assets and intermodal equipment, many of you are aware of the investments made in
buying the big items like the C-17 and the large medium-speed roll-on/roll-off (LMSR) ships. What gets less attention—but is equally important—is the materials-handling equipment, the container-handling equipment, and the railcars and all those sorts of things that allow you to rapidly throughput people and cargo to take advantage of those big ticket items. Processing systems help us work the linkages to pull that together.

Also important are training and exercises. We now have a series of intermodal exercises. Bill Lucas mentioned the turbo intermodal surge yesterday, a program that continues to evolve. We are gradually breaking down barriers based on perceptions of intermodal capabilities within DOD. However, we still have a lot of work to do. We learn something new every time we do that. The industry learns something, and our unit commanders learn something. Clearly, the last piece is working with industry to exploit those technologies.

The point I want to make is that intermodalism really is a key enabler and this is recognized within DOD. The thought I want to leave you with is that we think we have the pieces in place, but we are not as far as we need to be with respect to interoperability. How do we make them work for a seamless end-to-end movement? Within DOD we face a lot of the same challenges the private sector faces, but it is something we are committed to doing. Certainly, it is a timely topic and we have a group of panelists today who are eminently qualified to talk about the security and defense issues surrounding that partnership and the defense structure's use of the intermodal system.

U.S. DEPARTMENT OF TRANSPORTATION SECURITY AND INTELLIGENCE

Rear Admiral J. A. (Bert) Kinghorn

Rear Admiral Bert Kinghorn, U.S. Coast Guard, is Director of the U.S. Department of Transportation (DOT) Office of Intelligence and Security. U.S. DOT is the lead agency for the national transportation sector for the Critical Infrastructure Protection Program, implemented under Presidential Decision Directive 63 (PDD 63). It established the administration's policy on critical infrastructure protection, with the objective of ensuring the continuity and viability of critical infrastructures and eliminating any significant vulnerabilities to the physical and cyber tax on those assets. Under PDD 63, Rear Admiral Kinghorn is the sector liaison coordinator for transportation.

As a brief overview, I am going to describe a somewhat unconventional or nontraditional approach to national defense. That is, I intend to talk about critical infrastructure protection and what I believe our needs are in this area. I also will propose, perhaps somewhat offhandedly and certainly gallantly, a couple of research topics in this area that I think would be helpful to the nation as we move forward in this area.

Although most of the points of my discussion are centered on the information or the cyber side, certainly critical infrastructure requires protection of both our physical and our information infrastructures. I focus on the information side, because I believe it is the glue that makes the intermodal part of our transportation work. Without the connections, the ability to pass information between modes, and so forth, we lose efficiencies and, in some cases, we lose the reason for even adapting the intermodal methods. I am going to propose three potential research topic areas. A couple are fairly simple and fairly easy to come up with; however, the last one you may find a bit more extended and more difficult to come by.

Over the last couple of weeks, I think everybody is aware of the distributed denial of service attacks that took place in some of the Internet service areas, some of the e-commerce people. The press certainly gave it lots of visibility and I think most of us have a good sense of what happened. We have less of a sense of who did it and what their objectives may have been. I think it is useful to recognize that the denial of service fell way short of what the possibilities might have been in terms of the effect on the American people and on our national defense as a whole. These attacks also gave us a pretty good understanding of the difficulty of protecting our infrastructures, especially in this information age where we use the Internet and are becoming increasingly dependent on it. They have also given us a pretty good idea of how difficult it is to identify culprits and to identify causes and methods.

Let me step back and give you an example of an event that occurred a couple of years ago. Although it did not get the same kind of press visibility, I think it will give us a better sense of what the possibilities are in the transportation area. Imagine if you will a couple of teenage boys in a bedroom somewhere with a 286 computer, a 1200-baud modem, and a connection to the Internet. Their thought process is something like this: Let's see what we can do to get easy and cheap access to talk to our girlfriends in another part of the country right now. They approach a local telephone switch, based on information that they were able to pull down off the web. When they got to the address, there was a banner page that said, you have just approached the page of such-and-such telephone company. You are forbidden from going any further, but if you need access beyond this level, call this number, and it was a 1-800 number. So, they picked up their phone, called 1-800, and said they were company so and so in need of some maintenance on this telephone switch and asked how to get access. Being very helpful,
the telephone company personnel who answered the phone said sure, and your access code is “xxxx” and please be our guest and help fix this problem.

These two young lads now have a password to go into the telephone switch and they are off and on their way to having a way to gain access so they can call their girlfriends in other parts of the country at no cost. Believe it or not, they got into the switch. They played around a little while using some software they had downloaded from other parts of the Internet. It did not take long before they caused the switch to fail and, at that point, as you can well imagine, all the telecommunications that were served by that particular switch were affected.

It just so happened that included in the list of other infrastructures or other enterprises that were supported by that switch was the Worcester, Massachusetts, airport. Not only were their normal telephone communications connected this way, but the runway lighting system was switched through the telephone system. Not only that, but their voice and radio communications with the planes that were working in the area they controlled and that were on final approach to the airport were also transferred or carried by the same telephone lines through the switch and then on to the remote transmitting and receiving site. The airport went down for about 6 hours.

What are the implications of this? Here you have a couple of kids with no malicious intent but simply want to make a couple of free telephone calls to somebody on the other side of the country. Certainly they had no intentions or expectation that they would affect transportation, but they interrupted both freight and civil aviation flights into and out of that area and certainly affected some of the other flights going into the Boston area.

I think one of the key messages here is that we have become a very interdependent society and the information piece of it, in particular, extends those interdependencies far beyond what we may have been accustomed to before. Certainly this particular attack, if you want to call it that—this accident, which it certainly was—did have a fairly substantial impact that, at least from the standpoint of the people who needed to transport goods and people out of the Worcester area, negatively affected their ability to do other forms of business and not just to do business across the Internet with an Internet commerce company. This is not a real pretty picture, but it does give us a sense of what the possibilities are in the future.

Let me ask you to now to think back to an earlier administration, to a president who was certainly not known for farsighted proverbs, if you will. But in one of his many speeches he talked about a new order. That term has caused a good bit of concern among some of the vigilante groups in this country, the militias and so forth, in the context of a new government. But it may be that before we will ever see this new sort of world govern-
tell us, but certainly they were in a position to know; had they been tested, they could have reacted in a way that would have allowed them to continue their business far more reliably than some of the other organizations out there who were shut down entirely.

How do we help the transportation sector reach the point, and then surpass the point where the financial sector is now? Transportation industries are a very diverse group and although there are some who are very concerned and very progressive in their efforts to protect themselves, a great number are not, and they do not recognize the fact that they may be vulnerable. When you talk with them, they frequently say, “Why would they attack me?” When I talk about the Worcester airport case or other similar cases, they have trouble associating it to their business and the fact it could affect their ability to continue business and their ability to support their customers in the United States government in the context of national defense.

We need to ask ourselves whether the transportation sector is going to wait until it is motivated by external sources, when insurance companies say they cannot protect you anymore, when customers say they cannot use you as a form of conveyance, or the federal government says it has to go elsewhere or find some other means to mobilize troops.

I mentioned earlier some research areas that the Transportation Research Board might champion:

- The first of these would be a credible, believable, business case to which the transportation industries can relate that would help them understand why protecting their infrastructures is not just important but makes good business sense because it affects their bottom line, their profit line.
- The second is an easily communicated template for vulnerability assessments within the transportation arena. I spoke earlier about interdependencies. When most transportation companies conduct vulnerability assessments, they think in terms of the fence around the terminal area. They do not think in terms of those other activities they need to support them, the other companies that support them, and the protection that might be required in a broader context to help them continue and perpetuate the businesses.
- Finally, I refer back to the new social order, an area in which political boundaries become irrelevant. It would be very useful if the Transportation Research Board could champion an effort to build a new legal structure for this new commercial arena in which we find ourselves. We have evolved to a new social context, a new business context, but we do not have the legal framework to support this in a way that helps us truly identify what the lost costs are, identify liability in the context of those costs, and then also to support it with a criminal system that is global in nature and adapted to this information environment.

I want to again mention the Critical Infrastructure Protection Program. Although you may hear mention of PDD 63 in some circles, I have found it is very difficult to convince transportation companies to recognize the effect it has on them personally and on their business practices, their internal efforts, and their requirements and ability to carry on in the future. Hopefully, I have stimulated some thinking on your part, beyond the traditional how do we mobilize, how do we defend our assets in a physical context, and so forth. It is my hope that as a result of the discussions here, we will have a better sense of the interdependencies within the transportation area as a result of intermodalism but also as it results from our dependencies on other areas of commerce and business to support transportation activity. Thank you.

Voluntary Intermodal Sealift Agreement Program

James Caponiti

James Caponiti is Associate Administrator for National Security at the Maritime Administration (MARAD). He has been at MARAD for more than 25 years, holding a number of positions including Director of the Office of Ship Operating Assistance and Director of Sealift Support. Caponiti is also a plank holder in the creation of the Voluntary Intermodal Sealift Agreement.
cially, with 95 percent of the overseas international trade and 25 percent of U.S. domestic trade dependent on the U.S. MTS. It is also important when we get into a contingency, as we stress that system by requiring it to take on the added responsibility of trying to get military goods and people where they need to be for a contingency.

There are a number of readily apparent problems within the MTS, not the least of which is an aging and undersized infrastructure. Many of the existing berths and channels are not able to accommodate the new and future generations of ships. We need to examine and prepare for the future and think about how to adapt to future trends in trade and commerce. This includes dredging as well as access to and from the ports to ensure an efficient supply chain. The task force developed a number of recommendations and I want to highlight some that are particularly germane to national security and mobility. Basically the infrastructure that has served us well in the recent past may not be adequate to serve us well in the future. In a situation in which we have a full-blown military contingency such as Desert Storm on top of maximum commercial activity, we put a lot of stress on the system.

Another critical area is the continuing and growing need for a qualified workforce. One of the things MARAD is looking at in detail right now is the adequacy of the pool of commercial mariners who crew the government organic fleets and, of course, the commercial fleets in peace and during a contingency. That same workforce, the commercial mariners, are the same mariners who will man the RRF, the LMSRs, and the fast sealift ships. The mariner base is shrinking as the U.S. commercial fleet shrinks. It is a natural consequence of bigger ships, fewer companies, industry consolidations, and smaller crew sizes resulting from the added technology on the newer ships. We think we can crew the fleets now with an activation, but we are a little bit concerned about certain scenarios in which we may need to activate the fleet quickly, or, if it is a long enough conflict, in which you have to replace the crews. The size of the manpower base is at a stage to raise concerns. MARAD is working with the U.S. Coast Guard to try and better identify the pool and, based on those conclusions, determine where we are and come up with some ideas about how to enhance the manpower base. It is a broad area, but it is one that is very critical to MARAD right now.

Making an assessment of the strategic ports and waterways is also very important. We have a system that essentially relies on 13 strategic ports, which Military Traffic Management Command (MTMC) will rely on in a contingency. One of the challenges is to take a close look at these ports and the infrastructure that supports them. Is the system what is needed to get the supplies and equipment and where it is needed in all contingencies?

I will now shift to the focus of my presentation—the Voluntary Intermodal Sealift Agreement (VISA program), an effort that began about 5 years ago. The impetus for the program was, in part, after-action thinking from Desert Storm in which there was heavy reliance on and utilization of the commercial fleet. It was believed there was a better and more systematic way to do this. The maritime security program, MARAD’s current assistance program to keep a fleet of ships available, was in the works. This included an emergency preparedness program requirement to provide the ships and the intermodal assets related to the operation of those ships to the government in an emergency. MARAD, U.S. Transportation Command (USTRANSCOM), and the industry came together in a collaborative effort to put together this program. It was a partnership in every sense of the word and it has been difficult to pull together. There were contracting issues that were difficult to overcome, but there is now a program in place that will be effective and will serve the nation well in a contingency. It was put together under the authority of the Defense Production Act of 1950, which was also used to put together the Civil Reserve Air Fleet (CRAF) program that Mike will talk about later. Much of the VISA program was modeled after the CRAF program. It is a staged response, with stages where there is a buildup of the force and activation stages to meet contingency levels. It is capacity driven, with the focus more on capacity than on specific ships.

The previous sealift readiness program was a ship-oriented program, in which an entire ship was chartered. The VISA program gives us the flexibility to utilize the capacity on a vessel so that a carrier can provide capacity to DOD while still conducting its normal liner service. There is the flexibility to do this in conjunction with a liner service, or to charter the vessel much as was done in the past. The carriers like the innovation in the new program. From their standpoint, it is user friendly, in that they do not have to break down their systems and they do not have their ships pulled completely away from them and out of their service chains. Depending on the conflict, where it is and the intensity of it, it may be possible to utilize these vessels and allow the company to continue serving their peacetime customers.

Another major new element to the VISA program is a formal process for joint planning called the Joint Planning Advisory Group, which meets several times a year in a secured environment so that the government planners, the industry, MARAD, and USTRANSCOM can meet to plan how to deal with different contingency scenarios. This is unprecedented and has been a valuable learning tool—government has learned a lot from the carriers and the carriers have learned a lot from the government, particularly how to ramp up to a contingency.

There are also a number of incentives for carriers to join the program and 48 are currently enrolled in the program. For the maritime security program carriers, which provide 70 percent of the capacity, it is really not
voluntary because they have to enroll and give over those assets. Many of the other carriers are involved because they are given priority to DOD peacetime cargo as a quid pro quo for enrollment in the program.

VISA is a program in which we use the vessel and the intermodal system. The challenge is to figure out how to use the complete transportation services available through the commercial carriers to the government’s maximum benefit. There are a number of things to look at in the future to optimize the partnerships with these carriers. Among these is the recognition that this is more than just the ship, it is a professional transporter that knows how and that can help the government get where it needs to go.

Finally, there is a simple message that ties together the MTS and the VISA—upgrading the MTS will serve the nation well for a number of reasons. It will optimize the carriers’ intermodal systems to the maximum benefit. The next problem in a major contingency is not going to be the ships—we have the RRF, the LMSRs, the fast sealift ships, and the VISA program. We have the available ship assets and can probably get them to where we need them. The challenge is going to be the supply chain and whether the intermodal system is intact, in place, and able to work without a glitch. This could determine whether the ships leave full or half full. The bottlenecks are going to be in the infrastructure, not so much is the ship on berth in time. This is the big challenge and upgrading the MTS will help solve some of the potential problems that may develop down the line.

The message is that VISA is up and running, having been approved by the Secretary of Defense as a sealift readiness program by Secretary Perry in January 1997. The contracts are in place, but the program is still developing and ways will continue to be found to maximize the potential of the program. Thank you for your attention.

**AIR MOBILITY COMMAND AND THE CIVIL RESERVE AIR FLEET**

**John M. Ledden**

*John M. (Mike) Ledden is Principal Deputy Director for Transportation Operations at headquarters Air Mobility Command stationed at Scott Air Force Base. Ledden began his career in 1968 with the Air Force Logistics Command as an engineer and has held positions in human engineering, computer systems design, depot maintenance engineering, quality control, industrial facilities, and equipment engineering. In his current position, one of his key responsibilities is the care and feeding of the CRAF program, which is a long-standing program that really reflects the state of partnership between DOD and the civil aviation industry.*

**CRAF of the U.S. Air Mobility Command has over 36 airlines and 700 aircraft that provide over 40 percent, and in some cases 50 percent, of our capability. Before talking about the somewhat checkered future of CRAF, I would like to tell you a little about the history.**

In 1925, legislation was passed called the Kelly Act—the first national policy to promote commercial aviation, and it was the U.S. Post Office. This became the legal basis for the airline system we have today. In 1934, the Baker Board (named after the Secretary of War at that time) recommended three basic principles: (a) there must always be a close relationship between the military and civilian arms of the aviation industry; (b) they should be kept separate; and (c) the civilians should be used as the reserve for national emergencies. These principles have carried forward to today.

In 1941, the Army Air Corps Ferrying Command was created with only 11 four-engine aircraft available from Pan Am and an entity called Transcontinental and Western, known today as TWA. By 1942, we had only 254 transport aircraft available, with the airlines providing 88 percent of the air transportation at the beginning of the war. In addition, commercial crews were used to fly the airplanes from aircraft factories to their bases. There were 9,000 pilot trainees in airline schools in 1943.

After World War II, when we had thousands and thousands of airplanes and set up a worldwide system through the military, the Finletter Commission looked at the situation and determined there was not enough airlift for national policy requirements and that access to the commercial world would require a formal contract. This is when the term CRAF was first introduced.

In 1950, the Douglas reports outlined a program for the establishment of CRAF. The first-line reserve was the equivalent of 400 C-54s—which was the old DC-4 built right here in the Long Beach plant of Douglas. The second-line reserve was the equivalent of 100 C-54s. This is the airlift capability they wanted to have available within 48 hours, with a backup reserve of another 400 from the commercial industry. At the time, if you took that reserve and put it on active duty doing the national will, the commercial airline industry essentially would have disappeared.

CRAF was formally established in 1951 by Executive Order 10219 issued by President Truman, under the Defense Production Act of 1950 and with the stimulus of the Korean War. In 1960, the National Airlift Policy was implemented, with the Military Air Transport Service, which was a combination of Air Force and Navy fleets of airplanes—mostly C-118s, C-121s, Constellations, and DC-6s—responsible for the hard core military requirements. Routine cargo and passenger traffic would go to the commercial industry. This is very important, because this is the reason the 707s were purchased by U.S. air-
lines and put into commercial service. There were so many airplanes flying military families and people and equipment across the ocean that the commercial carriers saw no advantage to making the investment—hence, that business was given to them and the Air Force and the Navy got out of the business of flying C-97s, C-121s, and C-118s across the ocean, carrying all their people and a lot of the cargo.

In 1987, the National Aviation Policy was formalized in NSDD-280, with a big reemphasis on CRAF. This policy set forth the following:

- Military and commercial airlift resources are equally important; both are necessary for deployments in time of war.
  - The organic fleet has to be a minimum size and have minimum utilization rates; the military is not in the business of being in competition with the commercial industry or in spending vast amounts of money on airplanes that would not have workload in peacetime. If you look at the military airplanes, they all have special design features—high wings, T-tails, ground loading—very inefficient compared with commercial airlines. The C-17 and C-5 are very inefficient compared with a 747 for range, mileage, the amount of poundage they can carry; however, you cannot get a Blackhawk helicopter into a 747. Hence, there is a mixture, a blend, and a requirement.
  - The capability beyond the organic fleet will come from the commercial sector, from which the government will procure peacetime airlift from CRAF carriers and provide incentives for CRAF participation.

Therefore, CRAF is voluntary and contractually mandated by national policy. With this premise, the commercial sector gives the military wartime capability and the government gives the participating commercial carriers peacetime business.

Over a 9-month period during the Persian Gulf crisis, strategic airlift included 5,556 commercial aircraft and 22,224 military aircraft; hence, 20 percent of the missions were flown by commercial aircraft. During deployment, 62 percent of passengers and 27 percent of cargo moved on commercial aircraft. A lot of passengers also moved in the back of military cargo planes, which tended to make some of them pretty surly by the time they got there and was perhaps good for ground troops. On redeployment, less cargo came back by air and a larger share came back by ship; 84 percent of passengers and 40 percent of cargo came back on commercial aircraft. The total number of dollars that went to industry was about $1.35 billion. However, during this time when the government called up and activated CRAF, those carriers lost commercial business and lost market share, particularly the cargo carriers on the Pacific routes whose aircraft had been called into active duty.

The organic equivalent of providing all that airlift, having those planes available within the U.S. Air Force, would be a massive investment of $3.0 billion a year. Commercial fleets today have expertise in bulk cargo, small package, and, in most cases, nonhazardous cargo movements. They have both short-range and long-range capability, taking it as close to an area as possible. Commercial airlines are not flown into combat areas. Although they did fly into Saudi Arabia, there was some question about whether that would be a combat area. One contractor and the air crew were sitting in Rome watching CNN and it was clear there were no secrets anymore. The crew in Rome saw scud missiles going into Saudi Arabia and they refused to take off and fly in. CNN is now in all the command posts and is tracked by the military. The government cannot force the contractor to fly in, but they are asked to go in as close as possible. For example, if the airlift is needed for Korea, the CRAF contractor would fly into Japan. The issue remains of how to get the cargo from Japan to Korea; this is but one of the problems that must be dealt with. For the most part, commercial airlines are also for carrying people, for carrying the troops.

Current figures for wartime planning show that most of the passengers (93 percent) go by commercial air. For cargo, about 41 percent goes by commercial air, primarily bulk cargo. The remainder, including bulk, oversize, and outsized cargo goes on the organic fleet, which includes KC-15, C-141, C-17, and C-4 aircraft. The C-141, of which there were once 270 aircraft, are scheduled to go out of active duty by 2003 and out of the reserves by 2006. There is projected to be a shortfall of airlift for outsized and oversized cargo.

To give you an idea of the diminishment of the fleet, in July 2000 the Tanker Airlift Command Center at Scott Air Force Base will have, on average each day, 60 organic airplanes to schedule worldwide—20 C-17s, 20 C-141s, and 20 C-5s—compared with an estimated 200 per day available to schedule not too long ago. Clearly, the fleet is diminishing. As the C-141s go out, for every two that come out, they are replaced by one C-17. However, the C-141s are going out quicker than the C-17s, which are also being built here in Long Beach, come in. Only 50 of them are currently available. A presidential trip or a deployment to Bosnia or some other event can tie up that fleet in a heartbeat. Although it is a much more useful airplane, it offers less flexibility and some require that commercial airlift be used to backfill.

There are three segments in the CRAF: (a) international, which is long range–short range; (b) domestic and Alaskan, for which there is a contractor still flying DC-6s; and (c) aeromedical evacuation, a very critical element. The C-141s are going out and that is what was used with special equipment to fly patients back to state-
As noted previously, in a Stage III activation, the total number of aircraft available is 729—aircraft that are totally within our system and under our command and control. The aircraft are provided to use with all maintenance support, fuel, and four air crews. They fly wherever we tell them to go.

A review of the Craf business base over the past 10 years indicates there were some carrier defections in 1992 and 1993. Two major American passenger airlines bailed out of the program because they feared being drafted and were concerned about the impact this would have on their fleets. These carriers try to keep their airplanes very busy in commercial lanes. For example, Southwest Airlines never has more than one airplane in maintenance on any business day. All their other aircraft are flying in revenue service. It is difficult to entice a carrier like that back into the program.

We analyzed data on all military contracts as well as General Services Administration (GSA) contracts to come up with a strategy for getting carriers back into the program. The total for all military contracts—both passenger and cargo—was $537 million in fiscal year 95, and the total was $863 million for what is termed “GSA City Pairs.” This includes airline tickets for government travelers, a large share of which are DOD travelers, traveling both domestically and internationally on commercial airliners—a big chunk of business for the carriers. We

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Note: P = passengers, C = cargo.
and passenger airlift that complements and supplements the nation's airlift capability is a combination of civilian cargo airlift—long-term successful program that the nation needs—the Air Force, Navy, and Marine Corps need. Without the airlift, the military cannot get there without the commercial airlift capability. CRAF is a program that will meet critical military needs and time frames.

Three basic areas of CRAF are the long-range aircraft, the specialized equipment, and the development system. The long-range aircraft are the key elements in CRAF. They are the primary means of moving military loads around the world. The 747-400 is a long-range aircraft capable of carrying lots of people much farther. There is an effort under way to offer incentives to get the commercial sector to include that aircraft in the CRAF contracts. Consideration is also being given to the MD-17, which is a commercial version of a military aircraft with some of the military features taken off. Produced here in the Long Beach area, it offers outsized capability to carry helicopters, desalinization plants, water purification plants, tanks, and other outsized shipments.

Another issue that will become of greater concern in the future is ensuring that the CRAF fleet is compliant with all the international regulations for global air traffic management. Because of improvements in avionics and navigation systems, where there used to be one aircraft flying in a given space across the North Atlantic, there will soon be nine airplanes flying in that same block of air space. This demands that aircraft be equipped with very specialized equipment and be certified. The commercial carriers have to spend money on these improvements if they want their airplanes to fly in those blocks of air space. The alternative is to fly at lower altitudes, burn more fuel, and go around the major tracks. This can cause delays, which in turn could result in an inability to meet critical military needs and time frames.

The bottom line is that the government and military cannot get there without the commercial airlift capabilities and is unable to go to war without them. CRAF is a long-term successful program that the nation needs—the nation’s airlift capability is a combination of civilian cargo and passenger airlift that complements and supplements the organic fleet. Thank you very much.

William Lucas

William Lucas is Deputy Commander at the Military Traffic Management Command (MTMC), where he has a long and distinguished record of service. His previous assignments include serving as Acting Assistant Director of Transportation on the Army Staff at the Pentagon. Earlier in his presentation on the DOD report card, Lucas provided a good overview of what DOD has been doing in the 1990s to make intermodalism a reality within DOD. It has been, at times, an uphill battle, but MTMC has really taken the lead in working with industry to make that happen.

Today, Lucas will talk about national defense demands on global intermodal freight in the 21st century and what we see in DOD as deployment issues for rail, truck, seaports, and ocean carriage.

From my perspective, all moves are intermodal when you are going from a fort to a theater of operations. However, there is multimodality and if there are shortfalls in one mode or another, the intermodal system simply will not fit together. Figure 1 indicates the military’s dependence on the commercial transportation infrastructure.

Mike Ledden provided a good overview of the airlift situation. On the sealift side, the United States has a fairly robust organic sealift capacity, certainly the most robust in the world. However, when you look at land transportation within the continental United States (CONUS), the military is almost totally dependent on the commercial industry. This is the primary focus of my remarks, particularly with respect to things that have to be fixed within the next 5 to 10 years.

Back in the Desert Shield time frame, the nation was in a recession and there was excess capacity. This certainly helped in our ability to get to the war. The situation is different today. Prosperity is great, but it means that people are rationalizing assets and, as noted in earlier presentations, there are some concerns that capacity is shrinking. Industry is most efficient when minimizing excess capacity. If commercial customers need to have more efficient peacetime transportation operations, carriers may ratchet down the fleets available. This means the military cannot rely on having a constant flow of assets, with the result being a spike and a big stress on the system, which means there are likely to be some defense risks.

First, a look at DOD reliance on commercial rail carriers and the planning scenario for a nearly simultaneous deployment. It is shrinking. Industry is most efficient when minimizing excess capacity. If commercial customers need to have more efficient peacetime transportation operations, carriers may ratchet down the fleets available. This means the military cannot rely on having a constant flow of assets, with the result being a spike and a big stress on the system, which means there are likely to be some defense risks.
two major theater war. Everybody would like to have 89-ft chain tie-down cars, but unfortunately they are not in supply. Hence, the peak demands on railcars for the first 7 days are measured in 60-ft equivalents:

- Peak week demand for 60-ft equivalent flatcars exceeds 6,600;
- Seven-day surge demand for 60-ft equivalent flatcars is estimated to be 5,000;
- Seven-day surge demand for all types of railcars is estimated to be 7,000.

The question is, what is the supply? There are about 1,150 chain tie-down flatcars in the organic fleet inventory, but there are only about 5,900 commercial chain tie-down cars in the commercial inventory right now. A little quick math, and the realization that it takes time to reposition rail assets to where you need them, illustrates there are some serious management issues that need to be worked through. In addition, as the military moves to become more intermodal oriented, more ammunition is going to be moved by container, making an even heavier dependence on container-on-flatcar assets.

What are the possible solutions? Although you do not want to be late for the war, this is nonetheless a realistic option. The next possible solution is to offset these shortfalls by acquiring additional DOD-owned assets, but can the military afford to do that? Preferably not. There have been some acquisitions by default, including the 1,150 flatcars and 349 containers on flatcars that are positioned at the depots to ensure early shipments of ammunition get out. The military would like to be able to rely on the commercial industry. However, the reality is that in this particular line of business those cars are averaging 30 years old, they are being retired, and they are simply not being replaced, because the nation no longer has the heavy instrument, construction machinery market it once had.

The preferred solution is to work a partnership with industry; MTMC and the Association of American Railroads are doing just that with three groups looking at specific elements of such an agreement. One group is looking at the future requirement. Another group is looking at what is available, what could be modified, and what design features could be created in new equipment to meet that requirement. A third group is looking at business practices. Perhaps there could be some type of “readiness hook” in the agreement (similar to what was mentioned in the CRAF presentation), a kind of quid pro quo in which they entice the carriers to participate by assuring them more business. It is hoped there will be a rail asset solution sometime in the not very distant future.

Trucking, by and large, has not been a big problem for the military, although significant commercial sector growth is projected and much has been said about shortages of drivers. Although one speaker recently talked about this issue more in terms of driver turbulence instead of a shortage, the industry chases itself in circles, training and retraining drivers who are simply moving on to different companies within the same sector. Admittedly, there are occasions when there are spot shortages. For example, December 1999 was the 10th anniversary of Operation Just Cause in Panama, a fairly small-scale operation in terms of deployments. However, I recall sitting on the phone around Christmas and personally calling a lot of presidents of munitions carriers offering $15,000 bonuses to any team they could roll out to go to Hawthorn, Nevada, and pick up some shipments that were needed on the East Coast for ship-

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ment to Panama. Those teams could not be broken out; they were parked and home for the holidays. Fortunately, some alternative arrangements were made and the shipments were put on special expedited rail and then, ultimately, did not have to be shipped out because Noriega was captured. In fact, back in the late 1980s was in the days of “rote logistics”—if everything that was ordered had actually been shipped, the isthmus of Panama probably would have sunk.

Ammunition carriers is a niche market that draws a lot of concern about the future, because it is not a growth industry and it is not the kind of business a lot of people want to be in. There are special training requirements and increased insurance requirements. Satellite tracking was laid on them before it was a fashionable thing to do. MTMC requires two-person teams, one of whom always has to be awake and alert within 10 ft of the shipment. In addition, ammunition depots are not a 24 by 7 operation. This means that a two-person team can be dispatched on a Wednesday afternoon to a destination where they will arrive at 5 p.m. Thursday evening, only to find that the depot closed at 3:30 and will not reopen for receiving until Monday morning. The result is a nonrevenue-producing piece of equipment and two very unhappy drivers who are parked out in a field inside the installation—hopefully, for a weekend. Something must be done to ensure there is no bleeding of the current capacity, that existing ammunition carriers can be retained, and that there is a transition plan when there is a need to expand capacity. During peacetime, MTMC ships small lots of ammunition in CONUS for practice firing and those kinds of things—what are called dromedary shipments—the carriers just “diddley-bop” here and there picking up and dropping off. When they go to war, this massive spigot is turned on to ports on the East or West Coast, and the material moves by container loads, a significantly increased insurance requirements. Satellite tracking was laid on them before it was fashionable to do.

Looking at seaports, there are port planning orders with 13 commercial strategic seaports, which essentially says they will make certain preidentified space and equipment available within 48 hours. However, this is not always practical or possible. For example, if the port of Tacoma has thousands of telephone poles sitting on the preidentified space, it will take a while to clear that space for military use. One of the keys with the seaports is to conduct a lot of exercises, many of which are being done on the local level by the local port readiness committees. There is also a need for lots of preplanning and being able to get word to the ports as early as possible. A couple of years ago U.S. DOT (MARAD) had a contract to work on a port disruption model, the premise of which would be what if a hurricane hits, how does one quantify what the impact is on the port? At MTMC, the view is that a military deployment is about the equivalent of a natural disaster at a port, because in the old mindset, it meant potentially trying to put a division on the ground, which is about 1 million ft$^2$ (0.3 million m$^2$), and then having the ships show up to load; this is an incredible disruption.

Part of what is being done on the seaport side is to figure out better ways to meter the flow into the port to meet the ships. The LMSRs are 380,000 ft$^2$ (115 824 m$^2$)—twice the size of the fast sealift ships used to load in Desert Shield–Desert Storm. Instead of choking the port, an effort is being made to have some good end-to-end planning that will enable the flow to be metered. It is good to hear that some of the focus of the MTS is being put on the connectors that will get movements to the ports.

With regard to sealift, a lot was said about the VISA program in an earlier presentation. There is a lot of organic lift, an estimated 10 million ft$^2$ (3 million m$^2$) of DOD-owned sealift, much of which has occurred since Desert Shield, with the acquisition of 19 LMSRs that will finish delivery in 2002. However, there is still a shortfall, which is made up through the VISA program, getting that commitment of capacity from the carriers, going early and in stages, much like the CRAF program. The commercial sector gives up the 15 percent for Stage I, 40 percent for Stage II, 50 percent for Stage III, and what is bought in terms of additional capabilities and types of ships. The sealift issue has long been a very strong focus and now the seaport issue is the one that needs to be worked on for the near-term future.

All these pieces must be put together to improve the deployment process. There is not much discipline in the current process. A few years back, I sat in on an “as is–to be” session for the deployment process and no one could really define the “as is” because it seems like when there is a deployment, it is done on an ad hoc basis—it is a little different every time. The process needs to be tightened up. Readiness hooks need to be
part of all contracts that quid pro quo as in the VISA and CRAF programs, in which a carrier makes a commitment to go early, knowing it may lose some market share, but knowing it will be first in line for DOD’s peacetime business. This needs to be part of the process with all modes.

Better use of existing capacity is a priority and the current processes do not maximize existing capacity. Along those lines is the strategic distribution management initiative that USTRANSCOM has undertaken with the Defense Logistics Agency, in which a virtual organization is created to work the supply-chain issues in an effort to improve utilization of the available capacity and to focus on that all-important metric of customer wait time.

Thank you.
Gregory Lebedev is Executive Vice President and Chief Operating Officer of the U.S. Chamber of Commerce, the world's largest business federation representing more than three million businesses and organizations, including 3,000 state and local Chambers of Commerce throughout the United States and more than 8 American Chambers of Commerce around the world. Lebedev is former Senior Vice President for Management and Finance of the American Trucking Associations (ATA), the trade federation representing the interest of the quarter trillion dollar U.S. trucking industry. He served as Managing Director of the ATA Foundation, the policy research arm of the trucking industry. He also served as Chief Operating Officer of ATA’s Foundation, the Chief Financial Officer of ATA, and a member of ATA’s Management Committee. He has directed all ATA’s marketing, meeting, and technological activities and its commercial information business sectors. Lebedev has considerable government experience, having been appointed by President Gerald Ford to the State Department post of Assistant Inspector General of Foreign Assistance, Deputy Assistant Secretary of State, where he directed policy and management evaluations of U.S. economic and military assistance programs abroad. For his leadership in this complex arena, Lebedev received the department’s superior honor award. He has served as a member of the White House staff where he was Deputy Special Assistant to President Ford. Lebedev earned his B.A. and J.D. diplomas from the School of Law, University of South Dakota.

I am delighted to be here. Whenever you leave an industry and then you return, it is always a pleasant walk down memory lane. It also gives you an opportunity to be more candid than you were when you were in the industry.

I have spent many years immersed in transportation policy research. Part of the mission at ATA was, in fact, to help predict the future, to look down the highway and see what was coming. When you do that and you are in the trucking industry, you usually see only one of two things: you see government regulations or you see a rail competitor.

On the other hand, I never found the prediction business to be particularly easy. During my tenure at ATA, the trucking industry realized quite properly that to survive and thrive it was not just enough to carry the freight. Other things were happening in the world: regulatory things and technology things. There were also demographic things that had to be acknowledged, that had to be shaped, that had to be used if that industry was going to prosper. That is no small task in an industry that is as disaggregated and as competitive as trucking.

As John suggested, I find myself now in an institution that represents all modes. We have rail and truck chief executive officers (CEOs) on our board, and the ports and the air transport people are very active in what we do. Consequently, with the understandable transport bias that we now bring to the Chamber, we are finding ourselves more engaged in issues that are of interest to you.

One study that we are contemplating undertaking is of interest and involves the notion that, in a globalized
world, competitive advantage can be sustained only if nothing changes. As we know, however, everything changes and we are all well served if we try to understand and perceive those changes before they come. The study we are contemplating might be called a “port study,” but it is more than that. We want to see what export and import patterns are going to be in 5 or 10 years, which in turn will suggest what ports and what access and egress to markets will dominate. Then we will look at these more closely and ask: Do they or don’t they work? What capacities do they have or not have? The analysis will move beyond the port to the surrounding area and ultimately to the inland infrastructure, with a glimpse at the role the federal government can play in aiding this system, which is the backbone of our competitiveness.

What the study will talk about is the thing I talked about at ATA, and the thing you have been talking about this week—change. Although not a new idea, from a business point of view, it is a leading issue within any enterprise that wants to succeed.

The cliche is true—those who fear change, those who ignore change, and those who resist change will themselves be changed by a marketplace in ways they can hardly imagine. As I understand the conversations of the past 2 days, your notion of anticipating a new century of change and we have to get over our apprehension. Therefore, we have to live with change and we have to get over our apprehension.

How do business and others deal with change? Sadly, we all do the very natural thing—we look backward. We do not look forward. Seven weeks ago, we entered the much discussed new millennium. But, as is the case at the turn of every year, the media always reviews the past year and not the year ahead. Why? It is easier. It is like the weather guy—yesterday’s news is better than tomorrow’s precipitation.

Today I want to glimpse forward and try to answer the question before us: Are we in the transportation community ready for the changes the 21st century will bring? More importantly, what kind of changes can we expect? What will these changes do to the business community and the business climate, which involves people, technology, business operations, and even politics? I would like to discuss, and even suggest, what these changes might be and what effect they might have on transportation.

Predicting is a very, very dangerous business. There is a very fine line between insight and idiocy. You have to consider some very serious prognostications. Tom Watson, the father of IBM, reportedly said, “I think there is a world market for maybe five computers.” Howe Warner of Warner Brother Studios, a highly successful businessman who knew that industry inside and out, said, “Who the hell wants to hear actors talk?” A very interesting economist at Yale, Irving Fisher, said “Stocks have reached what looks to be a permanently high plateau.” He said that in 1929. Therefore, if I appear to hedge my bet, I am hedging my bet.

Let’s first talk about people. When we look at the future, it is a funny thing how our thoughts immediately focus on technology—gadgets, data, how fast our computers will be, what will be the mechanical conveniences in our environment, and everything on the Internet. We are no longer surfing; we are swimming it. But we cannot lose sight of people—how people are changing and what affect these changes will have on transportation.

Two things are happening demographically in this country. The first is the graying of America. Consider a couple of statistics: the first baby boomers (people born between 1946 and 1964) turned 50 in 1996. From that moment on, someone is turning 50 every 8 seconds in this country. This is a wonderful statistic because of the words you end up using. Of all the people who ever lived to be 65 years old in the history of the world, two-thirds of them are alive today. We talk frequently about the number of centenarians, the 100-year-olds—of whom there are about 135,000 right now. There will be a couple of million of them in 25 to 50 years. Yes, our society is getting older.

There is a second dynamic that is less well-known but just as significant. From the mid-1970s to 1995, the number of teenagers in the United States declined every year. In 1995, that trend reversed, as the children of the baby boomers began reaching adolescence. This means that in just 7 years, the number of teens in the population will surpass the baby boom record. We now have an up-kick of young people, and they have already been dubbed the “dotcom generation.” As we think of an American set of demographics, we have two bubbles: we have gray folks and we have young folks and they are going to converge in a marketplace and in a business community in very interesting ways.

What do these demographic changes mean for transportation? They mean roughly the same things they mean for businesses—a different kind of worker and a different kind of work environment. The aging of America is going to create a severe shortage of what many used to consider a “typical” worker—the young to middle-aged white guy with a college degree. Instead, offices are going to be populated with older workers. In fact, in 25 years, there could be more workers over the age of 55 than under, with a lot more ethnic and gender diversity—and guess what? That is good.

The concept of retirement will be changed because people will be living longer, they will be healthier, they
will be more productive, and they will want to be more productive. They will sort of retire and sort of work. They probably will not work full time but will find some balance between working and leisure, and “gone fishing” will not really be a retirement slogan; it will again be just a weekend activity.

Remember that number 65 we were talking about; it is going to lose some of its meaning because people will be working in some capacity well into their 70s and 80s, and maybe, with a little feat of genetic engineering, even into their 90s. If we believe the aging of America is a real phenomenon, then the question is what do we do about it?

When it comes to transportation workers and we think about equipment operators like truck drivers and locomotive engineers, we should be revising our recruiting efforts to include more older workers—women, immigrants, minorities. We should look for workplace technologies that will enable and support older workers and women workers. Some say we should be bracing ourselves for increasing labor costs because older workers may demand more money for the knowledge and the skill and the experience they bring to the job. On the other hand, maybe we can cut a deal because they do not necessarily view work as primary income; they view it as added income.

Should we be prepared for an avalanche of new government regulations resulting from heightened concerns, both fair and unfair, about safety and responsibility issues associated with older workers and immigrants and women in the workplace? We might call it geriatric ergonomics—there is an expensive concept for you.

The second demographic shift—the arrival of the dot-com kids—will have even more radical ramifications. They will be the first human beings to come of age in a completely computerized environment. They will be different. They will go to the web first for all their information and they will get it. They may be more business aware as some suggest, although their orientation may be unconventional by today’s standards. Many will not be interested in jobs as we have known them and as we have righteously defined them. They will be interested in ownership and entrepreneurship. They will be less interested in fixed schedules and career ladders. This may ultimately lead to the demise of the 9-to-5 workday at the office. To this new generation, there will be less clear lines delineating work time and personal time. They will be portable people, demanding portable stuff—work, leisure, benefits, communications. They will expect to work when, and how, and where they want. Remember, we are raising these people to be assertive and pushy, and they will return the favor.

Consider a work environment that sounds like this: it is 10:30 in the morning at some coffee shop in the city. You have work papers and newspapers strewn all over a table. You have a cell phone and you have coffee. This might be a new workplace and it might not be unproductive. Company loyalty will become a thing of the past; some say it already has, as individuals, especially in the technology sector, sell their knowledge and their skills to the highest bidder on almost a daily basis.

All this could lead to still more radically different ideas about work because many information technology (IT)–based activities can legitimately be done from home. We might also see that a number of individual–based businesses will exceed the number of conventional businesses. By that I mean there will be more self-employment, one-man, one-woman virtual corporations and more individual responsibility. That too is good.

The industrial work model of the 20th century locked us into wage-based jobs that provided clear guidance on when and how to work. The knowledge-based work of the 21st century will leave a great deal up to the individual. Flexibility, independence, ownership, personal responsibility—these might be the hallmarks of the new workplace. In a way, and it is an interesting thought, this may take us to a very distant past—100 to 150 years ago when the home was the focus of life. We lived there. We worked there. We were treated for our illnesses there. We kept our aging parents there. We entertained there, and we died there. Does this suggest we are going “back to the future” as technology enables us to live, work, and be entertained at home?

It is an interesting phenomenon, but this old at-home model and this new at-home model have one dramatic difference—information. A hundred years ago, we were isolated. Our communities were insular. Our road network was essentially embryonic. We had no television, no phone, no computers, only a few newspapers, and a few misinformed neighbors. (We still have the misinformed neighbors.)

Today, information is everywhere and it certainly will follow you to the place you live and maybe work. Unquestionably, these fundamental shifts will require us to think in new and different ways about the elderly, the workplace, productivity, and personal responsibility.

What does this mean for transportation? If you are in the trucking industry, as I was, personal freedom and flexibility have always attracted people to the cab of a truck, and if you throw in a computer as they already have, you have essentially people working in a mobile home.

If you are a railroader, mobility has always been a part of that culture and that history. However, a heightened notion of freedom to act is going to bump into union rules about workplaces and hours and supervision.

If you are a logistician, and in the third-party logistician business, managing the movement of freight or people, some might say you are going to be the big winner. You are an IT–based solution that connects. Some suggest it trumps all the traditional networks. You track trucks. You may land planes. You monitor rail movements.
manage freight flow. You follow containers. And, dare I say, you talk to the customer. One day, you might even own the customer.

We have talked about people. Now, let’s talk for a second about the gadgets and other technology and what these might do to our work lives. The 1990s were a decade of lasers in which CD-ROM and fiber optics refined the uses of microprocessors. Many think the next 10 years or so will be a decade of sensors and satellites that will become cheaper and will permit us to know more about the environments we believe are relevant. We will be watching. We will be Orwellian, and we will love it.

Some examples: Miniaturization allows a videocam, with all the attendant circuitry, to attach to a computer so it translates sight into text. This apparently will cost about $9.00 and, of course, that cost will drop. Cheap video translates into cheap eyes that can be used for myriad applications—surveillance, security, work monitoring, and probably a whole lot of frivolous things that we have not yet thought about. Micro-powered impulse radar (MIR) is essentially a radar town on a chip. It is like my wife—it will tell me when to do things. For example, because it is temperature sensitive, you can put a MIR on an engine block and it will tell you when to change the oil. Sensors will be everywhere.

In this conversation about technology, we also hear the phrase “we have a computer revolution,” which suggests that things are always changing and that is true. However, I suggest that there is no longer a computer revolution; instead it has become our way of life. If you want a leading indicator about the health of this society, take note; if the trend line for IT innovation flattens, we are in trouble. The basic home computer in a couple years will have 400 megabytes of random-access memory and one million megabytes of storage and the computer will be able to receive data transmissions at 28 million bits a second. I presume this is good. Of course, the computer is going to be accessible through touch screens throughout our houses and our offices, and these are going to have a variety of pointing and clicking and speaking and typing devices, so we are never going to be out of touch with anyone or anything. The web will be everywhere, and we will be everywhere with it because we are fascinated by it. Even if “everywhere” is in our workroom, which might be in our home.

Some say that in transportation in the not-too-distant future, trucks and trains will be driven automatically. We have talked about that. And we have always wanted to suggest that this achieves greater efficiencies and better utilization of rail and road systems, and that is probably true. I think interestingly, if not ironically, the roadway could take on qualities of road beds. They could become complete guidance systems. You could supply power. You will embed sensors in pavements and help improve signalization, flow of traffic safety issues. Onboard computers obviously will keep everybody informed about everything that is happening for navigation and traffic purposes. This too has been suggested and I think it is almost a reality. The point of these notions about technology is that today’s science fiction is really tomorrow’s science fact, and we are not necessarily talking about in 5 to 10 years.

There is one possible problem for transportation and that is the use of people. All modes are relatively involved with labor, and privacy will become a hot topic. Instead of thinking of yourself as management, think of yourself as the workforce, and everybody is going to get a little tired of big brother or big sister watching every move they make, except if you are in charge, in which case you want to watch every move they make. So, the dotcom generation will say “What good is all that personal freedom and mobility when you are never out of eyesight of the people for whom you work?” Technology will surely add immeasurable amounts of efficiency, but there will always be a cost and the cost will be monetary, and the cost will be emotional. It is the dark side of the technology revolution.

For corporate planners, especially in the transportation sector, it could be likened to the arms race. Everyone must buy the next generation of missile or gadget, not because they are underarmed, but because they must keep up. So, there will be an economic tension surrounding technology proliferation and nonproliferation as well as the very legitimate issues of the dehumanization of the workplace, be it a truck or a rail cab, a plane’s cockpit, or a ship’s bridge.

Certainly, technology does not spell the end of transportation. There will always be a need to move things from point A to point B. It is just going to be easier and hopefully it is going to be cheaper, and certainly it will be safer. Similarly, technology is neither the answer for, nor the cause of, each and every one of our problems. It will enable us to work, to live, and to compete smarter—nothing more than that. But it will achieve that result only for those who are smart enough to embrace it.

We have talked a little about a changing workplace and people and the magnificently relentless advances of technology. Now, let me focus for a moment on how these two engines of change might collide in a workplace, with the resulting explosion that could, and maybe should, obliterate old notions and old ways of thinking and leave behind an entirely new business culture.

Let me introduce five potentially culture-changing possibilities. First, some suggest that the only commodity that will really matter in the future is information and knowledge—not land, not raw materials, not manufactured products, not even physical labor. This has interesting ramifications because you used to be able to say to a factory worker, “Be on the assembly line at 7:00 and process 15 widgets an hour.” Now, in a knowledge-based
age, what do we say? “I want you to come to work at 7:00 and produce 15 good ideas?” It does not work that way. You must start by creating an environment that encourages ideas and that allows lousy ideas to surface and then perhaps lead to better ideas. We need an environment that does not view disagreement as disloyalty and that knows how to nurture and harvest the good ideas from the bad. We are going to have to create and adapt to an entirely new operating culture, at least in the strategic or critical parts of an organization. Maybe the head, if not the hands.

There is another notion: the role of the CEO might change. In fact, the entire business chain of command might change before our eyes. Individuality and self-direction might need to supplant the older command and control structures. The CEO might become more of a facilitator, an orchestra conductor, working with smaller groups of knowledge-based employees, soliciting ideas, setting broader goals, and leaving the rest of an organization possibly reconfigured to work through these suggestions.

There is a third notion that is going to change some cultures, and it is a little frightening, but, in the business you are in, you can see it coming. It is captured by the phrase, “Everything available, everywhere anytime.” Quite a concept if you are in transport, retail, and even manufacturing. Quite literally, we will be expected to deliver a product or a service anywhere at anytime the customer says. Remember, the customers are these same pushy people we have so lovingly raised. What does this mean for businesses that are not nimble, that are not fast, that are not global, that are not responsive? Marginalization is a word that comes to mind.

There is a fourth concept that is already alive and well. Every company will be vulnerable to competition—not just from Main Street, but from mainland Europe to mainland China. Globalization brings us immense markets and that is the part of the globalization story we always think about because, of course, we are selective listeners. Globalization also brings us immense market competition. Again, to stay competitive, we will need to embrace constant innovation.

Finally, the role of the customer is going to change dramatically. Very soon we will no longer live in an economy that merely mass produces products, advertises them, and hopes people buy them. The increasingly well-informed and demanding customers will no longer automatically accept products and services dreamed up by businesses and promoted by their ad agencies. In response, a new business model will emerge. The customer, interestingly, could become part of the production process from the earliest stages. The potential buyer will be inputting information along the way. We would do it now except we would call them focus groups. They are going to help shape the product or service. It is components. It is packaging. Maybe it is even delivery to the marketplace.

What we have been discussing in our journey into the near future is the fact that we are traveling on a vehicle powered by technology and powered by people. But almost every vehicle has brakes—things that can slow it down. Brakes are very valuable because they can ensure a more prudent approach to wherever you are going, but brakes are valuable only if you know how to use them. The brakes on social and economic progress are government and politics—a world in which I live every day.

Before I close, let me say a few words about the political environment in which we live and work. Governance—and governance is why we have government—governance changes more slowly than anything. Some say that is good. It certainly makes it a difficult area to forecast. We regularly hear about a few broad trends that are supposed to be taking place and affecting the governance of our society. I suggest we should be careful about what to believe. Because our country is growing older, it is supposed to be more conservative and therefore opposed to more government. But, in the face of that folklore, the role of government continues to expand exponentially, not just in its size but in its reach, with no end in sight, especially in an era of huge projected surpluses. I suggest, with all due deference to my good friends in government and having come from that community, I suggest that we should be concerned about this, and I will tell you why.

I will say again, I enjoy the government. I have great respect for it and I happen to thoroughly enjoy Treasury Secretary Larry Summers, who commented that “you can’t love your country and hate your government.” But our government, like all governments, is genetically predisposed to regulate. That is what government does. It has a nearly unlimited capacity to do it.

Furthermore, and listen to me very carefully, I am respectful when I say that government does not always understand what it is regulating. It does not always understand who it is regulating. Many times it does not understand what it is regulating. It does not always respect for it and I happen to thoroughly enjoy Treasury Secretary Larry Summers, who commented that “you can’t love your country and hate your government.” But our government, like all governments, is genetically predisposed to regulate. That is what government does. It has a nearly unlimited capacity to do it.

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Furthermore, and listen to me very carefully, I am respectful when I say that government does not always understand what it is regulating. It does not always understand who it is regulating. Many times it does not always understand the consequences of its regulation. It thinks it understands and it wants to understand, but unfortunately too many times it does not understand.

When it comes to notions about the role of government, the biggest mistake that business can make is to believe that our particular industry—our niche, our product—is a safe harbor from government regulators or, worse, government litigators. There is no better example than the alarming rise in government-sponsored litigation against completely legal, but socially unpopular, industries—tobacco, gun manufacturers, lead paint producers, software makers, and the list grows longer every day.

Who is next? Well, how about those industries associated with, say, possible toxic emissions, industries associated with rumored environmental damage, or the alleged unsafe use of planes and trains and trucks and ships?
Unfortunately, today the government is happily aided by a handful of trial lawyers who have become the vulture capitalists of the new century. They are targeting deep-pocketed industries with class action lawsuits, frightening stockholders and stock analysts, savaging a company’s reputation in the marketplace with only one objective—to force business after business to make huge cash settlements to end the nightmare of public relations they have wrought. Where does the cash go? Sadly, not to the victims; instead it goes into the pockets of the trial bar, who use their fees to finance more class action suits, the campaigns of elected state court judges, and the war chests of their favorite politicians. This is why the U.S. Chamber of Commerce has made legal reform a top priority and why everyone in the business community should be arguing for legal and regulatory relief that solves problems, imposes equity, and rewards the legitimately aggrieved and not the greedy.

Please do not misunderstand me; government, when it behaves as our founders intended, plays a wonderfully beneficial role. It can be likened to a benevolent cop guiding the traffic patterns of a very complex society. But it is our responsibility as the citizens of that society to ensure that it does not overreach or interrupt or overmanage the free society and the unfettered markets that it is intended to support.

Some view the future with fear and trepidation. As you can sense, I loudly disagree. We should view these potential changes with a great sense of excitement. The future was not thrust upon us. We invented it and now we should use it to our advantage. Americans are blessed with a short history. We are not burdened by a thousand years of customs and constraints like our European cousins. We are young. We are resourceful and we are creative. That should almost be the definition of an American of any age.

In this time of massive and relentless change, we really have only two choices: we can cling to the past, or we can embrace, manage, and create the future. Transportation will be at the center of those changes. It should be a laboratory for technology and it must be an incubator for ideas. It is the backbone of the economy. It has to succeed, and it has to succeed not just for your sake, but for the country’s sake. Thank you very much.
DAY 2: CONCURRENT PANEL SESSIONS (PANEL 3B)

Information Technology

Theodore Prince, *Kleinschmidt, Inc.*, Moderator
Gary Maring, *Federal Highway Administration*
Kenneth Wavering, *Lieutenant Colonel, U.S. Transportation Command*

**OVERVIEW**

*Theodore Prince*

This session focuses on emerging technologies in the areas of equipment identification, electronic commerce, equipment monitoring and transfer information systems, data systems (both commercial and military), and the military’s global transportation network. The broader issue to be considered is how technology in the intermodal world is improving productivity, substituting information for infrastructure—that is the real challenge. This reiterates what Ken Wykle of the Federal Highway Administration (FHWA) talked about earlier, citing the great job we did investing in infrastructure in the 20th century and of the need in the 21st century to focus on better execution and improved productivity. Information technology is certainly a large part of that. In my view, however, when you think of how well the freight industry has done in this area, the failures outnumber the successes. For all the talk of leading edge technology, too often we succumb to “bleeding edge.” We have spent the money, and the infrastructure productivity improvements have not really been achieved.

**FREIGHT IDENTIFICATION TECHNOLOGIES**

*John Allen*

Domiciled in Oakland, California, his responsibilities are the business process design relating to truck and rail operations for North and South America. Before joining APL, Allen was the manager of E-Business Solutions at Velocity, and before that he spent 11 years at SeaLand, beginning in the company’s management training programs and advancing over the years to Regional Manager for the Southeast and then to Equipment Management. He was at SeaLand when the company began to experiment with global process ownership, as opposed to the traditional geographic means of controlling equipment, and helped develop an organizational model to support that new business design. He is actively involved in many industry organizations such as ITS America.

Freight identification technologies, specifically within the intermodal and steamship industry, are indeed bleeding edge. From a technology standpoint, we do not have a good infrastructure. We have not taken advantage of what exists in the market from a technology standpoint and we need to move forward. Ted is absolutely correct when he says that information management is the key to improving productivity within our organizations. The term freight identification technologies is a bit misleading in that my focus is very much asset based instead of freight based, because, as a steamship owner and operator, I need to concentrate on the asset first. My focus today is on describing some business situations in which device technology specifically can be applied as well as the rationale behind it.

What are some of the options from a technology standpoint today? Where are we leaning? Where are we
with respect to use of these devices from a packaging standpoint, utilization, and ultimate integration into our operation? I will share some high-level results of some financial drills we have done that demonstrate the need to do this and the financial return associated with it. Where are we relative to working with device providers and other system providers in getting at this issue? I will discuss an emerging model that may be a collaborative effort. I will give a briefing on our involvement from the private sector standpoint and regarding an ongoing intelligent transportation system (ITS) venture.

Initially, we looked at an international intermodal shipment and broke it down into about 10 core nodes and milestones. We needed to branch out and look globally, because, from a commercial standpoint, what the customer desires and what the various operating infrastructures provide vary considerably. For example, in North America, there is a pretty extensive radio frequency identification (RFID) reader network to provide in-transit information for the rail moves. That does not exist anywhere else in the world. We needed to make sure as we scoped this issue to look at every possible scenario globally to ensure that our ultimate device technology solution met all our needs.

We then looked into each of those core nodes to see what was going on. We broke it down into two basic processes. The first is the order-to-cash process, which is a listing out of each of the individual transactions—order to cash—that are occurring to either trigger the process or support the process of the shipment life cycle. The second process is what I call supply-to-disposition—where do I get the asset to support the cargo demands; how do I manage the physical transportation through its flow and the various nodes and events that occur; what do I need to capture and track from an information standpoint; and finally, what do I do with the box after I am done? How do I dispose of it? This is the process we spend most of our time looking at when it comes to identifying opportunities that may be supported or improved through device technology.

Two basic parties are very interested in this information and I define them as commercial and operational. The commercial party is made up of two entities: (a) my customer, who has demands of me from an information standpoint, and (b) the internal sales and marketing people, who often put more pressure on me as an operator than my customers do. There are three core questions the commercial parties ask: Can I see from origin, from manufacturing, and from sourcing locations what my orders are and what I have coming to me, and how effectively can I package that together to have an understanding of what is coming at me? The second question is: While it is moving, can I operationally manage it effectively enough so that I can be proactive, can react very quickly to customer requests, and make the necessary execution decisions that they are requesting? The third question is at the destination end: Now I have my cargo and need to move on to distribution, can I have access and visibility to the single cargo unit (SKU) data and line item data?

If you look at the dot.coms of the world and at the technology enterprises, they are really focussing on Questions 1 and 3. They are trying to be the end-all and be-all visibility tool to all the customers, such as high-tech goods, apparel people, and most of the consumer product goods-type entities. However, they are missing the boat on that middle question and I think they are underestimating the size and importance of it. I can get your order information, I can tell you where the SKU is, or what the SKU is, but I cannot circle back around and tell you where it is in an effective manner. Therefore, our focus as an enterprise is to really drill down into Question 2 so that I can be proactive and have the ultimate visibility of the transportation events that happen at each segment and each leg.

Everybody in North America knows the issues we have with chassis. If you were to ask any operator what is their hit ratio on finding them, they would more than likely say that if they did a physical inventory today, they would not be able to find 5 to 7 percent of it. We understand that issue and it is one of the big focuses for device technology. However, a lot of people are ignoring the issue of containers and saying, “You’ve got to be kidding me. You know where your container is. It is at a port, it is in a rail yard, it is at a container yard, it is at a customer’s location.” This gives rise to two fundamental issues that I will illustrate with an example of a decent-sized steamship company. Let’s say they have one million loads that collectively come in or go out of the lower 48 states. Statistics say the steamship line is responsible for delivering 60 percent of those loads to the customer’s location. That leaves 400,000 containers for which the customer is arranging the trucking. The truck is going into Port Elizabeth and they are delivering to the customer’s location. We do not have a clue where that container is going. We do not have a clue when it is empty until it actually returns. This means there are 400,000 instances in North America where I am underutilizing that asset. If I had visibility to where it was in the hinterland, could I make better decisions in my dispatch matching? Could I make better decisions in my repositioning? Could I save the customer more money? Could I make money with the trucker? Absolutely, and we need to get visibility to do that.

The second piece is the 60 percent we are delivering to the customer. Again, the statistics are saying that, whether it be an empty spotting at the customer or a load being delivered to the customer’s location, we are dropping about 30 percent of those there and coming back to get it later. Some fundamental questions arise: Is the customer using that box to run around the countryside to do domestic loads? Is the trucker doing the same thing?
Does a bear do his business in the woods? Absolutely. We need to get control of that data. We need to get control of our assets to improve the velocity through the system to reduce the number of assets that I need, and to improve my bottom line. Guess what? I am not getting any money from increased rates. I need to find a better way to operate.

What are the options? Everyone knows that RFID AM-FM-type tags can give you location messages, cell technology in a Global Positioning System (GPS) fashion and, ultimately, GPS technology. The question is: Where is our head at? When you go back to the issue of geographical differences from both a customer standpoint and an operating standpoint, we initially approached this problem saying we have to track everything. We have to put high-end GPS and sensor technology on all my containers and all my chassis. As we begin looking at this and looking at the monetary value on the returns, the business needs, and so forth, we are coming down to an approach that says at the outset, let me put intelligent devices on my chassis assets in North America. The desire here is actually cell-based, because if you think of line-of-sight issues for triangulation of a GPS and start going through urban areas, cell is your best bet. You are going to get more consistent reads and it is considerably cheaper. The desire is to get all the location information that you can as well as be able to give some semblance of motion—that is, motion detection to allow me to detect that I am hooked up to a truck or not hooked up and to get that distinction. A lot of people will say the trucks are putting GPS technology in their cabs and everything else. However, that does me no good, because a truck can become untethered from an asset and the truck could be down at the donut shop while my asset is sitting in a cornfield somewhere. I need to be able to track the asset.

Let’s now consider the container. The question is: Is there really a pressing need for this visibility? Consider the intermodal network in the United States, a very complicated intermodal network with more than 200 container yards. Most shipping lines have 50 to 80 container yards. Add on another 50 truck yards, your 13 to 15 port locations, and another 500 to 700 customer pools. You have a very intricate network that you need to capture. Obviously, RFID is a nonoption. To be able to set up that type of infrastructure, you need some type of positioning technology. Although Europe is getting more and more complex, the transits are shorter, there are fewer door deliveries to the customers, and it is primarily shorter transits—overnight-type rail transits. Demand for tracking from the customer is a lot less. What about a combination that the chassis device has location capability, whether it be GPS or cell—we say cell—and RFID capability? This enables me to capture the benefits of a fixed infrastructure with readers. In addition, when we place an RFID tag on the container, we can get an association message.

The big issue in the marine ports is that when containers come off the ships and are placed on a chassis, we are not getting an association at that time. We need to be able to capture the data so that we have an understanding of whether the chassis is there, whether it is covered. This is especially important out in the rail route network where the rails do not really recognize steamship chassis, so they are floating in and out. The ability to create an association message between my chassis and my container now allows me to track that container and the trip plan associated to the customer. Now I have the benefits of cargo tracking with a simple RFID tag on the container.

Holes certainly do remain. One of the biggest benefits of intelligent devices on a container is a message on the status of the container—specifically, is it empty or is it loaded? Another issue is when we take the container out to a customer, we drop it there, and we assume they are not abusing it and running it around the countryside. But, guess what? We cannot be sure. We are trying to solve problems with infrastructure, but we will not spend any money on head counts; I do not have the people to pick up the phone every day to track these containers. In a low-margin business, you simply do not have the people to do that tracking. The ability to get a status update would be beneficial, but under this model, we would not get it. The financial drills we have done suggest that, based on today’s prices for these devices, it is not beneficial enough to move ahead with that decision right now.

What we are considering and laid out as an industry standard is a GPS-based device that costs about $250. Cell can be done cheaper, but why not go for the whole kit-and-caboodle at the outset? The $250 device price includes sensor technology that operates tethered, untethered, and in motion—a $14.00 RFID tag for the container plus installation costs, recurring maintenance, activation fees, and every other associated cost including $12.00 a month for the GPS-based device transmission charges, which are at the high end. Spread that over a 5-year time period and we project, based on the benefits we perceive from the information, we will get a 176 percent internal rate of return with a payback, assuming a quick ramp up, of just over 1 year. It should also be noted that this assumes no labor savings at any facility, just purely operational and fleet reduction savings.

It also assumes that the steamship lines and operators have some backroom office functionality to do something with these data. Can I accept that into my systems and can I produce some decisions report out of the data? It is a leap of faith and there is some investment that has to go along with that but, based on the return, we think it is a viable solution. We look at spending multmillions of dollars on ships, and the only thing that adding ships into the network does is drive rates down. We are trying
to posture to convince companies to go in this direction. It is a tough sell because it is a big leap of faith; however, we firmly stand behind the application and use of it.

Where are we today? We have saddled up with several vendors in the network and have done a lot of lab testing. We have legitimately proven the RFID and cellurgy positioning system device association in the field. We have run them around the countryside and gotten good data. We are still having an issue with field testing; we have not done enough to convince everyone we need to move forward fast and furious. I want to see a trailer-on-flatcar move on a train, get moved across country. I want to see a truck bang into the side of it. I want to see the device stand up to being stacked in a marine yard. I want to have it battle tested. As of this week, APL has put 10 of these types of devices on chassis, based in Phoenix, and is going to start letting them roll around the countryside; the field testing is just beginning.

Another issue we have to address is that we are dealing with some small players—start-ups who are working with the Motorola of the world to get their technology but are packaging it together themselves. I see the big players taking a standoffish approach to things and not getting into it wholeheartedly. Players we are dealing with appear to be fixated on the information cell, spending 90 percent of their time trying to build applications to do something with the data instead of getting me a device that will produce the data. We are trying to shift around that mindset.

This has led us to a three-pronged approach, where there are multiple sources of data that can come in. It can be railroad electronic data interchange (EDI). It can be marine yard EDI. It can be coming from a container yard. It can be coming from a customer. It can be coming from a cell-based device. People in the field right now are starting to specialize in being that acquisition and capture entity. There are also people out there trying to posture themselves as the industry database. They want to be the warehouse for the cargo information and for the asset information, and they want to be the one-stop conduit to which companies can attach themselves. I liken it to a Standard & Poor’s-type model that wants to be everything and anything to everybody. Unfortunately, that can produce a mediocre solution. I want to create an environment that, with an open architecture, allows somebody to package together the best-of-breed suite of applications to fit my needs. We are actively working with several providers to create such a consortium. If the right people come together to do this, we believe they will get the critical mass to move it forward.

I would like to talk briefly about the intermodal freight technology working group from the private sector standpoint. This group, sponsored by ITS America, started up a little over a year and a half ago and pulled together private and public sector people to improve information visibility in the intermodal environment. The group has been very focused on device technology. We have sent requests for proposals to device providers and those with whom we are working. We are somewhat disappointed in the progress the device providers are making, so we are expanding our scope to try and pull in other players not only from a device standpoint but also from an operational standpoint. We have representation from truck, rail, and steamship sectors, and we are looking at the third-party logisticians (3PLs) to come in as well. We are looking at shippers to come in and expand the horizons and get some momentum on this. We have started to organize field testing in various locations, with the support of port authorities and other government agencies. It has been a good effort, because it has been able to rally resources, and we hope it will take us to the next stage. Thank you for your time.

**ITS Applications to Intermodal Freight**

**Gary Maring**

Gary Maring is Director of the Office of Freight Management and Operations at FHWA. This is part of the new freight office that was created as a result of the recent FHWA reorganization. The mission of that office includes a broad program of intermodal freight activities covering policy analysis, institutional development, infrastructure assessment, financing, planning operations and safety, technology to promote efficient and seamless flows, and the whole role of intermodal connectors both within the United States and at the borders. Before his current position, Maring was in the Office of Highway Information Management and the Office of the Secretary of Policy Development. Before joining FHWA, he held various positions as a highway engineer and community planner.

The earlier presentations by Ken Wykle and Christine Johnson set the stage for what I will discuss today. They talked about the 20th century being focused on completing the physical transportation infrastructure and the 21st century being focused on providing the infrastructure, the information structure for intermodal freight and logistics.

The key question is, what is the role of the government in the information highway, the information structure needed for efficient freight and logistics? Only recently has the government begun to see that it has a role in this area. In 1996 the first effort was made to convene the private sector players to talk about the role of the public sector in creating an architecture for the information era;
the response was a real cold shoulder from the private sector. However, in 1998 at the Conference on Intermodal Freight Technology in Reston, Virginia, there were a number of suggestions that perhaps the public sector did have something to offer in this area. Some modest efforts got under way as a result of that conference, including establishment of the Intermodal Freight Technology Working Group. Currently, there is a $1 million program within the U.S. Department of Transportation (DOT) ITS budget—a small, but important, part of the overall ITS program.

As mentioned in earlier presentations, there is a new freight office within FHWA. In both the U.S. DOT strategic plan and the FHWA strategic plan, there is a focus on advancing U.S. economic growth and competitiveness through efficient and flexible transportation. This new freight office focuses on FHWA’s strategic goal of productivity and the U.S. DOT goal of economic growth and trade. Our first task was to create a road map of where we want to go in the intermodal freight arena. After reviewing the literature and talking with stakeholders in the government and the private sector, the critical issues break down into four main categories: institutional, infrastructure, operations and safety, and regulatory.

I will talk first about the operations and safety area, because our focus is primarily on how to better operate the system and bring technology to bear on that. There are four initiatives under way:

• The first initiative—the Intermodal Freight Technology Working Group (IFTWG)—is aimed at furthering cooperation between the public and private sectors. The mission of the group is to look for opportunities to apply ITS technology to improve freight and equipment visibility throughout the global intermodal logistics chains, which admittedly is quite a challenge. To make any improvements in the intermodal freight logistics process from the information technology side, the process must be understood from end to end. The IFTWG has identified as many as 40 different individual movements a container potentially goes through in its move from origin to destination in an international transaction—the various modes, handling, and facilities involved. The challenge is how to deal with the physical tracking and also the information flows and the handoffs from each segment to the next. It is a huge challenge. The focus is on three main areas:
  – The intermodal business process mapping is looking at the end-to-end process, mapping the information flows, beginning to analyze the opportunities for technology to improve that process.
  – Through ITS America, IFTWG is helping develop user-defined requirements, some common requirements across the modes, and putting out solicitations to allow vendors to tell us what they have to offer in terms of providing the technology to improve the process, whether it is on the equipment tracking side or the information side.
  – The IFTWG is also sponsoring technology demonstration projects, one of which John talked about earlier: the chassis tracking project. Another is the information high-water demonstration, which would display all the different information as cargo flows from one segment of the intermodal process to another—the various handoffs between players in the intermodal system, the mixing and matching of the data requirements, different data standards, definitions, and the various systems this information has to flow across. It is a huge challenge to address and bring technology to bear on that process. This effort would define potential highway information demonstration scenarios, address potential standards issues on data as well as the fears that some people have about the federal government playing a role in defining an information architecture, which has yet to evolve. There is a Transportation Equity Act for the 21st Century (TEA-21) earmark project to try to create a logistics information architecture, with the data being acquired from a number of sources and various technologies (GPS, RFID, and so forth) and then consolidated as it comes in from the various sources. There will also be a data distribution architecture to get the information back out to manufacturers, shippers, asset owners, 3PLs, or whoever else needs to have the information—an information architecture for the future.
• The second area involves the intermodal freight operational test U.S. DOT is sponsoring. The objective is to bring together a few partnerships to demonstrate technologies out there that are of benefit to both the public and private sectors. The benefits to the private sector include improving on-time performance for the industry, and on the public side they include helping learn how to deal with highway congestion, port congestion, and congestion throughout the intermodal system. It also involves working with the rest of the ITS program, which is creating architecture and a framework for dealing with the public side, managing congestion, and the information that needs to flow to do that. FHWA put out a solicitation in spring 1999, received a number of proposals, and funded two operational tests.
  – One test resulted from an innovative proposal on highway to air cargo, submitted by the ATA Foundation. There had been some effort through the Federal Aviation Administration to test smartcards for security at airports and this project piggybacks on that work. As somebody mentioned earlier, the future of air cargo is on the ground, so it is not surprising that a trucking foundation is sponsoring this. The ATA Foundation is working with the state and federal agencies, freight forwarders, and shippers and carriers basically to look
at an end-to-end process using a smartcard, including electronic manifests on the smartcard, and using a biometric identifier to identify drivers as they arrive at the air cargo terminal. The idea is to expedite transfers of freight all the way from the manufacturer to the receiver at two test locations: Chicago O’Hare and Newark International airports.

– The second test is a port to highway cargo movement in Washington State. In an earlier session, there was a presentation on the FAST corridor and other things being done in the Pacific Northwest. This operational test will complement those initiatives and will include participation from the state, the metropolitan planning organization, the ports, the trucking association, SeaLand, and others in the private sector. The project will involve attaching electronic cargo container seals to improve mobility, visibility through the port, and along the I-5 corridor to the destinations—whether it is domestic or across the northern border—and will test integration with some of the other ITS projects. Importantly, there are some public side benefits; we will be collecting freight movement data as the containers move through the system, getting movement for the planning process for the freight planning in the metropolitan area and for the state.

- The third area is the international border clearance program, an effort to bring technology to bear on facilitating clearance across international borders, with a focus on the land borders. Some of the funding for this initiative has also come from the ITS program. Most of you are familiar with the transportation challenges at the borders, the customs and immigration processes, the limited available resources, and the weaknesses in the physical infrastructure. There continue to be struggles with the U.S. Treasury Department and the U.S. Customs Department in implementing a new trade processing system. U.S. DOT is working with other federal agencies to implement an automated clearance process at the border—one-stop or nonstop processing for compliant commercial vehicles and cargoes at the border, the ability to target limited resources on noncompliant commercial vehicles and drivers, and improved coordination among all the federal agency interests to expedite cargo clearance at the border.

It is an institutional nightmare at the border, with an array of stakeholders involved. In addition to the federal agencies, there are international partners and private industry partners. Over 100 federal agencies have an interest in what happens at the border, either directly controlling it or requiring information about a border crossing. For example, efforts to develop common elements for the international trade data system (ITDS) require agreement from 104 agencies—quite a challenge. We are trying to determine whether ITS technology can be applied to and benefit this whole process. At least seven sites have ITS dedicated short-range communication technology readers at border sites on the northern and southern borders installed either through the U.S. DOT program or through other federal or state programs.

The architecture concept of the border clearance program is that, as international cargo moves across a border, it will have information identifiers relating to the cargo, the vehicle, and the driver that can be read electronically to meet the documentation requirements of U.S. Customs and other agencies. This information could be preprocessed by U.S. Customs and also through the U.S. DOT safety information system and other related information systems. As a truck equipped with the electronic tag comes to the border, the information is read and will have been preprocessed, enabling the customs agent to access on a screen both trade processing data and U.S. DOT safety information. Based on the result, the truck can be given the green or red light at that point at the border. An agreement was signed with the U.S. Customs Department in fall 1999 to develop a joint prototype that brings together the customs’ National Customs Automation Program (NCAP) system and the U.S. DOT safety clearance system. The problem is that customs recently issued a federal notice, saying that NCAP would have to be shut down because of lack of funding. This puts our efforts up in the air, because of the uncertain future of customs’ new generation of the automated commercial environment system and the ITDS.

- The fourth item relates to efforts to bring together federal investments to begin to address multistate trade corridors and the border processes. The traditional programs did not appear to be doing the job in terms of dealing with multistate corridors and regions and with the border processes; hence TEA-21 included a provision for a borders and corridors program. U.S. DOT was overwhelmed with applications—$2.2 billion in applications, with only $123 million available—so only partial funding could be provided for a number of projects. Ten of those funded were ITS projects. This program will be the main deployment program for further corridor and border activity. Earlier I described research testing through the ITS program and efforts to develop a prototype system for ITS; actual deployment would be through this program or whatever the next generation of that is in the next reauthorization bill. In the fiscal year 2000 solicitation, additional emphasis was placed on getting more focus on the integrated trade transportation processing systems, multistate institutional freight planning, and the operational strategies such as ITS. For the current year, about $2.0 billion worth of proposals have been submitted for about the same amount of money ($122 million). However, congress earmarked $70 million of the $122 million, so there is really only $50 million of discretionary money.
The GTN is an unusual animal and somewhat different from what my fellow panelists have presented. I will introduce the term “virtual intermodalism,” which brings together elements from unlike systems and generates information that is useful and meaningful to the military. I will discuss how GTN looks at intermodal systems; what the military may be doing in the future, especially through direct vendor delivery; and what industry can do to help.

Currently, the information that goes into the GTN is from uncoordinated feeder systems. This means we have an Army system, an Air Force system, a Navy system, and a Marine system. We have ship scheduling, trucking schedules, commercial information, and so forth. All that comes together into GTN so that people can analyze it and make decisions based on the information being provided. How do we do that? We bring in information from within the Department of Defense (DOD) through automated systems that each of the services has as well as from each of the companies that support military transportation requirements. Our primary function is to provide in-transit visibility (ITV), but we are also able to get command and control information. By bringing the two together, decision makers have the opportunity to better interact to determine where they are going and what they are doing in making both the war-time and peace-time efforts work effectively.

USTRANSCOM’s transportation assets come from the various services as well as from the commercial sector. For example, on the air side, we not only have to know how the airplanes move but also how the cargo moves and how the passengers move and the deployment systems tie into GTN. On the water side, we have to know how the cargo goes on the ships, how it is scheduled, and how all the ships are scheduled. We have radio frequency tag information (RFID), an Army system that brings together information on where things are. We also bring in continental United States freight management and all the commercial information that shows how our feeder systems come together. All this information is put together and then results are generated by a sensitive but unclassified method. We also have a classified information cell that provides secret information that is guarded from the unclassified side and used in war-time operations and exercises.

This system provides robust in-transit visibility of what the DOD assets are and most of what commercial carrier assets are available from the commercial EDI aspect. With a robust infrastructure set up for ITV, we then apply a variety of tools that allow the command and control centers, as well as port managers, to see cargo coming in, see airplanes coming in, see ships and passengers coming in, and better plan daily activities based on this information. A variety of reports are available that enable one to find a specific commodity or a specific box.
or container and go to it very quickly by calling up the transportation control number.

For individuals who want to access the system, we have a distance learning tool that allows them to download onto their own system and learn how GTN can be applied in a very short period of time. It is a compact kind of training program.

We also have customer services bases. GTN brings all kinds of information together; it does not create any information on its own. It brings information together and allows other people to use it. We also have a customer base that wants to pull information we have so they do not have to go to all those disparate systems throughout the world. They can come to GTN, pull the information out, and use it for their own purposes. The joint total asset visibility and the global command and control system common operating pictures are just a couple of examples of systems that do that very well.

We have also been able to take GTN to a higher level, to do things for customers so they do not have to be on the system for a long time. For example, if you have a report that you know is due every day that requires looking at all the port information, at the movement information of the day, you can request and schedule it to be e-mailed to you and sitting in your in-box at a specific time. You can pull it down, import it into a PowerPoint slide, and put it up in front of the boss within a matter of minutes. This type of technology savings helps our customers reduce their workload and do a better job in the primary tasks they perform and services they provide.

We bring all this information together and allow our customers to use it, but our customer base has a wide dimension to it. It is not only Joe Airman and the young transportation analyst who need to know what is going on for their specific lower level job, but it is also universal enough to be used by the command and control centers in making global decisions based on how much infrastructure is at a port, how much flows or is routed through that port, whether it is moving in an appropriate manner, and so forth. Decisions can be made about whether alternative facilities could provide a better flow-through, what is going to happen on the other end when all that cargo and all those passengers arrive, are they going to be able to flow out and get to their destinations—based on information readily available in GTN. The beauty of GTN resides in the fact that it is not a box that sits on your desk, with a lot of systems available through a client server. GTN is a totally web-based system, so you can access GTN, pull up any kind of cargo information you needed by simply logging in and entering a password. If flying military air, you can pull an itinerary and determine whether changes are needed for one reason or another. GTN has a wide variety of uses for the common user as well as for the generals and the big war planners in their logistics movement. We are very proud of how practical GTN has turned out to be.

The real beauty behind GTN is how it brings in information and the redundancy of that information. When a transportation officer wants to move a box, it is put into a couple systems and that comprises the system’s consolidated freight management system. All those systems talk to other systems and the key is that all those systems update GTN on where that box is as it moves through the system. When the information comes in, it is filed on the primary key and all the trailer information is readily available. When GTN is queried on it, the system pulls up all that information together based on the original query.

To give you an example, we had an exercise called Turbo-CADS 99. It was a munitions shipment from a variety of locations throughout the United States, all moving by truck and rail, going to Sunnypoint, North Carolina. The idea was to see whether we could monitor the movement once the munitions left the depots and moved through the system. Once it got to the port, how was the information put into GTN? Could we follow it, monitor it, and manage it as it sailed to its destination in Korea? Various systems were used to provide information on the shipment to GTN as it flowed into the port. We took the information and were able to follow it through other systems, through the worldwide port system and the Information Command Control and Communications system, and all the way through to its destination. GTN did extremely well in providing information on where munitions were throughout the process.

We recognize that no system is perfect. Issues remain as to how information is put into the system—a lot is still done on paper. We want to automate things, because the more people we have putting information into systems by hand, the more opportunity there is for errors. However, based on what was put into the system and what GTN provided to the customer making a query, GTN did extremely well in the munitions exercise.

Where do we see ourselves in the future? With direct vendor deliveries and with our current system, we have a portion of what the overall defense transportation system movements are. We know what we control and we know how much of that information we have; this is what GTN really focuses on. Right now, I estimate we are 70 to 80 percent able to capture that information. However, not all the information on transportation is within DOD—a portion is direct vendor deliveries, contract logistics support, and local purchase. We need to capture more of that information to fully understand and perhaps improve our processes and transport flows.

I will give you two scenarios on direct vendor transactions. In the current system, when consumers want to order something, they have to go through the supply system, which goes through the depot, which ends up going to the commercial supplier, back to the depots, and then
back out to the customer who will use the product. What we want to do is allow the customer to go directly to the vendor and then have the vendor ship it directly to the customer. What we need to do is follow the transaction electronically to make sure we capture all that data. We have to look at whether this is something worth going after.

I will give you an idea of how important it is to have this information. The amount of activity that falls into this category, and for which we are unable to get complete information, is estimated at $8.0 billion worth of activity and about $300 million worth of transportation assets to move it—a significant amount. We estimate this volume is going to double in the next 5 years and will be a big chunk of our business as we go more and more to outsourcing certain aspects of our business. We know congress is trying to force us to go in that direction and we need to capture as much information as we can because this is going to be the wave of the future for us.

We have created and will be testing a model next week. We took one commodity—medical supplies—needed in a hospital in Germany and available from a pharmaceutical company in Indianapolis. When the customer in Germany wants to order the medical supplies, they call the vendor in Indianapolis directly, prepare an electronic bill of lading, and contact their contract all-cargo air carrier to move the shipment from Indianapolis to Germany. The company in Indianapolis will also send that electronic bill of lading to USTRANSCOM, which then provides the information to me for transmission to Military Traffic Management Command (MTMC), which handles the payment once the transaction is complete and the cargo has been delivered by carrier to the customer. MTMC will handle payment to the vendor for the product delivered and to the carrier for transportation services provided. We at USTRANSCOM know the shipment status, when it is moved, and when it is delivered—we have visibility throughout the entire transaction. We are enthusiastic about this model, which will be tested over a 2-month period. We will then make some operational adjustments and expand it to a variety of commodities.

GTN is only as good as the data that go into it—we do not create the data. Therefore, one of our biggest issues with everyone, including us, is data quality. If we do not have good interfaces with the systems and if we do not provide a good foundation and good standards then, in essence, no matter how GTN is wired together, it is going to give you only what you put into it—if garbage goes in, garbage comes out. We need to come together with all the services and with the commercial sector to agree on standard terminology. We need to have standard data elements. We need to have standard bills of lading, so we all understand where we are going and what we are doing. There are a variety of organizations starting to get on that bandwagon to bring this all together. In our view, this effort needs to be stepped up, because we need this information and it would be easier to get if we could just agree on standards and terminology.

For example, the defense shipper looks for and provides to GTN information such as military standard and transportation movement procedures information, requisition numbers, transportation control numbers—the sorts of things we operate with on a daily basis. Direct vendor shippers have a totally different system and they look at different things—purchase order numbers, commercial bills of lading, reference numbers, and internal things—because they are all stovepiped. It will help us tremendously to make GTN better in the future when standards come together and are put in a neat package.

Automated information technology is going to be the wave of the future. Instead of us trying to hand GM information, we are going to give people smartcards that will give us all the data. They swipe the smartcard and we get the information and can track the flow of the movement through the system. Standardization, accuracy, consistency, and reliability are going to enable GTN to take a monumental leap in having the capability needed to track forces, track requisitions, track assets, and so forth and will allow senior leaders to make important, accurate decisions about what is going on in the transportation flow. Thank you.
OVERVIEW

Daniel Smith

This session focuses on how to finance international intermodal development and projects. It has long been recognized that transportation infrastructure investments are engines of economic growth. The international transportation investment started out with railroad tycoons and entrepreneurs who made a lot of money in some places and went broke in others. As time passed, in much of the world the transportation infrastructure was nationalized and became an administrative function instead of an entrepreneurial one. This has occurred for the better part of a century and it is only in the last 5 to 10 years the pendulum has swung back. Today, private investment and public-private partnerships are becoming the norm in most of the world and certainly the preferred route for new projects, particularly the more difficult, more ambitious intermodal projects. This session focuses on the challenges of implementing this new and radical idea—intermodalism—in a new climate of public and private investment financing.

RAIL INTERMODAL PROJECTS

Barry Ulrich

Barry Ulrich is an investment officer with Global Environmental Fund and a board member of the railroads in both Brazil and Argentina. Global Environmental Fund is an investment management company with some $350 million under management in five funds, focusing on environmental infrastructure worldwide. Ulrich comes from a management consulting background with Andersen Consulting.

I will present a case study on our railroad projects in Brazil and Argentina, which are really in the infancy stage of implementing an intermodal program. Members of this audience come from different disciplines and hopefully will learn something from this. Some of you will want to invest. Some of you will want to sell us things. I will begin with a brief background on the rail systems and then move on to the intermodal program with a discussion of the current and future markets for the railroads, the challenges in implementing the program, and the plan to implement it through a business strategy.

Our investment is actually in a company called Americo Latino Logistico (ALL), which is a Brazilian holding company that directly owns 100 percent of Ferro Sud Atlantic (FSA), which is the Southern Atlantic railway in Brazil, and indirectly owns 80 percent of the Bapim Messipamico (Bap-Messo) railroad in Argentina. The job of the management team at ALL is to grow the company both within the current markets served and through acquisitions in rail and ancillary services. ALL was acquired through privatization in 1997 and has been in operation for 3 years. Bap-Messo was acquired in June 1999. The combined network is a contiguous system; however, each system has a different gauge track and that presents a few challenges. The total network is 15 000 km. FSA is largely
in an agricultural-based area, although the management team there has done a nice job of reducing the seasonality of the agriculture and diversifying into other cargoes; Bap-Messo has a much more diversified cargo base. They both have ample opportunities to expand within these markets, but the natural layout of the railways presented a nice opportunity for the introduction of intermodal service.

I want to briefly talk about the performance we have had over the past 3 years and what we project for 2000. The revenues have grown fairly rapidly. In real terms (the real devaluation affects the U.S. dollars terms), volumes are very strong. We have been very pleased with the performance, which moved from single digits to the mid-30s last year, due in large part to employee reductions. We took on a staff of 6,500 and have basically reduced that by half. We are spending money on investments in the railroads, although not at the levels you see in America. This is a much different story, where we have single-digit market share and are targeting our investments to bring the market share up to where it should be and then investing in improvements in the railroads.

Our rail network spiderwebs through southern Brazil, goes into Argentina, and then spreads across to Chile. What is interesting is that we capture the entire MERCOSUR (Southern Cone Common Market) cargo flow between Sao Paolo and Buenos Aires with Porto Alegre, which is a key port. Eventually, we hope the line will stretch across into Chile, with the potential to take trucks over the mountains and into the Chilean market.

How large is that market? The marketing staff has developed some data for the route between Sao Paolo and Porto Alegre. We looked not at total container traffic but at the cargoes we think we can capture. There are 39.6 million tons (35,935 million kg) a year going between Sao Paolo and Porto Alegre, divided into bulk, clarified reefer (refrigerated products), and general cargoes. Currently, our railroad in Brazil has less than 1 percent of that cargo flow.

Right now, the route between Sao Paolo and Buenos Aires is quite a bit smaller, but that is likely to grow as the MERCOSUR trade pact takes effect. This market is estimated at about 4.22 million tons (3,829 million kg) a year and, again, we capture no more than 3 percent of that cargo flow. Clearly, the market is there and is currently served almost entirely by trucks. This offers a great market opportunity; however, implementing the service will require new handling facilities at all the nodes in Sao Paolo, Buenos Aires, and Porto Alegre. We have a bottleneck at the transfer station between Argentina and Brazil as a result of the different gauges of track—each car that comes through there has to be lifted up and a new bogey has to be put on. We have no trucks or agreements with truckers, and we have limited rolling stock suitable for this type of cargo. The good news for us and probably for those who would sell these services is that this is probably the easy part. This is an investment that we can do in a few years. It requires money, but it can be handled relatively simply through investment.

The flows go both ways between Buenos Aires and Sao Paolo. We collect in Buenos Aires by truck, take it to our handling station where containers are lifted off the truck, and put on our rolling stock in Sao Paolo. It follows the Brazilian tracks either to Porto Alegre or to the transfer station at Uruguaiana, where all the cars are lifted up and new bogeys are put on. Then they go down the Argentine tracks to the handling station in Buenos Aires and are put on a truck and delivered to the end user—to the customer’s plant in Buenos Aires. That is the ideal scenario; if only it were that easy.

The infrastructure is one challenge, but we face two bigger challenges that are specific to our situation. The first is customer perception. For decades, these railroads have been run into the ground by government management, and currently we have a market share in the single digits. Over the past few years, we have been very successful in winning over our traditional clients, regaining their confidence through reliable service. These are the people that even during hard times were continuing to use the railroads, but they now use it in much greater volumes. However, when we start to talk about intermodal service, it is a whole new set of clients—people who gave up on the railroads long ago—and winning them back is going to be a much harder task.

The second challenge we face is our relationship with the truckers and it is a war down there. They have dominated the traffic patterns for years and years and as we began to chip away at their market share, they reacted violently. Some of you may have read a few months ago about the truckers shutting down the highways to protest high fuel costs and what they perceive to be favorable treatment of the railroads in Brazil. Hence, our relationship with them is less than good and we need a good relationship with them because we are not planning on building a trucking company. This is but one aspect of the relationship with truckers that comes into play.

The other is a strange quirk and that is at the transfer station at Uruguaiana. As I mentioned earlier, we spend a lot of time changing the bogeys on each car that comes through. However, this is really not the bottleneck. We have plenty of time to do that, because the customs agents prefer truck over rail and would just as soon see thousands of trucks go through before our trains go through. While the bogeys are changed, our trains sit for 3 days waiting for approval from the customs agent to go through. This is a relationship we need to address.
Those are the three main challenges we face and I am sure there are others, but I would like to shift the focus to our business strategy. Our railroads want to offer door-to-door service to their customers who could use that service between Sao Paulo and Buenos Aires. Our intention is to focus on high-value-added products. The particular markets that have been identified include food and beverage, metallurgical products, chemical products, paper and cellulose, and general cargo.

We are also going to focus on two high-traffic routes that I mentioned earlier, between Sao Paulo and Porto Alegre and between Sao Paulo and Buenos Aires. There are other places to go, but it does not make sense at this point. We want to make sure we have modern technology in our containers and bimodal system and we will be purchasing a number of RoadRailers in the near future. We need to invest in our intermodal terminals and we plan on developing an information system just to support this business line.

What is our implementation plan? The first step was completed in 1999, when we gradually reduced express service between Sao Paulo and Buenos Aires to just two trains a week. It was basically a loss leader. What it was designed to do was show our clients that no matter how many cars we have on these trains, no matter what the conditions are, they are going to go off on time and arrive on time. That went a long way to regaining the confidence of some of those customers.

For 2000, our intention is to keep increasing the departures between Sao Paulo and Buenos Aires and Porto Alegre. We have implemented Global Positioning System to track the express trains. If a train gets lost in the hinterlands, whereas before it took 4 or 5 days to figure out where it was, now we know immediately and work to keep the service on time. We also want to build an infrastructure of collection and delivery services. In the next couple of years we plan to make substantial investments, with the amount of investment declining in later years as we get our infrastructure in place. In the current year, we plan on investing heavily in the terminals, increasing the number of bogeys and purchasing RoadRailers both this year and next year. After that, it will primarily be investment to increase capacity, as we buy more rolling stock to handle the expected volumes.

In terms of financing, we anticipate this railroad being cash flow positive next year; and being equity investors, we know a little internal cash flow investing certainly will not hurt. The company has a large development loan from Banco Nacional de Desenvolvimento Econômico e Social (BNDES) available that it can draw on, and it has equity investors like us who are pleased with results to date and are willing to pump in a little more money. Obviously, we expect a big payoff. With regard to financial projections, we anticipate they will be very moderate at first but that by 2003 and 2004 we are looking for about a 75 percent increase over current revenues and a similar increase in volumes in terms of tonnage. For those of you who may question these projections, if you take the total market share just in the two routes I discussed earlier and put 2 percent growth on it, we are looking to capture 4.5 percent of the total market. We think these are very attainable goals.

Finally, what will happen in the future? I have no idea. Hopefully, 3 years from now I can come back here and give you an update. But I can tell you this—I received the January numbers yesterday and it was evident just in intermodal volumes alone that the tonnage was double-planned and 20-ft equivalent units (TEUs) were greatly above plan. We experienced a much higher tariff than we expected, and what is happening there is that some customers between Porto Alegre and Sao Paulo are buying into this program and shipping some high-tariff cargoes through there. Hopefully, this will provide a nice base and continue on through the rest of the program. Thank you.

LOGISTICS INFRASTRUCTURE

Joseph Gurskis

Joseph Gurskis is Principal with The Kingsley Group, an international logistics and transportation consulting firm based in San Francisco. Gurskis leads the firm’s rail practice and works out of Washington, D.C. He has more than 25 years of experience in transportation, both as a consultant and in rail management. He has done numerous consulting assignments in logistics, transportation strategy, asset management, and operations in the United States, Canada, Latin America, Australia, and New Zealand. He is just off several projects in Brazil and is here to talk about one of them on rail port and highway infrastructure. Before joining Kingsley, Gurskis was a consultant with Booz-Allen in its maritime and rail practice, and before that he was with SP and CSX. He has a B.S. in economics from Wharton and an M.S. in city planning from Harvard University.

I spent a good part of last year working on various logistics infrastructure development projects in Brazil and my presentation is on a model being developed in Brazil for investment in such projects. By way of background, there is significant change occurring in Brazil. Privatization began a number of years ago and is now nearly complete. This has brought about a change in perception and a change of approach in terms of infrastructure development and financing. The idea now is to balance public and private development. In the past, it
FINANCING INTERMODAL DEVELOPMENT: INTERNATIONAL

was primarily public, with almost everything (if not everything) owned by the government. Now, private sector companies must invest in the infrastructure. Brazil is focused on an integrated planning model—not on either modal types of development efforts but basically integration of various investment infrastructure projects. As part of the change in Brazil, they are looking at what can be characterized as beneficial economic development. In the past, when the government invested, many times it was done for political reasons; now, it is being done for economic reasons. The focus today is on infrastructure projects that are going on in southeastern Brazil.

Brazil’s logistics network and the transportation network continue to grow, particularly at the ports on the container side of the business. The port of Santos has the biggest container port in this region of Brazil; however, other ports such as Vitoria in the northern part and the port of Rio and the port of Paranagua are also growing.

There were basically five major railroads in the southeast: Ferro Centro Atlanticco (FCA), which operates in seven of the nine states that are part of this region; MRS Logistica; Estrada de Ferro Vitoria-Minas (EFVM); Ferrovia Novoeste; and Ferrovias Bandeirantes. Only 3 or 4 months ago, FCA and EFVM came under the control of one company, a major conglomerate called Companhia Vale do Rio Doce (CVRD), which primarily focuses on iron ore. CVRD now owns and plans to integrate both railroads. The wagon or the railcar fleet is very heavily focused on moving bulk commodities, which traditionally have been the major product for these railroads. As far as intermodal capacity, there are platform or flatcars, but these are not really designed to handle containers.

They are heavy flatcars used mostly for handling iron and steel and steel slab.

With respect to the highways, most (80 or 90 percent) are not paved. Most of the major access routes are paved, but there is still a lot of roadway that needs to be paved and developed. This is going to be very critical as intermodal grows in Brazil.

A new port facility is being built at the port of Sepetiba, with planned growth of its container terminal. This really is the core of the development effort that I will talk about today. By 2020, this port is expected to handle about 4.5 million TEUs. The challenge facing Brazilians is how to invest in the infrastructure at the port itself and how to invest in the infrastructure that allows access to the port.

The solution that was arrived at was the development of what is called a special purpose company (SPC). This particular one is called CDSE (Companhia de Desenvolvimento do Sudeste), and it is bringing in investment basically from the major industrial stakeholders in the port and in movements to the port. It includes Sirhanna, a major fertilizer company; CVRD, a conglomerate primarily focused on iron ore; Mitsubishi, a shipper of many things; Telemar, a major telecommunications company; Companhia do Unibanco, a major bank in Brazil; Companhia Siderurgica Nacional, a steel company; BNDES, a development bank; and Bechtel, which is looking at it as an investment opportunity through Bechtel Enterprises. These are the shareholders who have contributed capital to the SPC. The purpose of CDSE is to identify development needs and, in turn, spawn off other special purpose companies.

The mission of CDSE is to reduce the Brazil costs, which have basically hurt Brazil in terms of its ability to export various goods to other countries. In terms of developing or reducing the Brazil costs, the CDSE will be developing a logistics network plan for the region. It will be identifying, developing, and implementing priority projects. It will be structuring the financial and commercial models for these projects. And it will be seeking to attract and select investors and operators. The criteria for judging the investments in the projects include having attractive terms, because this is a private sector initiative. It is no longer a government initiative, so they are looking for high returns that will basically attract investors, attract off takers and users. The idea here is to go for off–balance sheet, nonrecourse financing—nothing on the balance sheet of the participants in the various companies.

The idea at Sepetiba is to develop a multimodal logistics center. There are basically three drivers that are pushing the idea of the creation and establishment of these centers. This focuses really on the container side of the business—the intermodal side of the business. First, the maritime industry is restructuring. There are going to be fewer and fewer carriers in the future and consequently fewer and fewer port selectors or purchasers of port services. Second, there are going to be larger vessels. Basically the larger vessels result in fewer port calls because of the time those vessels are out of service in ports unloading—this is down time and costs a lot of money. When they do make a call, there is going to be more cargo tendered at each call, and when they do make a call, they will be calling at places where there is a large industrial base. Because they will also offload cargo or bring on cargo from the hinterland, efficient access to that hinterland is also critical. The other key driver is a need to leverage the scale economies of the land transport network.

The port of Sepetiba, this multimodal center, is now looking at about 12 areas of investment. One is container terminals on the intermodal side; the other terminals are for ore export. Today, some ore is being exported through the port as well as a petrochemical product terminal; a liquid chemical terminal; agribulk terminal; roll on/roll off for automobiles; roll on/roll off for cabotage (basically the coastwise movements); facilities to handle and store frozen and chilled products; and an offshore oil and gas center.
supply base. Offshore exploration and offshore extraction are a big growth industry in Brazil and there will be a need for facilities to serve the offshore facilities.

The key element of this multimodal center is information. The idea is to link the whole supply chain through information. In this complex and this multimodal center, the plans are to have an information center that will be linking all the various stakeholders and all the various elements. Critical success factors of this multimodal logistics center in Sepetiba are an extensive economic base, very efficient port operations, a very efficient and extensive regional transportation network, and state-of-the-art information technology and telecommunications.

The basic game plan that was put together by CDSE was to identify projects that require and could very well be included in the portfolio for investment. There are also a number of projects being considered by others in Brazil. The work plan was to look at those projects, look at the prior studies, and look at the logistics clients—the customers and providers—and come up with an initial screen or an initial idea of infrastructure requirements. What are the needs? Based on forecasts of demand and analysis of the existing infrastructure, the goal is to come up with and identify infrastructure projects that are deemed to be critical to the growth of the southeast. Attention was also paid to basic service that is being provided by the transportation network, including labor issues, potential labor problems, the pricing of transportation, and so forth and how that could affect freight flow and economic regulation. Coming out of this all was project identification, a validation of projects that are on the drawing boards today that should be implemented, new projects, and refinements to the infrastructure support networks. The idea is to identify projects that reduce logistics costs, add value to products being shipped, provide a return to the investor, and have interests from off-takers or users.

A critical factor was to find necessary investment to improve access to the port. There are rail bottlenecks that have been identified as candidates for private sector investment, whether it is by the individual railroad itself or through a consortium of investors and other SPCs. One of the more critical ones is direct access to the port. Right now, the port is served by one railroad—MRS Logistica—and the idea is to introduce another railroad. The challenge is that MRS Logistica is a broad-gauge railroad and the railroads that interchange with it are narrow gauge. The idea is to build a third rail to access the port and provide access for FCA or to build an inland intermodal terminal further up by Japparee, where containers can be transferred to MRS Logistica and brought down to the port.

Another critical bottleneck is where the rail traffic comes down toward Santos, Sao Paolo, and then cuts north. There are huge conflicts with passenger operations, because this is a very heavily, densely operated commuter line. There are only certain windows in which intermodal trains can operate. The proposal is to build a bypass that cuts around the congestion and cuts around the density of the passenger service and allows the intermodal trains to move up onto Sepetiba.

With respect to highway bottlenecks, fortunately the road network in the area is paved; however, the capacity is not that significant. The proposal in these areas is to introduce two additional lanes to improve a better flow for the truck traffic and also to improve the access directly into the port of Sepetiba. It is a very narrow two-lane road and as the port grows and the intermodal business grows, greatly improved access and wider lanes will be needed.

The logistics information technology center concept is to link all elements of the supply chain. The trucking companies, the railroads, the ships, basically the carriers, will be linked to an information technology center, as would the airports, and also the customers—liquid bulk terminals, the grain silos, the port terminals, the warehouses, and the plants. The idea is that, through the information flow, the freight can be moved more effectively and efficiently, whether it is intermodal freight or bulk cargo, through the network and into the port for export.

Other improvements can be characterized as noninfrastructure type improvements. Even when the infrastructure is in place, there will still be a problem getting the freight to the port via rail, because there are not any efficient cargo wagons or container wagons like we have here in the United States. One of the proposals is to create a wagon supply company or wagon supply SPC, very similar to TTX (the former Trailer Train Company), and investors would provide the intermodal wagons to the railroads.

There also needs to be a change in railroad operating philosophy. The philosophy in the past has been and continues to be bulk. The limited intermodal service now is basically put behind the bulk trains. There has to be a change in policy before we start to see scheduled intermodal service and prioritization in the intermodal trains.

At the port itself, establishment of a port terminal railroad is needed. MRS Logistica currently serves the port; however, it is not doing an effective job serving a limited business at the port itself in the bulk operation. Hence, the proposal to create some type of port terminal railroad to which MRS Logistica can deliver the traffic and which could effectively shuffle the business throughout the port complex itself.

There is also a need to create intermodal marketing networks, which currently do not exist in Brazil. These entities would sell the intermodal service to the clients, to the customers.

The whole idea of integrated investment incorporates other industrial and development efforts, logistic elements, and services. These include services to ship owners and
land transport operators, container fabrication, storage and repairs, potential for steel pipe manufacturing for the offshore oil and gas, steel storage and distribution areas, general warehousing and distribution centers, automobile distribution centers, consolidation and packaging, facilities for imports of petroleum products and their storage and distribution, agri-industrial processing, chemical processing, a mini-steel mill, and a coal-fired thermoelectric power plant. Thank you.

TRANSPORTATION FINANCING

Robert Hart

Robert Hart has been Vice President of the Surface Transportation Group at ABN-AMRO Bank since October 1995. Since joining the bank, Hart has organized and established their presence and their activities in financing the shortline and regional railroad industry in North America. He has also performed advisory assignments for insurance companies, locomotive manufacturing, and rail equipment leasing. Before joining the bank, Hart served as Senior Vice President of Railroad Financial Corporation, where he participated in a variety of rail industry transactions totaling over $300 million. Before that, he was with Illinois Central starting as Assistant Manager of Equipment Planning and finishing as Treasurer. He has frequently participated as a panelist and speaker on a variety of topics and earned his B.A. and M.B.A. degrees from Northwestern University.

Thirteen months ago, ABN-AMRO was engaged by the Brazilian Ministry of Transportation to be their financial advisor for a very large-scale project, a real dream project, if you will, of Brazil, the North-South Railway. This will certainly be a 21st century project and a very large project. It is a greenfield railroad project in an emerging market. The policy goal here is to have public and private financing come together to get it built and keep it operating. It is certainly going to have trailer-on-flatcar and container-on-flatcar aspects to it, but more important is the relationship the railroad will have with the highway, with the rivers, with the ports, and with other railroads, all of which will be key to its success. This will truly be an intermodal railroad.

The proposed alignment runs from Belem up on the Atlantic Coast, down to an area in the neighborhood of Brazilia. There is also an underdeveloped region called the cerrado, which is comparable to North American prairie. It has agricultural potential, with the Brazilians particularly interested in soybeans, but it has no effective transportation infrastructure.

As noted in earlier presentations, the Brazilian rail network has been privatized. All the rail concessions come in from the ports, through the coastal areas, into the hinterland, reflecting the historical development of the railroad. Most of the railroad properties are in the southeast, which is where most of the economy and most of the people are in Brazil. Our project will connect with FCA on the south and connect with Estrada de Ferro Carajas (EFC), which is a CVRD iron ore railroad, in the north. In so doing, we will create a Brazilian rail network.

This is an ambitious project: 2200 km, costing more than U.S.$1.6 billion, of which 226 km have been completed—100 km were built about 10 years ago by CVRD with public money. CVRD is building the other 100 km, also with public money, and they have the concession on another 200 mi (322 km) that has been completed. The estimated construction period is 5 years.

Two other elements are critical. First, there is going to be an interregional railroad bridge linking the south and the north. There is very little traffic right now in the immediate zone of influence in the railroad. The ability of the railroad to connect in the north with other modes and other railroads and in the south with other modes and other railroads is a crucial link in the intermodal network. Second, this will be a public-private financing partnership.

The potential market available to the railroad is estimated at 45 million tons, primarily ores and metals, forest products, and so forth. It is a long-haul market, which is favorable to the railroad. Marketing consultants expect the railroad can get a 30 percent share and, as is typically the case in other parts of the world, the major competition or the mode that is currently used is trucking. They truck almost everything and what they do not truck moves via coastal shipping. What is regarded as a bulk commodity in North America moves by truck in Brazil.

The project has been modeled, in effect, as a traffic diversion deal. If the railroad involvement in the modal chain results in a lower cost than the next best alternative, the traffic diverts to FSA. The construction is over 5 years and has been broken down into nine segments to be constructed as the model predicts traffic to divert. The overall existing market is expected to grow 4 percent per year and this does not include tapping into any of that agribusiness potential referred to earlier. The model factors in a higher unit transportation cost in the early years to reflect the fact that it is going to be a light-density operation until the network is completed. For modeling purposes, the project period is 20 years.

Regarding the finance plan, we are looking for government financial participation of about $254 million and private equity of $400 million, with debt from local and international sources filling out the balance of the funding requirement. The internal rate of return to the
equity investor is over 20 percent, and at this point the goal is to enhance that to a higher level. Project cash flows have also been modeled.

In implementing the financial plan, the single biggest obstacle to raising capital, to finding the financing, is risk. There are various ways to deal with the question of risk and I will talk briefly about an approach we use on a day-to-day basis in analyzing the credits that are submitted to the bank. When you are providing capital, whether as an equity investor or as a lender, you are worried about not getting your money back and then you are worried about not getting the kind of return that you expected. Therefore, the big questions you ask are pretty straightforward: What is the deal? What are the risks in the deal? Why should we do it despite the risks? In other words, are the risks being mitigated or managed in such a way that the return is attractive enough for us to put our capital into this project?

Within these big thematic questions are subquestions to be considered when developing a project and outlining a financial strategy and you really should have answers to all these questions: Who is the borrower? What is the lending rationale—in other words, what is the money for and why? What is the primary source of repayment? In a railroad project, you would say it is the free cash flow that is being generated from operating the business. What happens if Plan A fails or is underperforming and there is insufficient or no free cash flow? What is the secondary source? Perhaps it would be assets, real estate, or something else. You always want to have a second way out or at least have some notion of it. Another question is one that always interests me as more of a railroad-transportation person than as a banker—what are the business and strategic risks that are involved in the project? This requires that you look at the financing risks and the structural risks. Banks, very simply, never want to be structurally subordinate to another funder. Development risks, construction risks, operating risks—theese are just a sampling of the risks we have to analyze and determine how to mitigate as part of the implementation program for the financing for FSA. This is a pretty standard allocation.

Let me use a hypothetical example to illustrate the typical risk factors that go into an international railroad project—specifically, a north-south intermodal railroad project. For example, the carload railroad would be EFC, which is the iron ore railroad mentioned earlier, similar to the old Burlington Northern that has a lot of coal business coming out of the Powder River Basin. It could also be more of a traditional type railroad like the Wisconsin Central. Let's assume that both of these railroads are hypothetical and that they exist in the nation of Fredonia. Both railroads are going to have the same exposure to the macroeconomic risks of Fredonia. What is their growth rate in gross domestic product, inflation, and so forth? Both railroads are going to have the same exposure to the transportation market, although the intermodal railroad may have a little bit less risk there because of its market reach, because of its intermodal relationships with truckers, and so forth, which might get it into a broader market than the carload railroad. The carload railroad is probably going to have greater commodity concentration risk, because it is involved in bulk commodities. It might be involved only in grain or perhaps coal. The intermodal railroad, again because of that greater reach, is probably going to have less exposure to individual commodity concentration risks. For the same reason, it is going to have less exposure to shipper concentration risks. As a general rule, you do not want to get overly involved with a railroad that has a high degree of concentration in any one commodity or with any one shipper because your fate, meaning your loan, depends on what really happens to somebody else, not necessarily the borrower. You can mitigate that risk with some things, such as take or pay contracts; but generally speaking, you tend to avoid concentration.

The intermodal railroad is going to have more competitive risk. It is going to be in an aspect of the market that has, for example, the natural trucking haul or a single mode haul. It is going to have to take traffic away from that natural mode and bring it on to its intermodal railroad. It is going to have greater operating risks because it is complex and you have multiple parties involved. That means more things could go wrong, which in turn means management becomes more important. Therefore, execution risk or management risk is greater.

The intermodal railroad is also going to have more exposure to regulation and legal issues. It is not going to be regulated only by railroad regulations, but it is going to be affected by port regulations or trucking regulations. Most importantly, especially in Latin America, it is going to be tied up in all the issues related to the flow of paperwork. When cargo goes from one mode to the other, it is liable to be inspected each and every time a transfer occurs. There is certainly no door-to-door bill of lading or anything like that; therefore, the risk of the intermodal railroad increases.

Capital spending requirements are going to be greater for the intermodal railroad. Not only does it have to build the car shops and the locomotive shops that any railroad has to have, but it also has to have its intermodal exchanges, the terminal facilities put in place to deal with the intermodal exchange. Information is more important on the intermodal railroad, so there is a greater risk associated with that. It is serving a segment of the market in which shippers want and demand service and want to know where their goods are. Hence, there is going to have to be more investment in information on the intermodal railroad. Both types of railroads are going to have
the same exposure to the political and currency risk issues in Fredonia.

Back to our project—we thought it would be an interesting real-world test for the benefit of our client, who really wants to have private sector involvement in this, if we could take advantage of some of our contacts and go into the private sector, give them the information memorandum about this project, and then survey and interview them about their assessment of the risk and return ratio in this project. We did just that and the answer we got back is that the issues they really focused in on were the capital cost estimates or the cost overruns. Naturally, they also focused in on the normal market and competitive risks.

However, what the investors really want is a government policy that creates a nurturing environment for this project. Obviously, they want government financial support; that is a given. If I do not have that, I do not have 21 percent return, and I think that is a marginal return right now. I would like more, but I want to be sure the federal level in Brazil is working with the state level and that they take steps or create policies or incentives to break through some of the barriers and reduce the risks outlined for my intermodal railroad. That is what we need and that is what we have communicated to our client.

In conclusion, there is a lot to be said for this project. As expensive and as risky as it is, it does have the long haul that favors rail economics. It is going to create or at least facilitate a Brazilian rail network. It has scope and scale and is going to provide transportation to 20 percent of the country. It is going to be in an area where agriculture output is expected to double. It has a reasonable capital structure at this point. And it has a decent, albeit not a great, return to the investor. Thank you.

**INTERMODAL PROJECTS IN ASIA**

*J. Douglass Coates*

Doug Coates is President of Manalytics International, a transportation consulting firm based in San Francisco. His clients have included major warehousing and distribution firms, major ocean carriers, retailers, and manufacturers. Before coming to Manalytics, he was President of American Consolidation Services, which many of you know is the logistics arm of American President Lines. He was President of Miln Truck Lines, President of ITEI Rail, and held marketing and operations positions in ocean shipping and trucking and container leasing. He holds a degree in industrial engineering from Pennsylvania State University and an M.B.A. from Wharton.

I will talk today mainly about intermodal developments in Asia and how the projects are financed. With respect to Asia and with reference to what is happening in Europe and America as a counterpoint, Manalytics has conducted several projects in Asia for various clients—rail and ocean carriers, ports, shippers, and bankers—and this varied experience gives us some difference in terms of view, balance, and perspective. We can look at some of the tradeoffs of what things make sense and what do not and what drives success in looking at intermodal projects and investments.

First, let’s talk about fundamental drivers in intermodal needs relative to Asia and the developmental and finance opportunities there.

- First and foremost, the international flows are the dominant trade. Naturally, there has been historical trade around villages, but the export trade is Asia’s basic business transaction and provides the vast majority of hard currency to the countries. Import-export is a real driver and a real factor from the standpoint of looking at intermodal opportunities and financing. With the recent financial crisis in Asia, the need for cash, the need for foreign trade and development has never been more of a key, so you have countries trying to be competitive in export, trying to be competitive in terms of world markets. This means that government and industry line up. The government really wants rail to be effective. They want their individual manufacturers and shippers and people who are involved in the local community to be effective because it really means the livelihood and the whole economy is stable if you have incoming cash from exports.

Certainly from the standpoint of the North American experience, which is largely domestic, and even from Europe where most of the countries look internally first, only now, with the changes in the European Union, has this changed. Asia, on the other hand, has really been import-export for a long time.

- Second, intermodal developments in Asia focus around ports. International moves tend to be by ship, whether you are talking about large mother vessels, feeder vessels, or even barge and inland waterway moves. Ports are the dominant contact point from the standpoint of interchange between modes. What that means to a rail project is that the handoff, the connections, have to be very good between rail and port.

You are not talking about an inland move that goes from Chicago to Memphis or Chicago to Atlanta. You are talking about rail being part of an international connection, and the port-rail combination becomes part of your economic and financial analysis. We are in the process of completing a project with the Malaysian railways, and even though a lot of our work is focused on the performance of the railroad itself and how it does in terms of intermodal needs and serving customers, the
ports and the connection to international winds up being the major driver for success in the investment and infrastructure of the railroad.

- Third, specific trade flows and sourcing locations are continuously changing, a factor that cannot be underscored enough in Asia. If you look at the end customer of any transportation system, if you look at the people who are the manufacturers or retailers or people who are the beneficial cargo owners, who are moving something from A to B, they are really looking for more and better places to source, they are looking for new markets. The K-Marts, Reeboks, and Gaps of the world are always on the lookout for the best sourcing location, the best combination of price, quality, items that meet current demands, and that is ever-changing. That puts a lot of pressure on an intermodal system. It puts a lot of pressure on a transportation infrastructure because you have to be able to meet these changing requirements.

Certainly with the Internet and electronic commerce now taking place, this is not going to slow down. Instantaneous information on what is available, who makes the best gloves, who makes the best pipe wrenches, all these kinds of things are now available through the Internet and this means that sourcing locations and markets are changing rapidly. If your system is too brittle, you are not going to be able to make an adjustment to those changing flexibilities. There are strong parallels here to military logistics of the new millennium in anticipation of regional conflicts, with short lead times and a focus on flexibility in logistics and equipment. This flexibility on the commercial side is showing up in inland patterns, in ports (new ports, like Foochow, are focused on a single dominant commodity like footwear, while development at ports such as Tientsin and Harbin is driven by agriculture), and ships (large 6,000-TEU ships versus fast ferries and feeders in the Internet age). Looking at the end customer, at what really drives development and trade flows, it is very important in evaluating the finance and economics of intermodal projects to understand the underlying driving forces from the standpoint of trade.

- Another important factor in Asia is the fact that, for the most part, it does not have a developed highway network. This differs from Europe and obviously North America. Projects done in Bulgaria, Croatia, and Romania show trucks to be very tough competition and often an obstacle to rail developments. Whereas in remote areas of Europe, the roads are adequate for trucks to be carrying the freight, this is not the case in Asia, which really does not have a truck network that has been built up over time. Asia does have inland waterways, but this mode is not consistent with today’s shorter order cycles and reduced inventory levels. This has to change, but the change will not be easy. In Asia, the highway infrastructure option simply does not work. What happens when vessels the size of the Regina Maersk arrive in port?

- Most of the intermodal and inland rail connections in Asia have developed in the past 5 to 8 years, even though containerization in Asia is 30 years old. Compare this with Europe, where there is a 30-year history in intermodal development. Most of the large intermodal projects in Asia have taken place in a 5- to 8-year time frame, including OOCL's Hong Kong Express into China; the Butterworth train to Penang and Malaysia; the Delhi-Bombay Express in India; and the north-south fast train connecting Kaoshiung, Keelung, and Taipei. This suggests to many that the door is open to a lot more intermodal development.

China’s intermodal spending falls short of the requirements for such a vast market for exports now and for imports and domestic moves in the future. China certainly offers development opportunities; however, there is always a question of how much is being spent on intermodal. How much is committed and spent and how much is actually put into place requires considerable investigation if one is to understand what is really being done there. In any case, a lot of improvements are needed and those with know-how, resources, and stamina can make this a viable opportunity. At the end of the day, a combination of truck and rail are needed.

In conclusion, the lessons of intermodal in Asia are few but important. The key to success is understanding the flexibility and quick response requirements of the Asian supply chain in the day of the Internet and shortened order cycles. The port and the international nature of intermodal in Asia are key—success in import-export is the reason any Asian government will stay in power. The tradeoffs and the balance between these complex factors are key, and understanding the impact of change cannot be understated, as indicated by the recent Asian economic crisis. In looking for individual intermodal development opportunities in Asia, keep in mind that (a) intermodal needs to tie to ports and (b) there needs to be quick response and flexibility to meet changing needs for order patterns, order cycles, sourcing locations, and end markets. Any investment has to be viewed from the standpoint of the interaction with ports and ship patterns—large ships, small ships, all the different feeders that are involved, all the new configurations that the lines are coming up with. Even though you are looking at a railroad, all those factors need to be worked into your final ingredients.

On the subject of import and export, and the subject of risk, you also have the question of what happens with international trade. What happens with the balance of trade? How much import versus how much export? How does that work into the economic analysis of the individual investment you are looking at? In looking at opportunities, potential investors and developers must consider all these factors and do their homework. Thank you.
I will talk about a project that is under way, providing a status report and focusing on how we will pursue financing for this expansion of our port and creation of a new terminal. All the intermodal aspects are there—the water side, the new rail connections to two mainline railroads, and Interstate highway connections.

South Carolina State Ports Authority is a state agency, kind of a quasi-state agency. We are part of the state government, but we are not part of the appropriations process. We work with our own revenues, generated from services we provide to our customers, mostly the international shipping lines and shippers. With those revenues, we invest in capital. We build terminals and facilities and we are able to provide these services as an operating port.

Charleston is our major facility in the state of South Carolina. We have other smaller breakbulk niche ports in the state, but Charleston is the major facility. We are the fourth largest container terminal in the United States, based on volume of cargo moved, and we are the sixth largest in terms of the dollar value of the cargo. We are predominantly a container port—about 95 percent of our business is containerized; about 5 percent is breakbulk. We also have some cruise ship business.

Charleston’s ranking is based on port import-export reporting system data for 1999 in millions of loaded 20-ft equivalent units (TEUs). Charleston had just under 1.2 million TEUs for 1999. The significance here is that Charleston is a small metropolitan area compared with most of the other cities among the top 10 list of ports. We have become a load center for the southeast in this regard. If we focus on the South Atlantic, we have about 27 percent of the market share (again in terms of TEUs) from Virginia down through Miami.

We are an operating port and, as I mentioned earlier, a quasi-state agency. We operate our facilities. We are not a landlord operation, so we employ crane operators, equipment operators, and people to run warehouses. We have our own security forces, maintenance people, and so forth. We operate much like a small business. We do not employ union labor, but we work side by side in many of
so forth. The site ties in less than 1 mi from an Interstate
backup infrastructure for transportation corridors and
about 12,000-ft berths in the ultimate development, and
space on both sides of the peninsula, the equivalent of
over a very long period of time. We are currently in the
acres of container yards that would be built in phases
Daniel Island site has the potential to create about 650
that measures about 250 acres of container yard. The
Wanda Welch Terminal, our largest facility in Charleston
been dredged from the channels to the back area at the
now there is not much there. It is basically mud that has
of Charleston Harbor. It is called Daniel Island and right
around $100 million in revenues this year.
revenues have quadrupled in that period, from just over
million tons—a tripling over that 20-year period. Our
Our future demand.
frame is going to bring us in just under the wire to meet
project and placing it on Daniel Island to be used for sta-
projected time and that 20-year projection is basically again
to triple the demand or the amount of cargo being handled
in Charleston.
We then looked at the capacity of our facilities—the
maximum practical capacity of what we would expect to
be able to handle given some improvements and use and
productivity of existing terminals. This analysis shows
that, by the year 2007, we are basically out of space and
given the long lead time for developing new container
terminals we need to be working on those very quickly
to create this new capacity.
Back in the early 1990s, we bought about 1,300 acres
of property on what looks like a peninsula in the center
of Charleston Harbor. It is called Daniel Island and right
now there is not much there. It is basically mud that has
been dredged from the channels to the back area at the
Wanda Welch Terminal, our largest facility in Charleston
that measures about 250 acres of container yard. The
Daniel Island site has the potential to create about 650
acres of container yards that would be built in phases
over a very long period of time. We are currently in the
process of preparing the environmental impact statement
on that site.
The build-out would include container yards, berthing
space on both sides of the peninsula, the equivalent of
about 12,000-ft berths in the ultimate development, and
backup infrastructure for transportation corridors and
so forth. The site ties in less than 1 mi from an Interstate
highway and interchange. A new rail route would also
be built in that same corridor. There are also stormwa-
ter and buffer-type areas to separate our development
from other development in the area.
The initial development would include about 100 acres
of container yard, about 40 acres of backup infrastruc-
ture, container freight station warehouses, some storm
water treatment, and a connection to the Interstate but
no rail initially for that size of a development. It would
have the ability to berth two ships at a time.
What we plan to do over time—again looking back to
that rate of about 5.8 percent average annual growth
compound over the next 20 years—is build the various
phases of the terminal until it is built out. The first phase
will be completed in 2007—hopefully a little before so
that we have that capacity on-line in advance of the
demand reaching that level.
We have an ongoing harbor-deepening project under
way today that is being cost-shared between the federal
government and the state of South Carolina. There are sev-
eral major contracts under way today that should be fin-
ished by 2004, most of it by 2002. We are in the process
of taking some of the fill material from the harbor-deepening
project and placing it on Daniel Island to be used for sta-
bilization of the site in preparation of the future terminal
phase one area.
We hope our final environmental impact statement
will be done later this year. The draft environmental
impact statement is out now and under public review.
There will be about 7 months of public scrutiny by the
time the review period ends in mid-April, and then we
have 6 to 9 months of work to do in finalizing the envi-
ronmental impact statement to address the concerns of
the public and to come up with a mitigation plan that can
be used to offset the potential impacts.
If all goes well, by July 2001 we hope to have a con-
struction permit to begin the real work. We estimate
about 6 years of work to be completed to get just phase
one opened. Much of the cost and much of the effort are
in very basic infrastructure, because this is former dredge
disposal area and it requires a great deal of surcharging
and preparation and consolidation of the site before it is
ready. This will take about 3 years. Only after that is
done can we start to build berths and bring in cranes and
construct the wharves and so forth. If a permit is not
received until the middle of next year, the proposed time
frame is going to bring us in just under the wire to meet
our future demand.
Our planning goes back well over 10 years, when we
began looking for sites, planning the kind of capacity we
would need. We initiated the environmental impact state-
ment process in 1996 and released the draft environ-
mental impact statement in September 1999. We have
had a number of public hearings and are in the process
now of reviewing the comments that have been made by the public and various regulatory agencies. We are starting to develop a mitigation plan and, if all goes well, by 2001 we hope to acquire a permit.

The key issue today is how to fund these types of intermodal projects. We met with our board a couple of months ago to lay out some of our options. The philosophy we have had throughout is that our first option is to look within the ports authority from the cash flow that we generate. We generate about $35 million a year in cash flow. We also have the ability to issue revenue bonds. We have about $150 million in revenue bonds outstanding, and $125 million of that was just issued in mid-1998 to fund a capital improvement project over the next couple of years. Certainly, we will also look at some special financing techniques, such as a potential reuse sale or ground lease of one of our older breakbulk terminals, which is in the heart of Charleston and may have some higher and better uses that might spin off some additional positive cash flow.

Another option we have considered and have approached a number of people about is to look to the private sector, to some of the shipping lines that call on the port of Charleston, to some of the international terminal operators who are out there and also to the mainline railroads. They also have a stake in this. Currently, the site would have access only by one of the mainline railroads, so the other is most interested in having that access. As we grow in the port, these private sector people need to be prepared to grow with us and to provide the types of intermodal yards needed in the future.

One of the issues we have become aware of is that typically these terminal operators, the SSAs (Stevedoring Services of America), the P&O Ports, and the HITs (Hutchinson International Terminals) of the world have very little, if any, interest in basic infrastructure. That is a basic cost that we have to overcome and typically that is something of more interest to the state or the federal side of the equation.

On the federal side, there are a number of Transportation Equity Act for the 21st Century (TEA-21) programs that we will look at. We have been very involved with the U.S. Department of Transportation (DOT) and many agencies there, looking at One DOT and some of the possibilities there. Then perhaps there is a possibility of appropriations.

The key is that we put the state last in this. Clearly, the state is a real beneficiary in terms of economic impact from job creation, from the attraction of business and economic development opportunities. Therefore, it has an appeal because of the state’s interest in these factors. There are a number of options on the state side: special bonds, general obligation bonds, some dedicated source like a gas tax, and then a one-time source—some of the tobacco settlement money many states have received recently—and general appropriations. However, South Carolina is not a wealthy or a large state; the population is somewhere between 3.5 and 4.0 million people—this is smaller than most of the metropolitan areas we compete against in terms of major ports in this country.

We try to separate the interest in economic impact and the interest in economic development opportunities, job creation, and so forth from the financial side of things. We have a positive cash flow. We have, as an operating port, been able to maintain that positive cash flow and been able to be self-supporting over the years. But certainly this kind of expansion changes that. We see significant economic impact from the development and this will be an attraction when we talk to the state. This has less appeal to the private sector and other things will have to be developed to attract private money to the equation.

We hope to firm up a financial project over the next couple of years. We are talking to a number of people to determine what opportunities are out there and to try to put together all the pieces—what the ports authority can do, what opportunities are available on the federal and state side, and what part the private sector might play in this. Thank you.

TRANSPORTATION INFRASTRUCTURE
FINANCE AND INNOVATION ACT

Jennifer Mayer

Jennifer Mayer is an innovative finance specialist with FHWA’s Western Resource Center. She provides technical assistance to state and local government and other project sponsors on federal transportation finance tools such as GARVEE (Grant Application Revenue Vehicle) bonds and the Transportation Infrastructure Finance and Innovation Act. Before joining FHWA, Mayer worked with Apogee Research, advising federal, state, and local clients on financing environmental and transportation infrastructure. She holds degrees in applied mathematics and political science from Brown University.

I am associated with the FHWA Western Resource Center, which is a technical assistance center on project finance, located in San Francisco, but covering the western states and the nation as the need permits. We have a lot of different financing tools, enabled with federal funds. Most people, when we talk about financing tools, are very interested in one particular federal tool known as grants. Unfortunately, we do not specialize in developing those or in coming up with those, but we do try to educate states, local governments, and other proj-
ect sponsors about other options, short of grants, that may be available to assist in financing projects.

Today I am going to talk primarily about the Transportation Infrastructure Finance and Innovation Act (TIFIA). The TIFIA program involves loans, lines of credit, and loan guarantees. The features for these loans are very generous. The maximum term on the loan is 30 years. There are automatic payment deferrals in the first few years of the loan. A missed payment does not mean default. These loans have very generous terms for one primary reason—the TIFIA program was designed to enable mega-projects that have benefits that far outweigh the areas where the projects are being built. We believe there is a federal interest in making these projects happen. I think many of you might agree with this.

The terms of the TIFIA credit assistance are built to work for a project sponsor; however, they are individually negotiated once awards are made. Some terms apply to all three forms of assistance:

- There is a maximum 35 years after substantial completion of the project—and we can haggle about exactly what that means.
- The amount is no more than 33 percent of the total project cost. For example, let's say we are going to give a TIFIA loan to the Golden Gate Bridge, which is doing a seismic retrofit and the total size of that project is $600 million. They can get a TIFIA loan for $200 million. The size of the financing on that project might be only $100 million or other financing. It is the project cost that we look at. You need to look at how the project cost is defined.
- The interest rate is, according to the legislation, set at a rate comparable to treasury securities of a similar maturity. Temporarily, we have decided to use a slugs rate (state and local government securities rate) five basis points above that. It is going to be comparable to a treasury rate. For some borrowers, that is going to be a little higher than the rate they can get on the open market and in some cases substantially higher than they can get on the open market. The advantages to these loans, however, may outweigh any higher interest rate they might pay.

You really need to look at this tool and also the other features such as no prepayment penalty and the payment deferral features to decide whether it would work for you. Another critical feature is that there are fees involved. Last year’s application fees were $5,000, which, as a percentage of most of the loans, is a small amount. There may be fees for ongoing surveillance of these loans and credit products if necessary, but those are negotiated individually with each borrower. There are no fees on the loan guarantee and line of credit unless drawn and they are negotiated in each agreement.

Finally, two of these three tools can probably be used with tax-exempt financing. The reason I insert the word “probably” is because it would be nicer to have the letter from your bond counsel saying that. But our counselors say the loans and the line of credit do not create any federal guarantee that would prohibit use with tax-exempt financing. If you are considering these tools, you can consider them part of a larger package.

Now that I have described the program a little bit, let me go into the background. TEA-21 was enacted and was the source of the TIFIA program in 1998. The precursors to this program are (a) two stand-alone toll road projects that received lines of credit directly from the federal government and (b) the Alameda Corridor port project. Once we saw the success of those projects, we wanted to create a process in which we could evaluate projects uniformly across different modes and across different states. We have created a One DOT organization, including the Office of the Secretary of Transportation, FHWA, FRA, and FTA, to evaluate different projects.

Our goal is to leverage limited federal resources and to stimulate private capital investment in transportation infrastructure. We want to provide credit instead of grants for these projects. We want to make them marketable. The major requirements are that they have to be mega-projects. They have to be $100 million or greater. There is an exception for intelligent transportation system projects that can be $30 million. They need some kind of dedicated revenue repayment, although general revenues might be acceptable if approved by the Secretary of Transportation. You need a special waiver for that. You have to follow all applicable federal requirements. That includes the National Environmental Policy Act of 1969. If you are a private project sponsor, you subject yourself to the federal requirements if you accept this loan, along with any applicable state or local approvals, including placement on the State Transportation Improvement Program.

It is a competitive process and the best place to follow that process is on our TIFIA website. Eligible sponsors and projects, pretty much any major surface transportation sponsor, private, public, special authorities—anybody who is building the type of projects we want to support—can get money under this program. The only exception, and this is an important one for this audience, is that a provision in the legislation states that any freight transfer facilities must be publicly owned. That does not imply public operation necessarily, but public ownership is required.

The types of projects that can be supported are very wide-ranging. Anything that can be funded under Title 23, which is all of our categories of highway funding, essentially, or capital projects under Title 49 can be assisted by TIFIA. I do not even want to attempt to define these;
However, if you have a project in mind, I encourage anyone to come talk to the Department of Transportation and find out if it is eligible. Projects that have received assistance include construction of a rental car facility for airport access near Miami and an intermodal connector. Examples of eligible projects are wide-ranging.

I have talked about what the forms of assistance are and what projects are eligible. Now I will talk about the amount of money that is involved. For fiscal year 2000, we have $1.8 billion of loans, lines of credit, or credit or loan guarantees to give away. The amount, $1.8 billion, counts for any of these. If we use a loan or a line of credit, it does not matter which, it is going to count the same. For fiscal year 2001, we have $2.2 billion. Combined over the next two fiscal years, we are going to be awarding $4.0 billion in loans or other credit assistance.

I want to talk about what happened in the fiscal year 1999 process, because I think it is an amazing story of how quickly this process got implemented and I think we can expect the same for fiscal year 2000. I have heard from a lot of project sponsors who were interested in this program initially saying, “Well, we’re interested, but it is a federal loan program, I’m not sure. It is going to take a while.” We had an application process with applications due in August and the funding was delivered the end of September 1999. Coincidentally, that is also the legislative deadline for delivering the funding. If you look at this process and the time lines available, the important thing to note is that the rules were developed in an incredibly rapid period of time and the applications were evaluated over a period of a few months. The loan negotiations, in terms of the actual agreement, are taking a little bit longer, but it is a process that is realistic and that can be worked into your financing plans.

Now, let me talk a little bit about the odds. We had very good odds for applicants this last year because it was the start-up year. We received 14 letters of interest. We had 7 applications, 6 of which met the initial criteria for evaluation. Of those, we awarded assistance to 5 projects. That is a pretty good record—83 percent of applications. I cannot promise you that this year, but it indicates there is demand for this.

When we weigh the projects against each other, the criteria we use are mandated by statute. They include national or regional significance as well as some of the things we just heard about from Bernard about economic benefits; for example, creditworthiness, public-private partnerships, the degree to which you are attracting other capital in addition to the federal capital, project acceleration, new technology, budgetary impact, which means the impact on other federal assistance if you can show that it reduces the need from other federal agencies, environmental impact, and other issues. In the next year, we are going to be weighting these criteria against each other. In this process, we weighted them equally, but that is going to change.

I will briefly summarize the 1999 TIFIA projects. These include (a) a highway project, State Route 125 in southern California; (b) the Miami intermodal center, which is a multimodal center that will improve transportation and access to Miami’s airport; (c) the Penn Station redevelopment, which will improve access to Penn Station and the new passenger terminal and a new arrivals area; (d) a loan guarantee for the entire capital program for the Washington Metropolitan Area Transportation Authority; and (e) support to a transit line in Puerto Rico. You can see how diverse these projects are and how diverse the forms of assistance are. There are many different projects eligible under this program and many have received support.

To wrap up, I would like to look ahead to fiscal year 2000. We are looking at a probable application process beginning in late summer and it has to finish by September 30, 2000. That $1.8 billion we have to give away in fiscal year 2000 has to be given away by September 30, 2000, or it is lost. We are expecting the official application time line to be announced in late summer, but if you have a project that might be of interest, do not wait. Come and talk to one of us. I am available to consult about potential TIFIA projects, as is our headquarters office, and we are eager to hear about the type of projects you are interested in and the type of projects that may benefit from this assistance. Thank you.

Freight Action Strategy Corridor

Peter Beaulieu

Peter Beaulieu is with the Puget Sound Regional Council in Seattle, Washington, where he works on issues pertaining to water resources, solid waste management, aviation capital investment, and growth management. He has served as a colead staff of the freight action strategy corridor (known as the FAST corridor) with the Washington Department of Transportation Office of Urban Mobility. He has also served as the lead staff for the public-private regional freight mobility roundtable. He is an advisory board member to the University of Washington Global Trade Transportation and Logistics Program and recently authored an article titled “The Central Puget Sound Region and Emerging Regional Freight Mobility.” Beaulieu served as a Lieutenant in the United States Navy from 1967 to 1970 and served on the U.S.S. Hornet. He attended the University of Washington, where he received a B.A. in architecture. He has a Ph.D. in urban and regional planning.
There is a real challenge for those of us speaking this afternoon because the luncheon speaker set a high bar, pointing out that there is a very fine line between brilliance and idiocy. It is our task to show we have maintained our position on the correct side of that line. I will focus on four points today.

The first is the notion of a diversified portfolio of partnerships. It occurs to me that what we have in the central Puget Sound region is a cluster of overlapping partnerships, one of which is cost sharing. There is a family of partnerships, all of them are very soft and informal, but there is overlapping membership, which is the key fabric within which certain things can be done and which has injected some resilience into what might otherwise be chaos.

One is the regional freight mobility roundtable. It includes carriers from all the different modes—shipping lines, two railroads, truckers, air express, and all the public sector agencies, including five federal agencies: the Maritime Administration, FHWA, FTA, FRA, and U.S. DOT. Essentially, we have the One DOT that has been broadened to include the private sector and local governments as well as the University of Washington. This is the nucleus and is one of the reasons we were able to construct an environment where other things could start to happen, including intelligent transportation systems work.

There is a special task force working on specific questions relating to noncapital construction solutions. The joint infrastructure committee includes the commissioners of the two competing ports—the port of Seattle and the port of Tacoma. There is an effort to forge agreements between the competing railroads—the Burlington Northern Santa Fe and the Union Pacific—as to how they will operate their tracks in crossover areas that cause difficulty. There is an agreement between both railroads and proposed commuter rail on cost-sharing, a partnership involving over $300 million of track improvements for this entire corridor. Several of these activities are cosponsored by the roundtable, which is cosponsored by the regional council, the Economic Development Council of Seattle, and King County.

The FAST corridor work is an interagency effort on the public sector side, cosponsored again by the regional council and by the Washington State DOT Office of Urban Mobility. These are a sample of things that have happened, which provide an environment for a cost-sharing proposal that one may or may not classify as “idiocy”—it is extremely complex but also very resilient. This effort includes 15 projects and 15 different sites, each of which is complex in itself, yet all of them are interrelated more or less as a system. Some became necessary because of the track-sharing and might even be located 30 mi (48 km) away. Nonetheless, there are some interactions.

Another of the outcomes influenced by this cost-sharing agreement at the state level was creation of a state freight program patterned after the regional effort. Another influence on the corridor program is within TEA-21—the $700 million border program. This regional effort was one of the successful competitors in the first round and will be competing in successive rounds to fund portions of the 15 projects, including grade separation projects and port access projects. We have the audacity to say we will have a cost-sharing program and, although two of the legs on the stool do not exist, we are certain they will emerge over time because we know what the external environment is and basically we have hung together.

Complexity: we have heard some comments about chaos management this afternoon and some recurring comments about institutional design, and I would like to speak to each one of these. Chaos can be your friend (as well as your enemy) if you are agile, have a tight perimeter, and are sufficiently together that you can respond to things. Maybe that is not as good as having a letterhead and power and independent funding, but it is the way we have managed in many respects.

Two of the tragedies that have struck our effort could have been fatal. One is the Endangered Species Act, which has been imposed on the listing of salmon species in the Puget Sound region. It affects every project in western Washington and endangers each of them if there is an impact or a possibility of impact on the salmon species. It is related to larger questions on Columbia River management and even the breaching of dams to maintain the species’ viability. This has caused some projects to be slowed down and others possibly to be stopped.

The other is a deeper kind of chaos. People can speak about partnerships but at a much deeper level if there is any mistrust that has crept in, and there is a mistrust toward government, that can land on whatever lightning rod is available. The lightning rod that was available in the state of Washington was the motor vehicle excise tax, which generates $750 million a year, about two-thirds of that to the Department of Transportation. This was the sole source of the state’s share for all 15 of these projects—33 percent of $470 million, or $150 million, suddenly dropped right through the floor. The partnership was sufficiently resilient at that point that the attitude was—well, we have about a half-hour or hour; let’s figure out what we are going to do about that hole in the budget. What emerged from that, based on having worked together over several years and with a lot of detailed information, was the message that this entire package and the partnership really required only about $50 million to reach the point where new funding might be available.

With that message, efforts were made to go after available funding sources within the state. Fourteen million dollars was secured from one program and then the Puget Sound Regional Council came along with yet a third crisis that fit in very nicely, and this is where chaos
becomes your friend. We were looking for $40 or $50 million total. The Puget Sound Regional Council discovered that, due to I-695 and due to the Endangered Species Act, a lot of federal money in the allocation process at the regional level was blocked and unobligated and subject to being removed to other parts of the state or other parts of the country. Wouldn’t it be nice if there was some place within the region to put that money? The FAST corridor group was able to step forward and say, here we are, we are ready and have immediate uses for that money—the result was a nice partnership. All of this happened within about 2 weeks. This just illustrates that sometimes you can sidestep and take advantage of chaos.

With respect to institutional design, we have been talking about public and private as if there are two halves of some kind of dumbbell that needs to be fitted together in some way and also about interagency agreements on the public sector side. I would just like to offer some thoughts on this, specifically the impact of mergers, the “blindsiding” issues, the impact of court action. We have 1 project of 15 that went all the way to the Supreme Court. It had to do with reopening a rail line in a community that did not want it to happen.

I would like to offer two final comments. The first is the importance of trust as an intangible. Then, going back to my original point about the diversified portfolio, the idea of layering, not just public and private, but several different layers of things that are connected. That is the kind of institutional design, the institutional architecture approach that is invented along the way. Thank you.

**PUBLIC FINANCE**

**Jeff Holt**

Jeff Holt is West Coast Manager for the Municipal Finance Department of Goldman Sachs, overseeing all efforts in the San Francisco and Seattle offices. He covers all transportation and infrastructure clients in the western United States and has structured more than $20 billion in municipal issues over the past 20 years working in public finance. Holt has recently focused his efforts on building public-private partnerships and recently completed a 6.5-year effort to fund the Alameda Corridor project—a $2.4 billion joint venture between the port of Los Angeles and Long Beach, the Union Pacific Railroad, and Burlington Northern and Santa Fe Railway. He is part of the financing team for the Seattle–Tacoma Narrows Bridge project in Washington, a public-private partnership between Washington DOT and a private consortium led by Bechtel. He graduated cum laude from the University of Utah with a degree in finance.

I attended the earlier session on international intermodal financing and found it very interesting, particularly the dichotomy it casts with respect to domestic public-private partnerships. I want to preface my comments with some discussion about international versus here (domestic).

Speakers in the international session talked about trying to generate 21 percent returns for their projects. I thought that was interesting in that the life cycle of their financing efforts is anywhere from 10 to 15 years. In this country, we have a different competitive environment between our intermodal facilities and our ports. Port returns on assets in this country are somewhere between 3 and 4 percent. You do not see a lot of private ports being developed in this country. The government involvement that has taken place in some of these maritime and freight handling situations is at a level where municipalities vie for the business, sometimes to their own detriment. As a whole we really do subsidize, if you will, to a point where the returns really cannot be made in the private sector and we do not charge. I think the competition that arose from the Maersk–SeaLand situation on the East Coast showed that municipalities and municipal and state governments bid down that per-lift charge at $22.00 a lift. Again, it subsidizes back to the shipping industry in many cases, both rail and maritime. You ruin a lot of the economics; however, that is the way it is. That is the way we are. It is not going to change in this country.

When people talk about privatization and the hope for private capital coming in, it is just not going to happen. The only way for private capital to really get returns is to isolate. As Bernard said, there is no interest in infrastructure. It does not pay. You cannot charge for dredging. You can charge for terminal development and terminal space. You can charge for drayage. You can charge for freight handling. You can charge for carriage on the railroads, but you really cannot charge for grade separations. You cannot charge for berth deepening and harbor developments and especially not for greenfield projects. It is very difficult to get someone to compress the soil for you and then have any sort of economics result from that.

Intermodal projects face multiple funding challenges in today’s world. The Federal Transit grants dried up. We have this wonderful TIFIA program that Jennifer talked about. It is the absolutely perfect partnership with the federal government for these kinds of projects. There are limited sources of state funding, and local tax increases are difficult to pass, although I understand the entire port of Houston’s capital development effort is done on the basis of local general obligation tax bond issues. It is just mind-boggling to me. They have a terrific public relations effort going there and a wonderful partnership with their citizens, who do understand the local economic
benefits to them. All their projects are done not on the back of revenue bonds but local general obligation tax-supported bonds with pay-as-you-go coming off of whatever port operations take place. It is a really “odd duck” situation in this country.

Railroads are strapped for capital funding. Their consolidations have put pressure on them. Wall Street is putting pressure on them to reconsolidate their balance sheets. Of course, seaports have tremendous expansion needs of their own. Doing freight handling and other marginal-type projects is very difficult for them. They are looking out for their own expansion efforts.

Some of the intermodal situations are multiconstituency projects. They have a lot of different benefits and a lot of different stakeholders. I am going to try to separate the intermodal discussion into two different fields. One is the strictly maritime side and container port operations and development and building of new facilities there; the other is the rail access issues, which are obviously much more difficult. Although the public may understand or have some view into the maritime side and what the container business is all about, they have no idea about rail handling issues and the congestion. It is even more out of sight than out of mind and therefore it is more difficult to get any sort of attention or dollars in that context. There are also multiple agendas in terms of transit or freight mobility, air quality, or economic redevelopment. Often these do not really fall within the venue of any particular agency and joint power authorities need to be put together to get these funded and to garner the attention needed on these projects.

I want to say a few words about public-private partnerships, of which the FAST corridor is an interesting example. However, you may recall that of $300 million—plus total, only $22 million is coming from the railroads—very little private and lots of public. That is okay, because whatever private money you can get is great. The point is that the railroads do not want to participate in these things any more than they have to, and certainly the shippers do not want to participate. But public-private partnerships can be great in the sense that these multiconstituency projects bring certain benefits to and from different parties. You can parse out risk and you can parse out funding costs.

The benefits of public ownership—low cost of capital, state and local grants, good public policy from both an oversight and control basis, and accountability—are all very good. It should also be noted that eminent domain is critical to some of these projects. The benefits of the private partnership include additional revenues that can be brought to the table, a certain amount of risk transfer and risk taking, faster implementation, and additional resources in terms of ideas and staff help.

Good examples of public-private partnerships include the city of Anaheim and the Walt Disney Corporation; Washington DOT and the Bechtel Consortium on the Tacoma Narrows Bridge; the Alameda Corridor—a huge effort brought together by thousands of individuals over 15 years, during 6.5 years of which I was involved; and the city of Reno, Nevada.

The Alameda Corridor was one of those multiconstituency efforts that were outside but critical to the ports of Los Angeles and Long Beach. However, it was so big in terms of its funding requirements that it was a daunting prospect to pull together $1.8 billion originally and up to $2.4 billion eventually in loans, bonds, and equity contributions from various parties. The capstone to that project was the U.S. DOT loan and what it allowed in terms of leverage. It was a terrific product and a terrific jumping-off point for a great federal program. It was also critical that at the right time the ports stepped up to say they would lead the effort and be the first to put their money on the line.

There was also a situation where there was some inelasticity of demand with respect to a container user fee in the Los Angeles basin. This cannot be replicated everywhere—$30.00 per 40-ft equivalent unit in the Los Angeles basin is really a drop in the bucket compared with the charges of total throughput per container to, for example, a destination like Chicago from the Pacific Rim, which may run $1,500. It is also small compared with the local drayage fee, which can run anywhere from $60.00 to $120.00 depending on who you ask. Negotiating a user fee and then paying the railroads some cash for their right-of-way was critical to get them involved.

An additional interesting and groundbreaking factor in the Alameda Corridor project is the risk-sharing. The ports made it very clear they would not take risks beyond their initial $400 million contribution or beyond the 40 percent of the debt service on all bonds and notes and loans. That was the maximum parameter they outlined. The idea was to see if the financial markets would take an inordinate amount of risk. Could a lot of the risk be off-loaded? We found we could sell nonrecourse bonds to the market based essentially on an airport model. Airports have long been able to trade on the ability of their own traffic base, their own origination-destination traffic in a local destination. This was something that was proven in the Alameda Corridor—the amounts of containers coming through the Los Angeles basin are going to be there, and you can count on them. They come and they will continue; therefore we can transfer a lot of the risk to bondholders on the basis of that container traffic being fairly secure. To get that kind of risk transfer and those nonrecourse financings, a number of studies showing on-time and under-budget construction, the capacity of the corridors, and revenue and cargo forecasts had to be done several times.

With respect to the final breakdown of the financing, there are very interesting sets of revenues. At the bottom
In addition to the broader community, in addition to district and additional taxes they would support. This was they put up a lot of money in terms of assessment dis-
together and the downtown businesses got together, and testing public-private situation in which the casinos got in the initial legislation for TIFIA. This was a very inter-
tive process, but Congress got involved by naming Reno mandate. We are still going to go through the competi-
tion that was passed through, and we have a congressional benefit assessment district. There is some TEA-21 money countywide sales tax for the project, and a 1 percent are no other natural sources of money. They raised a 1.8¢ estimated $60 million litigation settlement. The most important thing was that the residents got together and said we really need to fund this. That is $350 million in surplus funds available just in case. The traffic projections are about 5 years ahead of sched-
ule. The actuals that came in for 1999 were somewhere in the 2,400 range in terms of what our projections were. We are way ahead of schedule and the residuals will occur much quicker. The repayment of the federal loan will occur much quicker. Overall, the Alameda Corridor is a terrific showcase of a project. Regarding risk allocations, a large share of the risks were downloaded to other more natural risk holders. By doing this sort of project finance-based effort, we essentially laid off all these risks on the natural counter-party, trying to reduce the ultimate cost.

Let me say a couple of things about the Reno project. This is about a nine grade separation project on Union Pacific's line. It goes through the downtown sector and is important to the local region. There have been a lot of negotiations with Union Pacific, out of which came an estimated $60 million litigation settlement. The most important thing was that the residents got together and said we really need to fund this. There is no port. There are no other natural sources of money. They raised a 1.8¢ countywide sales tax for the project, and a 1 percent hotel tax on the downtown casino properties. There is a benefit assessment district. There is some TEA-21 money that was passed through, and we have a congressional mandate. We are still going to go through the competitive process, but Congress got involved by naming Reno in the initial legislation for TIFIA. This was a very interesting public-private situation in which the casinos got together and the downtown businesses got together, and they put up a lot of money in terms of assessment districts and additional taxes they would support. This was in addition to the broader community and in addition to the federal government and the railroads. It has been a great coming together to build this project. They are in the environmental impact statement phase right now and will be out applying for TIFIA and selling bonds later in the year.

In terms of case studies, the port of Seattle's Terminal 18 project is a terminal the port of Seattle wanted to do on a nonrecourse stand-alone basis to see if they could transfer a similar amount of risks to the private sector, as was done in the Alameda Corridor project. It is fairly straightforward, but the risk transfer then relies on the marketing area of the port of Seattle. I cannot really say whether this Alameda Corridor Transportation Authority application, in terms of nonrecourse, is applicable in any other ports around the country. It really depends on the specific port. We represent most of the ports on the West Coast in one way, shape, or form, mostly as senior manager of their underwritings. It is not something where you would, for example in a port, say I am going to com-

Let me briefly summarize a funding plan. First, you want to maximize the grants. These things are very infra-
structure dominant and those items just do not pay. Sec-
ond, try to find a revenue stream and get a revenue stream and find ways to bring new revenue streams on for these projects. Port projects obviously have revenue streams;
grade separation projects do not. Third, minimize the costs of the project. Try to take the scope down to something that can be done within the project.

Maximum leverage is a keynote theme. Layering senior subordinated debt together with a TIFIA component if your project is large enough and if it works is the maximum amount of leverage you can really put together in this country at this time. Maximum leverage means maximum proceeds out of the revenue stream. The lower the interest rate, the more you can capitalize of that revenue stream, including that difficult growth portion—most loans we do in this country are level debt service. You do not get any ramp at all. With a combination of senior subordinated debt, you can maximize the leverage and the revenue stream and get just about all the dollars that are there out into the project. The modeling required is pretty intense in some of these projects.

Let me close with a little commercial. There are plenty of lawyers, bankers, and engineers out there who are willing to bring their expertise to bear. There are all these things that need to be done to bring these multiconstituency projects to bear, to get all the government involvement from all sectors, and to maximize the leverage from the private sector and help negotiate all the agreements that have to be made and pull the finance together.

I think the outreach effort is so important for these projects—to heighten the public’s interest, to heighten the awareness of the legislators and the state governments and what not—the public relations effort and the government outreach are critical. The Alameda Corridor had an outstanding group of people who dealt with that and maximized the state and federal government involvement and returned 200 times the cost associated with those individuals. It was a terrific effort on their part. Thank you.
This panel is going to deal with a range of environmental issues—everything from air quality to water quality to dredging. As you know, the economy has been very good here in California, a fact that is quite obvious when you tour the ports of Long Beach and Los Angeles. In California, there has been increased pressure on the regulators by legislators, by environmental groups, and by the U.S. Environmental Protection Agency (EPA) for not doing enough in California to curb pollution and deal with environmental impacts. Just this week the EPA released an audit that reviewed the effectiveness of our state water quality control board and all the regional water quality control boards. The regulators got very poor marks. They are being told they are not aggressive enough, they are not setting strict enough standards, and they are lax in enforcement. In fact, this particular agency nearly brought construction of the Alameda corridor project to a grinding halt a few weeks back. The same thing is going on with our local air quality agency.

Those of us in the transportation industry are going to be facing more difficult challenges in getting our projects approved. Here at the port of Long Beach, we are going to be rebuilding the harbor from top to bottom over the next 10 years, which is going to be no small feat in today’s environmental climate. The speakers are going to talk about what we in the transportation industry may face in the future.

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I am going to give you my bottom line first—my concluding recommendations.

- First, we have to deal with vehicle technology in terms of air quality emissions. When I say vehicle technology, I am talking about the full range of vehicles involved in goods movement. I am talking about trucks. I am talking about trains and planes—all of them need to have a lot of attention paid to emissions because they are all emitters.
- The same thing with noise, particularly on the truck side. We have to deal with technologies for reducing noise from trucks. It is also a major issue with rail lines.
and California is unique in having an airport noise ordinance. I can tell you it is a big problem on the air side as well, although it is a fairly localized problem.

- Third is the water quality side, in particular the issues mentioned earlier with respect to the regional water quality control boards. My recommendation is that someone has to pay a lot of attention and do a lot of basic research in the causes and the remediation of water quality problems, particularly the storm- and non-storm-water discharges. We are engaged in a lot of rule making and a lot of control without very effective science behind it.

Three factors make goods movement a very important issue for California:

1. If you look at the map, we are the endpoint of a lot of intercontinental and transcontinental movements. We have major maritime ports. We have major airports and rail lines, and we have major highways that come into and go out of California. All are associated with a lot of goods movement.

2. We have a major border crossing with Mexico and the quantity of movement across that border, both goods and people, is really incredible and it is going to do nothing but increase. The infrastructure is very poor and the pressure for movement is very great.

3. California is a major market. We generate a lot that goes out of California, and we import even more into California, for in-state consumption or for distribution elsewhere in North America. California is home to just over 10 percent of the nation’s population. Within the state, better than 90 percent of the state’s population is in the urban areas; 60 percent is in southern California. That is about 6 percent of the national population in southern California, which generates a lot of end-user service. Goods coming into California do not always go out of California to the rest of the country. A lot of them stay here and that has implications for the air quality, the noise, and the water quality issues we will be talking about today.

I am going to talk in terms of two points: the ports of Los Angeles–Long Beach and the port of Oakland. I will talk about what happens because the ports are here instead of about the ports themselves. I want to talk about the landside connections with the ports.

I will talk first about the noise and water quality issues related to the ports of Los Angeles–Long Beach and the Alameda Corridor project. I am sure you have the impression that the Alameda Corridor is fundamentally a goods movement project to speed the flow of goods in and out of the port. However, it did not start out that way. It started out with the recognition that there was going to be a lot of goods movement in and out of the port. It was advantageous to handle a lot of that on trains and there are 100-plus mi (161-plus km) of train lines that feed the ports. The volume of train traffic, albeit relatively low, caused a lot of problems on the surface transportation system by blocking cross streets and generating a lot of noise. The Alameda Corridor project was originally conceived as a mitigation measure, primarily for surface congestion. It started out as a rail and highway project and the highway component more or less dropped out, although the first demonstration projects did involve highway work. However, after the work was well under way, the rail component project became the driver, required the major money, and became the major service.

At the time the project was initiated, about 60 percent of the movement in and out of the ports was handled by truck and 40 percent was handled by rail. The concept behind the project is to increase the rail share to about 50 percent, which means the truck share will drop to about 50 percent. The quantity of freight going in and out of the ports is going to increase tremendously. Right now, at Long Beach, about 4 million 20-ft equivalent units are being processed. Assuming a 60-40 split, most of those containers are still moving by truck. Today, about 2.5 million containers go by truck and about 1.5 million go by rail. It is estimated the volume at Long Beach could reach 12 million 20 years from now. Assuming a 50-50 split, that would be 6 million by rail, a very significant increase of four times the volume today. That is what the project is supposed to do. But keep in mind that 6 million will be moving by truck, a three times increase over today’s truck volume.

Highway 710 is kind of a case study facility. All that movement in and out of the port of Long Beach is now handled on 710. On the Los Angeles side, a lot of the volume is handled on 110, which is the Harbor Freeway. However, as always, the traffic really spreads out. The trucks are using the whole system. To focus a little bit on 710 as an example, today the current average daily volume of traffic is about 220,000 vehicles per day; 17.5 percent is trucks, which is a high percentage of trucks. That calculates to about 38,500 trucks a day on the Long Beach Freeway—trucks that carry about 2.5 million containers a year. Again, not all of those coming up that freeway are going down that freeway, but a lot of them are on that freeway. There is considerable drayage movement back and forth on 710.

Think ahead to the day when this port is generating 6 million boxes. Los Angeles is generating another 6 million boxes. If half of them are going by truck, that is a lot of additional boxes going on these freeways. Let’s consider the noise impact of that traffic. Our data suggest that a truck acoustically is equivalent to 13 automobiles. If you do the math, 220,000 vehicles are on the freeway as average daily traffic and 17.5 percent of them are trucks; work it out and acoustically we have the equivalent of almost 700,000 vehicles a day, of which trucks are
over 70 percent. The noise on that freeway is really a truck problem and not an automobile problem. That is the bad news. You would think if the truck volumes are going to double or triple, the noise on that freeway is going to be a lot worse. Well, the fact is we know that if the truck volumes double, holding the automobile volumes constant, the increase in noise is 2 decibels, which is really below the threshold of perception. This has been scientifically measured with the decibel meter and there is not really going to be a problem with noise on the freeway even if the truck volumes double. If they triple, it goes up above the threshold, but it is still a fairly slight increase.

In California, as in other states, we have a lot of noise barriers that are intended to protect adjacent neighborhoods from truck noise. Our noise barriers are designed around trucks, which emit noise from two places—the tires and the exhaust stack. Everybody who does noise barriers deals with the tire noise, but they do not deal with the stack noise. In California, we do deal with the stack noise so that we have a higher barrier than other states have. It does block the truck noise so that, with the line of sight from a receptor 5 ft above the ground and 5 ft from the side of the building, you should be protected from the noise. Notwithstanding that, I worked in Los Angeles for 6 years and my greatest volume of mail and my greatest volume of telephone calls were complaints about truck noise on the freeways. I guarantee you that the noise barriers and the sound measurements I have mentioned do not solve the noise problems on freeways.

Roughly 50 percent of the goods coming in stay within a 500-mi radius of the port. That means the goods being driven around are being picked up or delivered locally. A lot of that trip is not on the freeway system. A lot of that trip is on the local road system. Although the speeds are not as high and the tire noise is not as great, there is the noise from the stack. You cannot effectively do noise barriers off the freeway system. This means noise from port-related traffic is going to continue to be a problem in the neighborhoods in the region—not so much on the freeways, but off the freeway system.

With respect to rail traffic, as the train volumes increase in southern California, the complaints about train noise are getting greater and greater. On the Alameda Corridor, about half the project is in a trench, which is an effective noise barrier and has reduced the complaints and the concerns about noise on that project. However, when you get out of the Alameda Corridor, out in the San Gabriel Valley where the traffic continues east via a major train corridor, the noise complaints, the cross-traffic complaints, and the safety complaints are accelerating dramatically and we are going to have to address those problems.

Water quality is not so much a port or a goods movement issue as a general issue. My thesis, notwithstanding what our friends from the Federal Highway Administration (FHWA) have told us, is that the kind of development that we are anticipating in the port is going to trigger a lot of new highway construction, new rail construction, and so forth. Storm-water and non-storm-water discharges are on the verge of becoming the cutting edge issue of the decade. Caltrans has been working with storm water pollution for about 5 years. Close to $100 million has been spent studying and evaluating what we generate, what are the characteristics of our storm water discharges, and what we can do to remediate the pollution problem. The short answer is we do not have a clue about what we can do to remediate the storm water pollution problem short of, in effect, hooking up a full-blown sewer plant to the end of every pipe.

The water quality people insist they know how to deal with water quality. They know there are a few simple, cheap things that can be done like settling basins and filtering, but it does not work. We have spent millions of dollars in southern California trying to site some of those simple, cheap things, trying to make them work, and we have not met with very much success. The latest installment for Caltrans is really a culvert up in the northern part of California, totally unrelated to a port, unless you call Crescent City a port. The State Coastal Commission ordered us to remediate the discharge from that pipe to meet state standards. The state standards are based on the federal drinkable, swimmable, fishable standard, which essentially means drinking water standards.

I do not know how much experience you people have with trying to take something that comes out of a culvert and bringing it up to drinking water standards. For example, chloroform is a major issue and the only way you can do that is to sterilize the water with a chemical treatment and then clean the chemicals out of the sterilized water so that it meets the standards. This is very expensive. We estimated somewhere between $2 and $4 billion would be needed to put the necessary treatment stations on our pipes in southern California. If we spent that $2.0 to $4.0 billion in southern California, we would clean up about 2 percent of the total discharge that goes into the bay. We do not think it is cost-effective, but we are on a track that leads in that direction.

On the issue of air quality, I will use the port of Oakland as an example. A primary strategy for dealing with port expansion is, as they did in Los Angeles and as they plan to do in Oakland, to move the freight onto the rail system to reduce the drayage, to optimize the local transportation network. Oakland is becoming a world-class port. The way it works today, there is a lot of drayage from Oakland up to Richmond, where the boxes are put on trains up at Richmond. A joint intermodal terminal is being built on a former Department of Defense property
and it is intended to move the intermodal handling down onto the ports. There are local access roads to smooth out the traffic flow within the port and onto the freeway. There are improvements to the main gates to speed up the traffic, reduce the idling, and so forth, thereby yielding significant air quality benefits to this project by reducing the drayage and reducing the waiting time.

We have a similar problem with air quality as we have with water quality. There is a lot more science about air quality. When you talk about air quality, you are dealing with both emissions factors, which in California and nationally seem to change all the time. The existing emissions factors do not work. The air quality community is tweaking them all the time and every time they tweak, it changes the models. The air quality evaluation also depends on the transportation models, and the transportation models, as you get away from computer-oriented traffic, 5 days a week home-to-work peak-hour traffic, the reliability gets lower and lower. When you get to goods movement, the models are pretty weak. As somebody mentioned yesterday, we tend to focus on passengers and if we have some benefits on the truck side, that is great. Because of that we do not know much about trucks in the sense of modeling and doing transportation models and that drives the unreliability on the side of air quality models.

We were told yesterday that trains are good for air quality. That is true, but trains are not clean. Trains are a long way from clean. In California, in our intercity passenger rail system, we are using clean engines. We put six “clean” locomotives on line, which are good and do reduce emissions. However, rail emissions in the southern California basin are a significant component of the pollution burden and a significant issue for the state as a whole.

Trucks are not clean. To give you an indication of how we approach diesel, we have classified diesel in California as a toxic material. Trains need to be cleaned up and trucks need to be cleaned up to address the air quality issues. I am not going to pretend to tell you what good that will do, because the air quality situation in California is so dynamic that we are just kicking into the particulate standards. For example, the bay area was in attainment and it was easy to demonstrate conformity; however, conformity in the transportation world says no matter what we do, or if we do all the projects in this plan, it will not cause the air quality to go below standard. The particulates and the effect of the particulates are going to be a particular problem in most areas of the state, including the bay area. Certainly here in southern California, they are going to be a major problem.

The air quality world is very dynamic. Right now we have a suit going on in Sacramento that, if it goes the way the plaintiffs want, will probably cause a tremendous problem around the state and particularly in Los Angeles, where it will mean a real world of hurt for attainment and for conformity.

That is just a summary of the issues here in California associated with air quality, noise, and water quality. I appreciate the chance to share them with you.

PERMITTING PROGRESS

Carol Cutshall

Carol Cutshall is Director of the Bureau of Environment at the Wisconsin Department of Transportation, where she is responsible for approving all environmental documents prepared by the department. Her staff provides technical assistance in areas of cultural resources, archaeology, noise analysis, endangered species, water quality, wetlands, land use, and socioeconomic factors. She has overall responsibility for developing the department’s environmental rules and for negotiating agreements with the state resource agencies. Cutshall also serves as Chair of the TRB Committee on Environmental Analysis and Transportation. She is active in the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on the Environment and a charter member of the American Institute of Certified Planners. She received her B.A. in resource management from Wisconsin’s Stephens Point and an M.S. in urban regional planning from the University of Wisconsin at Madison.

I am here to talk about the permitting process from a state department of transportation (DOT) perspective. What I am trying to show you today is the link between DOTs and the various ports and intermodal activities talked about over the past 2 days.

I think many of you in this room, particularly if you are the environmental expert at your port or have been working on these issues, are familiar with the problems associated with the permitting process. We know that every local unit of government has rules and regulations related to the environment. There are special regional groups that do that, along with state rules and regulations; of course, probably the origin of all of these things is some overall federal rule and regulation. A lot of them conflict with each other and the discussion on point and nonpoint, the National Pollutant Discharge Elimination System, indicates how we are getting into another morass. A lot of our rules and regulations, because they were put together over time, have tended to do that. Each one was developed to answer a specific question or problem that was raised. The net result is a hodgepodge of laws and regulations.
There is also duplication of effort where we, for example, do environmental impact statements and then we find that the cooperating agencies on that environmental impact assessment, such as the U.S. Army Corps of Engineers and the U.S. Coast Guard, require that we do a separate document for them. Although they write the separate document, we are the ones who provide them with the information. It is our view that, if you are a cooperating agency, you ought to be signing off on the original document and it ought to be satisfactory to meet your needs.

There is a lack of concurrent review. We often find, and many here may have found, that one agency wants to know exactly what is happening on a project before they will sign off on it. That means all the other agencies have to have made all their decisions and perhaps the lead agency has had to fine-tune it to the project level of design detail.

There is a lack of timely response. I am sure there are people in this audience who may have waited more than a year or two for their permits to be issued.

Another issue is inconsistent application in the field. Most of us have run into really helpful regulators who have been able to work with and solve problems and get a really good environmental result. Fifty miles away or in another district, another region, all of a sudden, even though you are within the same state, you are supervised by another federal group and those guys have a different perspective on the same issue. We have this problem; we are a large organization and we know it happens within our DOT. The goal of consistency is a good one.

Finally, we often lack a conflict resolution process. The world we live in is changing and there is no question that the public strongly supports the issues of health, safety, and the environment. They care a lot, especially if you talk about these issues in terms of sound bites, which is the way they usually hear about our projects. You hear things like, “This is going to destroy the environment. It is going to cause asthma in 1,200 children in your community and so forth.” We have to find different and better ways of talking about our projects that strike the same chords for safety and economic development and quality of life. We have to be able to get smart and talk in their language and ensure it is not too complicated.

There is also increased public awareness of the permitting process and that an environmental review can be a way to stop projects. We got comments on a small project in western Wisconsin from a group of students in New Jersey. They sent us letters about this project in Wisconsin—evidence of the wide use of the Internet. They heard about what we were doing: “rape and pillage by the DOT out in western Wisconsin.” We responded to that group and I hope we persuaded them that what we were doing was not as bad as they had been led to believe.

Finally, some organizations base their fund raising on stopping projects. Although I do not think that is something we can get around, I do think we can undermine their constituency and communicate and explain to the public, who are the dues-paying members of these larger organizations, to gain their support and credibility for our project.

I want to talk about one solution that has come up with which many of you may be familiar. In the Transportation Equity Act for the 21st Century, there is a section on environmental streamlining. If you recall the handout in your conference package, it summarizes U.S. DOT actions on recommendations made by the National Commission on Intermodal Transportation. U.S. DOT takes credit for streamlining the verbiage that is put into the report. That is not quite the way it happened, although U.S. DOT was called over to the Senate and asked who put in the streamlining proposal. Many of us, and probably some of you in this room, were actively involved in getting that legislation passed. Of course, it was watered down a great deal and had a lot of weasel words put into it that perhaps would allow it to not be as rigorously enforced as one might have hoped. It started off applying to all surface transportation; now, it applies only to highways and mass transit. Nonetheless, it was a start, so I cannot say we were too unhappy with that.

The major elements include a coordinated environmental review process to be developed by DOT. That means the agencies have to cooperate and their degree of willingness to see rapid review is sometimes a little different from ours. They recognize they are supposed to be conducting reviews concurrently, if they are able—again I mention those “weasel words.” Reviews are completed within a cooperatively determined time period. At the federal level, they have decided this should be done locally through local contracts because it is too difficult to decide how long, on a national level, it ought to take.

It also includes a dispute resolution process, which, according to the legislation, is supposed to involve the U.S. DOT Secretary and offer some very short time lines for turnaround. The secretary would then be able to resolve these issues. FHWA has asked the U.S. Institute of Environmental Conflict Resolution to help them develop the conflict resolution process. I think we will see some good ideas come out of that, although I have talked to many FHWA employees who said it will never go to the secretary. We will have to wait and see.

There is also funding for resource agencies by the state DOT. This was one of the elements the environmental resource agencies were excited about and thought was a good thing. It was, in fact, the first thing on the action plan the federal agencies put together for guidance for the states—how we could transfer our funds over to them. If we do it in those cases in which we can get an expedited review, it will be worth our money. We are
onboard with that if we can get commitments to a faster and speedier review time.

The seven federal agencies—U.S. DOT, U.S. Department of the Interior, U.S. Army Corps of Engineers, EPA, U.S. Department of Commerce, U.S. Department of Agriculture, and the Advisory Council for Historic Preservation, which slows up a lot of historic projects for highways—signed a memorandum of agreement saying they would work together and encourage streamlining, good general principles. Then there is the Environmental Streamlining Action Plan that FHWA and the Federal Transit Administration have developed and posted on their website. I encourage you to look at that. The first draft did not even mention reducing time for concurrent reviews; however, the second draft does. They continue to work on it and have changed the format; I think it got better over time.

States have been invited to participate in regional and environmental summits that have been set up primarily by EPA with FHWA as a cosponsor. They have been meeting in a number of places to talk about how we can work together and streamline. In some parts of the country, it has been successful. In other parts of the country, the states have said “No. We would rather do it on our own.” For example, in Florida, they have said they are going to completely revise their environmental process and they are going to take about 5 years or whatever is necessary to do that. They have been meeting with all the federal agencies and they have thrown out their old process. They are starting anew. They are asking, “What is it in your rules that you really have to do?” Perhaps they will come up with something that will benefit the rest of us, although they have never said they are doing this for the country; they are doing it for Florida.

There are also going to be three streamlining discussion sessions sponsored by FHWA, with AASHTO, EPA, and the environmental groups also involved. They are going to bring in some congressional people as well and have about a half dozen people from state DOTs and the federal agencies and environmental groups that are going to talk about the barriers to streamlining. It will be cross-educational, the intent being to explain to the rest of us why the federal agencies really are having trouble doing some of these things. It will give us a forum to say why it is important and needs to be done and to impress on the congressional types the importance of the outcome. If we do not get streamlining in our environmental processes, we will not have the projects, and we will not be meeting any of the needs we have been talking about to enable us to do things faster and better.

What are the potential outcomes of all this? I do not think we are going to have a new process, but we will have relationship building and there definitely will be joint training. There will be improved processes and best practices. There is an effort funded by AASHTO that looks at 50 best practices. There is going to be a real exchange of information on environmental best practices so that we can learn from Florida and others who are doing things well and pick up those practices without inventing them ourselves. We will have time lines at the project level, which is something we have already been doing, as well as project contracts among the various partners, which are also fairly common.

How will this affect those who are not from a state DOT? I think state DOTs can play a much larger role in partnerships, in projects like the Alameda Corridor and the portway in New Jersey. There also may be more large port development projects that could benefit from state DOT involvement. In addition, as regulatory agencies improve their response time to state DOTs, they will improve their response time to all their customers. We will begin to see overall improvements.

I want to focus for a moment on partnerships. We are at the beginning of a new era where we can really take advantage of a DOT partnership with the ports. We have not always worked that well together in the past and we can do a lot better. I want to mention some of the reasons I think we can do it:

• We are involved in a process that Congress expects to see become more efficient. Congress is going to be watching how our environmental process works and hopefully it will have spin-offs to other parts of the transportation development process.
• We have experience with a large number of complex projects and could be good partners for you. You know things and we know things. We each have relationships with our federal counterparts in the regulatory agencies and the state regulatory agencies.
• We have extensive experience with programmatic agreements or memorandums of agreement. For example, programmatic agreements cover things like endangered species. If you run into a certain type of endangered species, often we have a way of handling that particular incident. This could help you get through a number of routine things instead of the whole Section 7 coordination on endangered species.
• We have wetland mitigation banks. If you are involved in a project with us and we can put it under the rubric of public benefit, I think you can use our wetland mitigation banks.
• We have a history of working with the public and we are getting better at it. We know, based on past mistakes, how to get in early in a project, bring people in, talk to them all the way through the project, keep no secrets, be out there first telling the bad news, take credit for the good news, and try to explain the project in simple terms.
• Finally, working together we will have a lot of synergy and turn out better projects than we would otherwise.
Where do we go from here? I think there is going to be a need for more legislation. Congress is going to have to make it clear to the other regulatory agencies that there is a need for change. There will be other kinds of regulation along the streamlining avenue. We will continue to work on the concurrent review process and conflict resolution. Hopefully, we can send some of these projects up through that conflict resolution process, test it out, and see what happens. A number of us have projects sitting around that have not gone anywhere for 2 or 3 years that we would like to see moved into that process. We are willing to focus on intermodal solutions in partnerships. Together we can build better projects and protect the environment. Thank you.

DREDGING ISSUES

Thomas Wakeman III

The environmental issues we are talking about are really value-based decisions that require careful consideration of the tradeoffs, particularly with respect to large infrastructure projects. I appreciate the things that Carol Cutshall has presented, and I am glad to hear that we are looking at dispute resolution techniques for going through what I consider our rather antiquated decision-making processes for dealing with environmental issues. Too often these issues are considered after a project has been designed and construction is ready to begin. Environmental issues as well as community and financial issues must be considered during the design process to avoid schedule delays and cost overruns and to optimize project benefits.

Back in 1970, I joined the U.S. Army Corps of Engineers as probably their only marine biologist. I was assigned to the San Francisco District because they expected that forthcoming federal regulations (the Federal Water Pollution Control Act Amendments of 1972 or Clean Water Act) would focus new attention on coastal regulatory issues and pollution in San Francisco Bay. I guess they thought a biologist might be helpful. The water legislation and other federal legislation, such as the National Environmental Policy Act and Clean Air Act, used strict command and control protocols with the EPA acting as a watchdog and their attorneys exercising oversight. At that time, it was probably appropriate to have lawyers guarding the environment, because the U.S. Army Corps of Engineers and industry in general did lots of construction projects without considering their environmental impacts or consequences.

Project engineering was very straightforward back in the 1950s, 1960s, and early 1970s. You drew your drawings, secured your financing, got your permits, did your construction, and then, after the fact, evaluated the environmental or community tradeoffs—if you considered them at all. Today, the environmental, social, and financial tradeoffs are before us before we enter into a project, and they have to be dealt with up front because the public demands it. The analysis occurs during the project’s preapplication meeting, where in the regulatory world the project is evaluated by federal and state agencies before it reaches the Public Notice stage. Resource and regulatory agency input is provided to project designers to help them avoid or minimize adverse water and air quality impacts. There are several new environmental concerns to consider including essential fish habitat, environmental justice, and induced development. For example, induced development potentially stemming from infrastructure and transportation projects is not a trivial matter—it is an issue in which courts are now finding on the side of the plaintiff. The environmental community is much more savvy than it was earlier; it has many more laws it can draw upon, whether they are federal, state, or even local public opinion. Unfortunately, I think a lot of suboptimum solutions are being chosen because they are the easy ones you can get through the system. Many project decisions are driven by public perception, which has little to do with good technology, science, or engineering. It has mainly to do with who has the best public presence and how good their sound bites are. To get optimal decisions, we have to balance the issues including addressing the environmental risks and the potential benefits. To illustrate this issue of balancing risks and benefits, I will talk about the dredging and dredged material disposal situation in New York Harbor.

For a long time, the environmental situation in New York Harbor was quiet because people did not appear to be concerned with the dredging and disposal of harbor sediments. Most people accepted that the harbor’s water was contaminated and had been that way for centuries. Some controls to stem pollution began as early as the 17th century with collection of wastewater in New York City. However, it was not until 1886 that the first wastewater treatment plant was constructed. By the mid-1960s, the harbor’s environment was significantly degraded. By 1972, the estuary was receiving nearly 2 million m$^3$ of raw sewage per day. Since the mid-1970s, pressure from the courts and the regulatory agencies has resulted in public and private investments in municipal and industrial water pollution controls and significant improvements in water quality. In fact, the water in the harbor complex was cleaner than it had been in six decades. There is no longer floating waste or odors of sewage. The sediment contaminant levels also declined as the largest generators of wastes were regulated. However, there is a large reservoir of contaminated sediment in the harbor, and the riverine flows annually discharge new contaminated sediments. The problem of disposing of contaminated sediments
from navigation channel dredging has threatened to close the harbor.

The port of New York and New Jersey has been a working harbor for over 300 years. It depends on dredging to maintain navigation. The mean depth of the harbor is naturally only about 18 ft. To compete in today’s maritime industry, the port requires a minimum of 45 ft and tomorrow will need 50 ft to service the mega container ships. The harbor is fed freshwater through a fairly large watershed having four principal rivers: the Hudson, Raritan, Passaic, and Hackensack rivers. It has an even larger airshed, which is influenced by power and industrial plant discharges in the Midwest. We get between 2 and 3 million yd$^3$ of sediment a year. Most of it comes into the harbor during the winter rainfall period in the upper watershed and then during snowmelt runoff in spring. Maximum sedimentation occurs when the fresh water comes downstream and hits the salt water, and a combination of electrochemical properties and turbulence causes the sediments to flocculate and drop. Other things can enter the estuary during the wet season, including contaminants. Contaminants can be washed into the rivers and estuary from waterfront properties, surface streets, point sources, and cloud washout during precipitation.

For centuries, the overall dredging process has been that you first excavate, then transport, and finally dispose of the dredged material. With respect to the dredging itself, there are three types: navigational maintenance, new work, and environmental. Most of the time, maintenance activities follow construction of a new navigation channel or basin where fresh sediments can deposit. New construction can be for channels, coastal structures, or terminals and facilities. Environmental dredging is the excavation of contaminated sediments or hot spots. Hot spots often develop over long periods at the end of industrial or municipal discharge pipes or from maritime or waterfront spills. In contaminated harbors, such as New York, when you do maintenance dredging you also have to consider doing environmental dredging of the contaminated off-channel shoals. Otherwise, these areas will just continue to feed the channels sediment and maintenance material continues to be contaminated.

Two types of dredging equipment are used to conduct these activities in New York. In open water and near coastal areas, hopper dredges are typically used and work like an oceangoing vacuum cleaner. They have two pipes or drag arms that pull up the sediment, pump it into a central bin, and then cruise off to the disposal site. They are very useful in areas with high vessel traffic because they are mobile. Next to a berth or in a restricted waterway, we generally use a mechanical dredge of one nature or another. For example, there are bucket and backhoe types of mechanical plant, and selection depends on the nature of the material to be dug. This equipment is used for removing soft clay, silts, sand, and rock. The material is transported to a disposal site in scows. Disposal is the final step. Historically, most dredged material has been taken out and dumped in open water locations in a river, bay, or ocean. The cost has ranged anywhere from $0.25 per yd$^3$ in the Mississippi to $3.00 per yd$^3$ in the San Francisco Bay. Disposal at the mud dump site in the New York Bight averaged about $2.75 per yd$^3$ in the early 1990s. Over the years, in all areas of the country, the restrictions on disposal sites have grown because of environmental and community pressures. As the demand for dredging increases as harbors expand, new disposal sites will have to be found and, I might add, finding new disposal sites is not easy.

Since the 1800s, the New York Bight and surrounding area have been used for disposal of dredged materials and a variety of wastes including garbage, sewage sludge, and industrial wastes from the metropolitan region. Since 1973, dredged sediments have been ocean-discharged almost exclusively at the mud dump site, which was located about 6 mi off the New Jersey Coast. In 1992, EPA and the U.S. Army Corps of Engineers implemented new sediment testing procedures and most of the harbor’s dredged material was deemed too contaminated for ocean disposal. The limited capacity of the ocean disposal site and public concerns about fish contamination led the federal government to close the site in September 1997 and to open a new site called the historic area remediation site (HARS). This site encompasses the former mud dump site and some other waste disposal sites that were used earlier. Sediments deemed suitable are used to remediate the site by capping the contaminated sediments.

HARS is limited only to the cleanest material or about 15 percent of what historically had been allowed to go to the ocean. So, what are we going to do with the rest of it? We have now determined it is too toxic to be put 6 mi off the coast, so where can it go? If we want it to come on land then we have to convince people we can put it in their backyard without risk. So, we said this is not going to fly and we stopped and rethought the whole thing. As a waste, no one wanted it, but if it were seen as a resource and used as a resource, we could probably find locations for it. For years, the least-cost environmentally acceptable option was the preferred disposal alternative for the U.S. Army Corps of Engineers, the port, and industry. To find something productive to do with the material instead of just dumping it was limited to several special circumstances, such as habitat construction or beach nourishment. Under this technique, called beneficial uses, the U.S. Army Corps of Engineers would consider another option if they could do it within the cost range of the open water discharge or if the local sponsor was willing to pay the difference for the beneficial use project.
Our first opportunity to find an alternative to the ocean was for a redeveloped marine terminal on Staten Island in 1995. It was a container terminal and needed to be dredged to remove about 120,000 yd$^3$. The mud could not be placed in New York, so the port authority contracted with a firm in Connecticut who said they would take it. But when the attorney general of Connecticut figured out that the sediment was unsuitable for New York, he said it was not going to Connecticut. We then characterized the terminal's material as a recyclable for land filling. We got a letter from the governor of Utah saying that he would take it. It was sent to Utah at $118 per yd$^3$. Afterward we decided we were not going to do that anymore. Not only do you send the mud away, you send all your money too.

A different approach was to consider waterfront revitalization projects, which allows us to address both brownfield land use and contaminated sediment problems. We worked with a very aggressive Danish entrepreneur who was used to reclaiming landfills and brownfields in Europe. It took him 14 months to get his permit, and he established the fact that upland beneficial uses of our dredged material could be done. The project, construction of a $400 million mall complex, turned a former municipal landfill in Elizabeth, New Jersey, into revenue-producing property. Since 1996, there has been a growth in the use of dredged material in waterfront brownfield redevelopment projects as fast land, site caps, and manufactured soil. Several developers have suggested various methods for beneficially using dredged material within the metropolitan region. One of the many concerns of real estate and private property developers is the expense of obtaining fill to bring project sites to grade, with the cost of fill ranging from about $4 to $20 per yd$^3$. They thought clean or marginally contaminated dredged material could be used to finish grade and landscaping of brownfields. Since then, materials from several harbor projects have been beneficially used at upland sites in New Jersey.

Another potentially beneficial use is restoration of mines in Pennsylvania. Dredged material is used to stop acid mine drainage by mixing it with ash or cement to form a grout that cuts down the infiltration of rainwater. The dredged material fill also reduces the fall hazard from the high walls rimming these mines. There is more than 1 billion yd$^3$ of capacity in Pennsylvania that could benefit environmentally from being remediated with dredged material. To check this process, a demonstration project is under way to investigate the results from the placement of 500,000 yd$^3$ of New York–New Jersey material. The port authority is scheduled to send about 200,000 yd$^3$ there next month.

Studies of decontamination of harbor sediments were initiated under the Water Resources Development Act (WRDA) of 1992 and 1996. The purpose of the legislation was to develop and construct a large-scale decontamination facility as part of a long-term solution to the region's dredged material handling problems. The objective of decontamination is to treat sediments to render them safe for productive or beneficial uses. Decontamination technologies utilize various processes to reduce, separate, immobilize, or detoxify contaminants. Dredged material treatment technologies fall into one of two basic categories: nonthermal and thermal technologies. Nonthermal technologies attempt to stabilize the contaminants to reduce mobility, exposure, and risk. Thermal technologies serve to destroy the contaminants. The WRDA project includes bench- and pilot-scale demonstrations of nonthermal and thermal approaches, toxicity identification evaluations, and public outreach. The costs of these decontamination processes vary but ranged from around $60 to $300 per yd$^3$. About $20 million has been spent on this project so far. We are talking about spending some more money, but as I said earlier, I do not believe this is a proper approach because if you do not have a place to put it when you finish decontaminating it, you are stuck with a big pile of mud.

The traditional approach of open water disposal of contaminated sediments does not meet the environmental goal of protecting aquatic health or the economic goal of materials recycling and beneficial use. Application of decontamination technologies followed by sediment disposal does not answer the challenge either. In fact, spending money to clean up sediments without systematically determining a productive end use for the processed material is itself wasteful. The Europeans have known for years that dredged material can have significant value if properly applied in a beneficial manner. Developing the right engineering, economic, environmental, and political conditions is needed to increase the percentage of dredged material used in a productive manner. With respect to considering these factors, implementing sediment-recycling demands an acceptable framework to guide characterization and treatment in order to render it suitable for a specific end use. The lack of a systematic means to guide decision making has limited the potential beneficial and product use applications of dredged material in this country.

We have proposed a process in the port authority that says you first characterize your material for its physical, chemical, and geotechnical properties. Then you look for a productive end use, and you select a treatment process that allows you to get a dredged material product that you can use. You have to choose to analyze and balance your needs, both dredging and beneficial use, and the costs of using an alternative strategy to disposal. It is a two-step process. You look at what resources you have and then you engineer your product to meet your needs. There are a variety of different types of dredged material—everything from sand, silt, and clays. As I said, there have
been some beneficial uses of dredged material but most of these were done when they were only slightly more expensive than the traditional ocean or aquatic disposal site, or they were on lands that were already available. So to do something productive, you have to look at your types of materials. It is very easy to find productive uses for sand, gravel, and rock. It is like the recycling business for office and household wastes.

I think this is really about our creating quality of life, and I think it is about how we determine what quality of life we want to have. This is not as much about dredging as it is about changing our whole attitude toward project design. Transportation infrastructure projects, including dredging and dredged materials handling, have the potential to provide not only transportation services but also environmental and community benefits. More than anything else, we should be thinking about ways to change from just minimizing environmental impacts to ways to find win-win opportunities, such as by changing dredged sediments into recyclables, creating productive uses, and generating new revenue streams. It has to be completely rethought, reengineered, and resold.

We expect to get certain returns out of our intermodal transportation projects, out of freight movement, out of commerce, and out of our economy. There are clearly benefits that our children and grandchildren are going to get. But they will also want to have the ability to go out and actually stand by the water in the harbor, to eat the fish, to swim, and to enjoy things like that. I can understand that. We are anticipating that the demand for cargo moving through our port will quadruple by 2040. I have to say I have mixed feelings about it some days, because I know there is no free lunch and there are going to be tradeoffs for constructing a 21st century port at New York Harbor, including new 50-ft channels, terminals, intermodal connections, and more traffic. How do we do what is best so it is really a balanced national and regional benefit?

There have to be ways we can meet both economic and environment desires in our democratic society. Part of the answer is by doing it in an organized political fashion that develops a balanced sensible public policy around transportation infrastructure development. Right now I think awareness about the complexity of these issues and their need for attention is way down the list for most congressional members, state legislators, and political leaders. In fact, most elected officials do not want to hear about finding win-win solutions because they might have to pay more for it. They do not want to hear about greater cargo demands and more traffic through their town because they might not get public support and reelected. However, if we do not look for a long-term, balanced way of dealing with these overlapping and sometimes conflicting issues, we are going to continue to have suboptimal decisions for our environment, economy, and community. Thank you.
I want to discuss how important intermodal service reliability is in my company. We are an intermodal marketing company. Our annual sales are about $1.3 billion, of which about 75 percent is intermodal—we do about $800 million in intermodal. The balance is logistics and truck brokerage. Intermodal is growing a little slower than our logistics business, but it is still the lion’s share of our business. We are absolutely tied into service reliability. We have four rail partners to whom we pay over $100 million and our total rail bill is about $650 million, which puts us in some fairly rarefied air from a freight bill perspective. For us, service reliability is absolutely critical.

Whenever anybody thinks about intermodal service reliability, they may automatically go to the recent mergers. In the Union Pacific/Southern Pacific (UP/SP) situation, they completely took over a railroad. In the Conrail split, the railroad was carved up—something that is without precedent. The only comparable transaction of that size is perhaps the breakup of the phone company—to this day I cannot tell you who my long distance provider is because it changes about every 3 weeks.

The UP inherited a very deteriorated physical plant with the SP. One industry expert remarked that “SP was a great franchise, but it was a handyman special” and that pretty much summed it up. On the other hand, with the Conrail split, the property was in excellent condition—the locomotives were in pretty good shape and it was capable of being operated.

In the UP/SP consolidation, information technology was not a major concern or, if it was, we did not hear about it. The Conrail split occurred on June 1, 1999. June is the best time to split up a railroad up, because that is traditionally the slowest track period of the year. It gives you about 3 months before peak to get your act together. Unfortunately, they did it in 1999 and information technology resources were relatively scarce in 1999. Whereas they picked the right month, the year may have been unfortunate and there were some technological issues that affected the service.

In the UP/SP consolidation, the intermodal trouble spots were largely isolated to Los Angeles and Houston. In the Conrail split, the intermodal trouble spots moved...
around. CSX had several issues at Toledo and some issues in Cleveland. Norfolk Southern (NS) had car problems in the East and CSX had car problems in the Midwest. It was kind of a moving target and if you cannot isolate your problems or if they keep moving around, it is very difficult to solve them. Although UP was perhaps criticized for exaggerating the schedule on which they would be fixed, they did know how to fix it. When they got Los Angeles and Houston repaired, it spread to the rest of the network. What this tells us is that service failures are not created equally.

The probability of a service failure depends largely on where it occurs. We have statistics on this and we have spent a lot of money to determine root causes of failures. If you have a terminal departure delay, if it is an hour or two, it is probably not a big deal. However, in most cases, intermodal trains operate one train per day from one origin to one destination. This is not the case in Chicago, Los Angeles, or other high-density lanes, but in roughly 95 percent of the intermodal lanes there is only one train. That means if you run out of cars, you depart 24 hours late. A line or road delay can be moderate or low. Data indicate you can be really late in Clovis, New Mexico, and still get to Los Angeles on time on the Burlington Northern Santa Fe (BNSF). For some reason, they can make up a whole lot of time. Data also indicate that when you go from Los Angeles to Chicago and you are late at Kansas City, bad things will happen to you. Those are the chances and they do vary.

A terminal arrival delay may or may not be a problem. Most intermodal trains depart at night and they arrive in the morning. If you have a 12:00 a.m. availability and you are 2 hours late, it probably does not make a whole lot of difference for your 8:00 a.m. appointment. We do a fair amount of recovery that way.

Our data indicate that the biggest problem we have with service failures is getting the trains out on time. If the train leaves on time, generally it is fairly reliable. In a single train lane, if it does not make that train, it is never going to make up the time. This is what you want to look at as a root cause of service reliability failures.

In the intermodal game, the train performance statistics really do not mean much. We are currently delivering 95 percent on time for our largest customer in lanes where the trains are running 40 percent. There is a whole lot of recovery that goes on and a whole lot of stress. The train performance is very bad in a lot of lanes. There is some recovery that occurs in the rail terminals if they have some slack in the schedules—that 12:00 midnight arrival with the 8:00 a.m. or 6:00 a.m. availability. There is some make-up there. We are also able to recover with our drayage. If we are sitting trackside and we have 2.5 hours to make the appointment and the availability is 1.5 hour before, we can stand a half hour and we can recover it. There are various methods of recovery.

Some of our customers would absolutely be shocked if they knew what the train reliability was in some lanes and that is where the hard work comes in. My company’s head count is growing at about twice the rate of our revenue growth and it is simply rework and service recovery. We have gone from 700 employees 5 years ago to 1,400, and it is all backroom costs because of this situation. However, it is not all bad. There are encouraging signs that the service is recovering.

In order not to embarrass anyone or anything, I will illustrate with an average of average of averages. Using a straight line to signify on-time performance, we can array numbers to indicate the variance from on time—how much they are late. This includes several hundred thousand transactions with our five largest intermodal operators: NS, CSX, UP, BNSF, and Pacer Stack Train. In January 1999, we were 20 hours off—almost a full day on every shipment. We know some of them were making it on time, so some of them were in pretty bad shape.

We people in Chicago tend to be somewhat narcissistic about intermodal, thinking the whole world revolves around us. Frankly, I guess it does from an intermodal perspective because if Chicago gets messed up, the whole country is messed up. For example, we had 21 in. of snow on the ground on January 3, 1999. That messed us up for the whole month. There was some service recovery by March—3 hours—then it started to creep. In June we had the Conrail split. As a result, our numbers started going up and we were getting delays and we were getting distress shipments, a lot of loads were left on the ground, and so forth. When we hit 23, it had spread to the western railroads. The cars got all out of cycle, the equipment got out of cycle. It became clear we were definitely within an intermodal network. This January, we have seen significant improvement and the first 2 weeks of February were even better than January, with indications we have definitely turned the corner in the East.

In recent discussions with representatives of NS, I learned they are making some unprecedented investments in additional capacity. They are implementing train operations with some western connections that are designed to improve the fluidity of their network. I believe they are on the right track. Similarly, CSX is making progress. CSX faces a somewhat different issue because they are assimilating 450,000 loads into their network. In the West, UP is running their intermodal trains more reliably than they ever have. BNSF is plus 90 percent.

I believe that as time goes on, with a mild winter like we have had, we can expect some significant service improvements this year. The true test is going to come in March when the business levels get high. If we get through that, the indications are good that we will be able to get through September and October, barring any major weather events. Thank you very much.
BULK SHIPPING REQUIREMENTS

Tim Burrack

Tim Burrack farms near Arlington in Fayette County, Iowa, raising corn and soybeans. He has been farming for 26 years with his brother Jim. Burrack is past president of the Iowa Corn Growers Association and is a board member of the National Corn Growers Association. Burrack has been very active in Mississippi River lock improvements and has traveled to South America to research inland waterway infrastructure developments.

As Ed mentioned in his introduction, I am a bona fide farmer. I derive 100 percent of my income from growing corn and soybeans in northeastern Iowa. I live 40 mi from the Mississippi River. I am here today because several years ago I experienced what we call “river meltdown” and it was not due to the ice going out. It was due to transportation problems and it cost me about $100,000. It was then I began to realize the river is something I used to take for granted. I offer an analogy to the electric light bulb—when you turn on the electricity and the light comes on, you do not think a thing of it. It is when you turn the switch on and the light does not come on that you realize something is wrong.

After I reached in my empty pocket that year and realized there was no income because I had been unable to ship on the river, I became very active and interested in finding a way to fix what was wrong. That is why today I am going to talk in part about the Mississippi River, a transportation system that is vital to my livelihood.

We are talking about modal service reliability, being able to get shipments to markets. For my products, we are talking about a river transportation infrastructure that is 60 years old and that was built for 600-ft barges. Today, barges are 1,200 ft long and it takes at least an hour and a half, sometimes up to several days when transportation is heavy, to get a barge through a lock system. When barge operators say they charge $400 to $500 an hour for that towboat, whether it is moving or not moving, that cost eventually comes back to me as a farmer and a producer in Iowa. I pay the final bill. The closest railroad to me is 50 mi, so that is not an alternative for me. Plus, when you are talking about moving grain to the Gulf and the efficiencies of moving it down there, it is still cheaper to move bulk commodities by water.

I also want to talk about foreign competition and what they are doing in South America. I was not quite sure the topic would be applicable to this session; however, after sitting in on a previous session and hearing three of the four panelists talk about rail developments in South America, specifically in Brazil, I realized I was right on track.

Last winter I had the privilege to go down to South America with a farm magazine called Top Producer. The editor was going down there to have the first U.S. interview with the world’s largest farmer, the number one grower of soybeans. She wanted two U.S. farmers to go with her to better understand and interpret what she heard and saw. We started in the state of Mato Grosso, heading to the center of the continent, an area they refer to as the “new frontier.” This is land they have cleared and have just begun to settle over the past 10 years. We traveled along the Madeira River and then on the Amazon River. The area of the state of Mato Grosso is equivalent to the area of Iowa, Minnesota, Illinois, Missouri, and Nebraska; it is a huge state covering a large area.

What is taking place down there is going to change the way American agriculture does business in the 21st century. For example, in 1993, the town of Sapazel was a soybean field. A large family who had bought roughly 200,000 acres down there in the mid-1980s decided they could increase the value of their farmland and their business if they built their own town. Today, it has a population of 7,000 people, it has three soybean processing plants, and it is continuing to grow.

A 43-year-old fellow by the name of Blairo Maggi lives there and he is the world’s largest farmer. He grows 150,000 acres of soybeans. He owns 400,000 acres, one part of which is a 60,000-acre soybean field. I do not know if there are any farmers in this audience or anyone who knows much about agriculture, but I can tell you a 60,000-acre field is extremely large anywhere in the world, even in Brazil. I had never seen anything like it. I stood out in that field and for 360 degrees, no matter how far I looked, there was nothing but soybeans for miles. This farmer in Brazil is going to change the way American farmers do business, and that is the message I want to get across.

How is he going to do that? By exploiting the Amazon River. As I mentioned earlier, I live 40 mi from the Mississippi River and that is where a lot of my grain goes. When the river works, I have a market. When the river does not work, I do not have a market. I thought I knew what a big river was. When I got up the first morning at Manaus on the Amazon River, it was foggy, but as that fog cleared and I started looking at that river I suddenly realized I had no concept of what a big river was. At one point, it is 7 mi wide and 130 ft deep. The Amazon is 13 times bigger than the Mississippi. Each of its three tributaries carries more water than the Mississippi. In 1991, this Brazilian farmer, Blairo Maggi, was in Finland buying electric generators. He and his chief marine engineer saw an icebreaker over there. He got to thinking that they could take the design and the prop and adapt it for commercial navigation on the Amazon.
Up to this point, there was one primary reason there had never been any large-scale commercial navigation on the Amazon. The reason is logs coming out of the rain-forest and out of the Andes Mountains. These logs are 4 and 5 ft in diameter and would sink any type of large vessel if they got in the propellers. Everyone thought it would be impossible to commercially navigate the Amazon and its tributaries. The main tributary of most interest was the Madeira River. Madeira in Portuguese means wood; it is called the Wood River because of the big logs coming down it.

After Maggi came back from Finland, he built a small prototype and found that the ice-breaker design worked. The logs rolled off the bow and did not get into the propellers. Maggi decided to build his own transportation company. He put up $60 million of his own money and he borrowed $40 million from the state of Amazonas. He now has 350 people building barges and line boats in Manaus on the Amazon River.

The design is the secret to his success. This is the design that is going to change U.S. agriculture, but it is being done down in the Amazon. That design—and I was fortunate they had the boat in drydock and were just trying to pull it back into the river while we were standing there and I was able to take a picture of it—has a recessed prop, drops vertically, and rotates 360 degrees. They found out the system works.

He had 30 barges built when we were there. They cost $1.6 million a piece. A line boat costs $6 million and two had recently been built. The barges draft 15 ft and hold 75,000 bushels—that is 50 percent larger than what we use on the upper Mississippi. On the upper Mississippi, the U.S. Army Corps of Engineers maintains a 9 ft channel; therefore we can draft only 9 ft.

Down there they naturally draft 15 ft—when you have 100 ft of water, you can draft just about anything you want.

He has constructed a site and has a technology for unloading these barges, which includes a conveyor system that unloads it. The United States, we do not have any similar technology. It is a large arm that swings over, drops in, and has an auger-type vacuum that enables them to unload a barge in 65 minutes—75,000 bushels. I found that pretty hard to believe, but they had no reason to lie to me. The point is they have tremendous new efficiencies, new technology.

They unload the barges and load the Panamax vessels at the town of Porto Velho. This is the equivalent of setting up at Minneapolis—St. Paul versus the mouth of the Mississippi River. This is about 1,700 mi inland from the mouth of the Amazon on the Madeira River. At this point, it is still 30 ft (9 m) deep and it is still carrying more water than the Mississippi River. This is where those barges were loaded last year. This year, he is going into Bolivia and he is developing waterway infrastructure there and bringing it even farther. This river is unique and Maggi had another story about it. Recalling the prop design, he built a boat that is driven back and forth in an effort to find the deepest point in the channel. There are a lot of snags and sand bars even though there is a lot of water. He sounds it, and he did one other thing that I found unique—he used our Global Positioning System (GPS) defense satellites, which I use on my farm to find location. He uses that to make a computerized location map so when he puts nine barges together with one of those tow boats, he puts that generated computer map in the control of the line boat and for the next 48 hours, once they take off, they can go full speed without an operator ever touching the controls or the direction of the boat. They move 700 mi down the river to the Amazon where they unload those barges, using our GPS defense satellites. By the way, he did say thank you to us for those satellites.

He loads the barges, he runs them down to Mato Grosso, and then he loads the Panamax vessel and out they go. This means going 700 to 800 mi up the Amazon with a Panamax vessel that can hold 2.2 million bushels. In the United States, we can bring a Panamax vessel only about 120 mi up the Mississippi River. He can come up 700 to 800 mi. The efficiencies and the economics of scale that he gets are fantastic. This type of infrastructure development has all taken place in the past 2 years. Maggi used to truck his beans down and load them on a Panamax vessel for export to Europe and other markets. The ability to load them on the vessel inland now cuts as much as 8 days off a roundtrip to Europe.

Why is this going to change U.S. agriculture? As Maggi pointed out, he figured out how to develop this river and make the waterway work. No one thought it could be done; he did it. In 1997 he moved 350,000 tons of soybeans; in 1998 he moved 500,000 tons of soybeans; in 1999 he will move close to 1 million tons; and by the year 2002, he will be moving 2 million tons of soybeans out per year. That is the capacity of this facility and he will have paid for and gotten back his $100 million investment. Now he is asking whether he should build another one, because he has proven this waterway system works.

Right now Maggi is trucking the beans from Sapazel, the new town I mentioned earlier—it is 600 mi by truck from there to where it gets loaded on a vessel. He sees more waterways with the potential to be developed for commercial navigation because of technology he has already proved works. In a previous session, I also learned there are railroad developments in this area.

The point is, in this state, they are farming only 10 percent of the available land. There are 75 million acres of
land called the cerrado, which is not rainforest but a good soil type they know can be well farmed. There are 75 million acres yet to be cleared and farmed. Surrounding this state are another 75 million acres of land, for an equivalent of 150,000 acres. You put those two together, and it is equivalent to what we grow in the United States each year in corn and soybeans—150,000 acres. They have that much available land that can now be developed because they are building infrastructure. Up to this point, they have never farmed it because the commodities were not worth enough to pay the price of trucking the grain to the coast to get it to market. Now that they are developing infrastructure, the whole continent of South America is going to change. All that land can be farmed.

I do not know if anyone remembers an old saying by Will Rogers: “Buy land—they aren’t making it anymore.” Ladies and gentlemen, I think Will Rogers was wrong. They can make it, at 100 acres a day, with two caterpillars and an anchor chain. This has serious implications for U.S. agriculture in the 21st century. Maggi’s cost of production on 150,000 acres of soybeans is $3.29 a bushel. My cost is $5.40 a bushel. His yield is 51. My yield is 54. He has just as good, if not better, genetics than I do and he is developing it himself. I am not the low-cost supplier in the world. He is. The United States has enjoyed its preeminence in world export markets because of the Mississippi River, our railroads, and our highways. Our infrastructure has allowed us to deliver large quantities extremely cheaply. That has been our secret for the past 40 years.

The secret is out. Maggi came up here and before he ever decided to invest the first penny of his $60 million, he went up and down the Mississippi River. He looked at our locks and dams and saw what they do for the center of North America and what that means for economic development. Once he knew his technology worked, he had the inspiration to go back to Brazil and make his own system. He is a genius and he is only 43 years old. He wants to transform the center of this continent and here is the reason—he wants to capture our world markets. He wants the markets we already have plus those that are expanding through population growth. I asked why he wanted to do that, when he already owns 400,000 acres, is already a multimillionaire, and is going to have his $60 million back by the year 2002. He acknowledged all those things were true; however, he also pointed out that as you travel around Brazil, you see millions of poor people, living in shacks made of tin, cardboard, or whatever material can be found. He thinks if he can capture the expanding world markets, he can clear more land in this area of the continent, and then employ more people. If he can employ more people, he can raise the standard of living in his nation.

In the United States, we do business because we have a profit incentive on an individual basis or a company basis. Down there, profit is his secondary goal. His primary goal is to raise the standard of living of the people of his country. That is a major difference and also a sobering and perhaps scary point. We are up against a nationalistic, patriotic tendency.

Where does that leave us? Well, let me go back to the Mississippi River. For the past 7 years, we have spent $54 million to do a navigation study to see whether we can justify lengthening locks or building new locks on the Mississippi River and on the Illinois River. In recent weeks, the controversy has reached new heights. We cannot afford this type of controversy anymore. If U.S. agriculture wants to hold even a percentage of the current export market share, that investment needs to be made.

We are talking about $1.5 to $2.0 billion for five locks on the Mississippi River and two on the Illinois River, spread over 20 years. If we started digging and pouring cement today, it would still be the year 2017 before we were done, and that is $2.0 billion spread over that time. Part of that is generated through a $0.20 per gallon user fee on diesel fuel on the river. Put it in perspective—that is one-third of the nuclear aircraft carriers we are building. The United States is building three nuclear submarines at $4.5 billion apiece, or the equivalent of one B-2 bomber. I support all of those. However, we are asking for only up to $2.0 billion over the next 20 years, and it looks like we are in for a protracted political fight. We need those locks. Our infrastructure is our efficiency. Without them, we will not be competitive in world agriculture. That is the message I need to leave with you—it is vital for the next generation of farmers in the United States to have an infrastructure that is competitive.

Today, Brazil is playing catch-up with us. Between what I saw down there and what I heard over here an hour ago, in 10 years the United States will be playing catch-up with Brazil. Thank you.

**Rail Response**

*Lawrence Wetsel*

Before June 1, Norfolk Southern (NS) had a strong presence in the South and fairly good access to the Midwest but no access in the Northeast and the northernmost port served by NS was Norfolk. NS has always been a short-haul railroad. We did not reach the markets we needed to reach and our primary competitor, CSX, has always had a somewhat greater market reach than we had. This geographic and market reality had important implications for the business model that NS pursued historically. Given the new reality, this is changing in certain respects.
From the intermodal perspective, Conrail was basically an east-west railroad. Their interest in the north-south access was seriously lacking, because that was their short haul. We operated some trains north-south with Conrail, but the marketing effort was not there. We had some business but not enough to justify any increase. As a result of the recent sale and breakup of Conrail, NS now has 58 percent of those assets and CSX has 42 percent. The shared asset areas were northern New Jersey and southern New Jersey and the Detroit area. NS now has full access to the Northeast and access to every port on the Atlantic. In addition, most of our line is cleared for high-cubed doublestack service.

In 1999, we were a $5.2 billion revenue company. The year 1999 was an unusual year for us, because 5 months was without Conrail and 7 months was with Conrail. The metal side of our business went up considerably after we took over the Conrail route through the heart of Pennsylvania. We also gained a good portion of the intermodal business of Conrail.

Since the passage of Staggers Act in 1980, the railroad industry has downsized considerably, with 35 percent less track, 32 percent fewer locomotives, 27 percent lower cost, 60 percent fewer employees, but 48 percent more traffic. The change in productivity has been massive. The most important and impressive index is reflected in revenue ton-miles per employee hour. Also since 1980, real freight rates have declined an average of 1.2 percent per year. In inflation adjusted dollars on average, it costs 55 percent less to move freight now than it did in 1981. U.S. producers enjoy the lowest average freight rates per unit of output anywhere in the world.

It would be foolish to expect that market prices will move uniformly on every commodity across every market segment to the same degree. That is not how markets work. Yet, the reality is that, since 1980, virtually every shipper has benefited from deregulation and the rate declines have been substantial in almost every instance. Were you to compare the trajectory in rail rates versus commodity prices on virtually every commodity, rail rates have fallen faster than prices for the product transported, whether that is steam, coal, wheat or bread, or soybeans. For a couple of commodities, like corn, the rates have declined about the same amount. For others, like automobiles, rates have declined substantially while finished products price costs have risen.

With that summary of NS business and the rail renaissance the Staggers Act unleashed in the industry, I now turn to the business model the U.S. railroads in general have pursued since the Staggers Act, perhaps none more successfully over the past 20 years than NS.

Looking at 1980 through 1996 data, railroads did not do a very good job growing revenues. In real dollars, revenues were flat, or even down a bit. Despite all the growth in intermodal and western coal, originated tonnage was up by only 8 percent. The massive success has been in ton-miles. This is a legitimate metric, because it points directly to soaring profitability. Net operations went from $1.9 billion to $6.4 billion, a 234 percent increase. Railroads succeeded by controlling costs. Railroads exited many markets in which rail had little advantage over trucks. We focused on longer hauls, heavier loading, and high volume. We produced new service offerings such as intermodal and end unit trains. In intermodal, the most spectacular offering came in the form of doublestacks. NS has been extremely successful in this environment. Just between 1990 and 1997, our ton-miles increased 25 percent. If you look at ton-miles, we actually jumped 35 percent, reflecting our strong emphasis on intermodal and automotive.

However, now the most obvious savings are behind us, such as moving from the five-person crew to two. We have been successful by reducing costs in the context of an infrastructure that had been significantly over capacity. Thus, additional traffic and very competitive rates could be absorbed because the costs of handling were incremental. That business model is nearing exhaustion.

If you review NS’s capital expenditures over the past 3 years—1997 through 1999—NS has been at close to $1 billion per year. When you consider that before the purchase of Conrail, we were about a $4 billion annual business, you realize what a significant investment that represents. One of the things we are trying to do is get our capacity up for the north-south business, and we are building an additional intermodal facility in Harrisburg, Pennsylvania. This facility will be on the north-south access as opposed to the present facility, which is on the east-west route. We are also building a 450-acre facility in Atlanta, Georgia.

Railroads are heavy, capital intensive businesses. For close to 20 years, because we finally got government “do-gooders” mostly out of the picture, we have been able to grow the business very profitably by reducing costs. Costs are incurred as a function of excessive government regulation. As mentioned, the easy period of that business model has pretty much come to a close. We have seen the year 2000 with a slimmed down infrastructure, which has succeeded almost too well in attracting ever-increasing volumes of traffic. But now, unlike the past 20 years, in order to have that traffic we will need to heavily reinvest in assets, including terminal capacity and equipment and, in some instances, line capacity. This is a new mix.

We have also managed to come to this point with an expectation from our customers that rates are in a perpetual downward glide. It is apparent we cannot continue to build the business under that business model. At NS, we have combined this industry-wide paradigm shift with the challenges posed by the Conrail transaction. In
Again, spikes occurred during the holiday season. Data on box sidings to the point it is now almost negligible. We continue to improve delay due to power, with the greatest spike occurring during the holiday season. Data on the network show that 48-hour cars are not sufficient. We raised or lowered the bar, depending on how you want to look at it. But it is an improvement. We have spent most of our time trying to improve on-time delivery and that can be achieved only through massive reinvestment in plants and equipment.

I have commented on the exhaustion of this business model in the industry overall. At NS, we are so good at everything we do, that was not enough of a challenge for us. We decided to compound our complexity by consuming Conrail. Let me comment briefly on where we are operationally on the merger.

As you all know, the transaction did not go nearly as well as we had hoped. A good number of the problems centered on the information systems, some of which spilled into the labor arena. Some problems were generated by uncertainty until the very last minute, regarding which carrier, NS or CSX, was going to be handling traffic after June 1. It is important to note that this is the only time a rail system has been split into component parts. By nature, railroads are fixed plants involving track and infrastructure, impossible to pick up and move, and very expensive to build. We thought we had planned well before June 1, in part because we had run a huge number of tests.

However, data system problems proved extensive. In our effort to serve customers, we burned up crews, locomotives, and fuel. We sent employees in the field to do work manually that typically is done by computers. From June through September, traffic congestion built up, reaching a peak of 248,000 railcars on line by July 18. Many shippers diverted their traffic to the highways and to other rail carriers. We have come a long way since the worst of it. Railcars on line have been largely corrected, based on daily snapshots that tell us how many cars are on the network. Our estimate is that a fully fluid network our size would have 220,000 cars on line and we are very close to that number. Since the beginning of the year, we are performing well in many lanes, even during a January snowstorm. Certainly any problem that CSX might have has a tendency to spill over onto our lines.

With respect to our merchandise cars, we started out with 72 hours and, as we got better, we raised or lowered the bar, depending on how you want to look at it. But now we have 48-hour cars and we are not satisfied with that at all. We also have data to show the train hours delayed because of power, with the greatest spike occurring during the holiday season. We continue to improve on box sidings to the point it is now almost negligible. Again, spikes occurred during the holiday season. Data show intermodal trains are on time or not more than 4 hours late, again in the northern region. I do not have to tell you that 4 hours is not good, but it is better than it was. We continue to see improvement as well in terminal dwell time, a point also noted earlier by Brian Avery. The intermodal train speeds and the system speed are also continuing to improve. Thank you.

**CONTAINER SHIPPER REQUIREMENTS**

**Donald Cameron**

Don Cameron served as Manager of Corporate Logistics and Manager of International Trade Policies for BOSE Corporation until his retirement in June 1999. He continues to serve as a consultant to BOSE, reporting to the general counsel, and is also a consultant to FastShip, Inc. His company, The Cameron Group, offers consulting services in the fields of transportation, distribution, supply-chain management, international trade matters, and import-export services. Cameron is the 1998 recipient of the John T. McCullough and the National Industrial Transportation League’s award as the Logistics Executive of the Year. He served as Chairman of the Ocean Transportation Committee and is a past member of the Board of Directors of the National Industrial Transportation League. He is a graduate of Northeastern University’s Transportation School and its Advanced Management School.

I have spent most of my time as a logistics manager for a number of companies, both in the chemical industry and for the last 14 to 15 years with the BOSE Corporation. I want to give you a couple of examples of how we operate, because from the manufacturing side on-time delivery is not only a necessity, it is something we have to do or they are going to replace us. For example, if you take an automobile plant—there are thousands of parts that go into an automobile and you cannot make an automobile without all the essential parts (although sometimes that may happen)—most of the emergencies in manufacturing are at the plant level and not the customer level. What we learn to do in the traffic business is make sure everything is delivered on time.

A couple of things we have done at BOSE to ensure on-time reliability are a bit different than how things are done by third-party logistics providers. We basically bring in the carriers and sit them down on our floor space. For example, we have a representative from a less than truckload (LTL) carrier, from a truckload carrier, from a freight forwarder, and from a steamship line, whose single job at
BOSE is to see that every piece of freight we move is on time, which is a lot different from many other people. While they are thinking of outsourcing things, we think of insourcing—just the opposite of what many companies have done over a period of time.

I also want to talk a little about ocean carrier reliability. Our job in every case, no matter what happens—snowstorms, holidays, and so forth—is to overcome whatever might come along. A number of people have talked about the rail problem here in Los Angeles with the UP/SP merger. Our job is to quickly find alternatives to overcome factors like delays and congestion. There are some things over which we have less control. For example, right now we have the Euro, which has dropped in value and affected the flow of traffic coming from Europe to the United States because European goods are now cheaper. The same thing can happen with the yen and other similar fluctuations. These are some of the things that affect service and are outside of the things mentioned earlier.

Some ocean carriers today want to serve all the trades. They are deploying so many vessels that what has happened is they are often not on time. We talked about larger vessels and I think somebody has talked about an 8,000 20-ft equivalent ship. Can you imagine how long that is going to take to unload in a port and move those containers in and out of the port? Carriers also schedule their vessels too tight, resulting in imbalance problems and requiring relocation of empty containers. Economics is also a factor. Certainly, the Asian economies went through some real problems over the past several years. Things are a little better now, but they were pretty bad. The number of port calls is also a factor—vessels like to pick up all the cargo they can throughout the world and sometimes they stretch those port calls so badly that their on-time reliability is not good. There have been a lot of issues recently with vessels having mechanical problems.

Transportation connections are also a factor. The BOSE Corporation, for example, just does not use rail anymore and the reason is that railroads are not reliable enough for us to build our manufacturing schedules around them. We just do not even use them anymore.

On-time performance data are often hard to come by. The best we have been able to come up with, and the data do vary, is that in the Pacific trades on-time performance appears to be much better, for example, than in the North Atlantic. We are looking at 80 to 90 percent on time in the Pacific trades, whereas in the North Atlantic we are down to 60 to 70 percent on time. Why is that? I have not the slightest idea, but the fact is those are not statistics we can live with in a manufacturing environment.

We talked a lot about ports. If you think about it, there are relatively few ports on the West Coast of the United States compared with the East Coast, where we have considerably more ports. I am beginning to think that having a lot more ports is going to be a good thing and not a bad thing as others may think. The port of Long Beach is the largest port in the United States today. My guess is that when more traffic comes through here, and there is no question it will, they are going to run out of land and there is going to be a need for additional ports. On the East Coast, I can say that we have enough ports that if any one of them reaches capacity, there is another that can take its place.

We talked a little about the proposed BNSF rail merger with the Canadian National (CN). At this point in time, you probably heard that the railroads continually have a problem with on-time performance; it is a major issue. If the BNSF/CN merger does happen, U.S. manufacturers will have another set of ports in Canada they can use. Even today, more than 50 percent of the traffic that goes in and out of Canadian ports is from a U.S. origin or to a U.S. destination. If the CN merges with the BNSF, I foresee more and more rapid growth in Canadian ports.

It is also important to consider how logistics managers make decisions. Sometimes I think it is like water—it always levels off—in that when you look at a situation for your company, you make the best decision you can, both financially and to meet a schedule. For example, we talked about the harbor maintenance tax and how it has been eliminated for exports in the United States. It has not been eliminated for imports. Therefore, if I get a piece of imported machinery that costs $1.0 million, what do you think I am going to do with it? It is not coming into a U.S. port, that’s for sure. It is going to a Canadian port.

On reliability, we believe some of the things we have done in a logistics operation are on target—when you know something is going to be late before it is late, you can take some action and divert it or change it. You cannot get much better than that. For example, we do that on LTL operations in the United States. We have somebody tracking every piece of freight. If it does not make the service level required for one part of the leg, this person gets on the phone to the person in the terminal who can change the order so it gets on the next truck out; as a result, we are probably 98 percent on time for reliability on LTL and certainly on truckload shipments. That is why we stay away from rail, because we cannot tolerate the level of reliability railroads would give us on containers.

I guess one shoe does not fit all. Not every shipper wants the same thing. Certainly, value has to do with how we make decisions. If I were shipping corn at $5.00 a bushel, I probably would not ship it on an airplane. The breakeven point is, in my opinion, about $35.00 a pound. This means air shipments—and anything below that value is usually shipped by container.

BOSE has had an on-line tracking system for every piece of freight we have been shipping internationally for about 10 years. If our manufacturing manager, who runs
multiple plants, decides he needs a particular part for a particular plant to produce something very quickly, we can go into our database and see that part number is moving in transit. We know where every one of them is. If we find a part that is going to a plant that does not need it, we will divert it to the plant that does need it. It is just like having complete control over everything you do. In the environment we live in, where we build high-value products, what we do is always make sure those plants are taken care of.

I want to illustrate a couple of other things we have done over a period of time with respect to reliability. We make a lot of home deliveries, so when the United Parcel Service (UPS) strike was on the horizon, we moved every shipment to the competitor—FedEx. Knowing that FedEx would be loaded at certain locations and not at others, we then used our own truck fleet to move the cargoes around the country so they would be on time, every time. Any time there is a potential disruption in service—whether it is weather, strikes, or whatever—as a logistics manager, our job is to continually ensure we are on time and that our customers are taken care of and our plants are operating all the time. That kind of thinking is required, because our job is on a transaction basis. Thousands of transactions take place every day and it is our job to see that those thousands of transactions translate to 98 percent reliability for our customers and our plants.

We talked about how many shippers, over a long period of time, talk about reducing inventories. We are not any different than anybody else. We prefer not to run inventories and reduce them as far as we can. We have done that in the past, and we are going to continue to do so in the future. We also need to consider where we are going with respect to e-commerce, the new way of selling consumer products on a worldwide basis. One of the most difficult problems we have, for example, is finding the tariff rate in every country in the world. Nobody has that data. We will build that kind of system so that our products can be sold around the world.

I want to say something about ocean shipping reform, which to me means more competition in the market. The fact is that we can sit down with carriers and negotiate worldwide contracts and, like many companies, we would like a single contract with one carrier around the world. That is not always possible, but, like any purchasing, what you want to do is take all your dollars and put them in one place so the buying power is maximized—that is something we really work at. We know we can get the best service and that we will be a player with that carrier.

Earlier there was mention of the on-time performance with UPS. I do not think that 98 percent on time is unrealistic for anyone. We do not want the carrier that is not on time, that is not reliable, but who gives us the lowest rate. That is not the kind of business we are in. There are other businesses out there who really do not care about on-time performance but are more concerned about the cost of moving the cargoes.

I will briefly mention air rates. In the Pacific, the cost of moving any cargo by air is very expensive, unlike the Atlantic, which has poor on-time ocean service but air rates are so cheap that if you miss something, it is easier to move that cargo to air and get it there on time. Every day our job is to look at the reliability of every carrier we have. BOSE sells a lot of sound systems—for example, to Japanese automobile makers. What we have done in that case is actually build product on a specific day to fit in a 40-ft container to move on a train that will meet a vessel schedule that will arrive in Japan on a specific day, be cleared by customs, and delivered in plus or minus 18 days. We track every container and we use a statistical process of control to make sure these are on time all the time. From a shipper’s point of view, whatever is out there, we will find a way to keep our products on time and we will use only the reliable people who will do what we need for our particular business. That is the kind of thing shippers really do—we get paid by our companies for selecting carriers that are reliable, on time, for what we do in our business.

The other thing we are talking about here is infrastructure. There is no question that infrastructure is critical and Tim Burrack was exactly right in his remarks about how infrastructure affects competitiveness. If you are passionate about your business, then you are going to find a way to do it and do it well, and you are going to do it better than your competitor. Fortunately, I work for a company that has a great product. What we have to do is take a great product and do the right things for both our plants and our customers. Thank you.
Day 3: Plenary Session

Labor and Technology

Intermodalism: The Next Level

Progress Since the 1994 Commission Report
*(Town Hall Meeting)*

Private Sector Assessments

Nonfederal Public Agency Assessments

Closing Remarks
OVERVIEW

Richard Walker

Over the past two days, most of the sessions I attended suggest that this panel is most timely. We have had lively questions in other sessions that indicate we are faced with a number of challenges, requirements, and opportunities; I am hoping this panel can enlighten us on some of those issues. I will take a few minutes to set the context in which the panelists will make their remarks and respond to previous sessions and your questions.

The U.S. transportation industry continues to embrace technology as a way to increase productivity and system throughput capacity. In today’s competitive environment, industry applies technology to operations as soon as benefits to the consumer and the bottom line can be realized. Technology has helped U.S. companies provide a wide range of products to their customers at very attractive prices. Technology such as Global Positioning Systems and intelligent transportation systems expedite the movement of cargo more efficiently, whereas new innovations such as the Internet and cyber technologies are still being explored.

It takes people to make all this technology work. The best and most modern technology does not function properly without skilled labor to use it. America has some of the highest skilled workers of any of the industrialized nations in the world. Many advances we see in the United States have resulted from labor innovations in the workplace as well. Billions of dollars have been spent by foreign corporations to set up plants in the United States to take advantage of the skilled labor pool.

We should also be mindful that both labor and management have benefited from the introduction of technology in a variety of ways. One of the first big technology gains resulted from the introduction of bar codes in the grocery industry. Since then, this technology and many others have expanded to nearly all industries in the United States as well as throughout the world. It is anticipated that the future holds many more advances.

INFRASTRUCTURE CAPACITY

Richard Hollingsworth

Richard Hollingsworth is President and Chief Executive Officer of Gateway Cities Partnership, Inc., a regional economic development corporation. He has been active in transportation for many years, including 5 years as Executive Vice President of a Long Beach–based trucking and distribution company and West Coast Regional Sales Director for a transportation software company. In 1996, Hollingsworth developed the curriculum for the global logistics specialist program at California State University at Long Beach, which is unique in the nation. He teaches classes dealing with integrated logistics issues, information technology, and trends in the logistics industry.
I will begin my presentation with a question: Can the infrastructure in southern California handle the increased growth in traffic through the ports without adopting new technology and processes?

My interest in this question arises from my position as president of Gateway Cities Partnership, which is an economic development collaborative for the 27 cities in southeastern Los Angeles County. Eighty percent of the truck traffic coming out of the ports goes through our cities and on our freeways, and over 200,000 jobs in our region are directly attributable to the ports’ existence as an economic engine in the region.

Indeed, our activities in the ports and its stakeholders are such that we have formed a partnership with California State University in Long Beach to create the Center for International Trade and Transportation (CITT). The role of CITT is to act as a neutral forum where all the players in the industry can come together to discuss issues of mutual interest in a spirit of cooperation and mutual respect. Last year, CITT organized the first International Longshore and Warehouseman Union (ILWU) industry town hall to discuss issues of interest with everybody in the industry. Almost 2,000 union members and industry people showed up, and we had to turn away about 500 people. This year on April 6, we will hold the second ILWU industry town hall at the Terrace Theater in Long Beach and expect an audience of up to 3,000 people.

Now that you understand my interest, let’s get to the question I posed: Can the infrastructure in southern California handle the trade growth that is projected for the next 20 years without adopting new technology and processes? On the way to addressing that question, I will talk about two kinds of infrastructure: the first is physical infrastructure and the second is people and process infrastructure.

Let’s talk about the physical infrastructure first, because we are all used to driving on freeways. Since 1990, the southern California ports have grown by about 150, which is a magnificent testimony to the growth of international trade through our region and to the efforts that have gone into developing the ports. A study done for the port of Long Beach suggests that trade through these ports will triple by the year 2020. Everything is fine, so far.

Now, I have a question for you, particularly those of you who may live in southern California and who know the 710 freeway: Can you remember what it was like on the busiest day you drove on that freeway recently? If you have driven on the 710 freeway during peak traffic in the past year and during the peak business season, just remember for a moment what it was like. Now, try to imagine twice as many trucks on that freeway on the same day. By 2003, we will be looking at an average daily truck traffic on the 710 freeway of 50,000 vehicles per day, just trucks. That is double what it was in 1998, and that is way beyond the capacity of that freeway.

The California Department of Transportation (Caltrans) ran a model and they have estimated that at 40,000 truck trips per day that freeway grinds to 17 mph (27 km/h)—essentially gridlocked during business hours. They expect that to happen in 2003. That spells real trouble for anybody doing business in the southern California ports and for anybody who derives business from the southern California ports. What makes the traffic situation even more difficult is that almost all the containers are delivered from and returned to the port during peak traffic hours, 5 days a week. Very little of this activity occurs off-peak, and hardly any occurs on the weekends.

The simple solution may appear to be just to expand the freeway to match the traffic flows. That is easier said than done. Two days ago, Caltrans received the go-ahead from the California Transportation Commission to begin work on a major infrastructure study to determine what needs to be done with the freeway to cope with the increased traffic. My best estimate for completion of that study, and it is my opinion, is early next year; the money was just appropriated and the requests for proposal have not yet gone out. When the study is completed early next year, all the stakeholders (and there are plenty of them) will sit down to decide which of the recommendations in the study will be adopted and how they will be prioritized.

Who gets to make these decisions about what should be done to close the infrastructure gap? The list includes Caltrans, the Southern California Association of Governments, my colleagues at the Gateway Cities Council of Governments, and each of the cities along the 710 corridor and the ports. There is some tension between Caltrans and the ports about whether the ports should pay for part of the cost of improving the freeways, because they generate the vast bulk of the truck traffic. The tussle between Caltrans and the ports is likely, I believe, to delay rapid implementation of the study’s recommendations. My own opinion that asking the ports (and ultimately the shipper) to pay for freeway expansion is like asking Los Angeles International Airport (LAX) to pay to expand the 405 freeway that goes by the airport and then pass the cost on to each passenger who flies into LAX. It does not make sense, but that does not mean time will not be wasted arguing about it.

After everyone has had their say, the design work will commence. It will require a scope of work, and so forth—you get the picture. There will be no immediate infusion of funds to widen the freeways before it gets a lot worse than it is. As a local Caltrans director said to me, “Richard, I don’t believe we can build enough freeways to really solve this problem with the growth coming out of the ports.” I agree with him.

Today we have 16 lanes on our freeway and I do not see anybody widening it to 18 lanes to cope with the kind
of traffic projected by the ports. The reality is that the ports are growing faster than our ability to expand the freeways and there is no solution in sight from a physical infrastructure perspective. When construction finally does start on the 710 freeway, the construction itself will cause delays. Therefore, we are forced to begin looking seriously at nonphysical infrastructure processes to begin to effect a change in this issue.

Let's turn to the ports themselves. Geraldine Knatz, Director of Planning for the Port of Long Beach, has indicated that the port of Long Beach will have run out of expansion space or options in terms of finding new land by the year 2008, and keep in mind that the port is projecting 200 percent growth 20 years out. We will not be closing any more naval bases in Long Beach and we have run out of water to fill in. This means that, after 2008, the existing facilities will have to deal with increased trade without the option of increasing acreage. This, in turn, means that the people who operate the terminals are going to have to operate more efficiently than they do now in terms of land use. This means longer operating hours and grounding every container. Grounding every container means slower turn times, which means it takes longer for the truckers to get in and out of the terminals. Let's review where we are.

- The freeways are heading toward gridlock—they simply cannot cope with the projected demand;
- The ports are nearing build-out; and
- We are headed toward grounded operations in every container terminal at some point, which means sooner or later such operations will become a thing of the past in southern California ports.

Let me turn now to the other infrastructure we have: the people and the processes we use to make these ports work. The ILWU is on everybody's lips. Everybody wonders what the ILWU is going to do. Are they going to go on strike or are they not going to go on strike? Are they going to slow down, are they going to walk out, are they going to do something strange? Well, let me tell you something. The ILWU is here to stay. Its rank and file probably has a longer-term commitment to the port than anybody else. They are not going anywhere and they are not hurting even a little bit.

On the other hand, another part of the labor equation in the southern California ports is the independent truckers. Independent truckers are not tied to the port. Independent truckers are hurting badly, and independent truckers are going somewhere. They are leaving the industry.

Let's do some arithmetic. When you talk about independent truckers—how are they doing? If you go back to 1984, the average local trip for roundtrip dray in the southern California port would yield about $80.00 for the roundtrip to independent truckers. They would do maybe three to four turns a day, $80.00 locally. If they go to Orange County or Inland Empire, they get more. They would make somewhere around $350 or $360 a day and that would give them an okay living, but out of that they have to pay for insurance, truck maintenance, and diesel and they have to take care of their families.

In 2000, average truckers make $80.00 a roundtrip for a local dray, a little bit more to Orange County or the Inland Empire. However, they are doing, on a good day, two to three trips a day, 25 percent less than 15 years ago, or $160 to $240 per day is what they are making now. But today, diesel costs are considerably higher. Their standard of living has declined precipitously. Their hours of work are fewer than they were 10 years ago, and time spent at a terminal waiting to get in to pick up a container is counted as driving time. So, if they spend 3 hours a day making nothing, they have only 5 hours left to make money, and 3 hours a day waiting at a terminal is not unusual—it is more than likely the norm.

Now add some other ingredients to this mix. Average freeway speeds are inching toward 17 mph—virtual gridlock. More and more containers are being grounded, which means more uncompensated waiting time for drivers. These added problems force more owner-operators out of the industry—the worse the traffic, the fewer roundtrips for drivers, and the less attractive it is to be a driver. Let me tell you, the driver shortage is real and it is long term.

It used to be that the surest way you could tell what month of the year it was in the trucking business—and remember, I am a recovering trucker—was to look in the driver waiting room. In January, you would find drivers sitting around playing cards waiting for a load or a dispatch. During January of this year, every driver is working all the time at the slowest time of the year, and if it is busy for drivers now, you can imagine, or perhaps you cannot imagine, what it is going to be like during the peak season later this year. My friends in the harbor trucking industry tell me that last year they operated on a 2-day delay for most of their customers during the busy season. Expect that situation to worsen this year.

To replace these lost drivers, the companies must buy trucks and hire company drivers, pushing up their cost of operation. In addition, given how low trucking rates have been historically in this port, there is a great reluctance on the part of the trucking companies to invest in trucks, to spend on capital costs, and to put themselves at risk of a sudden dip in rates again. The cost to move containers in and out of the ports of southern California will increase considerably, and the flexibility currently provided by the owner-operators will be lost.

On the trucker side of the equation, cargo insurance costs are up 20 to 40 percent this year, so insurance companies are getting out of the cargo insurance business...
because the theft situation is so bad here in southern California ports. Today, small companies, those with fewer than five trucks, simply cannot get insurance unless they have a minimum premium payment of about $10,000. The companies that get insurance pass the cost on to their customers.

One more issue that exacerbates the situation here in southern California, or that has the potential to, is that currently U.S. Customs inspects about 1 percent of all the cargo coming through the port. Congress has determined that is simply not enough. Now, 1 percent of six million 20-ft equivalent units (TEUs) is a lot of containers. Congress wants customs to get closer to 2 percent. That pushes the number of inspections up to about 120,000 TEUs a year. If you project that out over the next 20 years, using the port’s numbers, it means that in 2020 customs is going to try to inspect 360,000 TEUs a year on the port—this is major gridlock for the port operators unless customs can use new technology or bring massive manpower to bear in the situation.

Again, let’s summarize where we are in terms of challenges:

1. The freeways are not able to handle the projected traffic.
2. It will be years before the 710 freeway is expanded.
3. The construction work to widen the freeway will make the situation worse in the short term.
4. Room for port expansion ends in 2008 or thereafter.
5. It takes too long for trucks to get in and out of terminals.
6. The number of drivers in the port is declining because of shrinking income.

Where do we go from here to forestall or remedy the situation? The good news is that some people are working on this issue. As a result of pressure from the Gateway Cities Council of Governments and my organization, there is now a 710 Freeway Expansion Task Force and there is a real sense of urgency on behalf of state agencies with regard to expanding the freeway. It is just that it may be too little too late.

Because it is clear we cannot build our way out of the infrastructure problem, we are going to have to figure out how to use the existing infrastructure more efficiently in the near term to solve current problems and to absorb the projected 200 percent growth in the next 20 years. I am not just talking freeways but also the terminals we use to move the freight off the ships.

How is this going to be accomplished? If we are to apply reasonable logistics principles to the operation of all the players and the ports, we would see there are tremendous opportunities to maximize efficiencies every-

where, if everyone is prepared to give a little to gain a lot. A few things spring to mind.

1. Exchange empty containers between trucking companies outside the port area. Do not bring every empty back into the port unless you absolutely have to and unless it is going out empty.
2. No pickup or drop-off in the port by trucking companies without an appointment.
3. Use the off-peak hours to move containers around the region.
4. Automate the interchange process between truckers and the ocean terminals.
5. Create a shared chassis pool.
6. Make the interface between the trucker and the ocean terminal more efficient to eliminate waiting time. This will enable the truckers to get more loads and enable them to make more money so they will keep on working in the industry.

Most of these ideas require the use of technology for sharing information. They also impinge on the work of the ILWU and they, quite properly, have questions about how ideas such as these would be implemented. One thing is for sure—if we do not deal with their concerns sooner, we will deal with their concerns later.

Let me just make an aside here. Do not fall into the trap of thinking the ILWU rank and file do not think about how to improve the ports. Two years ago, CITT surveyed all the stakeholders in the industry to get their opinions on impediments to productivity in the ports and suggestions for how we might make improvements. The most enthusiastic responses with the most suggestions were from the union rank and file and from the trucking companies. The least responsive, curiously enough, were the steamship lines and the terminal operators. They barely responded at all.

To improve matters here in the port, all the stakeholders—steamship lines, customs brokers, truckers, ILWU, forwarders, terminal operators—are going to have to sit down and figure out a new way to do business in this region. At CITT we have established a neutral forum to discuss how the whole industry—and the ILWU is very much a part of the industry—can move ahead together in a spirit of mutual respect. Obviously, labor negotiations are a matter to be dealt with directly between the ILWU and the Pacific Maritime Association (PMA). However, that does not preclude a discussion of all the options by all the stakeholders in an open and candid forum.

In closing, I want to remind you of the remarks by Lieutenant General Brown at dinner earlier this week, when he described how the army carried out its amphibious landings at the turn of the century in Cuba by tossing mules off a ship and letting them swim to shore. He also spoke about how the armed forces have drastically
improved their capacities, even since Desert Storm, by adopting new logistics concepts and technologies to project massive force quickly and efficiently. The question for us in southern California and along the whole West Coast is: Are we going to keep throwing the mules off the boats, or are we going to use technology to project force when we need it and where we need it, and are we going to do it in a way that benefits all the stakeholders? Thank you.

**ADVANCES IN TECHNOLOGY**

**Eugene Pentimonti**

Eugene Pentimonti is Director of Intermodal Planning for Parsons Brinckerhoff and has more than three decades of professional experience in marine engineering and intermodal transport. He has served in senior executive positions with industry advocacy groups, major global shipping firms, and shipbuilders. As President of the American Trucking Association Intermodal Conference, he led an advocacy group of intermodal carriers. Earlier, during a lengthy executive tenure with American President Lines, he served in numerous key engineering and management positions. His responsibility included managing military and government business activity, developing new sealift agreements and contracting processes with military customers, and representing American President Lines' interests in U.S. legislative and regulatory matters.

I am going to represent the ocean carrier and terminal operator industry and its assessment of where we are going in our state of readiness in labor and technology. The background for my remarks is issues that are becoming extremely repetitive, not only from what Richard just gave us but from what we have heard all week about what is happening in our intermodal industry—huge investments by carriers, operators, port authorities, railroads, and so forth, along with the infrastructure of our government to make this system work. There is huge growth potential that is going to stress it and the need for productivity to be able to take our limited capacity and take it forward so that we can go beyond the gridlock that everybody predicts. I think if there is one thing we can all agree on it is that there is going to be gridlock if we do not use technology and if we do not improve the productivity of the system we have available to us. Although not yet at full capacity, the system soon will be and if we do not act, we are collectively going to be in a crisis. We heard that from General Wykle on the highway system. We heard it from our rail-road colleagues. We surely heard it from those of us who have been toiling in the area of serving the marine and inland terminals. There is little doubt it is true.

The situation we find ourselves in, with regard to the mix of technology and implementation of technology and labor, is that there has been a reluctance (and I think that is about as discrete a word as I can find) to accept and implement the technology that is available today in our marine terminals. Many of us who have been involved with the port and terminal business have made huge public and private investments to advance technology. Unfortunately, we have not been able to take advantage of those investments.

What is the result? The result is that more investments will not be made and are not being made and that the development and research that allow for technology to be introduced are also going to wane.

For some reason, gate technology is the area where we are seeing the most reluctance. I see people in the audience here from 10 and 15 years ago whom I have worked with in attempting to put gate technology together that makes it paperless and automated. What happens? It does not get implemented. In the largest terminal in this area—and I will not mention names—there was an attempt to put a semiautomated gate together in the design. What happened midway through the design? They had to change the design and a laborer is now installed on that gate, handing out receipts to a driver. The driver has to get out of the cab and go get the receipt from the clerk. Why? We all go through parking lots every day. A ticket comes out of the machine, and you pick it up; it appears to be efficient and it is available. We cannot use it in our ports, even though the gate is the most congested place in the terminal.

All week we have heard people say if we could only operate 24/7—if we could only open the gates when the volume wants to come in. Labor says, “No problem—open the gates.” Maybe the economics do not work, but technology would allow for that to work. We could get more capacity and more throughput out of our gates if we could automate them, if we could make them paperless. On the East Coast, there are gates that are automated and paperless. We do not have them on the West Coast. In my current job, I get to travel all over the world and see terminals. Terminals are automated. Gates run without paper. Why can’t we do it here? Is it just a dream? Are we ever going to be able to realize the reality of being able to operate more efficiently by using technology? I hope so. This is not something we have to take off the drawing boards and take out of the laboratories. It is here today.

I am fortunate to chair the Cargo-Handling Cooperative Program (CHCP) that the Maritime Administration and the U.S. Department of Transportation put together. The program brings together terminal operators, port
port authorities pay too. Their asset utilization, the lim-
pays for them? The manufacturer and the consumer. The
and through our country has to pay these rates. Who
Everybody who goes through the ports on the West Coast
is not a U.S. operator versus foreign operator issue.
You can argue that everybody has to pay the same. This
manufacturer and the consumer—those costs are passed on.
not being fully utilized. Who pays for that? The manu-
of port facilities and other terminal operation sites, are
they are buying, both their own and through the leasing
operators. The operators pay these high costs and are

can't we take advantage of this technology?
vide them. I want to know what the problem is. Why
they are getting fair pay for the day's work that we pro-
of the people who do this earn $250,000 a year. I think
after working their steady job and get more work. Some
ships per week. I have heard that some go back to the hall
Angeles–Long Beach engaged in slowdowns last week to
$160,000. Understand that the crane operators in Los
longshoreman is $101,000, and for a foreman it is
this week: the average earnings for a Class A
Commerce

What is labor's concern? Are they concerned about
their jobs? Let's get real. There are hundreds of casual
workers. There is too much work for what we are doing
today with the labor force we have got today. Beyond
that, guarantees were made in this year's contract that
everybody who has a job will have that job until retire-
ment. You cannot be worried about the job—it is guar-
anteed. Are we worried about training? The industry
spent $2.5 million in the past 2 years training dockwork-
ers on technology, computers, safety, and new processes.
They are willing to spend much more than that if neces-
sary to train displaced workers to make sure the tech-
nology that is installed or distributed can be operated.

Aren’t they getting paid enough or worried about
getting paid? I do not know if you saw the Journal of
Commerce this week: the average earnings for a Class A
longshoreman is $101,000, and for a foreman it is
$160,000. Understand that the crane operators in Los
Angeles–Long Beach engaged in slowdowns last week to
get more money. They currently work an average of three
4-hour shifts a week and are guaranteed pay for five
ships per week. I have heard that some go back to the hall
after working their steady job and get more work. Some
of the people who do this earn $250,000 a year. I think
they are getting fair pay for the day's work that we pro-
vide them. I want to know what the problem is. Why
can't we take advantage of this technology?

Whom does it affect? It affects all of us, not just the
operators. The operators pay these high costs and are
operating more or less productively and the assets that
they are buying, both their own and through the leasing
of port facilities and other terminal operation sites, are
not being fully utilized. Who pays for that? The manu-
ufacturer and the consumer—those costs are passed on.
You can argue that everybody has to pay the same. This
is not a U.S. operator versus foreign operator issue.
Everybody who goes through the ports on the West Coast
and through our country has to pay these rates. Who
pays for them? The manufacturer and the consumer. The
port authorities pay too. Their asset utilization, the lim-
ited facilities they have that we have heard about, are
going to run out. They are going to be stymied. Who
pays for it in the long run? The consumer and the man-
facturer in the United States. Our economy is really
where the buck stops. We are going to be less globally
competitive if we continue this spiral. If we cannot fix
these issues, the strategic advantage that the United
States has within its fabulous rail and highway infra-
structure is going to be throttled at the ports.

Richard said he challenges you, and so do I. I pri-
marily challenge labor to sit down in partnership with
our industry to address issues of how to practically
implement the available technology in a way that meets
their requirements and allows us to go forward. As
chairman of the CHCP, I have decided to not have a
meeting without inviting all aspects of labor to partici-
pate in the industry's cooperative research efforts and
discussions. I challenge all of you; it is not just a carrier
and a terminal operator problem. The port authorities
have been silent for years. Stand up. It is going to affect
you. It is going to affect all of us if we cannot implement
the technology that this broad organization and all of
you, in your efforts, have available to make our termi-
nals operate more productively and extend their ability
to take on the trade growth of the future. Thank you
very much.

IMPACT OF TECHNOLOGY ON LABOR

James Spinosa

James Spinosa is International Vice President of ILWU.
He started with the organization as a terminal ware-
houseman in Local 13 in 1969. A year later he was reg-
istered as a PMA marine clerk. In 1984, Locals 13, 63,
and 94 appointed him the first union Commodity Flow
Survey monitor. He has served as both President and Vice
President of Local 63 since 1987.

Gene’s questions beg for an answer and I will try to
do the best I can to give you ILWU’s insight to the
problems of the industry.

I came into this industry as a young man some 31 years
ago. Labor at that time and the movement of cargo were
different than it is today in the major ports. It was not
that the longshore industry did not change its way of
moving cargoes on and off vessels or setting up terminals
to handle that particular type of cargo movement. It was
not very different or any different than it had been maybe
50 or 60 years before when they were using nets; they
were using pallet boards and then along came a mecha-
nized piece of equipment called a pallet jack.
Longshoremen at that time had to learn and understand what this device was that was going to mechanize their industry. In the beginning, there was frustration, as there is today, in understanding what that meant to our industry and to the worker, but soon that particular piece of equipment became part of the industry and we mastered it and we started moving freight and cargo with it.

From that point forward, the forklift, the hostlers, and other types of equipment started to appear on the dock. In 1959, a predecessor, Harry Bridges, the founder of our organization, along with international officers and coast committee people put together an M&M agreement—a mechanization agreement—that said the ILWU would work as best they can with labor. Labor would work with management in the industry not to frustrate technology and mechanization needs. The ILWU has met that challenge. We meet it on an everyday basis. Go to your ports today and look at the statistics. We hear the concerns that cargo is going to stack up, and we are going to have an excess of cargo coming at us for triple digits if we are looking at the 2020 situation. We are moving more cargo today, more TEUs today, than at any other time in history on the West Coast. Statistics do not lie and today everybody wants to talk statistics.

Why does labor get labeled with being the problem when it comes to moving cargo? Port authorities know the ports are growing by 12 to 14 percent in volume, which means millions and hundreds of thousands more TEUs are coming through the ports, and who is expediting those cargoes, those containers, those pieces of equipment? Our equipment that we work with today, our mastery, and our skills are what is moving those TEUs. The volumes are more today than at any other time.

We look at technology and you say the ILWU is frustrating technology. We say, where? Where are we frustrating technology? You have introduced new equipment to us for many, many years and we have mastered that equipment. We have become highly skilled at using that equipment. We move more cargo for you today and more tonnage today than at any other time in history. Why are you saying labor stands in the way of technology and movement?

The only area, and I think the main area that Gene speaks to, is in the electronic area. Yes, there are systems out there that are not yet being used on the West Coast. That does not mean the ILWU has not sat down with the employers. We recently took a trip with the PMA to get familiar with and educate ourselves on the systems being used throughout the world. We did that together. The ILWU has not moved away from its commitment to look at technology and not stand in the way of progress. However, once we have done that and we sit down as we did in the 1999 negotiations 6 months ago, it has to be understood that, if labor and management and technology are to blend, there has to be a place for the worker.

We visited the port of Rotterdam—the Delta terminal. For those of you who have not been there to see that operation, it is a robotic operation. You cannot find a person working in the terminals on that particular facility. Do you think that is fair for the industry today to move to that extent to eliminate the workforce almost completely off terminals for profit? Where is our partnership in this thing for the ILWU if we are going to continue to embrace moving cargoes and working with technologies? There has to be a responsibility to the workforce. The responsibilities have to be that as technology moves forward, training must be provided for the jobs that are left in the industry. The responsibility has to be that there is no outsourcing of work and moving work away from other workers when it could be coming to the ILWU. The M&M agreement said go ahead and mechanize, but remember that the ILWU is a partner in this progress, in this process. As we move forward in mechanization, we have to embrace all the needs of the industry together.

At the last set of negotiations, we did not accomplish what we hoped for, but it was not because the ILWU did not want to get there. It is because on the management side employers did not want to sit down with the union and bring us along and show us what they wanted to do and where we fit in. We asked over and over again, where are we? What do you want to do here? Give us an example.

I chaired this last set of negotiations. I was the guy who was asking those questions across the table. I got no response. Do you know what the answer was? With no answer to us—to the ILWU—it is “Robotics. You are no longer needed. Take your job and go.” That is not acceptable and will never be acceptable to the ILWU and should not be acceptable to any workforce throughout this world—to be eliminated completely. If you want production and you want cooperation, you have to find a middle ground. There is a way for this thing to work and it has been working since 1959. The cargo movements, the statistics, the volumes that move through our ports today are done with expertise and with labor. Yes, we use machines. We have mastered those machines and will continue to do so.

You cannot put 10 pounds in a 5-pound bag, and that is what is happening in today’s world. Terminals, no matter how big, are not big enough for today’s volumes. Containers require a lot of space. So, what is happening out there? Gridlock.

We heard a lot of talk about gate movements. Let me offer my view. You go anywhere in the ports of Long Beach, Los Angeles, or up and down this coast but especially here in Los Angeles and Long Beach, you will see that six people handling computers are turning somewhere between 2,400 and 3,000 moves a day at the gate. What does that mean on an average day at a terminal? Divide it up. You have anywhere from 200, 300, to 400 trucks with containers inside terminals trying to
drop their loads or pick up another load or container, and you have vessels working at the same time, hundreds of people working on terminals between vessel movements and rail movements, and trucking movements. The result? You have 10 pounds in a 5-pound area and you have gridlock.

I have asked management over and over for traffic control in our terminals. You want to pick up a little bit of speed here, and you want to expedite a little more efficiently; we need traffic control. If everybody knows what they are doing, if everybody has a safe route throughout that terminal, you will pick up a few moves here and there. Otherwise, it is chaos. You should go to some of these terminals and watch some of the terminal operations work. You will realize the ILWU is working every day under duress, in situations where we can be killed at any moment because there is no traffic control. There is very little communication because management meets with management; they do not meet with labor that often. There is a lot of confusion out on the terminal areas.

This all has to come to roost. We are the workforce. We are committed. We have always been committed. We bring our skills and we move your cargoes and we are doing it better and better everyday and our successes are in the statistics as the volume of TEUs continues to grow at each port. But safety has to be there.

Another factor is that there are no places to deliver cargoes 24 hours a day. You are relying on the ports and the terminals to do the work while others shut down and truckers have no place to go with cargoes. They sit in the late evenings and in the early mornings. You cannot blame that on the ILWU. You cannot even blame it on the terminals. Everybody has to work together. That does not take technology. That is logistics. That is sitting down and making it work.

There are many, many problems that plague the port, but the ILWU is not the problem—it never has been the problem and never will be the problem. We are ready to sit down at any time with management, as we have in the past and as we will in the future, to take a look at the ports, take a look at our operations on a daily basis, and work toward streamlining those operations, provided that the jobs that are left in the industry are ILWU jobs. No outsourcing of work—giving it to others when it should be coming to the ILWU. If you want cooperation, you have to deal us in, not deal us out. I can tell you that, on a daily basis, we fight with management because there is outsourcing going on and they are moving work away from us that rightfully belongs to the ILWU. Cooperation begets cooperation.

We are ready to do it. The ILWU has stepped forward since 1959. Our skills are there. The statistics are there. We have made offers and we have gone on trips. I have led the charge since 1989, putting together the first mechanization trip with the PMA to go over to Europe to take a look at mechanization, to understand it, bring that back to our union. I did it again this past year. We are ready to do it, but you have to include us and you have to train us and you have to give us the work that is left in this industry. That is the ILWU’s position on this.

To say that the ILWU is standing in the way of progress is simply not the case. We are moving more cargo than we have ever moved in history. The statistics are there and the TEUs are there. We have a job to do and we are ready to sit down with management, but is management ready to step up and put a level playing field for us together so that we can clearly understand where this industry is going and continue to be a part of it? Without us being a part of it, yes, there will be frustrations because people without jobs cannot feed their families and we are not prepared to go there. With that, I will close. Thank you.

**Trucking “Sweat Shops”**

*Micahael Belzer*

Michael Belzer is Associate Research Scientist at the University of Michigan’s Institute of Labor and Industrial Relations. He is also Adjunct Assistant Professor of Management Labor Relations at the University’s School of Business. His research interests include all facets of trucking industry organization and operations, labor and management relations, and employment policy. Other continuing research interests include regulation, the labor market, health and safety, labor management participation, and construction industry and industrial relations. He has also authored and coauthored several articles on labor research.

I have heard a number of references to the owner-operators in the industry and I think that is probably the most obvious Achilles’ heel at this point in the industry, because the entire intermodal industry relies on people with whom you cannot negotiate, with whom you cannot bargain, who have no bargaining power whatsoever, and who have some working conditions that I believe can be characterized as sweatshops.

I brought with me a couple of recent articles from local newspapers. One article states that Los Angeles and Long Beach combined put out more TEUs than the other three of the top five ports in the United States. The vast majority of that volume, with the exception of what goes on rail, is going to be handled by owner-operators, because that is the way things work today. What many port cities have in common is their dependence on owner-operators to move the containers within the port
region, and the owner-operators on whom they rely
work at or below the subsistence level. We certainly are
not talking about $100,000 a year.

One of the Los Angeles Times articles mentions an
individual supposedly netting $21,000 a year and I cal-
culated he was working 3,000 to 3,500 hours per year—
conservatively that works out to $7.00 an hour if you do
not count time and a half for overtime, which other
workers in similar jobs in the United States can expect to
make. If you think you have a labor shortage, I do not
think it is rocket science to figure out where it comes
from, and you have all the strikes and protests to show
for it.

What would the world look like if we all worked like
truck drivers? We would have no regular 40-hour work
week. We would work an average of 65 hours a week.
We would have no regular work schedule. It would be
day and night, and more than likely it would be irreg-
ular. Our wages would stop whenever production stopped.
Employers would decide which work activities are paid
for and which are not. That would be 25 percent of our
workday. As long as you are all willing to live under
those circumstances, then I guess we do not have a prob-
lem here.

We have met the enemy and it is us. Imagine a perfect
labor market where everybody is a perfect price taker.
When the individual’s market power as an individual
comes only from the shortage of his or her skills and the
unwillingness of anyone else to take that job, wages are
in competition and firms compete on wage costs alone.
That is just like the 19th century, isn’t it? Well, it isn’t; it
is now the 21st century.

Are they sweatshops? The classic definition of sweat-
shops is low wages, long hours, unsafe and unsanitary
conditions, and a significant degree of subcontracting
and piece work. As we know, everybody in this business
right now is on piece work. At this point, they are also
dramatically shifted to subcontracting; therefore, we
have no one who can talk to anyone about any of the
problems. You have all these protests that have happened
and there is no negotiation. Why? Because there is no one
with whom to talk. Only recently am I seeing this situa-
tion finally show up in the newspapers. There is no one
to talk with. There is nothing we can do. It is out of our
hands. Everything is out of our hands, not only out of
our hands, but spiraling out of control. We have empiri-
cal evidence for this, so I am not simply basing this on
what I read in the newspapers.

Since deregulation in 1980, real annual earnings
among drivers in the trucking industry have declined by
30 percent. Average annual earnings for unionized less-
than-trailerload drivers—the Roadways and the Consol-
ided Freightways and all the rest of those people—was
a little over $43,000 a year. It is not what you read in the
papers when you read an article on bargaining. By the
time bargaining comes up, I always watch for the code
words “as much as” and “as low as”—words you would
watch for if you were shopping. The average nonunion
truckload driver—we are talking about over-the-road,
not just ports—works for $8.17 an hour. Assuming the
comparable labor market conditions you would find
outside the trucking industry, that is time and a half after
40 hours. Average intermodal drivers earn less than the
minimum wage, as suggested in the earlier example from
the Los Angeles Times. They pay for their own equip-
ment and fuel. I saw figures in some of the articles
scanned citing gross annual earnings of $40,000 and
$50,000, which is laughable. We are talking about peo-
ple who own their own truck; they have to pay for the
investment in that truck, and they have to pay for the
insurance and fuel. At this point, when they turn the key,
they are already losing money. That means they are los-
ing their investment as well as working for free. As long
as we are all willing to do that, I do not think that is a
problem.

The average nonunion road driver works 70 hours a
week and exceeds the maximum legal hours of service by
almost 20 percent—that is the average road driver. Local
and long distance, according to our research, are not sig-
ificantly different. Average hours are more than 50 per-
cent greater than the national average. These guys are
not slackers; they live in their trucks, away from home an
average of 3 weeks, with the highest number of lost-time
injuries of any industry in the United States, and 100 per-
cent turnover. You have a shortage, but you have 100 per-
cent turnover. In the economics area, we look at this as a
perfect market, because people are equally indifferent
between keeping their jobs and going on to the next job.
It is very nice for economic theory, but it is very difficult
for business.

We base this on a driver survey we conducted. The
data I will be discussing are from the first wave of this
driver survey. We have a second wave of the survey, but
the two have not yet been integrated. We have enough
significance to rely on the point estimates I am going to
give you. We found the mean earnings total $36,500, and
local drivers make a little more. The median is higher
because the union is more significant in the local area.
Our big gap is between the union and nonunion drivers.
These drivers put in long miles on average. The mean on
long haul is almost 125,000 mi (201 177 km) a year. The
nonunion drivers put in a lot more, despite the fact that
they make about 40 percent less. They put in more miles,
but they earn less. There is little or no difference between
your long-haul and your local driver. At the top 10 per-
cent, we are looking at a fair number of hours per week.
Most people do not like to work that many hours, espe-
cially when they are making less than minimum wage.

The difference between union and nonunion tells the
difference between those people in the labor market who
are complete price takers and those people in the labor market who have something more than their individual market power to rely on. I think that is what you are really dealing with and you are going to have to have a resolution for this in the ports because you are dealing with people who have no way to talk with you and you have no way to talk with them in any institutionalized fashion.

The worst problems are at the extremes; 10 percent of the drivers work more than 94 hours a week and 10 percent of nonunion drivers work more than 100 hours per week. Remember, on average, 25 percent of those hours are unpaid. The daily figures are very similar. Remember, on average, 5 of those hours are unpaid. On average, that is 26 percent for all drivers—the ratio of nondriving hours to total hours. In the local area, which is what we are, it is 37 percent unpaid for most of these drivers. Unionized drivers have contracts, so for the most part (not 100 percent), they get paid for their time whether they are waiting or whether they are loading or unloading. In the nonunion sector, they simply are not paid, and the fact is they do not log it. That is one of the reasons we have extraordinarily long hours in this economy and it has become acceptable in that industry. It is part of the culture. The fact is, it is reaching its limits.

Look at trucking versus manufacturing wages over the past 30 years and you can see where they are heading. There has been no change in these trajectories except the lines have crossed since this last data point was put together and the trucking ones are heading south below manufacturing ones; that is your labor market. You cannot complain about a labor market shortage if you are not willing to live by the market, which is to pay what the market will bear. All of this is interesting paradox, because employment is up and wages are down. This drives economists wild. We do not like this. We should have a shortage and we should see supply and demand work the way supply and demand is supposed to work. Well, it does not work that way in part because the institutions that govern the trucking industry are different from the ones that govern the rest of our blue collar labor market.

Over the years there has been a union decline, resulting in part from deregulation itself. There is dislocation that took place as a result of all the companies that went out of business very rapidly in the early years of deregulation. Based on recent census statistics, we are probably looking overall in trucking at close to a 20 percent decline. What we have is a declining industry prosperity that goes along with declining wages and a union decline. What we have is an industry in crisis. This is not just drivers; they are, simply put, the canaries in the mine. The industry is in trouble and we have allowed this to happen and we are basing this entire transportation infrastructure on that.

My conclusion about what caused sweatshops is economic deregulation, which removed all the constraints on competition. As a result, we have freedom of entry, freedom of pricing, discrimination—you absolutely must discriminate. We have wide-open entry, which allowed an explosion of low-cost truckload carriers to come in, all of which were nonunion; therefore, their employees have no bargaining power whatsoever. We have lower profits and we have lower wages. We add weakness in the Teamsters, especially starting in 1980, which finally has led to trusteeship of the union by the federal government. The union was unable to get it together and figure out how to react. I am not at all sure they could have done anything about this had they had their act together, especially in 1980. Labor laws make it very difficult to organize far-flown mobile operations.

You know that the National Labor Relations Act does not, as currently interpreted, allow owner-operators to be represented by the Teamsters. That was not always the case; they could be 25 to 30 years ago. It is a case of the same law, different interpretation. A few still remain. Neither can they be represented by their own association, because that is prohibited under the Sherman Antitrust Act. Interesting that we find that Act—enacted to control the Rockefeller monopoly—to be appropriate to apply to the individual owner-operator making about $3.00 to $4.00 an hour.

We have a union density decline and we have this 100 percent decline in the ports. That all is a crisis we must address. If we do not do something about it, we will have no solution whatsoever to the problems the transportation industry faces and, in particular, in the intermodal area, where the abuses are absolutely the worst anywhere in the economy in the United States. Thank you.

WORKFORCE DEVELOPMENT

Jon Helmick

Jon Helmick is Director of the Logistics and Intermodal Transportation Program at the U.S. Merchant Marine Academy in Kings Point, New York. He holds the rank of captain in the U.S. Maritime Service. During his first career as a merchant mariner, Helmick served as seaman, mate, and master aboard a wide variety of commercial vessels including tugs, tankers, and tall ships. He holds a U.S. Coast Guard license as Master of Ocean Steam, Motor and Auxiliary Sail and sails vessels of any gross tons. In addition to his experience as a merchant marine officer, he has served as the Vice President of Operations for a start-up cruise line and as an expert witness and consultant. He is active in a number of professional organizations including TRB.
My topic this morning is workforce development, and by that I mean issues relating to education, training, and, of course, recruiting.

I would like to first summarize some of the drivers, the reasons for change in this area, many of which have been discussed at this conference. I will also talk about the needs of industry as they have been articulated through various needs assessments in which I have been involved and I will discuss some of the recruitment issues and challenges associated with that within the intermodal industry. We will look at what the industry has told us are the necessary skills and abilities to effectively further the industry and finally to outline some of the strategies that can be used to develop the workforce along these lines.

We have heard several people talk about the globalization of business and it is clear this is an international business. To the extent that we fail to recognize that and explicitly incorporate that in curricula and the educational process, clearly we lose. The demands of customers have been outlined by many of our speakers here: the need for faster transit times, more reliable delivery, higher levels of service, and so forth, which are constantly ratcheting up. Of course, the in-transit visibility components place demands in terms of information system literacy. Deregulation has created a situation in which there is a lot more flexibility in rate making. Negotiation becomes much more significant. Skills related to that become paramount.

Restructuring in the industry—I am referring here to mergers, acquisitions, consolidations, downsizing, and so forth—has significant implications for the workforce. Constraints on infrastructure have been well documented at this conference and certainly the challenges related to that mean that we need to develop some highly brain-powered people for this industry. Other factors include the need to get more out of existing resources, to extract more productivity out of existing terminal space, utilize equipment better, get higher load factors in vessels and vehicles, and so forth. All this has to happen in the context of strong public interest in safety and environmental issues and the sometimes conflicting goals that are inherent in that. Technological development is really what we are up here talking about today more than anything else. Certainly understanding the information systems, the tagging and tracking technologies and related technologies that make this all go, is critical. Yet another factor is the need for reengineering the defense transportation system with a greatly increased focus on intermodal transportation and supply-chain management.

The context of my interest in all this is the development of a new academic program at my institution, the U.S. Merchant Marine Academy, which is an undergraduate program in logistics and intermodal transportation. As a result of that development and also an expansion of our fine continuing education program, we have been involved in a number of needs assessment efforts in government and in industry. We have conducted a large number of interviews with many senior people in industry and the military, who have been extremely helpful in allowing us to understand what the industry needs and how to best develop curricula and programs and supporting elements to make it happen.

We are part of a cooperative agreement within the U.S. Department of Transportation, a joint effort among the Maritime Administration, the Research and Special Programs Administration, FHWA, and the Office of Intermodalism. This one is a cooperative agreement on freight education and training. The idea is to develop an alliance that will more effectively further the national transportation education agenda.

In November 1997, TRB organized a national conference on intermodal education and training, out of which came some pretty well-defined needs with regard to education, training, and workforce development. My organization partnered with the Intermodal Association of North America in an effort to understand the members of that organization and their needs as far as education, continuing education, and undergraduate and graduate programs, which provided further information.

Before talking about what kind of curricula and what kind of supporting programs to put in place and how to best do that, clearly we have to interest the right people in the industry. I think it is safe to say that transportation—for those who are bright, able, and who have options—is not necessarily a glamour industry. There are challenges, in fact, whereby we see people going to Wall Street or other industries and not recognizing the great potential that lies in the transportation sector. Capturing the interest of all the right kind of young people in the industry, and in the intermodal industry in particular, is a bit of a challenge.

The U.S. Department of Transportation has done something that has gone a long way toward making sure there is a fully qualified transportation workforce for the 21st century and that is the Garrett A. Morgan Technology and Transportation Futures Program. The objective is to ensure that young people are aware of the opportunities represented by transportation careers, to get them interested in the field, and to set the stage for them to follow that track. The program operates from kindergarten right through lifelong learning. In addition to the development of an undergraduate program, we at the U.S. Merchant Marine Academy play an active role in the kindergarten through 12th grade outreach by bringing in young people, particularly at-risk young people, to make them aware of transportation career opportunities, to provide them with role models, and to show them what this sector of the industry is all about. So, we at the U.S.
Merchant Marine Academy and many other institutions do this as well, bring in groups like the Boy Scouts of America, the Reach for Tomorrow Program, and many others to provide them with this exposure and it appears to be very effective.

There are a number of other proactive industry efforts to try to bring young people into the fold. For example, work study programs; there is a recent one I was just made aware of at United Parcel Service (UPS), in which college-age students are brought into the night shift to work part time and have their college education subsidized by UPS. This kind of proactive effort can be very effective in drawing in the right kind of people.

You cannot have a discussion on this topic without a three-letter acronym, so I offer KSA—knowledge, skill, and ability. If we talk about intermodal workers, and we are focusing here primarily on entry-level managers, one of the things we have learned from these various needs assessment efforts is that a systems view is essential. People continually harp on this—particularly the need to get out of the “modal silos.” Curricula must be developed early on that are not built around or within silos; in other words, curricula that emphasize the end-to-end perspective instead of a strictly modal perspective. A global perspective is essential.

Strong analytical skills are essential—instead of simply shooting from the hip or managing by the seat of the pants, having the ability to sit down and evaluate problems again from that systems, supply-chain, end-to-end perspective—to analyze these problems effectively and to come up with meaningful solutions. Employers repeatedly emphasize the importance of interpersonal skills and teamwork skills; these skills are often emphasized more than functional skills. Information technology and literacy in technology are crucial. A customer orientation is also important, developing an orientation early on that the customer is king. Also needed is a toolbox full of perspectives—to analyze these problems effectively and to communicate with organizational culture or a mind-set developed over time in a particular firm or sector of the industry.

Internships are very valuable and can involve both students going to industry and industry coming to the schools as executives in residence. This kind of cross-pollination can be extremely fruitful. Mentor programs encourage professionals to, in a sense, “adopt” students and provide them with a role model and some insight about what the industry is really like. Another avenue for this communication and exchange is guest lectures in which people in the industry come in to talk to students and communicate to them what is going on in the field and how things happen and what some of the challenges and opportunities are. Involving students in research can also be productive, providing them with the opportunity to work real-world problems in a structured setting.

Having representatives from industry come in to do career workshops, to talk about resume preparation, and to talk about interviewing skills, presentation skills, and so forth is also a productive avenue. For students who end up interviewing with a firm that has hosted such an event, it often means they are better prepared to end up interviewing with a firm that has hosted such an event. As undergraduates, students had the advantage of not being bound by organizational culture or a mind-set developed over time in a particular firm or sector of the industry.

First and foremost are degree programs. It is striking that in the logistics field, which presumably incorporates intermodal, fewer than 5 percent of current practitioners have a degree of any kind related to the field. Now, clearly that is partly because it is relatively new. As time goes on, there are likely to be more specific degreed formal education opportunities.

As many people have said, partnerships are the wave of the future. Meaningful alliances, through which industry and academia get together to do something constructive, can be extremely fruitful, particularly in the area of curriculum development. For example, with cooperation from SeaLand, the U.S. Merchant Marine Academy developed a case study project that has proven to be very productive. Case studies were given to teams of midshipmen to analyze and then executives from there came to the Academy to listen to and critique the presentations. It was a win-win situation, with the midshipmen working on real-world problems and SeaLand getting the benefit of what they described as “out-of-the-box” thinking. As undergraduates, students had the advantage of not being bound by organizational culture or a mind-set developed over time in a particular firm or sector of the industry.

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Alternative delivery systems, such as CD-ROM–based education, distance learning over the Internet, are proliferating and serving those people who do not have the time or the financial resources to sit down in a classroom for an extended period of time. This also applies to continuing education, whereby short courses and seminars can be delivered quite effectively by faculty and practi-
tioners to people in the industry who require specific knowledge upgrades.

The human element is crucial. As Gene Pentimonti said, we tend to focus on the technology, but it is the people who manage the system that utilize the technology or design the technology in the first place. It is crucial to ensure they are appropriately educated, qualified, and trained and that they have the right mindset to enhance the system and meet all its challenges. There are success stories and in the spirit of a report card, which is what this conference is about, I am glad to say there are some programs and approaches that are meeting these challenges effectively.

The shortfalls are problematic. We heard from Belzer about some of the reasons why there might be a shortage of truck drivers in the industry and, again, the challenge of getting the right kind of people with the right motivation interested in the industry will be an ongoing challenge. Meaningful collaboration between industry, government, and academia and between labor and management is truly the only way these challenges are going to be effectively met. Thank you for your attention.
Intermodalism
The Next Level

Robert Krebs, Chairman and Chief Executive Officer, Burlington Northern Santa Fe Railway, and Chairman, National Commission on Intermodal Transportation (1994)

I am privileged to be here. It is nice to do a little reminiscing about the National Commission on Intermodal Transportation and talk about intermodalism. I am going to review some of the proposals the commission made 5 years ago and some of the progress I think has been made—maybe not so much as a result of what the commission had to say, but certainly it put us on the right track.

I am going to focus on the freight sector, because that is what I know the best, and on what we have to do to take intermodalism to the next level. I understand there were a number of panelists and speakers who talked about the deficiencies, especially in the rail freight system. I think that deserves a little time. At the end I will say a few words about the proposed Burlington Northern Santa Fe/Canadian National (BNSF/CN) merger. I know a lot of people have been talking about that. That is not what you invited me here for, but anytime I have a chance for a paid political announcement, I am certainly going to take the opportunity.

It is hard to believe the commission’s report is over 5 years old now. It came in on time, on budget, and with unanimous recommendations. I am not sure that I can take any credit for that. The commission staff did a great job getting everything together. We had railroaders, truckers, rail passenger advocates, safety advocates, government officials, and academicians. Our recommendations certainly were not a step-by-step blueprint on how to make intermodalism king in the transportation industry. Instead, we established or enumerated a series of guidelines.

We all realize that intermodalism, by its very nature, is very complex. We know that, at least on the freight side, market mechanisms best drive intermodalism by heading users of transportation in the directions of the mode that would be the most efficient for that particular part of a transportation trip. We also have, I think, a strong bias in the freight sector to let those market mechanisms work and not to have public policy or public regulations interfere with the market. But we look at our role as a promoter of intermodalism, to educate and inform, and to showcase the private sector development of intermodal freight systems.

There has been progress on all fronts. It is clear there will always be intense and often heated discussions about how to fund various modes and about the safety of the modes and the role that safety plays in intermodalism. There are also various institutional barriers that get in the way of a true intermodal product that provides the highest and best service for the most efficient cost.

COMMISSION RECOMMENDATIONS

Unified System

Let’s review now some of the recommendations. Our first category had to do with making efficient intermodal transportation the goal by federal transportation policy. We said it in a very few words. To quote from the report, we envisioned “the national transportation infrastructure, both public and private, as a unified system.”

One of the things we pointed out was that the connectors of the various modes left a lot to be desired and since that time there has been a lot of emphasis on inter-
modal connectors—to identify them and to work to improve them. There are the weak links. There have been over 1,000 mi designated as connectors by states and the U.S. Department of Transportation (DOT). Studies are being prepared for congress on the condition and performance of these connectors. Others are looking at whether there is adequate funding. All this activity is a step in the right direction.

Let me shift for a moment to look at freight and what is happening to intermodalism in the private sector. Since the report was published in 1994, I think we made some progress, but we have also taken some steps back. We have handled record volumes in 4 of the 5 years in intermodal freight on the rail system since the report was published. We had 9 million intermodal loads last year. We had 18 record years out of 19 years, so the growth continues.

Last year, my own company, BNSF, handled 3.2 million intermodal loads. If you think about it, that means that every 10 seconds we are taking a trailer or container and putting it on our railroad or taking it off a flatcar. We are expecting 5 to 6 percent growth annually as we go forward.

Some new products have been introduced that take advantage of the strengths of the various modes coming together intermodally. One of the things at BNSF is the Ice Cold Express, which is a unit train of refrigerated Road-Railers that goes between California and Chicago. It moves 100 percent loaded in each direction. It has been 100 percent on time since we put it in place and we are now going to run two trains a week because of the demand we have created or stimulated by producing a better product.

During lunch, the people at our table commented that, for freight intermodalism to be truly embraced, the entire trip from start to finish has to go smoothly. The big problem happens to be in the truck portion, the drayage, the arrangements for drayage, the inefficiencies at intermodal railheads. One of the things we are working on is a regional drayage system, which is more user-friendly and makes it easier for us to provide a through move. My guess is we are headed toward a national drayage system that will do the same thing.

On the CN, there have been some experiments to make intermodalism work on shorter, but heavier, traffic corridors and we have had some success in high-density corridors such as between Detroit, Toronto, and Montreal. This could revolutionize intermodalism and provide us with a whole new market opportunity if we are able to make a go of it. A lot depends on drayage costs and efficiency of the drayage operation at either end of the railheads.

Progress is a reality in the freight area; however, if you look at the passenger area, I am not quite so sure. I remember when the commission came together unanimously to make our recommendations. We said that for passenger intermodalism to work, there had to be a “viable intercity passenger rail network.” That recommendation was really a blessing for Amtrak to move forward and to refine its role in passenger transportation as a core piece of America’s network. However, I really do not see a lot of progress there. One of the things the commission said was there should be feeder bus and van service to fit in with Amtrak. I do not see a lot of progress there either. The commission also said that Amtrak needs a stable source of funding, and I am not sure I see much progress in that area. It is clear to me that Amtrak read our report; however, they read and paid the most attention to the freight intermodal area and that is to some extent a little difficult for me. The job of the Amtrak team is tougher than my job, and my hat goes off to them for trying to be a success, given the day-to-day constraints with which they must deal, not the least of which is running trains that do not make sense to be run.

Amtrak has to become self-sufficient. They are trying to figure out how to do that, despite the constraints that are imposed on them, often for political reasons. For example, we end up with things like the Kentucky Cardinal that goes from Louisville to Chicago. That is 12 hours to go 290 mi. You could drive it round trip in a car and maybe even have time for the meeting in between. You could end up with passenger trains with four or five passenger cars and 25 freight cars on them. That does not make sense to me either.

I cannot really say I am taking issue with Amtrak, although perhaps I am. What I am saying is that I understand the pressure they are under, but I do not think they have moved in the right direction at all and they certainly have not moved forward toward achieving any kind of a better intermodal passenger system with a core rail network. In fact, I think we are going the wrong way, as service continues to deteriorate for the passengers who ride those trains.

**Intermodal Investment**

The second category of recommendations had to do with increasing investments in intermodal. I think this is where we probably have made the most progress. I reviewed the preliminary results of your report card and you gave the highest rating to finding more innovative ways to help fund intermodalism. I think that has happened in both the public and private sectors. I am not sure we are truly innovative, but one thing I can certainly attest to in the private sector at BNSF is that we have spent, spent, and spent. We have taken a pounding on Wall Street as a result of all the money we have spent—$9.5 billion in 4 years in capital. That is $5,000 a minute since BNSF came alive in September 1995. I have done things like add a million lifts to our intermodal capacity. If you are
an engineer and you climb up onto a locomotive on the main line to get on your train, there is a 75 percent chance (three of four) that the locomotive you get onto is less than 48 months old or has been completely rebuilt in 48 months. It cost about $2.5 billion for us to do that.

We built enough new rail infrastructure to actually build a railroad between Kansas City and Denver or between Fort Worth and Memphis. Of course, that is not all in one piece. It is part of double track and triple track, especially along our corridor between Chicago and California, to improve our intermodal performance. The amount of money we have put in the business in recent years I have not seen in the three and a half decades I have been in the company. In fact, you would probably have to go back to when the railroads were built to see the level of capital investment we have put into our business. That was one of the things the commission said—let the private sector do their thing and they will. Certainly BNSF has.

There has also been progress in the government area. The Transportation Equity Act for the 21st Century (TEA-21) provided $218 billion of funding for transportation, and now that the Highway Trust Fund is off-budget we know that 90 percent of that is going to be spent. Again, that was one of the observations made by the commission—too often the funding was allocated but not spent for the transportation system. It looks like that is changing. TEA-21 also introduced some promising innovative financing programs. I will give you a classic example—maybe it was before its time, before TEA-21. It certainly was a long time in coming. The Alameda Corridor took 17 years from conception to the actual beginning of construction. To fund that $2.3 billion project, we have taxable and tax-exempt bonds, federal loans, equity contributions, and then backing a lot of that up is the $30.00 container charge the railroads will start paying in order to pay off the debt and handle the interest. I take my hat off to Gil Hicks and his staff for their role and hard work in getting all this done.

As part of TEA-21, we also have the Transportation Infrastructure Finance and Innovation Act (TIFIA), $10.6 billion worth of credit for publicly owned intermodal projects. We have five up and running right now and I think maybe the first freight project will involve the realignment of the Union Pacific track through Reno, Nevada.

Another program that has promise but, from what I understand, is not going very far very fast is the Rail Rehabilitation Improvement and Financing Program. This program has $3.5 billion of low-interest loans for Class I and short-line railroads. However, because of differences of opinion and disagreements about implementing regulations that have not been worked out between U.S. DOT and the Office of Management and Budget, it is questionable whether and how that money will be used. It would be a shame if it were just used for marginal, very low-end projects that could never come close to earning a return. There are a lot of projects that maybe BNSF or others could not fund because they do not quite meet our hurdle rate of return, but they are still very good projects that would benefit the transportation industry, customers, and intermodalism. I hope those projects will be considered when the final regulations are worked out. Clearly, in the area of funding, there have been some significant steps in the right directions.

Restructuring Agencies

The third area the commission focused on was restructuring government institutions to better support intermodalism. This was specific reference to the so-called modal “silos” that are part of U.S. DOT. It is interesting that Secretary Rodney Slater, when he was FHWA administrator, attended commission hearings and he was onboard. He understood and he shared the frustration that we were not considering rail, highway, transit, and water at the same time, and therefore we were duplicating efforts and suboptimizing our expenditures on the policies that we put in place. I think we also recognized, as he did, that it was going to be awfully hard to make significant changes to institutions like those within U.S. DOT. There has been some progress and I think it is probably because of the Secretary’s frustrations and his first-hand knowledge of the problems within U.S. DOT because of these modal silos. As a result we have initiatives like the One DOT program, in which the various agencies work together and share information as one effort; for example, in the innovative financing area where Federal Railroad Administration, Federal Transit Administration, FHWA, and the Office of the Secretary all come together to review projects for financing. I think that kind of coordination gives intermodalism its best chance.

We also have the new Office of Freight Management and Operations and that has become a focal point for freight within the department, which is good because there really was not one before. If there was a focal point before, it probably evolved around passenger transportation.

Ways of thinking are changing, not only at the federal level but also at the state and metropolitan planning organization levels. The concept of intermodalism is being internalized both in planning and in funding. I cannot say what grade I would give on this, but I will say we have done better in the policy and funding area than we have in the institutional area, but even that has moved in the right direction.
INTERMODALISM: THE NEXT LEVEL

Let me now turn back to intermodal freight transportation. Where is it today? Where does it go from here? What does it have to do to get to the next level of performance, not only for the benefit of its customers, for railroad customers, but also for the benefit of the country?

One of the unfortunate observations is that the railroad intermodal growth rate has slipped over the past few years. Since 1994, it has been about 3.5 percent compounded annually, where a few years before it was almost double that. It is pretty easy to figure out why. There are three reasons: service, service, and service. We just have not had the kind of product required to compete with the reliability and the speed of the highway system, despite the congestion that occurs in major cities and on major parts of the Interstate system. Like I said, that is unfortunate and sad. I know the answer to this problem—it is about $5,000 a minute, which is what we put into our system. I went to the BNSF meeting in Fort Worth this morning before I came here, just to get a review of our service on BNSF. Since the first of the year, we have been 93 percent on time dock-to-dock for all trailer, container, and carloads on our railroad. In the industry, over three and a half decades, we have never seen this kind of service, especially across the 30,000 mi system.

In the intermodal area, BNSF is about as close to perfect as we can get for our number one customer, which is United Parcel Service (UPS). Last year, UPS shipped 380,000 loads on our railroad—that is more than 1,000 loads a day. We had a brief celebration, or a brief moment of silence, this morning when we started our 8:00 a.m. meeting because we had 10 failures with UPS yesterday. We had a train that was supposed to leave the Chicago facility and go to St. Paul—a 9-hour run. However, on the lead locomotive, the speed recorder did not work and we do not run them without that speedometer. Therefore, we had to take the engines off and get some more engines and we left 2 hours late; on a 9-hour run, we could not make up the time to get to the Twin Cities on time. We had 40 UPS trailers and they got 30 of them through the sort and 10 missed. We had 10 trailers miss and that broke our record of 103,000 trailers without a failure for UPS. That was over 3 months worth of traffic, going back to the day after Thanksgiving when they started their peak. That blew away, by about a factor of three, any prior railroad record. When you think about that, 103,000 trailers over a span of 96 days, over a 30,000-mi network with all the vagaries of weather and grade-crossing accidents and who knows what—that is about as close to perfect as you can get. In fact, last year we were 99.8 percent on time on 380,000 loads for UPS. It is not a coincidence that, when the commission issued its report back in 1994, BNSF was handling 250,000 loads. The business has grown dramatically because the service is there.

I will not stand up here and tell you we treat all our intermodal business in that same way, but we are getting better at it. When the commission report was published in 1994, I do not think BNSF had a load from Roadway, Consolidated Freightways, or Yellow Freight. Now, if you add up our revenues from those three companies—we can also throw in Overnight because it uses BNSF almost exclusively for intermodal—the revenues from less than truckload are now approaching $0.5 billion, and that is all a result of service. This is a harbinger of things to come. If we are going to continue to take business off the highway, we have to provide that level of service, which is expensive and takes a new way of thinking in the railroad industry. It requires that standards be moved up considerably. It requires stripping away the effect of averages, looking at individual movements. We are learning how to do that.

That is the good news. The bad news is that not only does BNSF have a long way to go, but the industry has a long way to go. Until the entire industry feels the same way and provides the same kind of service—seamless service from the Atlantic to the Pacific Ocean, from Seattle to Birmingham, Alabama, from New York to Chicago—we will never do what we should for our shareholders and for our country. And that is a big problem. You go to places like Chicago—I have joked before that it takes as long to get a car through Chicago as it does to run it from Chicago to Los Angeles once you get it—where the situation is critical. We are working together better in Chicago and other places, but we are not working as well as we should or as fast as we should, and that is a problem. It is the high-value goods, the ones that have to go fast and have reliable service, that people pay good money to move, and that is the kind of business we have to get on our railroad system.

We have to do this at the same time financial analysts are calling for us to cut down the amount of investment that we are putting into our infrastructure. One thing I can say about BNSF since the merger is the amount of invested capital in our company has gone up 44 percent in just 5 years. Perhaps some of the innovative financing opportunities, for projects like the Alameda Corridor, also make sense in places like Houston and Chicago. There are lots of places where the rail industry, together with ports and other interested parties, can provide better service in a way we can afford to do it.

Another thing I think is going to help relates to e-commerce. (Everybody talks about e-commerce these days, so I certainly do not want to be left out.) One of the problems with intermodalism is you have to do business with more than one entity, which sometimes makes it geometrically more difficult to get the final product you want or even to secure the contract for it or to order it. Now that we are all enamored with e-commerce as it relates to consumers, we need to recognize that business-
to-business e-commerce has even greater potential. I am working to get the Association of American Railroads to adopt a common website, where somebody will be able to book an intermodal load from New Jersey to Los Angeles or from Seattle to Birmingham with one-stop shopping—order it, pay for it, trace it, one contact, easy-to-do business. I am not having a lot of success with some of my compatriots, but I do not think we will ever truly realize our potential until we do that.

I will add that BNSF is not exactly waiting for the industry, because we already have this little thing called freightwise.com, a transportation aggregator, that we hope will be up and running in May. It has taken about a dozen people, some from inside the company and some from outside the company, and I did not give them a budget. They tell me in e-commerce if you have to ask how much it is you are going to be a failure. I had them tell me what they needed to get this thing done. Customers will be able to go to freightwise.com and if they have a load to ship—we are going to start with trailerloads or carloads—they can go to freightwise.com and receive quotes from truck brokers, from intermodal companies, from railroads, from truckers, and then book their shipment. The shipment can be traced through the final delivery using that system. If you are a supplier of transportation and you have excess capacity, you will be able to offer that capacity for sale and you can even get into bidding situations.

I think this will do two things: (a) it will make intermodalism easier because of one-stop shopping and (b) it will create efficiencies because railroads, in particular, have not reacted quickly enough to our markets. By the time we figure out we have empties, we have missed the opportunity to take those empties we are running across the railroad and put loads in them. This is one of the things the airlines have done so successfully since deregulation, thereby improving their load factor. They have done it through systems like Sabre and now through their own websites. To some extent, we are trying to catch up and to emulate exactly what they have done. There is a lot of advantage to that and it will also help intermodalism.

We have made progress since the commission report came out in 1994, but we still have a long way to go. My industry, the rail industry, has a long way to go.

MERGER ISSUES

Let me just say a word or two about why I think BNSF/CN is something that furthers the cause and is the right step, at least for my company, to take. The quest is not just for intermodalism but for our ability to provide a better intermodal product. This is the principal reason for pursuing this next combination.

I am going to start just by quoting some statistics. I have condensed 40 pages that we filed with the Surface Transportation Board (STB) about a month ago as part of our progress report on how we were doing as a result of the rights we got in the Union Pacific/Southern Pacific (UP/SP) merger. The point I want to make is that although the “M” word (merger) is a dirty word in our industry right now—there have been a couple that have crashed and burned—I believe I represent a company that went through one pretty well. There are two points of conventional wisdom: (a) when these railroads talk about merger and go through this process, they take their eye off the ball and everything deteriorates and (b) we never get the benefits that are included in the Interstate Commerce Commission or the STB filings. It is just a bunch of stuff and we never get the benefits.

I went back and looked at BNSF: since 1994, when we announced the merger and filed the case using 1993 data, and then again in 1995 when the merger was approved and implemented in September, and compared it with last year. I do not care what category you look at, the improvement is dramatic. For example, in the area of safety: lost employee workdays per 200,000 hours worked is down 65 percent. That is the equivalent of 170 full-time people. That is a reduction of 35,000 lost workdays a year. Reportable injuries per 200,000 employee hours are down 35 percent. Accidents per million rail miles are down 32 percent. Grade-crossing accidents are down 40 percent. Freight loss and damage per dollar of revenue taken in is down 34 percent.

Service was 93 percent so far this year and 91 percent last year. It took us a while to get that going because of a lot of locomotives and bottlenecks in the system—$9.0 billion worth of expenditures. In the meantime, while we were trying to do that, we are also taking on about 10 percent of UP’s business, trying to keep the West moving, which we did when they were going through their UP/SP merger situation.

Rates are another subset of this—when these mergers come about, these monopolies raise rates. Rail rates expressed per revenue per thousand gross ton-miles are down 11 percent since 1994. If you adjust for inflation, they are down 20 percent since 1994. That is incredible. A few years ago we were saying that, since deregulation and the Staggers Act in the early 1980s, real rail rates were down 50 percent. In 4 years, our rail rates have dropped in real terms 20 percent.

How were we able to stay alive? It is pretty simple. It is because our cost per gross ton-mile came down 22 percent. In fact, adjusted for inflation, it is down 27 percent. If you look at our expenses in 1994 and compare them with last year, in order for us to get where we were, which was an operating ratio of eight points better, we had to come up with $1.3 billion of
efficiencies in about 48 months. If you go back to 1994, that was on a base at the time of about $6.5 billion of expenditures.

I would not for a minute say the merger brought all those about, but it certainly was responsible for the lion’s share of them. We did not do this on the backs of our employees either, because our employment is down about 3,000 people or 7 percent. It really all came out of office buildings where we had the Noah’s Ark syndrome—we did not need two of everything after the merger: two presidents, two accounting departments, two finance departments, two information services departments. We also centralized some clerical operations. While employment was coming down 3,000 people, we also hired 16,000 people during that 5-year period.

Attrition did not work out perfectly for everybody, but it did take care of a lot of the reductions we went through. Our gross ton-mile per employee is up 44 percent. Our gross ton-mile per car hauled per year is up 20 percent. Our operating income compounded at 13.5 percent and earnings per share at 19 percent. We took eight points off invested capital. We took nine points off invested capital was coming down 3,000 people, we also hired 16,000 people during that 5-year period.

Attrition did not work out perfectly for everybody, but it did take care of a lot of the reductions we went through. Our gross ton-mile per employee is up 44 percent. Our gross ton-mile per car hauled per year is up 20 percent. Our operating income compounded at 13.5 percent and earnings per share at 19 percent. We took eight points off the operating ratio. We took nine points off invested capital that went into the company at a rate 2.5 times what it was before the merger, so that is up 44 percent in 4 years. Our return on total invested capital was +7 percent in 1994, and every year since then it has been in the mid-9 range. We know that is not enough and that is why we are trying to do the next deal.

That leads me to BNSF and CN. It is an end-to-end system. It gives us the Noah’s Ark syndrome again. Because of better single-line service, it will put more business on the railroad, add another $500 million to $600 million to operating income. It is beneficial to both companies. This is not a deal where somebody borrowed a lot of money to buy somebody else. In fact, the day after we announced, one of the investment agencies—I think it was Standard & Poor’s—put us on credit watch for a possible upgrade because of the strength of the system. We figure our free cash flow will be over $1 billion dollars in the first year we are together. I think we can have an operating ratio certainly around 70, with $13 billion of revenue. I think we are—I am not going to stand up here and say that I am prejudiced, because I think the world would say it too—the two best-run railroads in North America with the two best service records. We do not have bottlenecks on our railroads. We are ready.

I guess that answers the question of why do we want to do this now. The reason is because we are ready. We can provide a better product. We can do a better job for our shareholders, and why should we have to wait because some other people crashed and burned and they are still trying to dig their way out of the mess they created for themselves.

We are going to have hearings soon to talk about the railroad industry—where it is going and what this means in the way of other mergers. I do not think it has to mean anything, but that is not for me to decide. There is not another railroad in North America that I would like to merge with right now. I do not think there is one in condition except for CN. That is pretty simple. That is why we are doing a deal with CN and not another railroad. They have work to do and it is going to take some time and I think they ought to have the time to do it. I agree with them. They ought to slow down, get their operations straightened out, and get their own backyard straightened out, but I do not think I have to wait just because they have some trash in the backyard.

We have hearings coming up and we will see where those go and we intend to file our case around the end of March, maybe the first of April. We have asked for a 1-year schedule. Both companies have to get through shareholder approval and we will just see where it goes. It has made life interesting in 2000. When I think of all I am doing with this merger, I do not know what I would be doing if I did not have this to work on. We decided to take a trip. We got in the car, we are in the driver’s seat, we are at the steering wheel, and we think we are in control but we do not know quite where the car is going or where the ultimate destination will be.

I would be more than happy to take some questions on anything or to hear your comments about whether you agree with me or whether we have furthered the cause in intermodalism since the commission put its report in the hands of the public. Thank you.

**Question and Answer Session**

**Question:** How do you assess shipper sentiment right now as far as lining up behind you or behind the other parties on the merger?

**Answer:** We will see how all that comes out. What I hear when I have one-on-one conversations with shippers is: We are tired of mergers. We have been taken to the cleaners. Mergers have caused us a lot of problems. What is going to happen in the East, the UP/SP meltdown, BNSF? We had some problems when you were putting your information system in, but service is good now. We appreciate what you have done. We think you are a well-run railroad. We think CN is a well-run railroad. We think CN is one in condition except for CN. That is pretty simple. That is why we are doing a deal with CN and not another railroad. We would like to merge with right now. I do not think there is one in condition except for CN. That is pretty simple. That is why we are doing a deal with CN and not another railroad. They have work to do and it is going to take some time and I think they ought to have the time to do it. I agree with them. They ought to slow down, get their operations straightened out, and get their own backyard straightened out, but I do not think I have to wait just because they have some trash in the backyard.

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the whole, we do not have a big bone to pick with you. What worries us is where is all this leading? It is pretty easy for me to answer the concerns about BNSF/CN. What I cannot do is answer the concerns about where this all leads. I can say this: I do not think it has to lead anywhere. I guess the fear is that there will be a trans-continental merger in the United States and I really do not know what is to be gained by it right now. I think the four people who put that little ad in the paper had it just right—they need to wait. They need to get their act together in the East, before it would make sense for there to be a combination. I do not see the competitive advantage from doing a U.S. Transportation Command “jumping in first,” because you know the next response is going to be that there is another one right beside you. What is the competitive advantage? Eventually there will be a service and efficiency advantage. But I do not see it being there now. I have given you what I hear and also my answers to some of that all rolled into one.

**Question:** As you look at the intermodal network, it appears that you increasingly have the “haves” and the “have nots” in terms of service. The network is becoming increasingly fragile. As good a product as your railroad puts out, you are not an island. How do we restore the strength of rail networks in terms of viable products to the customer in low corridors?

**Answer:** That is a good question. First of all, I think we have to give the East some time. They went through a very difficult merger process. It was not a merger, but it was a breakup. They took one system that was running pretty well and they tried to split it in two, and some of them ended up with traffic on different corridors that did not have yards or infrastructure to support it. It is going to take them a while to work through that. We have to let that happen.

I believe the customers in the Northeast will get a better product ultimately with the competition that is up there, but it takes time. It took us two and a half years. We took on about $40 million worth of business from UP/SP that we were not counting on when we started out. But it took us about three years to get to the point where we could say we are doing better for our customers than we were before the BNSF merger. I think that has to happen.

The other thing that has to happen is that we have to somehow get an industry mentality that we rise or sink or swim together and that we, as an industry, have to be easy to do business with. We have to be seamless. I guess you can still interchange in Chicago, if you do it right, or if two railroads work together and maybe just run through Chicago. You can still do that or you run into each other’s yard. However, we are still in our own parochial companies that always think about what is good for us and we do not get the big picture. That is why I thought using RailInc, the industry collector of information and data processing company that we spun off from the Association of American Railroads, as a common neutral website or collector of information, order taker, and service tracker. I thought that would go a long way.

It is kind of funny. I have railroads that do not want mergers, and they are saying “Do not bring that to me. We are not ready for that.” On the other hand, they are not doing what it takes to make our industry look like a seamless network. It is really paradoxical.

When in doubt, the reason for BN and SF merging was better service. I got tired of fusing with people who did not want to provide the same level of service and I am not saying it was all one railroad’s fault. It was just human nature. I think that CN and BNSF will do the same thing. We will provide. We have a 50,000-mi network. It is still an island, but it is a heck of a bigger island.

I started with a 15,000-mi network, then moved to a 34,000-mi network, and we will go to a 55,000-mile network. It is marketing forces that are driving us in that direction to produce a better product. You have to get smart, or you have to get bigger.

**Question:** What are your views on the future of the short lines and regional railroads over the next 5 to 10 years? What impact will mergers, bigger cars, and a lot of the other things have on them and is there a future for them?

**Answer:** What is the future of the short lines and regional railroads over the next 5 to 10 years? The paradox is they need to get funding to upgrade their infrastructure. The only problem with that is that they would just as soon it did not come from the $0.043 gas tax that is paying for deficit reduction when we do not have deficits anymore. We would like to take that money back and we think it is our money and we would like to spend it ourselves. But we will be supportive and there are some innovative financing options that are part of TEA-21 or through which short-line railroads might be able to get funding to upgrade their infrastructure.

There is another paradox involved in how that works as well. I have got it big time in states like North Dakota and South Dakota. It is one of the reasons we could handle the grain as well as we did in September–October–November, when there was a pretty good spurt of grain moving to ports and I am talking about Pacific Northwest ports and Texas ports. We, over the last couple of years, have been working to put in these great big loading facilities—110 cars, big cars, heavy cars—and we work with elevators that load the cars within 12 hours, and we get them out to the ports. The ports unload them within 12 hours. We keep the power on the trains and we get three times as much capacity out of those cars than if we just spot a few cars at an elevator and go out...
and get it with a local, bring it back in, put it on a train, and haul it to its destination. We lowered the rates too. We give the shipper a piece of the action to encourage that type of loading because it is good for everybody.

Unfortunately, what happens then, even though people on a short line that cannot handle that volume or even on our own railroad, is that we do not raise their rates. We just lower everybody else’s rates and we are affecting them negatively because we are giving somebody else a better break. I have tried to explain that to U.S. Senators and it is not easy when somebody is saying that I have a branch line that goes through my home town and there is an elevator right there, and what you are doing is putting that elevator out of business. I said, “No. What I am trying to do is move America’s grain and do it more efficiently.”

I am at the point where I think we have to help short lines have the same kind of benefits and that means they are going to need some funding to help upgrade their infrastructure. They are not going away. They have an important role to play. We could never do what they do in terms of the local attention they give customers, and also their efficiencies in those areas where there is not a whole lot of business out of which to get the margin and utility.
DAY 3: PLENARY SESSION (TOWN HALL MEETING PANEL)
Progress Since the 1994 Commission Report
Private Sector Assessments

C. Michael Walton, University of Texas at Austin, and M. John Vickerman,
TranSystems Corporation, Moderators
Joseph Nievez, Quikway Trucking Company
Paul Nowicki, Burlington Northern Santa Fe Railway
Donald Cameron, The Cameron Group and BOSE Corporation
Theodore Prince, Kleinschmidt, Inc.

OVERVIEW

Our town hall panelists, each of whom represents a particular stakeholder viewpoint on intermodalism, have been asked to reflect on the commission report, the responses of the current administration, and the conference events and discussions of the past 2 days. Our goal is to identify and focus on specific items and issues that can be taken from this conference and perhaps translated into some specific action recommendations. Each panelist will make some opening remarks and then we will open it up for discussion.

TRUCKING PERSPECTIVE

Joseph Nievez

Joseph Nievez is President of Quikway Trucking Company and past President of CTA—the California Trucking Association—which many of you know is one of the more prominent trucking associations in the United States. Quikway operates in and out of Los Angeles–Long Beach, providing daily pickup; delivery, distribution, and consolidation; and container and piggyback services.

I want to welcome you all to California. I was in Sacramento earlier this week at a CTA function that included an appearance by California Governor Gray Davis, who indicated that transportation is Number 4 on his list of priorities. The Number 1 priority is education, Number 2 is education, and Number 3 is education. Clearly, transportation is near the top of the list.

Lately, the terms congestion and California have been going hand-in-hand. From a congestion management standpoint, it does not really look too good for the next 20 years. Within the next 20 years, it is estimated an additional 7 million people will locate in Los Angeles County. That is equivalent to a city the size of Chicago moving into this county. Governor Davis’s priorities also include the economy, and to have a good economy we have to get people to work on time. It is going to be a real management issue.

From my trucking perspective, we deal with the routine congestion on the highways and the freeways, and then we have port congestion in the Los Angeles–Long Beach port complex. I do not think we are prepared to meet the anticipated growth predicted over the next 10 years. The port of Long Beach grew 175 percent in the 10 years since 1990. In January 2000, the port of Los Angeles had a 41 percent increase in 20-ft equivalent units over January 1999, and January is generally one of the slower months for imports.

It is particularly troublesome to me that we do not have adequate infrastructure or facilities. We do not have the highways, but to some extent that may be the easier part of the problem to fix, because that can be financed through tax dollars and tax revenues. The greatest deficiency I see is a lack of cooperation with respect to facilities. We have 14 individual terminals and each terminal considers itself its own separate business, which is true to
a certain extent. The ports of Los Angeles and Long Beach are viewed as a “port complex” by trucking companies and by importers. Yet, here in the two ports, trucking companies cannot get a common ID system to identify drivers—it makes me wonder where the spirit of cooperation is. Improved cooperation would also enhance security.

Another thing we can improve on right now is productivity. I have talked to the steamship lines and hear that, when it comes to productivity, it is a labor issue. Labor is not productive. I talk to labor and they say the fault lies with management and the way labor is managed. In my view, productivity is a function of labor and management working together. It is the synergy that is created that increases productivity. To a certain extent, we have seen it with the Teamsters and the truck drivers. I would really like to see it with the longshoremen and the Pacific Maritime Association here all along the West Coast.

I am afraid we are not ready to handle the anticipated growth for this Los Angeles–Long Beach port complex. Importers and exporters, our clients, are very smart businessmen. They cut their lead time to the shortest amount of time because usually they are buying goods and they are paying interest on borrowed money. But they have many options. They can go to another port. They can go to Seattle. They can go down through the canals and go to the East Coast. The funny thing about that is when an importer does not come to the Los Angeles–Long Beach complex and opts instead for Seattle, it is the same steamship line that takes it to and from Seattle. It is the same union that handles the merchandise in Seattle, and we consume that merchandise in California.

I mentioned earlier the need to get people to work on time. The complex here in Los Angeles–Long Beach is a major national economic force. It is probably one of the last “golden geese” we have here in southern California. Aerospace left us a few years ago. The Silicon Valley is going strong; but in southern California, it is the ports that are a gold mine for us. The port is a major origin and destination point for traffic. While you are here you may get on the Long Beach Freeway, you may get on the Harbor Freeway, and you will find it is a mess.

We need productivity improvements here also because of the environmental impact. You all know that California is one of the leading states in seeking clean air. While the terminals are not doing anything differently in February, which is a relatively slow month, than they are doing in October. And if you are busy in October, that means we are going to have a Christmas rush. Usually that is good. But the terminals do not do anything differently in October than they do in February. There is not an extra person out there. There are no extended hours.

We also need productivity because, at this time, we have an extreme shortage of drivers. I saw a gentleman from the Government Affairs Department of Consolidated Freightways earlier this week. Consolidated Freightways is having a difficult time recruiting drivers. This is the full union package, top money, with benefits and everything—$30.00 or $32.00 per hour. They are having a hard time finding drivers. For the most part in the ports, we use independent contractors who are paid basically on a piecework basis. That is primarily because with each trip that you go into the port, there are so many variables involved that for price and for simplicity of pricing, it is much easier to just pay on a piecework basis. Our industry and our importers are not quite ready to receive a base price and then a variable cost, depending on time consumed waiting at the ports.

I do not want to just sit here and tell you we need productivity and then walk away. The Intermodal Conference of the California Trucking Association is involved in a work group with the Steamship Association that represents terminal operators and steamship lines. We also work with the customs brokers here in southern California. We meet about once a month and have been doing so for almost 5 years now. We have come up with what we think will help productivity here in the port. However, I have to tell you our idea has not been embraced by the Steamship Association or the terminal operators. In any case, the trucking ideas are as follows:

- We need a 24-hour fully manned operation at the port, just like the railroads. Railroads can get in there on Saturdays, Sundays, and anytime—24/7. As it now stands, the terminals are not doing anything differently in February, which is a relatively slow month, than they are doing in October. And if you are busy in October, that means we are going to have a Christmas rush. Usually that is good. But the terminals do not do anything differently in October than they do in February. There is not an extra person out there. There are no extended hours.
- We need a communications system now that the Internet and e-commerce are a standard way of doing business. We need a communications system that is used for port operators in the terminals for availability, for conditions at the port, for driver ID purposes. We have been working on the intranet system—we call it the dispatch system—for about 3½ years. We had one vendor who did not quite make the grade. Another company by the name of e-modal stepped up to the plate 4 or 5 months ago, and they just launched the new dispatch system about 2 weeks ago. There are only two terminals that have signed up for it so far. Everyone wants to use their own Internet system
for this operating system. The trucking community is saying, "That is great, but I am really not interesting in seeing the American President Lines (APL) ship going across my screen. I want to know if my 10 containers at APL are available.” We want something for operators who work in the port, not a marketing web page.

- As mentioned earlier, we need a standard ID card. We are going into 14 different terminals and there are about 10 different ID systems. This means our drivers basically have to carry 10 credit card commercial drivers’ license-type documents with them. If they lose one, drop one, we do not get into the terminal.

- We need depots stationed throughout southern California and the Inland Empire. All the major distribution centers are moving out to Ontario, Fontana, and so forth. This includes major retailers like Target, which has a distribution center out there. It is ridiculous that I have to take a full container out there and bring that container right back to APL, when there is an export load sitting in Fontana—a trucker can pick up my empty, take it to the same city, Fontana, and bring it back full. If we would do something like that, it would cut out a complete round on the freeways and there would be less gate activity at the ports. We really need a depot yard out in the Inland Empire, out in the San Fernando Valley, Orange County, and down in San Diego—a yard that is open 24 hours a day.

- Somehow we need to reach out to the importers and exporters and educate them about the process of the ports here. I understand that everyone is working on borrowed money and each day is X amount of dollars in interest fees, but retailers especially appear to never in their lives have done anything on time. Consequently, when we get that Christmas rush—anytime in November is just crunch time—a lot of the retailers receive 55 percent of their goods in a 60-day period. It really stretches the facilities here in southern California.

That concludes my trucking perspective, which again is strictly a view from southern California, although I think often southern California is offered as an example for both good things and bad things. Thank you very much.

**RAILROAD PERSPECTIVE**

*Paul Nowicki*

I am going to focus on what I think were extremely provocative comments made yesterday by Charlie White of the Federal Railroad Administration. I want to make it clear before I say anything at all that I was not offended at all by those comments. In fact, I found them quite insightful. He brought up some things that railroad-ers often do not like to talk about, but they are things we have to face up to.

The first point Charlie made was that Wall Street does not want another rail merger. He is probably right about that, but of course the stock price problem in the railroad industry is not as simple as that. You certainly cannot blame the plunging railroad stocks over the past 18 months on our December 20th announcement. There are two reasons and a lot of subreasons why railroad stocks are in the gutter. You probably noticed the headline or subheadline on the newspaper that came under your door this morning. The NASDAQ hit another high yesterday and the Dow Jones took another dive. Railroads are no different than a lot of the other traditional companies on the Dow Jones—companies like McDonalds, Sara Lee, Walgreens, Abbott Labs—who are all trading at 52-week or worse levels in their stocks.

Of course, we have a special story that has been depressing in the rail industry. Union Pacific, CSX, Norfolk Southern, and maybe Burlington Northern paid too much for their rail acquisitions. After they made those acquisitions, they found that the need for capital investment was even greater than was predicted before the mergers took place and, of course, there are the unanticipated operating problems and run-up in operating expenses that we have seen. The bottom line is that the railroads have not shown the bottom line impacts. They are just beginning to show the bottom line benefits from these mergers.

In the case of Burlington Northern Santa Fe, we have to wait and see what the shareholders say. As Rob Krebs mentioned at lunch, our shareholder vote is going to be in mid-April, and the belief at our company is that shareholders who did not want our merger have left. They have sold their stock and moved on to other investments. Those who have confidence in the company and in the Burlington Northern Santa Fe/Canadian National merger stayed with us.

Why do you care, or why should you care, about this unless your college fund or retirement funds are invested in rail stocks? The key is that rail stock prices are a sign of how much capital investment the railroads can put into their systems for the future. With low stock prices, the pressure is to buy back our stock with our free cash flow and not put it back into the company. That is why it is a public policy problem.

Charlie also posed a series of financial questions. He said that as the economy grows, railroad capacity needs are going to increase. How are we going to finance the needed expansion? Why are the returns on investment not there for railroads? Then he said the days of private railroading may be coming to a close. He mentioned that word nationalization, which we have not really heard a lot since the
Staggers Act. I want to respond with my own question: How can privately financed railroads be expected to compete over the long term with publicly financed highway and waterway systems? We have 50 years of evidence staring us in the face saying that just cannot work. That is the decline in market share by the railroads.

Railroads showed glimpses of promise in the late 1980s and during the early and middle 1990s; however, I think that was a bit of false hope. The benefits of the Staggers Act were kicking in and there was this big leap forward in intermodalism. But guess what—we are headed right back to where we were in the 1970s. We are struggling again and railroads are increasingly become niche players instead of general movers of freight as we used to be.

Railroads invest about $2.50 of capital to generate $1.00 of revenues. Truckers invest about 50¢ in capital to generate a dollar of revenues. As long as there is this enormous discrepancy, the railroads’ slice of the market share pie is going to decline. It is that simple.

One big change that is occurring responds to another point that Charlie made yesterday and that Rob mentioned at lunch today. The railroad industry’s long-standing reluctance to participate in government financing partnerships is changing. We do not have any choice. I think railroads are going to be there with the federal government in a way we have not been in the past.

My last point relates to short-line railroads. Charlie pointed out that short lines are increasingly troubled. He raised the 286,000-lb issue. It should not be a surprise that this issue is coming up. The Class I railroads spun off their weakest routes. The new owners came in with lower costs. They were able to sustain operations for awhile, but guess what? Eventually the bridges wear out, the ties rot, the rail needs to be replaced, a big shipper leaves or switches to truck, and you have a problem. Then an innovation comes along like 286,000-lb cars. It is all just part of evolution. I think Rob made it clear at lunch, when there is an innovation that comes along, we share the benefits—the lower costs—with our customers. However, the old ways become relatively more expensive and that is why the branch-line issue is with us today.

SHIPPER PERSPECTIVE

Donald Cameron

I want to start off with what somebody said earlier. It is a lot easier to look at the past than it is to guess the future. I also want to say that deregulation has been something that certainly has advanced what we do today. You remember the days when we used to have tariff files. Nobody even knows what those are today, but back in the old days, it took 6 hours to find one freight rate, particularly rail. We have come a long way in funneled what we do every day, focusing on productivity and infrastructure. We have talked about technology. We have talked about human involvement. We have certainly heard about the problems in southern California. What I want to make clear is that, as a shipper, whatever problems there are at one particular location, we can always pick up and move to another location.

Consider what happened to the textile industry in the United States. It was in the Northeast. It moved to the South, and now it is for the most part offshore. We are going to see an evolution of all those things coming in the future, and I have to point out that what I see continuously, and you see it here, is trade imbalance. What we carry in these containers, on the rails, how much of this is international and where is it coming from? Are we exporting jobs?

In an earlier session, Ed Emmett had a goodie bag that he was giving away. He pulled out each piece in that bag and said this hat was made in Taiwan, this shirt was made in China, and on and on. The fact is, that is where we are going. From the point of view of American industry, what do we do if we cannot compete? We pick up our plant and move it somewhere else. Those are the things we need to focus on in the future, working with the U.S. trade representatives in Washington.

Let me give you a concrete example. BOSE is a manufacturer of high-quality sound systems. We make a product that we send to China. The duty on that product is 50 percent. We make the same product in China and bring it to the United States. Guess what? No duty. Our problem is that the United States has been and will continue to be a free trader. But what happens with our trading partners—we are not on the same level. We are not into handing out graft to anybody in the world; however, that is part of the culture of some of our trading partners. That is how they operate.

We have to compete with all those kinds of things and when we talk about the good life we have in the United States, the wages, the environment, the taxes we get to pay, the subsidies that other countries give their industries aboveboard or belowboard—all this makes it difficult for us to compete. If given the chance on a level playing field, U.S. business can compete and compete very well in world trade. One issue I have not heard brought up at this conference is the trade imbalance. We have to go after that trade imbalance in the years to come, and I think if you dig underneath what is going on in Washington and around the world, we will find that U.S. businesses are at a disadvantage. We have to change that.
Let’s just talk for a moment about this event. This conference has been a very successful event in terms of the dialogue, in terms of the ideas, and in terms of the thought-provoking material that has come out of it. Unfortunately, we may have a case here of a tree falling in the forest and there is nobody from industry here to listen to it. If you go back and look at the report card this morning, once you get past the number of consultants, the major thing that stands out is the fact there are few industry people here—carriers and shippers. That is just not enough. We cannot sit here and talk among ourselves and ignore industry, because industry is the one who has to deliver the goods. We have to recognize that the industry today, with downsizing, consolidation, immediate stockholder pressures, and other things, has an attention span very close to the expected life of a fruit fly. They are not interested in grand policy discussions and reviews and listening sessions. They are interested in things that will get them results—operational focus, maybe some tactical concerns about how we are going to handle next week or next month or the next peak season. That is their focus.

The government and a lot of the academics are going to want to talk about the strategic issues because that is their focus, and the consultants just want to keep the meter going and they will keep talking. The fact is if we do not reach out to industry and bring them into this forum, events like this risk becoming irrelevant. At the beginning of this conference, we were asked how many of us were at TRB’s first intermodal conference in 1994 in New Orleans. I was, along with about 600 other people, many of them from industry. Why? Because it was of interest to them, it was of immediate concern to them, and it had practical benefit to them that they could go back to their boss and say, “Yes. I was in New Orleans and here is what we discussed. We got a lot of good ideas and look at the papers that came out of that. There were a lot of great ideas.”

We need research, but we need it in a time frame that addresses issues of immediate interest to the industry. If it does not start paying back benefits, financial flexibility, mobility, whatever, within 3 to 6 months, it is not going to get industry’s attention. There are a lot of practical applications that can do that. We are an asset-based network operating entity, yet we do not understand how the entity works. We do not understand how the network is put together. We do not understand how it flows. We do not understand the intermediation, and we do not understand the substitution and transfers that happen within it. I suggest that is a great place to start.

There are a lot of good ideas here, but we have to bring it home and we have to focus on what industry needs. If we do not give it to them, they will not do it and we can sit here forever.

Let’s look at some good news and some bad news. The good news is nine million plus intermodal loads, four straight, five of ten, whatever, year after year growth of intermodal traffic. However, if you back out the international trade—all those containers that are moving with import goods, export goods—and then repositional, with domestic and empty, then I would dare to say we really have not seen any growth in the true domestic intermodal market. What we have done is taken the easy pickings—the low-hanging fruit—to grow the intermodal business. Then, when there is a problem, instead of looking at the fundamental issues, we always have a list of externalities to blame. We have mergers. We have labor. We have the Asian flu. We have the economic issue. Then there are weather problems. Starting in 1993, everybody missed the fact that equilibrium had been reached between the supply and demand and that we could no longer fill excess capacity mindlessly and grow the business.

I think we really have to look at fundamentals. Let’s look at one of the great historical success stories of this region—John Wooten, the wizard of Westwood and the UCLA basketball dynasty. Here was a guy who went out and was recruiting all those that would be today’s McDonald’s All-Americans. I remember reading an interview with Bill Walton, one of the most famous recruits, and he talked about the very first day of practice when he was a sophomore. Wooten took him in and said this is how we put on our socks. It went from there. There was a focus on operational excellence. I think there is a lesson there.

We have heard a lot of talk about supply-chain management and logistics and e-commerce and we have had all sorts of consultants up here telling us about what the future is going to look like. The basic fact is that until Scottie starts beaming stuff around, we have to move it from A to B and we have to get to the fundamental execution of the transportation business. Beneath all the other buzzwords and things we can hear about, we have to execute on basic fundamental performance of transportation services. We are not doing that.

Let’s just talk for a moment about this event. This conference has been a very successful event in terms of the provoking material that has come out of it. Unfortunately, the consultation services. We are not doing that.

I suggest that is a great place to start.

Theodore Prince
I will start out by responding to Ted Prince’s comments. I am a member of the TRB Executive Committee and take to heart what he said about making sure TRB stays relevant.

It is important to monitor, every so often, just how we are doing in an area that is so extremely vital to our nation’s economy. As I listened to the reports this morning, people have indicated that the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) opened the door to our thinking in the public sector and encouraged us to reach out. The Transportation Equity Act for the 21st Century (TEA-21) gave us a first glimpse of some of the tools we are beginning to use as we think about new approaches to dealing with the issue of freight, particularly intermodal freight.

As we approach the period of reauthorization, we need to be thinking about what the next steps are, what has worked and what has not worked, and then setting the table to ensure that the legislators who have to put this together go in the right direction.

States are beginning, in some small ways, to think beyond their borders, although admittedly we have a lot more to do. Freight does not understand municipal, county, state, or even national boundaries, and that point has been well made throughout this conference. When I say states, I am really talking about state departments of transportation (DOTs) and the need for us to think about ourselves as operators of the transportation system or at least a piece of it. I am not talking only about construction. Although many DOTs see themselves as constructors and then maintainers and, in some cases, planners, they do not really think of themselves as operators. This is a critical area for us to focus on, because operations is what it is all about. You have to move it from A to B and you have to do it on time and at a cost that somebody is willing to pay. That is not the normal way we think about things at the state level, but it is one we need to consider. Service is also our business. I think we are beginning to move in that direction as we go into more 24/7 transportation operations centers. They do not affect all of the freight system but certainly some important pieces of it, particularly in metropolitan areas.

Think about the nature of public-private relationships; clearly, there are as many combinations as you can possibly think of in that regard. During the course of commission discussions, one thing I tried (without a lot of success) to get the railroads to think about—particularly in congested metropolitan areas where intermodal is either coming from, going to, or going through—is a partnership between transit providers and freight movers. If the truck has to be there, then we need to think of some different ways to move the people so they get more efficient and allocate limited capacities on our system differently than we do now—not on a first-come, first-served basis as it is today. That is one area where some new territory could be plowed and I do not think anyone has really talked about that. There continue to be some metropolitan areas that continue to try to build their way out of congestion and it
is not going to work. You are faced with citizen revolt, environmental issues, and financial issues, and you cannot get there within a time frame that makes any sense. Hence, there need to be some new approaches.

I agree wholeheartedly on the need for more and better information and I think we are beginning to get some—for example, the commodity flow survey. However, we have to package the information so that the political machine, if you will, can really see and understand these problems we are trying to deal with. I do not believe there is a governor in this country who, when you talk about jobs, does not want more in his or her state, because that is what produces tax revenues. It strengthens our economy. We never clearly demonstrate the link between goods movement and the economy and jobs.

Finding a way to effectively put together that story is part research, part education, and part public awareness. It can happen through metropolitan planning organizations (MPOs). It can happen through outreach to the National Governors Association, the National Association of Counties, the League of Cities, the Conference of Mayors, the Association of MPOs, and the American Association of State Highway and Transportation Officials, just for starters. However, we need to be able to translate the problems and the issues we are dealing with in this arena to an agenda our political leaders can get onboard with.

Education is important because the business community in every state has gone to political leaders and said, “These graduates cannot function as employees in my company. We need to do something about it.” The Chamber of Commerce in the state of Delaware is one of the largest champions for education reform. That is part of the dialogue we need to get going to get some visibility on this issue; otherwise, we are going to be talking to ourselves and I can tell you a whole lot is not going to get done.

With respect to the MPOs, I happen to be in a somewhat unusual position on this, because I chair the MPO for the largest county in Delaware and help bring these issues to the table. In most places and for the most part, MPOs are not equipped to think about day-to-day operating issues. However, they can be very helpful and instrumental in helping frame an agenda for a region from the transportation standpoint so the political leaders can begin to grasp and understand what is going on. The MPO is a tool and an avenue to begin effectively conveying the freight message. For things to happen, the message has to get out to a broader audience.

By getting the message out, we can put transportation issues on a different plane—one where people who do not think about these issues every day as we do can begin to recognize the challenges we face and the economic impact that will result if we do not step up to the plate to find new ways to resolve the issues. Going in the front door and saying we are going to deal with the institutional issues is not a good approach, because you could spend the rest of your life trying to deal with the institutional issues. My sense is that, if you have the right kind of leadership and can identify and seek solutions to specific problems, the institutional issues will begin to take care of themselves.

Clearly, we are beginning to see the emergence of broader intermodal thinking at the federal, state, and local levels and that is encouraging; however, it is nowhere near where we need to be to keep up with the external changes that are occurring. Every one of us can look inside our own organizations and identify things we could do better and we all need to do it. Admittedly, those of us in state DOTs do not always want to hear some of the things we need to hear; however, we need people to deliver those messages in a way we will listen to and understand and then open the door to the change that needs to occur.

I think we are all concerned about service, and if we are not, we need to be. We are all concerned about operations, and if we are not, we need to be. In this way, we begin to recognize and create some commonalities that allow us to take steps that otherwise might be considered too hard or too big to take.

PORT PERSPECTIVE

H. Thomas Kornegay

Although I am tempted to respond to some of the other comments I have heard during this conference, I will instead focus on four specific issues.

First, with respect to the marine transportation system, I want to say that the ports of this nation are looking forward to working on an inclusive system in which freight, as well as passengers, receive the appropriate recognition and funding. I want to add two points that have not been mentioned:

- The mapping of all the navigational waters in the United States that continues to not get done. Our mariners are using marine navigational maps that were prepared in the early 1900s. Because they have been digitized and are accessible on laptop computers, you may think they are current—wrong assumption, they are not.
- Research on low-visibility navigation systems. These systems are used in ports throughout the world, but we do not have one in the United States as far as I know. I am trying to work with NASA in Houston to try to develop one, but we have not gotten there yet.

Second, I would like to talk a little about MPOs and the fact that “ours is not like yours.” In the Houston
area, we have made some progress and not too long ago started to focus on issues other than transit. I have been attending MPO meetings for quite some time and got a seat on their Transportation Policy Council (TPC) last year. Since that time, I have caught them using the word “freight” twice. They used the word “truck” once. I say that not to degrade them but to point out that their focus is different from what I, as a port official, am used to. For example, when they put me on the TPC, they showed me as representing “other transportation interests.” I acknowledged that I am a jogger and a cyclist (as well as a port executive), so therefore I agreed with the category in which they had put me.

The port of Houston has gone through a process with the MPO to get funding to build a railroad. This was a start for them and they did not quite know what to think or how to react when we proposed it. The port found that a lot of the Congestion Mitigation and Air Quality (CMAQ) money was available and not being used in our area. We found a way to use it to build the railroad and therefore take trucks off the road. In doing so, however, we had to “play the game.” We put together a proposal and then the TPC gave me 3 minutes to make a presentation. I was barely through the second slide when they rang the bell and said “Your time is up!” and I still had about 12 more slides to go. The way we played the game was to go around and individually visit every member of the TPC to present our proposal face to face. Then we went to see their alternates, just in case. We made about 40 person-to-person visits to make our case and that is how we got the project done. I think we may have been the first ones to take this approach, because they were all amazed and astounded that we took the time and energy to do that. We got our project approved and we have built two railroad projects with federal funds.

My third point relates to ISTEA. I want to point out that the first word is intermodal and that does not mean driving your car to the airport to catch a plane. That word originated from the marine industry, where we were talking about taking the container off the ship, putting it on rail, and then trucking it to the final destination. That is intermodal.

Fourth, I want to talk about the railroads. As many of you know, there was a pretty big problem in Houston a couple of years ago, and during that time I made what I thought was a good proposal, although some of my railroad friends may not agree with me. My proposal was that all the major cities in the United States have all their industries served by all the railroads that serve that area. That basically means that the short-line railroads in a given area would serve the customers, and the Class I or long-haul railroads would be just that and serve the long-haul markets. This idea is not contrary to what Rob Krebs said at lunch earlier today about going to the grain elevator and doing a 12-hour turnaround. The two can be meshed together, because we have done it in Houston. We have a short-haul railroad that serves almost everybody along the port and we also have a grain elevator and we are doing the 12-hour turnaround.

Not long after I made the suggestion, it just so happened that the railroads in Houston got together and have now formed the Spring Center, through which all the railroads in Houston do their dispatching. They are using all the trackage together and they are not being parochial about it. If it is a Burlington Northern train and it needs think the idea of captive customers is going to have to go. For as long as anyone can remember, this is how the railroads have made their money—they have captive customers. The time has come for that to be reconsidered.

METROPOLITAN PLANNING
ORGANIZATION PERSPECTIVE

F. Gerald Rawling

At lunch yesterday, Greg Lebedev said that it is a fine line between insight and idiocy, and I think I must be here to show that if you are truly bipolar, you can aspire to being both of those at the same time. Before I came to this conference I asked myself a question: “Is the Chicago Area Transportation Study (CATS), which is the MPO for northeastern Illinois, in any kind of state of preparedness for the intermodal business of the 21st century?” You notice I did not put that to my MPO—I put it to myself because I am fairly certain that not too many of the other members of my MPO would understand the question. Therefore, I was left to answer my own question. I attempted to do that by dividing our work program into five elements and grading each of them.

The first element I considered was education and outreach. CATS has an extensive education, outreach, and public awareness program in which we more or less proselytize. Many of you may have heard our famous sound bite: “Chicago is the third largest port on the face of the earth after Hong Kong and Singapore.” This is a fact if you use the volume process as the index of measurement. The Chicago area does something like 11.5 million 20-ft equivalent units a year. The fact that we are not in a traditional maritime location in this context is irrelevant. This is where the processing gets done and it is primarily rail to highway and vice versa. It is our current issue and is likely to be our preeminent issue for some time to come, particularly if Illinois DOT decides we do not need a third airport.
CATS serves two functions: We are kind of a “go-to” place for information and we try to explain the transportation industry to the public at large, because we are one of the first agencies the public at large comes to for explanations of what is going on in transportation. I am referring to that sort of universal disconnect in which the population appears to think stocked grocery shelves are a spontaneous event, kind of like the immaculate conception—you do not have to be there—it just happens and it does not need vehicles to move things to and from. We do some serious work on that issue and I think we would probably get a grade B for our efforts.

We have an intermodal component in the long-range portion of the regional transportation plan. We ought to get a grade A for that, but there is a good chance we could get an F if we relax our vigilance. There was no intermodal component in the previous long-range plan and I would not guarantee one in the next plan unless some people on the inside go to bat for it.

We also have an improvement needs working group. I would give that a grade of B, acknowledging that we have to continue to deliver the product or the grade could slip. We solicited industry for what I call “parochial” improvements to the operational environment. It may make engineering solutions, raise some bridges, signalize some intersections, and things like that, which make it easier to do business. We have managed to dispose of about 19 of those proposals and there are several more in the pipeline. If I make a similar presentation any time again in the future, I hope the numbers will have all gone up.

We publish widely, because we have three staff who have completed all but their dissertations for their Ph.D. We disseminate the information whatever it is, for whatever it is worth, and sometimes it is just number crunching to finesse some investment numbers.

The last thing is we work at specific endeavors that we think are industry-friendly. As an example, I refer to our definitive work on intermodal connectors and the follow-on work we have been doing with FHWA. We also have an improvement needs working group. We published widely, because we have three staff who have completed all but their dissertations for their Ph.D. We disseminate the information whatever it is, for whatever it is worth, and sometimes it is just number crunching to finesse some investment numbers.

Where do we stand at the start of the century? I feel the ground shifting under my feet. I think we have been in a condition in the past several years the French would call “outré”—sort of outside the loop and slightly maverick, slightly in-your-face. It is shifting toward a sort of institutional thing and that is really a mixed blessing, because I work for an MPO that sounds like the one I just heard described. CATS works its intermodal program with about 1.1 percent of the entire regional unified work program budget. We get about $175,000—1.5 full-time equivalents, which is only 40 percent of what your average transit industry puts into routine, repetitive, not sure if we are going to learn anything but we have done it every year for the past 20 years or so, we cannot drop it from the cycle, market research.

SUMMARY OF AUDIENCE COMMENTS FROM TOWN HALL MEETING

- How do we bring new technology into the marketplace so that it is successful as a commercial ongoing venture, as opposed to technology for technology’s sake? If we consider the example of doublestack rail, which at the time really involved two technologies. One was the “6-pack” with the bulkhead car that SeaLand was running between Los Angeles and Houston on the old Southern Pacific. The other one was what came to be known as the interbox connector car (IBC). The IBC was developed to get intermodal trailers, trailer-on-flatcar, into New York City, where it had been decided they had to have an intermodal terminal in every borough. The problem was, it was a public policy initiative that said we have to have this technology and it never took off. It sat there until Thrall and then American President Lines got together and said, “This could resolve an issue we have, which is that, unlike Conrail which can run an 80-car train, the western railroads are constrained by siding length, and if we cannot go long, let’s go up.” As with most generic research, you are going to have successes and failures, but this was an example of research that was of practical use to the industry and the law of unintended consequences took over.

- Do we know what the profitability of the industry is? Probably not, on an industry level; however, at a company level, we know the profitability of that small piece of the intermodal action. For example, 10 years ago, intermodalism was the area of profitless boom in our company. It was the only high-growth area and it was basically a breakeven business and you cannot keep with that situation year after year. We found our backs against the wall and we found a way to make it profitable—better pricing, more efficient building of trains, filling all the slots, and so forth. Perhaps the biggest thing we did to make intermodal profitable was to get out of the short-haul lanes. We culled anything less than about 1,000 mi. Is that good public policy? I do not know. We put a lot of volume back on the highway. But now intermodalism is as profitable for us as merchandise, carload, boxcar-type business. The growth has slowed down. The big opportunity for growth is in these shorter-haul, medium lengths of haul lanes. That is going to be, in my opinion, the next frontier for the railroads, to see if we can break into that segment at respectable profit margins.

- Profit would be nice; however, as a start, we need to understand what is moving before we make a decision to get out of this market and into that market or to open gates 24/7. More and better data are needed to indicate whether a specific action is appropriate or has been given a chance. There is a need for objective measurement.

- The private sector has to remember that their decision(s) can have an enormous impact on the public side.
When a company decides that some activity is no longer profitable and they do not want to do it anymore, there are secondary impacts on the public side, particularly with respect to infrastructure. There is a need for the private sector and public sector to think about these impacts together so they can be dealt with in an organized fashion. Too often, things happen that result in a reactive approach, which does not make the public sector look very good. Although major changes in a company’s activities may help their bottom line, there are other impacts the private company is not directly feeling. However, these impacts filter into other places and probably have some impact on the movement of people or goods in their particular areas. It is questionable whether we can ever get to the point where we think about these things totally holistically.

- Many in both the public and private sectors have expended considerable energy since ISTEA to develop better relations between the freight community and the MPO process and that was reflected in some earlier presentations. It is unclear whether the federal government and the states will move beyond infrastructure construction and assume some role in operations. There is a move toward more 24/7 multimodal operations centers in metropolitan areas and perhaps this suggests that the public sector needs a similar strategy — this may be happening in some metropolitan areas and states already. Freight needs to be at the table when multimodal operations centers are developed to ensure that freight operations are considered in infrastructure construction plans.

- Significant strides have been made in Texas, particularly when the Texas Highway Department became the Texas Department of Transportation. They now have a Port Advisory Committee, representatives from Texas ports who get together and tell Texas DOT what they would like to see done. The state now does studies on ships and ports — this is progress.

- Despite the criticisms that have been leveled from both sides over the past few days, we need to look around and acknowledge that we are probably the best in the world. We still have areas that need improvement, but nonetheless we are a world leader. We have a long way to go, but we are doing the job, whether it is by the private sector, public sector, or a collaborative effort.

- Solving problems in the 21st century will require that the public and private sectors come together. We are going to see more public-private partnerships. We are going to have to start sharing information. We are going to have to start planning together and this message needs to get out to everybody. That is the key to solving current and future problems.

- From a railroad perspective, there will be a need to fill in the missing link in the dialogue if we do move toward more public financing assistance in rail projects.

The railroads will have to be there to explain and justify and make their case.

- Caltrans has made significant strides in recent years to beef up their operational abilities and they have done a pretty good job—in part because they have been forced to by circumstances. Caltrans felt pressure to not do maintenance during peak hours and daylight hours until some of our maintenance and construction activities had been moved to the nighttime hours. There are problems with that. People are not as aware at night—the other drivers on the facility and the workers themselves. It is difficult, especially if you do something like rotating shifts so that one day you are evening and the next day you are not, and the next day you are days. You never really get used to your cycle. We are working on these issues and setting up a system. There will be closures at night, in some cases in congested areas. Going to 24/7 is not going to solve all the problems, but it is going to improve some things operationally on the highways around the ports. We need to work closely with the traffic operations centers to know where the road closures are and provide drivers with real live data via the web indicating where the road closures are and where the accidents are and inform customers so they get the service they demand. Taking advantage of those things is a very wise thing for the industry to do. Caltrans is an active and anxious partner to work with industry to improve operations and to improve the system to make it safer for everyone.

- At a recent intelligent transportation system exhibition, someone from southern California was displaying on the Internet every major accident that was out there affecting traffic, which is more media impact than road closure due to construction. Yet this information was viewed as classified and could not be put out to the public so they could make alternative arrangements. It is like on Interstate 95, they have signs that say you have just passed the last exit to avoid sitting in traffic for 4 hours. There are some basic things we could be doing to eliminate the congestion and offer alternatives to get around it.

- We are really talking about an overall culture change. More and more shippers or receivers of merchandise are going to a second shift and even to a third shift. If I pick up a container at 11:30 at night, what am I going to do with it? We have signed on to a web page that shows the highways in southern California and it is red for less than 20 mph and yellow and green. That is a real time-saver for us and our dispatch is constantly on that web page and talking to our drivers. However, if we are going to be able to handle this huge influx of merchandise that is anticipated in the future, we are going to have to do more. The port is not going to be extended up to downtown Los Angeles.

- We are likely to see more and more state DOTs moving to operations 24/7 and putting information up live. This is being done very aggressively in Delaware. It
could be compared with a ground version of air traffic control. We cannot control the people on the road, but we can at least give them information about what is going on. Delaware is probably the first DOT that has successfully completed the purchase of an AM radio frequency that will allow us to broadcast and update every 60 seconds traffic conditions in the more congested area of the state. The whole idea is to have the best set of information about what is happening on an identified set of road mileage and get that information to the users and shippers in a timely manner. More and more areas are going to this kind of information dissemination. It is not a silver bullet, but it is a useful tool.

- On the issue of 24/7 at ports on the West Coast, it is not clear that it is necessary right now. I honestly have never had a request from anyone in the trucking business or any of our shippers to open the gates 24 hours a day. They have asked me to extend the hours and we have done that. We open as early as 7:00 a.m. and we close as late as 7:00 p.m. However, we do not have people who want to come pick up loads earlier than that or later than that. I have to go back to what was said earlier. If they did pick them up, where would they be going? The largest share of the cargo we handle is destined for Houston, and Home Depot and Walgreens are the only two retailers I know that stay open all night.

- On the West Coast, you basically have three operating shifts: (a) one that starts at 8:00 a.m. and goes to 5 or 6 p.m.; (b) one that starts at 6 p.m. and goes until 3 a.m.; and (c) what they call the “hoot owl” shift, which operates between 3 a.m. and 8 a.m. The problem is you have to pay that 5-hour shift as much as you would pay the 8- or 9-hour shift. Because that is not a routine operating window, your best workers from the daylight shift will say, if I can work for 5 hours and make the same amount of money, I will work the hoot owl shift. Then you are left at 8 a.m. waiting for the casuals to show up from the hall. This is a labor negotiating issue mentioned earlier that management needs to deal with.

- Another problem has been that the open hours of the gate have been the result of some external trauma—whether due to factors here, such as the Union Pacific/Southern Pacific problems, or overseas, such as the Kobe earthquake, or anything in between. It takes time for customers to change their receiving patterns. Although, as one of the truckers indicated this morning, there are plenty of truckers serving customers who are open 24/7. If you think about Los Angeles, shipments may be going as far as Buckeye, Arizona, where Wal-Mart has a distribution facility. There is a fair amount of this traffic, so there is a desire for some truckers to get in here at midnight or 1:00 a.m. and hit the road and be 300 mi out by daylight.

- In working closely with terminal operators, I have found that terminals are open 24 hours a day, and they are working at unloading and reloading the vessels. That is the most expensive portion and the number one focus for the terminal operator. The landside portion of delivering the containers to the trucking community is, at most times, open only from 8:00 a.m. to 5:00 p.m. When they are open from 8 to 5, you can go to the port and find 10, 12, 25 trucks waiting in line. In October during the Christmas rush there are going to be 150, 200, 250 trucks waiting to get in. The issue with the terminals and why they do not want to open even a second shift, much less 24 hours, is that they do not think they have enough business to support an extra shift or that hoot owl shift. Because a waiting truck is not a cost factor to them, they really do not care how many trucks are waiting outside. Some of the terminals are fairly close to the Long Beach Freeway and there are times when a truck cannot get off the off-ramp on the Long Beach Freeway because of the line going into the terminal. Plenty of receivers of merchandise or shippers of merchandise are open at least a second shift in 24 hours. Another thing is that, in central California, agriculture is a huge industry and a lot of it is for export. A truck driver can pick up an empty here in Long Beach at 11 p.m. and be loading in Fresno or Lindsay at 4, 5, or 6 a.m. Eventually we are going to get to 24/7, exactly when is uncertain.

- Another issue relating to operating practice, especially in southern California, where if you hire clerks to work the gate and there are three, four, or five of them, you have to hire 20 longshoremen to work inside, to work the transtainers, the ground, and all of that. If you move to a reservation system, you can say, although everybody wanted to go wheeled, there is just too much business and not enough land. Therefore, you are going back to the stack. When Wal-Mart comes in with 100 loads, they do not need all 100—they need 10. All 100 get grounded and Wal-Mart says I want these 10 picked up tonight. Those 10 can be mounted on the chassis and ready for pickup, as opposed to coming in, waiting in line, waiting to get in, waiting for a chassis, waiting for the transtainer. What you need to do is say I can hire clerical labor and keep the gate open, but I am going to do the mounting and premounting either daylight or on a reduced evening shift. This requires addressing a basic labor management problem that says I am going to bring in clerks on this shift but not yard men.

- An earlier presentation alluded to a communications or dispatch system. When we first sat down with the terminal operators here in southern California, their number one issue was “We do not know what work we are going to be doing tomorrow.” When you have a container to pick up, I do not know which container of the 10,000 in the yard is going to be picked up until a driver shows up with the document that says deliver APL 1-2-3. That container could be on the bottom, with four containers stacked on top of it and eight containers around
Part of the dispatch system would tell the terminal, after the importer has decided which container he wants, that the driver can pick up APL 1-2-3 on Tuesday afternoon. The terminals are working during the night, moving containers around, and here it is the weekend and the container still sits there. Along comes Monday evening and they say, “Quikway is going to be in here tomorrow afternoon and they are going to pick up this container. Let’s put it on top of the stack, better yet, let’s mount it on wheels so that when Quikway shows up, he can be in and out in 30 minutes.” This is just part of the communications system that we are trying to get going and it has been real slow because each terminal has its own proprietary system. Each system, in their eyes, is the best. It is the best for marketing purposes but not what is needed for just operating in the system or operating in and out of the port. Significant improvements could be made in communications and dispatch systems.

- Many ports operate only as landlords, leasing properties and the terminals to individual operators, each a different company. You also have some steamship lines that operate their own terminals. SeaLand operates their own terminal, yet we have international transportation services here in Long Beach that work for 14 or 15 different steamship lines.

- Two points from U.S. DOT: we do not have unilateral authority to reorganize the agency and we are frustrated by the level of earmarking for our programs, which defeats the purposes of planning and other rational processes that are out there to make good transportation decisions. Even though you get borders and corridors, it is heavily earmarked on the other side. Considering those two factors, as we look to the next reauthorization and people saying they want more money, what do they want the money for and how do they want us to select recipients for the money?

- The problem sometimes is that the MPOs determine which projects get priority and often they do not understand how to rank a freight project because the only thing they know how to do is peak cars per hour. Those on the freight side may not even know what that is. Those making decisions at the MPOs do not know how to value a freight project.

- One suggestion is that any public financing for rail projects be offset by the public benefits associated with those projects—the pollution, the congestion mitigation, the safety improvement. To the extent that those can be quantified, public financing to help a project that happens to be a railroad facility is appropriate. These projects also have to compete with the other projects in the hopper for Congestion Mitigation and Air Quality (CMAQ) grants or whatever the funding program might be.

- One area that needs to be looked at is funding operations. We may need to look at how funding is distributed, because there are issues that go beyond state responsibilities. If we truly are going to focus more on some of the operating issues, we have to find a way to include things that would not come up high on a state DOT priority list. How we can get these kinds of things addressed is going to be a challenge and more than just the state DOTs have to be involved.

- I think we need to understand why earmarking happens. It is not just because there are 535 people thinking they all have to have a project. There are other things behind it. The transportation industry needs to step forward to show how limited dollars can be better spent and everybody can get some benefit. I know everybody wants to go home and cut a ribbon, but we have to be smarter about figuring out what people can cut ribbons on—it does not have to be a project that was earmarked in an authorizing bill.

- The private sector panel on Day 1 was almost groundbreaking, in that someone acknowledged that perhaps the nation needs to consider some sort of industrial policy in terms of optimizing the transportation network in this country. That means you cannot dredge every river. You cannot make every port a load center. You are going to have to go back and say this just does not make sense. You might have been a great port once, but you are a regional port now. We are not going to do that, because it is a political hot potato. But the funding is limited and we have to optimize what is best. We have to figure out where it comes from and certainly in these public-private partnerships, there have to be people putting up some of their own money and not just looking to the federal government or even the states to pay for all of it. We are in a limited resource world and we have to make the most of what we have. If you look in Columbus, you have one example of a great public-private partnership and you have an equal number of examples of dismal failures where they built it and nobody ever came. Those failed projects are about ego, not economics. We have to focus on what is best for the country and that means making decisions that may not be politically popular.

- In the budget literature of a previous administration, there was a phrase called “disjoining fundamentalism,” meaning as you budget you do it inch by inch and you do not look at the big picture. I do not think we should use words like industrial policy because we have one even if we do not have one. Every day, we have to make environmental decisions, we have to make transportation decisions, we have to make community development decisions, and everything else—the point is we need to make decisions more strategically.

- When we try to move toward a national transportation system and do it strategically, the level of support is not very great; the only alternative is to take the money and say 90.5 percent goes to the states and let the states decide. For many issues, that is a good solution; however, for other issues that involve a national system, it is not a
good solution. There remains a quandary about how one makes those kinds of strategic national decisions with all the factors that come into play.

• Is there a way the potential of private sector investment, along with public money, can be used as a lever to help steer decisions to where it is most cost-effective and cost-efficient to invest the public dollars? Some thought should be given to finding a way to marry public and private resources in a way that the private sector can say, “I am not putting my money in dogs—I am putting my money only in things that make sense.” It might not be a railroad. It might be getting rid of a bridge. Such an approach could be very cost-effective, using the potential of private sector resources to get the public sector to focus more cost-effectively.

• With regard to reauthorization, the original TEA-21 included a program that was set up to allow short-line railroads access to capital for improvements. But there has been no funding put into this program. We have heard a lot these last couple of days about the 286K issue, which is a very serious issue. The “do nothing” alternative means more trucks on already congested highways. There has to be a way to get to the people drafting the reauthorization and get some money into this program because there is a need for it.

• Three of the strongest tools that have helped intermodal have been the CMAQ funding for those communities who have gotten creative; the corridors and borders program was well-received, even much of the funding was earmarked; and the Transportation Infrastructure Finance and Innovation Act program, which unfortunately is not very well understood by the freight community. It could be a much stronger tool for them if they knew more about it and how to put together these partnerships like the Alameda Corridor and learn how to use federal money as an incentive to attract other investment.

• It might be worthwhile for USDOT to look at the earmarks and see what kind of projects are getting done. Several are not going to get done. Look at the ones that are getting done, and that may help frame the thinking about how new programs or changes to existing ones should be formulated to get mainstreamed. If you look at earmarking from the positive standpoint, they become pilots. How do you then take pilots and move them more into the mainstream so that other areas can replicate the model or get funding?
The goal of the conference is to assess the current state of readiness across the three sectors—commercial, public, and defense—and identify elements of the 21st century action agenda for global intermodal freight. Clearly, before the Intermodal Surface Transportation Efficiency Act of 1991 there was a huge gap among not just these three sectors, but also within each individual sector. I think we have come a long way and I think attitudes have changed dramatically. That is part of what this conference is all about. It is not just education and sharing information, but it is about influencing attitudes and influencing direction.
Appendixes

Appendix A: Intermodal Freight Transportation Report Card

Appendix B: Summary of U.S. Department of Transportation Actions on Recommendations of the National Commission on Intermodal Transportation

Appendix C: Conference Exhibits and Posters

Appendix D: List of Conference Participants
APPENDIX A

Intermodal Freight Transportation Report Card

Summary of Responses

In addition to distinguished speakers and panelists offering assessments of and case studies illustrating the nation’s state of readiness to accommodate intermodal freight movement, the Conference Steering Committee provided each conference participant with a report card (Figure 1). Based on their individual knowledge and experience, each participant had the opportunity to post grades on progress to date and appropriate or desired future government action on 11 recommendations from the commission report. Participants also were asked to offer opinions on major intermodal challenges and opportunity in the future, how those challenges can be met or those opportunities exploited, and who can or should play a key role in meeting future challenges.

OVERALL RESPONSE

A total of 74 usable responses were submitted by participants, for a response rate of 32.5 percent. A profile of respondents, split between public and private sectors, is provided in Figure 2. Although this response cannot be considered statistically significant, it does offer insights into the views of a cross-section of those involved in intermodal freight transportation planning and operations.

As indicated on the report card, participants used the following grading scales:

- **Progress to date (scale of 5–0)**
  - 5 = Significant progress
  - 4 = Some progress
  - 3 = Very little progress
  - 2 = No progress
  - 1 = Unable to respond
  - 0 = Inappropriate activity in my opinion

- **Future involvement (scale of A–E)**
  - A = Status quo (current situation)
  - B = Encouragement (communication/outreach)
  - C = Support (dollars)
  - D = Enabling legislation
  - E = Government mandate

**Commission Recommendation 1: Maximize safe and efficient movement of freight by incorporating individual modes into a National Intermodal Transportation System (NITS).**

Overall, respondents thought there had been very little progress toward incorporating modes into an NITS, giving it a composite rating of 3.15. Federal respondents tended to offer higher ratings, and local government respondents and those in the private sector tended to give lower ratings. When asked what would be an appropriate or desired level of future government action to make this happen, more than 80 percent thought more federal involvement was needed (41 percent thought more federal dollars were needed; 42 percent thought legislation or a government mandate was needed).

The comments and reasons given for ratings were grouped into three clusters:

1. There is still an individual mode approach to transportation.
   - Primarily separate funding pots, separate administrations.
GUIDELINES FOR COMPLETING THE "REPORT CARD"

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) offered the following vision for U.S. transportation policy:

Section 5005 of ISTEA established the National Commission on Intermodal Transportation to "make a complete investigation and study of intermodal transportation in the United States" and to recommend ways to speed national conversion to an efficient intermodal transportation system, and identify the resources necessary to do it. In 1994, the Commission submitted a report to Congress setting forth recommendations relating to policy needs, investment issues, and a restructuring of government institutions to improve intermodal transportation.

This report card lists the Commission recommendations that relate to intermodal freight transportation. Based on your knowledge and experience, please comment and enter a numeric rating on the level of progress made since 1994 to implement Commission recommendations and achieve the vision presented in ISTEA. Please review each Commission recommendation and enter a numeric rating in the right-hand column ("Progress to Date") using a scale of:

5 = Significant Progress
4 = Some Progress
3 = Very little Progress
2 = No Progress
1 = Unable to Respond
0 = Inappropriate activity not in my opinion.

In the right-hand column ("Future Improvement") of the report card, please use the following scale to indicate what you feel is the desired or appropriate level of future government efforts to promote greater efficiency in freight movement:

D = Government Mandate
C = Supporting Legislation
B = Encouragement (communication/assistance)
A = Status Quo (Current Situation)

Complementing the formal conference presentations and in addition to offering your evaluation, displays are provided in the exhibit area highlighting activities and accomplishments that relate to each of the recommendations.

A summary of the report card responses will be presented on the final day of the Conference. To ensure your views are included, please return your completed Report Card to staff at the Registration Desk by 5:00 p.m. on Thursday. All responses will remain confidential. Your opinions will help to assess progress to date and to identify areas and issues to be addressed in the future.

FIGURE 1 Intermodal Freight Transportation Report Card
Integration requires new thinking. Individual modes are often parochial and self-serving.

• The different modal groups need help in collaborating.
  • Each transportation mode continues to focus only on its own needs.

2. The progress to date has not been systemwide.
  • Good work on highways, but only on highways.
  • Excellent start and need to continue to emphasize National Highway System (NHS) connectors.
  • We know where the systems are, and we know how they play a useful freight function, but we do not know how to plan and fund.

• NHS designation is a big step in the right direction.
  • Critical issue is just getting started.
  • Must be able to combine or establish intermodal focus.

3. Questions about whether government has and should have a role in making NITS become reality.
  • The idea of NITS has been rejected as an inappropriate federal activity. The U.S. Department of Transportation (U.S. DOT) can, however, provide leadership in infrastructure development.
  • The commercial sector appears to be moving in this direction.
  • The marketplace drives transport choice and creates the intermodal system, not government.
  • U.S. DOT abandoned NITS.
  • NITS is defined for all modes but is limited by an inability to adapt it quickly enough to private sector changes in truck, rail, and port terminals.

Commission Recommendation 2: Ensure federal policies foster development of the private sector freight intermodal system and reduce barriers to the free flow of freight, particularly at international border crossings.

The average score on progress to date was 3.15, indicating that respondents thought there has been very little progress. Consultants gave the lowest grade, followed by local officials. Respondents from federal agencies tended to give higher grades. When asked what would be an appropriate or desired level of future government action to foster development and reduce barriers to the free flow of freight, more than two-thirds of the respondents thought there should be legislation or a government mandate; an additional one-fourth of the respondents thought more federal dollars are needed to carry out this recommendation.

Open-ended comments from respondents centered on three areas:

1. There needs to be more support to federal agencies with border responsibilities.
  • Federal border agencies need faster processes.
  • Use technology solutions to speed movements while providing customs protection.
  • Border technology initiatives and funding issues and priorities have stalled or halted projects. Private stakeholders have lost interest and faith in yet another government program.
  • Customs clearance programs must move forward: automated commercial environment (ACE) versus International Trade Data Systems (ITDS).
  • Little progress in improving paperwork and clearance process at customs.
• Institutional, safety, and environmental concerns have greatly limited improvements at some border crossings and ports.

2. More cooperation is needed between and across agencies and between the public and private sectors.
• More needs to be done at federal, state, and local levels to reduce barriers. Intelligent transportation system (ITS), process and policy changes.
• Reduce barriers but not at the expense of transportation safety and security.
• Virtually no cooperation between agencies, poor use of technology.
• At least there is now an awareness of the needs of the industry.
• Planning factors are very important and must clearly define the public role with private facilities.
• Not enough focus on the total logistics impact of intermodal freight systems.
• The Federal Highway Administration (FHWA) has begun to develop the analytical framework on freight forecasts but has done a poor job in getting the information circulated to the states and metropolitan planning organizations (MPOs) not directly connected with their pilot projects.
• Projects have treated symptoms and not the underlying disease.
• In some border regions, local issues are probably more important.
• Eliminate regulatory barriers including labor-related ones.
• Some states have implemented more effective permitting processes; others have not.

3. More funding, more flexibility, and fewer earmarks are desired.
• The Transportation Equity Act for the 21st Century (TEA-21) Sections 1118–1119 are steps in the right direction; however, there is limited flexibility in most federal dollars.
• The Borders and Corridors program is not funded well enough. Congressional earmarking is also a problem. The Transportation Infrastructure Finance and Innovation Act (TIFIA) thresholds are too high.
• Policy is there, but funding is not.
• Tax incentives.

Commission Recommendation 3: Fund federal infrastructure programs at authorized levels and strategically target these funds for maximum effect.

With regard to future involvement, more than one-third of the respondents thought that more federal support dollars are needed. About half of those responding thought that there should be more legislation or a government mandate to ensure programs funding at authorized levels. Only a small share of respondents thought the status quo or further encouragement could address this need in the future.

The comments and reasons for the ratings were clustered into three groups:

1. More funding but with fewer earmarks.
   • Need to define maximum impact carefully.
   • Divide transportation budget into current maintenance and new development categories and put serious funding into freight and in projects related to the global economy.
   • TEA-21’s minimum guarantee ensures greater funding.
   • Funding is at authorized levels but there are too many earmarks.
   • It remains a political and highly influence-related system.
   • Earmarking ties up resources; it is costly to develop new projects.
   • Earmarks and special interests supersede real need and follow-through on projects.
   • Earmarking and pork are evidence of continued bias.
   • All funding is suboptimal because of earmarking and congressional micromanagement.
   • Permit multiple-year commitments of funds.
   • Need federal funding for truck lanes.

2. Funding is highway focused, but needs are across all modes.
   • There has been no progress in the maritime component.
   • Unsure what authorized levels are, but Borders and Corridors is not enough.
   • TEA-21’s guarantee plus increase was a positive development; need some for aviation.
   • Funding of highways is okay; rail, maritime, and air are underfunded.
   • Significant delays in some infrastructure programs [e.g., Railroad Rehabilitation and Improvement Financing (RRIF)].
   • Very good start; expand the program based on lessons learned.

3. More needs to be done at the state and MPO levels to recognize freight needs and plan on a regional and multistate basis.
   • A mechanism is needed in the next reauthorization to target multistate freight and trade planning and implementation.
   • MPO freight plans are limited and political.
Most infrastructure funds are spent by states. More funding needs to be made available for educating state and local freight planners.

**Commission Recommendation 4: Expand innovative public and private financing methods for transportation projects.**

An overall grade of 3.58 on Recommendation 4 suggested that respondents thought there had been some progress in expanding innovative financing. Again, the respondents from federal agencies offered the highest ratings. Looking at future involvement, three-fourths of respondents would like to see either more federal dollars or additional legislation. No one thought the status quo would be adequate.

The comments and reasons for ratings were grouped in two clusters:

1. More flexibility and a multimodal approach are needed with innovative financing.
   - Not multimodal financing.
   - Useful in growth areas and where there are obvious revenue streams; otherwise not very effective.
   - Need more flexibility in programs—for example, federal aid used on publicly owned freight rail infrastructure.
   - TIFIA is a start, but it is too little and thresholds are too high.
   - Much has been accomplished by the highway sector; record other modes and across modes is not as good.
   - Require rail, airport, and marine planning as part of MPO regional transportation plans; encourage designated funding for freight projects.
   - Build on current progress with fine-tuned programs and more dollars.
   - Thanks for Alameda Corridor support; now we need help with truck lanes.
   - Need more flexibility in the use of tax-exempt financing.
   - Significant delays in some infrastructure programs (e.g., RRIF).
   - TIFIA, and so forth.
   - Financing is still gas tax driven.

2. Greater coordination and cooperation are needed to expand public-private financing in the freight area.
   - Coordinate this with federal funding incentives.
   - Remove the notion that the public and private sectors are totally separate and different from one another.
   - Good cooperation between public and private sectors.
   - MPOs still are mostly focused on passengers.

Many new examples but still really in the prototype phase; still too difficult to put pieces together.
- Public-private financing partnerships critical to success.
- More creative financing methods need to be developed for small capital projects such as for shortline railroads.

**Commission Recommendation 5: Allow greater flexibility and expand eligibility in the use of state and federal transportation funds for intermodal projects of public benefit.**

The average grade was 3.32, suggesting that most respondents believed that there has been relatively little progress. The highest average score on this recommendation came from federal and state respondents, and the lowest average score came from local officials. This may suggest that local officials have not experienced or realized the flexed dollars as much as the federal or state leaders thought they would when making these funds available. Almost half the respondents thought that additional legislation would be needed in the future to achieve more funding flexibility and direct funds toward intermodal projects.

Respondent comments and reasons for ratings clustered into two categories:

1. Concern over the issues of modal (instead of intermodal) focus, earmarking, and insufficient attention to freight.
   - Funds are still very modal.
   - Local agencies and modal silos have been too resistant to change; they need a compelling reason.
   - Use the Internet and websites to solicit multimodal projects and eliminate local and regional (FHWA) control if necessary; give people a wake-up call!
   - Limited ability of freight projects to compete in programming process. Greater awareness of economic development is needed.
   - Alternatives to highway still not visible.
   - California does not have the ability to fund freight intermodal projects.
   - MPOs still focus on passengers. Even the Alameda Corridor project had benefits beyond intermodal freight (i.e., construction jobs).
   - Too much money is still unavailable to private facility operators for improvements that have significant public economic benefit.
   - DOTs are still highway focused. MPOs are passenger focused.
   - Still too modally focused and too much earmarking of project funds. Some progress, especially for rail, but little has been realized from it.
2. Increased flexibility and more coordination are needed.
   - Most states have supported flexibility in the use of state and federal funds, but with the increased focus and interest in rail corridors, we support dedicated funds for that purpose.
   - Coordination is needed with state and local funding mechanisms, such as bond issues.
   - A process is needed here that sets out specific criteria for targeted public-private benefit investments.
   - TEA-21 provided greater flexibility and expanded eligibility. Now is the time for the federal government to step back and let states use flexibility.
   - Greater flexibility is important to intermodal projects.
   - Trucks are a major problem. All funds should be available.
   - Highway trust fund, harbor use tax, and so forth. No real flexibility exists in funding today. It is simply lip service.
   - Local transportation groups should have more say over use of funds.

Commission Recommendation 6: Provide federal funding incentives for intermodal projects of national or regional significance.

The overall rating was 3.36, suggesting respondents perceived that relatively little progress has been made. Respondents expressed a desire for more action on the part of the federal government, in the form of more federal dollars in the future, more federal legislation, and a government mandate for incentives.

The comments and reasons given by respondents for their ratings centered on two areas:

1. Praise for the programs under TEA-21—but more money is needed, particularly for intermodal freight projects.
   - Programs like Borders and Corridors are useful but the process needs more thought and a lot more money.
   - Programs like TIFIA and projects like the Alameda Corridor are still the exception.
   - There are too many hurdles and requirements for the few programs out there.
   - Innovative financing mechanisms and programs like Borders and Corridors have provided a strong incentive platform.
   - One DOT approach; federal funds play a key role; need to move forward.
   - TIFIA and RRIF are good.
   - More major projects like the Alameda Corridor are needed—projects that are on time and on budget.

2. More needs to be done to make people aware of programs and incentives and that these incentives should be in addition to other funding.
   - States must not reduce other freight funding by the same amount.
   - Need to look closely at sources of funding.
   - The Alameda Corridor Transportation Authority and TIFIA loan program are great examples of past success. Many people do not understand the resources available.
   - Although there are some efforts, they are disjointed.
   - 1118–1119 are great programs but clearly need additional funding.
   - Programs like the Alameda Corridor are doing well.
   - Pork rules!

Commission Recommendation 7: Expand the intermodal focus of research, education, and technology development efforts.

The average score for progress to date was 3.51 (little to some progress), with the highest average scores coming from the public sector. Nearly half the respondents thought that more federal dollars were needed to carry out this recommendation.

The comments made with regard to this recommendation clustered into three categories:

1. Programs and research facilities can be improved, expanded, and better utilized.
   - Schools are responding with courses.
   - Utilize existing U.S. DOT university support programs.
   - FHWA’s freight office is a step in this direction on the freight side.
   - The modal silos prevent this from happening effectively; most research and ITS development are only on the highway side.
   - Maintain competitive peer-reviewed quality research, both basic and practical.
   - Use current assets available for research, such as Sandia Labs (e.g., the DAMA project). Stop trying to reinvent everything and focus on process and coordination.
   - Instead of focusing only on established university research, education, and technology centers, focus on national labs.
• Need more and stable funding and technical grounding.
• Need more directed research at transportation research centers.
• Much progress has been made but more needs to be done.
• Beginning in universities; unfortunately, those in charge at state DOTs do not share the view.

2. The need for education extends to the state and MPO level and to the public.
• Need more workshops to educate planners about freight intermodal issues.
• Lots of preaching to the choir; need to put reports into plain language for broader public outreach and support.
• There is still a great need to educate public planners about freight and the private sector.
• Substantial programs must “trigger” greater gains.
• People need better understanding of the need to integrate modes.

3. There needs to be better coordination with industry and less earmarking.
• Very little benefit to industry. Get something that works.
• These should not be political giveaways or backyard bucks but should be encouraging and engaging the best and the brightest in our universities.
• Not coordinated.
• Earmarking has diluted funds.
• There is a significant increase in visibility and activity in intermodal education, but some congressional earmarking is limiting the scope of results.

Commission Recommendation 8: Restructure U.S. DOT to better support intermodal transportation.

Respondents thought that there has been very little progress on restructuring U.S. DOT and gave this recommendation an overall average score of 3.08, with the private sector respondents rating it below 3. Respondents believed that more action was needed at the federal level before a real restructuring could be achieved, with significant numbers suggesting additional legislation or a government mandate.

As reflected in the reasons and comments from respondents, both the public and private sector customers want to see more U.S. DOT leadership initiatives that enable and encourage responsive intermodal developments. The responses fell into three categories:

1. There is still a perception of modal stovepipes or silos instead of one intermodal DOT.
• Multiagency with stovepipe communications.
• Total restructure: matrix of mode and function.
• FHWA restructuring and One DOT initiative are small steps.
• There is very little leadership in this area. Why do we need regional FHWA offices with the technology available to us today? What value do they add?
• The concept of One DOT is good; it works in some instances but modal bias and parochialism within DOT still exist.
• More needs to be done on coordinating One DOT.
  • There needs to be institutional change.
  • There is still a lack of cooperation. Too many stovepipes even within agencies. FAA is the worst.
  • Communications among modal administrations have improved, but more can be done.
  • The One DOT effort is a good, early step, but modal administrations still have their own bureaucracies and turf.
  • Restructuring of FHWA appears to be working.

2. The U.S. DOT Office of Intermodalism needs to be strengthened.
• The Office of Intermodalism should be further empowered.
• Present divisions work well. Better integration is needed. Strengthen authority and jurisdiction of the Office of Intermodalism.
• Office of Intermodalism lacks resources to accomplish meaningful deeds in a world divided by modal silos.
• Modal administrations still do not promote cooperation and coordination.
• Intermodal still gets lost in passengers at FHWA.
• Early efforts were abandoned. There are no significant recent efforts.

3. No clear perception of how One DOT filters down to state and local levels.
• Although U.S. DOT restructured, end result at state and regional levels is not reflected.
• Need to better communicate to the states and the general public the efforts in this area.
• Continue in the current direction. Federally mandate that railroads participate in the state and MPO planning process; they appear to be immune.
• U.S. DOT is now doing a much better job.
• Mixed message from stakeholders.

Commission Recommendation 9: Streamline and expedite the transportation infrastructure planning and project delivery process.

Streamlining infrastructure planning is a daunting institutional challenge; however, it was something the commission thought was needed to advance the intermodal project delivery process. Respondents gave this an overall
grade of 2.78, indicating no progress to very little progress. No group of respondents gave this a grade above 3. The largest share of respondents thought that legislation would be necessary to improve the process in the future.

The overall score of 2.78 was one of the lowest on progress to date, suggesting that U.S. DOT and other agencies such as the U.S. Environmental Protection Agency (EPA), U.S. Customs Department, U.S. Department of Agriculture, and U.S. Department of Defense need to come together to develop and nurture new or better working relationships.

The reasons and comments offered by respondents fell into three categories:

1. The environmental component of the process continues to be an issue.
   - Develop memorandum of understanding and action plan; the concept of environmental streamlining and expedited project delivery has been transformed into environmental enhancements with the expediting aspect lost.
   - Meetings held but no legislative change.
   - Do not expedite at the expense of environmental assessment and community participation.
   - Still greatly held back by slow and complex environmental process. Also lack adequate technical planning tools and true intermodal freight data are inadequate.
   - Chicago project appears to be a good choice for a model project; local experience makes it doubtful that only “environmental streamlining” is going on.

2. Other components also cause delays in the process, particularly with respect to freight and the modal silos or stovepipes.
   - Additional requirements do not streamline the process.
   - Very little leadership in this area; modal silos are still resistant.
   - Planning and project delivery need to be expedited in order to keep up with demands on the transportation system.
   - Freight planning must also be seamless; however, no single approach may be applicable.
   - Balance is needed to avoid moving too fast.
   - Still constrained by local issues (not in my backyard).
   - Need more coordinated and well-managed projects, fewer stovepipes.
   - It still takes much too long to get approvals for transportation projects.
   - State planning processes generally do not include consideration of freight transportation.
   - Delivery is being speeded up through expedited construction or compressed construction schedules.

Commission Recommendation 10: Require U.S. DOT concurrence on other federal agency actions that affect intermodal transportation.

The average score was 2.36, indicating no progress in the opinion of respondents, particularly among those representing state and local agencies. More than one-third of the respondents favored legislation to institute this concurrence function and about one-fourth opined that there should be a government mandate to require concurrence. These results may suggest that U.S. DOT consider assessing the level of coordination with other agencies whose actions and regulations affect intermodal transportation.

The comments and reasons that respondents offered for the low grades can be clustered into two groups:

1. There is a need for cooperation and concurrence, but with caution.
   - This could end up being a double-edged sword; very careful planning will be necessary.
   - Land use policies are the key here; not much process in area that is mainly controlled at local and state levels.
   - The value of mobility, access, and transportation in general has taken a back seat to almost all other federal agency missions.
   - Partnerships and consensus.
   - Agencies do not cooperate and no hope for change is seen.
   - DOT needs to be communicating with other agencies to help them understand freight intermodal issues.
   - DOT cannot get its arms around DOT issues; why expect the unrealistic?
   - Admirable but unrealistic goal.

2. Comments about other agencies.
   - The opposite is true; EPA blocks transportation actions.
   - There is still a disconnect between FHWA, the Office of Intermodalism, and the U.S. Treasury.
   - A recent Alameda Corridor Transportation Authority water issue caused government lawyers to fight government lawyers at project expense. Title 23 and 64 issues sometimes block progress.
   - DOT gets ignored or stiff-armed by EPA, the U.S. Department of Energy, and even the U.S. Department of Commerce and the U.S. State Department on some issues.


The final commission recommendation suggested streamlining the MPO process to accomplish the goals of ISTEA.
The overall grade on progress to date was 3.10; the local agency respondents gave this item the lowest overall grade, suggesting they saw the current process as inadequate. About one-third of the respondents thought this could be accomplished with a little more encouragement from the federal government, while additional significant shares suggested more federal dollars or additional legislation could help.

Respondents offered several comments and reasons for their grades on this recommendation. These can be divided into three clusters:

1. MPOs need to know more and do more in the areas of freight and intermodal.
   - Lots of MPOs need people who focus on freight and they cannot always afford to hire them (let alone know where and how to find them).
   - MPOs must include intermodal freight projects in their regional transportation plans and elevate freight to a level playing field with people movement projects.
   - Must continue to maintain freight as a highly visible planning concern.
   - MPO [Southern California Association of Governments] is almost broke. Studies are usually not implemented and the regional transportation plan does not provide down-to-earth, practical funding recommendations.
   - Why increase roadblocks to freight? For the most part, MPOs just do not get freight.
   - Neither the state nor MPO planning processes understand or accommodate freight transportation needs, especially with respect to private industry.
   - MPOs also need guidance and education on freight issues.
     - The MPO planner in my region says nothing has changed.
     - There is considerable variation in MPOs’ abilities and resources to conduct significant freight planning.
   - The MPO process is better than 6 years ago, but there is still a very long way to go to have intermodal freight adequately understood, let alone addressed by MPO planners.
   - MPOs do not always prioritize or coordinate local need well with total resources. More action, less rhetoric!
     - More has happened in this arena than is generally acknowledged. This is still progressing.

2. MPOs should follow, not take the lead, in freight intermodal efforts.
   - State and multiregional programs need more strengthening than MPO efforts. States should be the senior (lead) partners with MPOs secondary.

LOOKING TO THE FUTURE

In the final section of the report card, respondents were asked their opinions on three open-ended questions:

- What major challenges and opportunities relating to intermodal freight transportation will be faced in the next 10 to 20 years?
  - How can or should these challenges and opportunities be met?
  - Who can or should play a key role in meeting these challenges?

Respondents were also invited to offer additional comments on topics and issues of most interest or concern to them or their organizations. Following are the responses to these questions, grouped into broad categories.

What are the major challenges and opportunities relating to intermodal transportation that will be faced in the next 10 to 20 years?

**Financing and Capital Investment**

- Development and expansion of creative financing mechanisms.
- Equitable user fee systems and less reliance on taxation.
- Efficient pricing of transnational cargo movements.
- Dichotomy between private investment and public use and the need for investment incentives.
- Addressing downward trend in funding for public sector activity.
Institutional and Operating Structures

- Government structure inhibits joint projects—Congress, DOT, and so forth—separate funding and oversight for maritime, highways, rail discourages progress in intermodal solutions.
- Consolidation within the transportation industry.
- Ensure defense logistics requirements are accommodated by foreign-owned carriers in the maritime environment and market share-driven carriers in all modes.
- Address capacity problems through systematic analysis of the entire transportation system and not just individual modes.
- Move from a single-mode government agency perspective to a global multimodal system perspective.
- International, binational, regional, and multistate planning mechanisms to improve connectivity across borders.
- Convergence of public-private interests.
- Define and appropriately execute federal, state, and local roles in financing, operating, and managing internal systems.
- Institutional issues inhibit ability of intermodal system to evolve and adapt. Flexibility is often limited by private sector rail and port management.
- Overcome institutional inflexibility; strive for institutional cooperation and coordination by public and private sectors to avoid duplication, and jointly prioritize objectives and the process for achieving them.

Project Planning

- Maintain current infrastructure and make adjustments to meet new demands through better utilization of existing infrastructure.
- Better incorporation of environmental and economic factors into project planning.
- Address environmental issues through controls, incentives, regulation, and mitigation.
- Use technology to develop a responsive, inclusive public planning process.
- Ensure that efficiencies and improvements are realized in rural areas with lower demands.
- Address traffic volume and land constraints.
- Right-of-way issues and conflicts between public-private sectors.

Global Economy, Trade Flows, and E-Commerce

- Share and secure public and private data.
- Provide consistent and on-time delivery, by removing or reducing bottlenecks at ports of entry.
- Maintain security and integrity of shipments.
- Improve planning for growth in international trade and demand for open borders.
- Maintain global competitiveness and links with global partners—adapt to economic, social, and infrastructure changes.
- State of readiness of agricultural intermodal network (grain elevators, hopper cars, rail short lines, river and coastal ports) and increased demand for segregation; identify preservation throughout these facilities.
- Need more accurate and current data on freight, hard numbers on origin-destination, and trends for e-commerce.

Technology

- United rail system—efficient exchange of information by privately held railroad companies.
- Interoperability, standardization, and access in technology, equipment transfer among modes.
- Integration of management technologies.
- ITS to achieve faster, more efficient goods movement. Bring U.S. Customs to the table to address ITS applications for streamlining customs clearance for international freight movement.
- Information structure to support and manage infrastructure, respond to congestion, and reduce or eliminate gridlock.
- Increase the ability to predict potential service failures (predictive metrics).
- Develop systems for response to congestion, increasing capacity, and avoiding gridlock.

Labor

- Ensure availability of qualified labor for delivery of transportation services.
- Evolve labor’s understanding and participation in more effective logistical operations.
- Shortages of trained and skilled personnel, particularly in the motor carrier sector.
- Expertise gap, inequity issues, and labor work rules.

Public Education and Outreach

- Get MPOs to understand the importance of freight movements.
- Resolve conflicts between commerce and commuters, freight and passengers.
- Respond to demands and concerns of special interest groups.
How can or should these challenges and opportunities be met?

**Financing and Capital Investment**
- Establish an intermodal-connector infrastructure fund administered by a nonpartisan intermodal administrator.
- Encourage flexibility in financing, imperative in being able to adjust to emerging factors and circumstances.
- Provide financial incentives for creative and needed intermodal projects, both public and private sector.
- Fund the infrastructure requirements for a viable intermodal freight transportation network.
- Expose and find a way to reduce or eliminate congressional earmarking.
- More innovative finance from public sector as incentive for behavioral shifts in the private sector.
- Pooled fund investment mechanisms across state boundaries and across all modes.

**Institutional and Operating Structures**
- Government should partner with industry and provide incentives for strategic partnerships.
- A new business relationship between freight carriers, shippers, and U.S. DOT.
- Strive to build consensus within an environment of trust and cooperation across all modes.
- Establish decision-making bodies that include and consider all modes.
- Provide real-time alternative routing for freight; encourage highway and other transportation infrastructure use during off-peak hours.
- More collaboration across the supply chain and between public and private sectors.
- Reduce institutional barriers between U.S. DOT and the U.S. Treasury on programs such as ITDS and ACEs.
- Producer groups, elevators, railroads, and others should work together to explore value-added agricultural opportunities.

**Project Planning**
- Streamline the infrastructure decision-making process and encourage regional planning approaches.
- Government at all levels needs to develop meaningful partnerships with industry and get industry input to the planning process.
- Study and monitor intermodal facilities to ensure that plans address needs in high-priority facilities and corridors.
- Better and more objective analysis for determining environmental impacts, including survey-based approaches, state-of-the-art concepts, peer reviews.
- Minimize delays from environmental process requirements through interagency cooperation.
- Federal leadership and assistance to private sector to encourage joint planning.
- Add more rail infrastructure and more inland facilities.
- Develop an overarching entity that takes the role of the MPO one step further and acts as a clearinghouse of public and private investment to ensure best use of funds to address system issues.

**Global Economy, Trade Flows, and E-commerce**
- Engender a broader vision of global trade and consider models and approaches from other countries.
- Focus on the needs and demands of shippers and look for intermodal solutions.
- More research on intermodal trends in agricultural trades.

**Technology**
- Develop better data management systems, integrated information technology.
- Merge the information highway with the intelligent highway.
- Improve planning and information sharing, expand ITS for intermodal purposes.

**Labor**
- Support improvements in labor; more and improved training in technology, safety, and professionalism.
- Use modeling techniques to define best practices; test through pilot projects and professional capacity building exercises.
- Conduct exercises with shipping companies to sensitize them to military surge requirements.

**Public Education and Outreach**
- Major intermodal freight public relations effort, including research and education on the value of intermodal freight programs to local and national quality of life.
- Freight sector executives should be “loaned” to U.S. DOT and other government agencies. Similarly, public sector transportation planners should have on-site experience and exposure to day-to-day freight operations.
- Change perception of intermodal; it is more than containerized freight and includes bulk commodities that...
can pose intermodal transport challenges (environmental, safety, congestion).

- Public education about freight transportation across all modes is needed for continued political support for intermodal investments and to balance economic and environmental positions.

Who can or should play a key role in meeting these challenges?

- Executive leadership, focus, understanding, and commitment are needed from the White House, governors, and city leaders throughout the nation.
- Congress still controls how a lot of the money is allocated and spent and must take a national systems view instead of a narrow parochial view.
- State DOTs and other appropriate state agencies.
- Regional commissions and councils, state legislatures, MPOs, county and city governments.
- Private sector freight industry must take leadership—carriers, service providers, insurance industry, manufacturers, shippers, both individually and through associations.
- Financial sector representatives to champion and promote public-private partnerships.
- Port and airport authorities.
- Research entities such as TRB to conduct, coordinate, and disseminate research and provide linkages among government, industry, and academia as well as international organizations.

What other comments do you wish to make?

- U.S. rail management culture limits system innovation on intermodal. Railroads are unwilling to take risk necessary to capture more intermodal. Study of open rail access or breaking up Class I railroads may have some merit, including consideration of the European tracks-operations split model.
- Projections of endless economic growth are based on the assumption that social values remain static. The proliferation of demand for goods could be altered by philosophical shifts in human values and lifestyle changes.
- U.S. DOT needs to engage high-level information systems providers in a new partnership, with the federal government taking a lead on policies and development of technology, methods, and incentives to achieve change.
- TRB should consider a project that begins with a process map of all the steps involved in planning, programming, and funding federal infrastructure projects and then looks at how technology could streamline that process.
- Good luck in getting labor and elected officials to change their way of thinking and doing business.
- Industry nodes need to quit quibbling with one another.
- Where was air cargo at this conference?
- Require the Maritime Administration and FAA to cooperate with state-MPO process.
- Bring in more international participation.
APPENDIX B

Summary of U.S. Department of Transportation Actions on Recommendations of the National Commission on Intermodal Transportation

1. Maximize safe and efficient movement of freight by incorporating individual modes into a national intermodal transportation system.

National Highway System (NHS)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) required a report to congress on a proposed NHS that included terminals connecting the other modes. The Transportation Equity Act for the 21st Century (TEA-21) required an NHS connectors study of an NHS to over 600 intermodal freight terminals, including ports, railyards, and airports.

- The Federal Highway Administration (FHWA) worked cooperatively with the states to develop the proposed NHS.
- A system of 161,000 mi was designated, including access to several hundred terminals.
- Reports on condition and performance of NHS intermodal connectors being prepared for submission to Congress June 2000.

National Freight Partnership

From 1995 through 1997, U.S. Department of Transportation (DOT) sponsored an outreach initiative with the intermodal freight industry called the National Freight Partnership.

- Convened transportation decision makers representing different levels of government and many segments of the intermodal freight industry.

- Creation of freight advisory committees for metropolitan planning organizations (MPOs) in four cities.

National Initiative on the Marine Transportation System (MTS)

A congressionally mandated task force composed of all interested parties to assess the adequacy of marine transportation, including ports, waterways, harbor approach channels, and intermodal connectors.

- Established MTS National Advisory Council (MTSNAC); expand Interagency Committee on Waterways Management to the Interagency Committee on the MTS; MTS research and development budget for fiscal year 2000: $225,000 under Research and Special Programs Administration University Transportation Center program.
- Fiscal year 2001 budgeted $225,000 for MTSNAC and outreach: $3,800,000 budgeted for MTS research and development.

Voluntary Intermodal Sealift Agreement (VISA)

VISA makes intermodal ships, services, and equipment available to the Department of Defense (DOD) as required to support the emergency deployment and sustainment of U.S. military forces.
Twenty-six shipping and intermodal companies have signed up for the program. VISA is the principal commercial sealift readiness program of DOD.

2. Ensure federal policies foster development of the private sector freight intermodal system and reduce barriers to the free flow of freight, particularly at international ports and border crossings.

Intermodal Freight Programs under ISTEA and TEA-21

U.S. DOT strategic and performance plans reinforce efforts to improve freight and intermodal freight performance and mobility.

- ISTEA required that metropolitan and statewide transportation planning processes consider freight transportation needs.
- FHWA freight analytical framework forecasts freight flows along national corridors and through nodes, including borders and international ports.

U.S. DOT Efforts to Ensure Roadability of Intermodal Equipment

The Department received a petition from the American Trucking Associations (ATA)–ATA Intermodal Council alleging that drivers were receiving and subsequently operating intermodal equipment that was not roadworthy.

- U.S. DOT held three public listening sessions (Seattle, Chicago, and New York City) to solicit information about the operating environment in which intermodal equipment is maintained, repaired, interchanged, and operated.
- At U.S. DOT’s request, the Intermodal Association of North America convened modal sector representatives to develop recommendations concerning equipment roadability that all parties could adopt.

International Maritime Activities

Encourage development and implementation of new concepts for the carriage of cargo that reduces barriers to the free flow of freight.

- U.S. DOT is working with the International Maritime Organization and the International Standards Organization Technical Committees 104 and 204 to assist in policy issues and development of standards.
- U.S. DOT is reviewing the possibility of sponsoring a technical committee working advisory group.
- Bilateral maritime agreements have been negotiated and signed with Argentina, Brazil, and Ukraine.

Maritime Security Program (MSP)

The government contracts with the owners of U.S. flags through the MSP to have them serve when needed for national emergencies or war.

- $100 million per year for fiscal year 1996 to fiscal year 2005.
- All requirements have been filled by companies applying for the 47 available ship slots.

3. Fund federal infrastructure programs at authorized levels and strategically target these funds for maximum impact.

TEA-21 Infrastructure Programs

Under ISTEA, authorized infrastructure programs were subject to funding below authorized levels because of the Highway Trust Fund’s inclusion in the overall U.S. general budget and its spending cap limitations. TEA-21 moves the Highway Trust Fund “off budget.”

- Assurance of a guaranteed level of federal funds for surface transportation through fiscal year 2003.
- The annual floor for highway funding is keyed to receipts of the Highway Trust Fund.
- The amount guaranteed for surface transportation is estimated to be $198 billion.
- Annual limitation set aside (reserved funding) for certain programs may be carried over into future years.

TEA-21 Revenue Aligned Budget Authority (RABA)

Provides for increased and targeted federal revenues in the wake of rising tax receipts, offering additional funding for core infrastructure programs, intermodal research and technology projects, designated high-priority projects, and borders and trade corridor programs.

- RABA funding is being applied, in part, to increase the activities of the Congestion Mitigation and Air Quality (CMAQ) Improvement Program for eligible intermodal projects.
- TEA-21 authorized $198 billion fiscal year 1998 to fiscal year 2003, a 40 percent increase over ISTEA.
- TEA-21 funds are being programmed and obligated. President’s fiscal year 2001 budget proposes a record
$54.9 billion in transportation investments, including an 86 percent increase over 1990–1993 average annual infrastructure investment, $96 million for the Transportation Infrastructure Finance and Innovation Act (TIFIA), and $280 million for border crossings and trade corridors.

4. Expand innovative public and private financing methods for transportation projects.

**TIFIA Program**

The TEA-21–authorized TIFIA program offers initiative credit assistance to public and private sponsors of major intermodal facility projects requiring capital.

- U.S. DOT has compiled all available federal funding sources, including authorities and eligibilities, that can be used for freight projects.
- $530 million in contract authority under TIFIA.

**Railroad Rehabilitation and Improvement Financing (RRIF) Program**

The TEA-21–authorized RRIF program offers direct loans and loan guarantees to public or private sector sponsors of intermodal and rail projects.

- Established rules and procedures for approval of loans from the federal financing bank.
- Loans can be used to establish new intermodal and rail facilities or improve and rehabilitate existing facilities.
- RRIF authorized for up to $3 billion of loans, of which $1 billion is reserved for non-Class I railroads.
- Rulemaking in progress.

**State Infrastructure Banks (SIBs)**

NHS Designation Act of 1995 created a pilot program of SIBs to offer federal aid highway funds to support state transportation improvements.

- $150 million allocated among the 39 states participating in the pilot program.
- The first 10 pilot SIBs designated over $324 million of their regular federal transportation grants to support up to $1.6 billion in projects, a ratio of nearly $5 in investment for every federal dollar committed to the SIB.

**Federal Ship Financing Guarantee Program (Title XI)**

On November 30, 1993, the National Shipbuilding and Shipyards Act of 1993 amended the original Title XI program to include guarantees for shipyards.

- As of September 30, 1998, there were $2.9 billion of Title XI guarantees in force.
- Congress has authorized a cap of $11 billion for Maritime Administration Title XI programs.

5. Allow greater flexibility and expand eligibility in use of state and federal transportation funds for intermodal projects of public benefit.

**ISTEA/TEA-21 Flexibility and Eligibility**

ISTEA initiated and TEA-21 expanded on both the flexibility and expanded eligibility of using Highway Trust Fund money for intermodal projects.

- ISTEAs Section 104: provision of flexibility in state use of federal aid highway funds to finance transportation projects. Allows up to 40 percent transfer of Surface Transportation Program highway funds to other transportation projects.
- TEA-21, modifying Section 104, expanded that option to 50 percent.
- ISTEAs CMAQ program, continued by TEA-21, permits innovative public and private financing of intermodal transportation projects.
- FHWA is sponsoring an innovative finance conference in fiscal year 2000 to evaluate current programs and discuss future program options for financing.

**Airport Passenger Facility Fees (PFF)**

To provide airports with another means of increasing investment for needed improvements, particularly airport access for both passengers and freight, the administration has proposed greater flexibility and eligibility of the PFF in the FAA Reauthorization Bill currently before Congress.

- Allows for pooling PFF revenue with funds available under TEA-21, under a cost-sharing agreement approved by the secretary, for a surface transportation project that will provide enhanced ground access to airports.
- The proportional contribution of PFF funds relative to total project cost would be capped in proportion to the aviation use of the facility compared with the total use.
- Allows a surface transportation agency or the airport to own land needed for the project.

6. Provide federal funding incentives for intermodal projects of national or regional significance.

**TEA-21 Section 1118–1119 Borders and Corridors Program**

Provides funds for the coordinated planning, design, and construction of corridors of national significance and to
improve the safe and efficient movement of people and goods at or across Canadian–United States–Mexican borders.

- Three 1118–1119 public outreach field meetings were held for fiscal year 1999 solicitations and five field meetings were held for the fiscal year 2000 project solicitations, which included technical assistance for project sponsors and outreach for suggested improvements in the program structure.
- TEA-21 provides $140 million in annual allotments for fiscal year 1999 through fiscal year 2004.
- As an excellent example of federal funding incentives, all multistate and binational projects were at least partially funded, as were all intelligent transportation system (ITS) related projects in fiscal year 1999.
- As of mid-year 1999, grants amounting to $124 million were awarded for 55 projects in 32 states.
- Announcements of fiscal year 2000 awards and solicitation of project applications for fiscal year 2001 funding will be made mid-March 2000.

Alameda Corridor Project

A 20-mi (32-km) railroad express line suppressed below city streets will consolidate rail service for the ports of Los Angeles and Long Beach and connect it with the transcontinental rail network via rail yards in downtown Los Angeles. The total cost of the project will exceed $1.4 billion.

- U.S. DOT, working with a consortium of public-private partners, laid out the framework for Public Law 104-208, which authorized a direct loan of up to $400 million for the Alameda Corridor project.
- U.S. DOT performs required budget transactions to ensure timely disbursement of funds and stays current with project progress to respond to inquiries from Congress and the media.
- The project is currently under construction.

7. Expand the intermodal focus of research, education, and technology development efforts.

Intermodal Freight Identification Technology Workshop

A June 1998 intermodal technology workshop held in Reston, Virginia, brought together leaders from the public and private sectors to address intermodal freight identification and tracking technologies.

- Participants produced a plan of activities and projects that included creating standards for freight and equipment identification and location.

- An intermodal freight technology working group was formed and cochaired by U.S. DOT and the private sector to implement the workshop recommendations to identify and support technologies that promote interoperability, asset and cargo visibility, and system harmonization.
- A second workshop is being scheduled for June 2000 to take place in Rosslyn, Virginia, and will provide an update on technologies in use and additional technologies and standards anticipated during the next 18–24 months.

Outreach on ITS Intermodal Freight Pilot Test Design and Deployment

- In 1998, U.S. DOT conducted listening sessions in Seattle, Chicago, Norfolk, Houston, Los Angeles, and New York to solicit ideas for a grant solicitation on facilitating intermodal freight transportation through deployment of ITS technologies and public-private cooperation.
- A test linking Chicago O’Hare Airport with Newark International Airport will develop, install, and test a universal cargo manifest that uses smart card and biometric technology for automated transfer and clearance of cargo data.
- A test in Seattle will improve intermodal freight movements and transportation system operations for all users by using 10,000 disposable electronic container seals to track containers during intermodal shipping.

Cargo Handling Cooperative Program and the Ship Operations Cooperative Program

- Address maritime problems and cooperate with the intermodal industry to resolve issues and implement solutions.
- Program interface with public and private sectors to address marine intermodal issues and cargo handling solutions.
- Support use of innovative technology to increase efficiency and productivity in areas such as optical character recognition for gate transactions and mobile vehicle development.

National Transportation Library (NTL) with TRIS (Transportation Research Information Service) Online

- NTL is an interactive bibliographic and full-text database in which users may access reports, publications, journal articles, and other information on the U.S. DOT website (www.bts.gov).
- NTL and TRIS include information on the 1993 and 1997 commodity flow survey that reports local and inter-city freight movements by commodity, value, weight, mode, and distance.

8. Restructure U.S. DOT to better support intermodal transportation.

**Creation of the Office of Freight Management and Operations (HOFM) Within FHWA**

- In 1999, FHWA created HOFM and linked it with the active ITS program under a single core business unit to help the public and private sectors meet the needs of intermodal freight commerce in the United States and North America.
- HOFM has developed a quarterly business plan with initiatives in freight supported by a national freight council that will help shape federal policies in a post-TEA-21 legislative environment.

**Federal Motor Carrier Safety Administration (FMCSA)**

- The fiscal year 2000 U.S. DOT appropriations bill called for a FMCSA. Truck and commercial passenger carrier safety is the top priority of the new agency.
- FMCSA began operations January 1, 2000, and has four divisions and nine program offices in addition to the 52 state offices and four regional service centers already in operation.
- The four principal offices are:
  - Policy and Program Development;
  - Enforcement and Program Delivery;
  - Research, Technology, and Information Management; and
  - Administration.

**Creation of Associate Administrator for Port, Intermodal, and Environmental Activities**

On October 1, 1994, the Maritime Administration established an associate administrator for port, intermodal, and environmental activities.

- The associate administrator is responsible for development and promotion of port and intermodal transportation systems.
- The director of the Office of Intermodal Development is responsible for formulating national policies, objectives, and plans to develop and utilize intermodal transportation systems.

9. Streamline and expedite the transportation infrastructure planning and project delivery process.

**Chicago Area Transportation Study Planning Pilot Model**

The Chicago Area Transportation Study is designed to identify intermodal transportation connections and improvement opportunities for this major intermodal terminus.

- Project serves as a model for future efforts across the United States to improve freight planning at significant national nodes.
- A freight analysis framework is designed to define impediments to efficient intermodal freight transportation and generate activities to mitigate or eliminate them.

**Environmental Streamlining**

TEA-21 requires U.S. DOT to develop and implement coordinated environmental review processes for highway and mass transit projects.

- U.S. DOT seeks to streamline the National Environmental Policy Act process requirements to ensure timely, cost-effective, and environmentally sound transportation planning and project development based on concurrent, multiagency review.
- U.S. DOT and the Council on Environmental Quality conducted a national workshop for federal, state, and local officials and nongovernmental representatives to recommend ways to effectively integrate the National Environmental Policy Act process in transportation decision making.
- Establishes joint commitments among the six federal cabinet departments and the EPA to work, collaboratively and in a concerted fashion, to improve the process by which highway and transit projects around the country are reviewed and approved.

10. Require DOT concurrence on other federal agency actions that affect intermodal transportation.

**International Border Clearance Program**

- Working through a memorandum of agreement with the U.S. Customs Service and the Immigration and Naturalization Service, U.S. DOT is focusing on enhancing the
performance and mobility of international freight movements at U.S. borders with Canada and Mexico.

• This long-term research will see the testing of new technologies to provide accurate and timely information on cargoes crossing the borders and equipment safety, while shortening the time needed for carriers to proceed through them.

International Trade Data System (ITDS)

ITDS is a national performance review interagency project that will develop a system to collect all information for U.S. federal agencies responsible for goods that cross our borders.

• The ITDS system is being developed by U.S. Customs to improve trade procedures, trade promotion, trade policy development, and trade statistics to benefit both the public and the government.

• Over 104 federal agencies require import-export information on over 1,700 data elements. ITDS would reduce requirements to a single filing with about 30 core data elements.

• U.S. DOT is a lead agency and serves on the ITDS board of directors.

• U.S. DOT is working with U.S. Customs to establish operational pilots at selected Canadian and Mexican border sites, which will include motor and rail transportation.

• Transborder surface freight data are available at the U.S. DOT website (www.bts.gov).

11. Strengthen the MPO process to accomplish the goals of ISTEA.

ISTEA-Required Consideration of Freight and Goods Movement in Statewide and Metropolitan Planning

• U.S. DOT developed a two-volume treatise, “Intermodal Freight Transportation,” which discussed impediments to freight movement, data sources for intermodal planning, and federal aid eligibility.

• U.S. DOT presented a freight planning seminar at various locations across the United States targeted toward the MPOs.

• The NHS intermodal freight connectors condition and investment study found that two-thirds of MPOs have systematic processes in place for identifying freight needs. In fact, over 35 percent of those MPOs had stand-alone freight advisory committees. In addition, the study revealed that MPOs were having more success in getting freight projects programmed than previous studies have shown.

• In a project undertaken with the American Association of State Highway and Transportation Officials, U.S. DOT documented over 159 significant projects in 42 states in its “Compendium of Intermodal Freight Projects” (January 1997). These projects represent nearly $5 billion invested from all sources (federal, state, local, and private).

Review of MPO Planning Process

• U.S. DOT has compiled information from MPOs on the means used to examine and develop freight projects for inclusion in the MPO transportation infrastructure plan and the state transportation infrastructure plan; recommendations for improvement will be included in the TEA-21 report on the NHS connectors.

• With the assistance of the Eno Transportation Foundation and the Intermodal Association of North America, U.S. DOT is sponsoring workshops to encourage broader cooperation at the multistate and regional levels to improve intermodal freight commerce.
APPENDIX C
Conference Exhibits and Posters

EFFICIENT MARINE–RAIL INTERMODAL INTERFACE

*TranSystems Corporation Consultants (TCC)*

The exhibit highlighted work related to agile port systems (APS) and demonstrated the project’s dynamic computer simulation product. This work effort is being performed for the Center for Commercial Deployment of Transportation Technologies (CCDoTT), which includes leadership efforts from the Maritime Administration (MARAD) and U.S. Transportation Command (USTRANSCOM). The display focuses on the work being performed in association with the efficient marine–rail intermodal interface (EMRII) system, which represents one type of APS.

The exhibit-demonstration showed the major components of the EMRII system by utilizing three-dimensional computer renderings of the terminals. In addition, it provided a short summary of the EMRII system and the three leading parties involved (CCDoTT, MARAD, and USTRANSCOM). A projection screen demonstrated the computer simulation that has been completed for the efficient marine terminal, one of the major components of the EMRII system.

This project was primarily associated with the infrastructure capacity and connectivity session of this conference. In addition, the project touched on information technology, operations, and terminal productivity.

FLOAT TECHNOLOGY IN SUPPORT OF MILLENNIUM PORT

*TranSystems Corporation and Port of New Orleans*

This exhibit highlighted ongoing work related to float technology in support of the millennium port and demonstrates the feasibility of using float technology. The port of New Orleans, with support from TranSystems, has completed an initial study to determine the need, feasibility, and location of millennium port and associated modes of cargo transportation.

The float technology will be used in conjunction with the millennium port, situated at the mouth of the Mississippi River. The exhibit included a display of the various potential equipment types, capacities, operational factors, and interface with the millennium port and features photographs, graphics, and three-dimensional computer renderings as well as a short summary of the millennium port concept.

This exhibit was primarily related to the intermodal vision for the future and infrastructure capacity and connectivity sessions of this conference.
**New York City Strategic Port Redevelopment Plan**

New York City Economic Development Corp.

New York harbor enjoys a preeminent position as the leading container port on the East Coast of the United States. Recent cargo projections have indicated that, if all the available terminal space in New York harbor were developed, there would still be excess future demand for cargo handling capacity. However, terminal capacity is not the primary issue; instead, it is the problem of inland distribution and congested surface transportation infrastructure.

The city of New York has completed a port redevelopment strategy that proposes an integration of port development plans into a long-term vision for regional freight mobility. The results of these studies show that any New York City port development, particularly east of the Hudson River, must be viewed as a node in a dynamic system for freight distribution. Therefore, cargo traffic generated by the port must be accommodated by a corresponding increase in inland capacity and must not compete with existing users for infrastructure resources.

The New York City Strategic Port Redevelopment Plan proposes some innovative solutions to the inland distribution problems that make intensive use of rail and barge infrastructure options as well as new shuttle train technologies. These solutions are incorporated into the future development plans as an integral part of the terminal operation. In addition, a progressive program of community outreach was implemented to ensure that the strategic plan will complement development initiatives sponsored by local stakeholders and civic groups.

A key element of the New York City Strategic Port Redevelopment Plan is the renovation of the Sunset Park container port facilities on the Brooklyn waterfront. The plan calls for over 300 acres of terminal development with on-dock rail and automated shuttle trains to serve over 6,000 ft of container berth. The shuttle service features an innovative use of rail infrastructure to move cargo away from the metropolitan waterfront without affecting the highway infrastructure.

A phased development plan has been created that parallels the implementation of a regional cross-harbor rail freight plan and makes use of rail infrastructure to quickly move cargo out of the terminal area and into various inland receiving and distribution centers. An active partnership between the terminal operators and the rail operators will be necessary to implement the control and logistics systems necessary to allow seamless transfer from vessel to inland depot.

**Kansas City International Trade Processing Center Study**

Mid-America Regional Council/TranSystems Corp.

The Kansas City International Trade Processing Center Study determined the feasibility and national benefits of establishing a major trade processing center in the Kansas City metropolitan area. This study was sponsored by the Mid-America Regional Council and the Greater Kansas City Chamber of Commerce. The region’s interests were identified and represented as a result of close cooperation with civic, industry, and business leaders from the Kansas City area. This study maintained consistency with requirements of the federal government through coordination with staff from the U.S. Department of the Treasury’s international trade data systems project office.

The North American Free Trade Agreement and the I-35 corridor linking Canada, the United States, and Mexico are two of the primary factors contributing to the potential feasibility of establishing such a center. The Kansas City area already has numerous assets and programs to support the international trade process, including substantial truck and rail freight industries located along or near the I-35 corridor. These assets and programs were inventoried and analyzed in this feasibility study.

The foundation of this study was a comprehensive freight flow study that determined existing freight flow between and among Canada, the United States, and Mexico as they relate to the Kansas City area, including origin, destination, modes of transportation, routing, travel time, and processing. The study encompassed all existing major rail, truck, barge, and airfreight facilities in order to maximize Kansas City’s role as an international inland port. A technology and operational assessment identified the required components of an international freight processing center, including organizational structure, transportation and technology infrastructure, regulatory issues, and financial issues. The final product of this feasibility study included an action plan and an implementation plan for an international trade processing center in the Kansas City area.

**Computer Demonstrations Proposal**

Cambridge Systematics, Inc.

This was a display of software applications recently developed by Cambridge Systematics, including the following:
• Freight transportation investment model (FTIM): FTIM is a sketch-planning tool used to compare the economic impacts of freight improvement projects. The objective of FTIM is to compare the impacts of freight improvement projects and to present the impacts motor carriers have on the economy.

• Intelligent transportation system (ITS) deployment analysis system (IDAS): IDAS provides quick response and sketch-planning capabilities for the systematic evaluation of the relative benefits and costs of ITS investments at the site, corridor, and regional levels. IDAS is capable of analyzing more than 40 ITS components, including commercial vehicle operations deployments, advanced traveler information systems, advanced public transportation systems, and automated highway systems.

• Computerized permit issuance system: The computerized permit issuance system supports the acceptance and issuance of oversize or overweight applications and permits. The software is designed to screen incoming applications electronically and to compare the requested route with the state’s preapproved highway network. Once approved, the system automatically issues the approved permit directly to a motor carrier or permitting service.

TRADE AND TRANSPORTATION STUDIES

Wilbur Smith Associates

Latin American Trade and Transportation Study

Wilbur Smith Associates was retained by the Southeastern Transportation Alliance to conduct a multistate trade and transportation infrastructure study, which will play a role in helping the alliance states position themselves for a share of the growing global trade pie. The alliance wants to enhance economic development in their states by taking advantage of growing trade opportunities with Latin America. The premise of the study is that Latin America is poised for growth and the recent boom in exports is a sign of things to come. Trade liberalization, which includes lowering and eliminating tariffs, combined with economic restructuring and privatization in Latin America, presents a huge trade potential. The overall study goal was to help the alliance states maintain a competitive advantage to maximize production and wealth at home, while broadening global market opportunities.

Western Transportation Trade Network

Wilbur Smith Associates was retained to provide consulting services for a western transportation trade network study, which was established to examine regional trade and freight transport issues by the policy committee of the Western Association of State Highway and Transportation Officials. The study represents an attempt by states, by their own initiatives, to examine problems regionally (multistate) in a cooperative way, without programs, funding, regulations, or dictates from the federal government. It also addresses issues expected in Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 reauthorization. The study utilized Arc Info geographic information system (GIS) to depict the regional transportation system, the flow of goods, and the trade corridors. Analyses included examining physical constraints to efficient freight transportation (highway and rail deficiencies) and policy and technology issues confronting the freight industry.

Appalachian Region Intermodal Transportation Plan

In 1965 congress established the Appalachian Regional Commission (ARC) to address the economic development needs of the 13-state Appalachian region. As a first priority, ARC developed 3,025 mi of highways under the Appalachian Development Highway System. To augment the highway development, Wilbur Smith Associates was retained by the ARC to assess the intermodal transportation infrastructure. This included a network of public and private infrastructure for moving people and goods by a combination of modes such as air, highway, waterway, and rail. The Wilbur Smith Associates team inventoried all transportation systems and assessed all intermodal facilities in Appalachia. The study identified the strengths of the current network as well as intermodal constraints, missing connections, and bottlenecks.

ITMS2: A COMPUTER-BASED GIS PLANNING TOOL

Caltrans, Transportation Planning Program

The intermodal transportation management system (ITMS) planning tool is a performance-based decision support system that includes all forms of transportation. It is designed to help decision makers select cost-effective actions and strategies for improving California’s intermodal transportation system. The ITMS planning tool was developed in response to the mandates of ISTEA.

The ITMS planning tool is used to evaluate the movement of people and goods; identify transportation deficiencies and impediments; conduct spatial, alternative, and
“what if” analysis; analyze capacity and demand; evaluate improvement and system performance; share common intermodal information; assess demographics and land use; and prepare studies, reports, maps, charts, and graphs.

The California ITMS planning tool includes all modes of transportation, major transportation systems, major intermodal facilities, passenger and freight data, existing and forecasted conditions, passenger mode-shift model, performance measures, census data, local data, and national spatial coverage.

USTRANSCOM

The USTRANSCOM display featured graphics and a video explaining the worldwide global mobility mission of the command as well as an interactive computer demonstration of the global transportation network (GTN). GTN is a USTRANSCOM-initiated command and control system that provides both client-based and web-based decision support tools and in-transit visibility capabilities through its integrated transportation database.

BUREAU OF TRANSPORTATION STATISTICS

U.S. Department of Transportation

The National Transportation Library is administered by the Bureau of Transportation Statistics (BTS) in cooperation with the Transportation Administrative Services Center, the operating administrations, and the Office of the Secretary of the U.S. Department of Transportation. The National Transportation Library (NTL) contains documents and databases provided from throughout the transportation community. All material in the NTL is in the public domain or provided by the authors free of any restriction on reproduction. The BTS exhibit includes a number of freight-related reports and products.

BTS is also a partner with TRB in providing TRIS Online, the largest and most comprehensive source of information on published transportation research on the web. TRIS Online is a joint project between BTS and TRB; beginning in January 1999, both groups signed a memorandum of understanding to make available the Transportation Research Information Services (TRIS) database on the Internet through NTL’s website. TRB will continue to produce and maintain the TRIS database and BTS will make it available on the web as TRIS Online.

TRIS Online currently contains over 400,000 records of published transportation research, including material indexed and abstracted by TRB as well as the material entered by the transportation libraries at the University of California at Berkeley and Northwestern University. Records from the PATH database and the research in progress files will be added in the next few months. The international material in the International Road Research Documentation (IRRD) database is not currently available as part of TRIS Online. Information on IRRD is available at http://www.fiz-karlsruhe.de/stn/Databases/irrd.html.

TRIS Online not only provides access to the bibliographic records and abstracts found in TRIS but it will include links to the full text of public-domain documents or document suppliers. Currently there are almost 200 links to full text documents and over 50,000 links to the websites of corporate authors. Links to full text documents will continue to be added.

WATERWAYS MANAGEMENT MARITIME TRANSPORTATION SYSTEM DISPLAY

U.S. Coast Guard

This multimedia exhibit answered basic questions about the Marine Transportation System (MTS) and its role in building the world’s most technologically advanced, safe, secure, efficient, effective, accessible, globally competitive, dynamic, and environmentally responsible system for moving goods and people.

The display addressed particular issues or challenges facing different audiences within the MTS, while reinforcing the issues and challenges connected to the broader MTS theme.

MARITIME ADMINISTRATION

U.S. Department of Transportation

The overall mission of the Maritime Administration (MARAD) is to promote the development and maintenance of an adequate, well-balanced U.S. merchant marine sufficient to carry the nation’s domestic waterborne commerce and a substantial portion of its waterborne foreign commerce and capable of serving as a naval and military auxiliary in time of war or national emergency.

MARAD also seeks to ensure that the United States enjoys adequate shipbuilding and repair service, efficient ports, effective intermodal water and land transportation systems, and reserve shipping capacity in time of national emergency.

The MTS consists of waterways, ports, and intermodal landside connections that allow the various modes of transportation to move people and goods to, from, and on the water.
The MTS has many users and beneficiaries, often with competing interests. No single federal, state, or local agency has total responsibility for the system. In 1998, the U.S. Coast Guard, MARAD, the U.S. Army Corps of Engineers, the National Oceanic and Atmospheric Administration, the U.S. Environmental Protection Agency, and nine other federal agencies agreed to expand the coordination of their efforts for furthering the goals and needs of the MTS. The MTS process provides a way to bring all parties together to develop one voice for water transportation.

**MASSACHUSETTS FREIGHT ISSUES AND PRIORITIES**

*Massachusetts Freight Advisory Council*

The Massachusetts Freight Advisory Council (MFAC) is an independent body representing all modes that is open to private sector freight interests including shippers, carriers, terminal operators, freight forwarders, and others with freight concerns who do business in Massachusetts.

The primary objectives of the council are as follows:

- To educate each other and a broad spectrum of interested parties about issues that affect freight mobility in Massachusetts and the New England region.
- To advise the public agencies in Massachusetts about specific freight concerns, issues, and priorities.
- To identify and advocate for policies, regulations, and practices to improve the safety, efficiency, and growth of the freight industry.
- To participate in the state and regional transportation planning and investment decision processes.
- To encourage all states in the region to work cooperatively to improve freight mobility.
- To improve communications between public and private interests through the use of common technology and sharing of nonproprietary data.

MFAC sponsored a study to identify and prioritize freight transportation issues and concerns that should be addressed in order to contribute to a more efficient and competitive freight transportation system. This display highlighted findings of that effort.

**INTERMODAL FREIGHT ANALYSIS SYSTEM**

*Center for Transportation Analysis, Oak Ridge National Laboratory*

This exhibit demonstrated recent advances in intermodal freight transportation modeling. The exhibit features currently available North American intermodal freight facilities and transportation network databases suitable for analytical network modeling. In addition, information related to current North American freight-trade movement and flow patterns is included. The exhibit addresses data availability and gaps related to intermodal freight estimation and analysis models. Because some freight transportation infrastructure shares its facilities with passenger movement, this exhibit also displays existing information on North America long-distance passenger volume and flow patterns.

**PORT OF LONG BEACH**

The port of Long Beach is the busiest cargo container port in the United States. In 1999, $84.5 billion in trade, including more than the equivalent of 4.4 million 20-ft cargo container units, moved across Long Beach’s wharves. Founded in 1911, the port now offers facilities for all forms of cargo on a 3,000-acre site. With immediate access to southern California’s expansive rail and road network, the port of Long Beach is gateway to the world for 17 million regional residents and for manufacturers and consumers across the continental United States. As a leader in cargo handling, the port continues to improve its facilities to meet the needs of its customers, who include some of the largest and most prestigious shipping lines in the world.

**PORT OF LOS ANGELES**

As one of the busiest ports in the nation, there is a lot going on at the port of Los Angeles. It is one of the premier U.S. gateways for international trade and commerce. Twenty-eight diversified facilities for handling all types of cargo are available, including six state-of-the-art container terminals. Other facilities are available for accommodating automobiles, dry and liquid bulk products, cruise passengers, and other maritime needs. With an anticipated doubling of cargo expected by the year 2020, the port is completing its Pier 300/400 Implementation Program, a $650 million capital development program encompassing 24 separate, but related, projects. It is the largest capital improvement undertaking of any U.S. port and the port’s most ambitious program since its founding in 1907. The port of Los Angeles is a department of the city of Los Angeles and is often referred to as the Los Angeles Harbor Department. The port is operated and managed under a state tidelands trust that gives local municipalities jurisdiction over ports as long as activities are related to commerce, navigation, and fisheries. As a proprietary and self-supporting department, the port is not supported by taxes. Instead, revenue is derived from
fees for shipping services such as dockage, wharfage, piloting, storage, property rentals, royalties, and other port services. Considered a landlord port, the port of Los Angeles leases its property to tenants who in turn operate their own facilities. A five-member board of harbor commissioners, who are appointed by the mayor and confirmed by the Los Angeles City Council, provides direction for the port. The commissioners serve 5 years per term.

GLOBAL TRADE, TRANSPORTATION, AND LOGISTICS PROGRAM

University of Washington

The University offers a graduate option program that is wide-ranging and interdisciplinary. It is overseen by an interdisciplinary committee whose members are drawn from the University, private, and public sectors. The global trade, transportation, and logistics program works with leaders in business and government organizations to determine their needs for trained people coming out of the University and, in turn, works to develop internships and jobs for graduate students in the option program. The aim of the program is to enable graduate students to augment their degree studies in preparation for careers in trade, transportation, and logistics. There are 15 departments within the University whose students are eligible to participate in the program.

PORT TRANSPORTATION MASTER PLAN FOR PORTS OF LONG BEACH AND LOS ANGELES

Frederic R. Harris, Inc.

The ports of Long Beach and Los Angeles are cooperating in a program to study the transportation system associated with cargo movement in the port area. This program is known as the transportation master plan (TMP). The TMP will provide a blueprint for internal port transportation improvements through a study to comprehensively analyze existing and future port operations, forecast increases in travel demand, and recommend detailed improvements. These improvements may include access roads, arterials, intersections, at-grade crossings, freeways and freeway ramps, traffic management, and ITS enhancements.

The study area consists of the port of Long Beach and the port of Los Angeles and includes the major roadways and rail infrastructure used to access the ports. Roadways include sections of the Harbor Freeway, the Long Beach Freeway, the Terminal Island Freeway, and all key arterial and local facilities. Rail infrastructure to be analyzed includes existing rail lines and future Alameda Corridor rail lines, on-dock intermodal facilities, and regional inland intermodal facilities. A regional analysis will extend beyond the focused study area and will evaluate regional deficiencies and test major improvements. The port of Long Beach has made significant investments in eliminating rail blockage from their roadways, but any remaining at-grade crossings will be included in the overall transportation system evaluation.

The TMP includes an in-depth investigation of all traffic generating functions associated with port operations. Surveys have been conducted with cargo terminals, and traffic counts have been taken to estimate the distribution of the generated traffic. In addition, truck driver surveys have been conducted to sample the origin, destination, and routing of trucks calling at the ports. This information will be used to develop a travel demand forecasting model. With projections of cargo through output for the years 2005, 2010, and 2020, the model will be applied to evaluate future traffic conditions. Finally, a transportation improvement program will be developed with recommendations for capacity improvement projects, operational strategies, ITS elements, and TSM strategies.

U.S. WEST COAST INTERMODAL DEVELOPMENTS TO IMPROVE INFRASTRUCTURE CAPACITY AND CONNECTIVITY

Frederic R. Harris, Inc.

While major infrastructure improvements have been pursued at the ports of Los Angeles, Long Beach, Oakland, Seattle, and Tacoma, along with the many other ports on the U.S. West Coast, the railroads have been increasing their capacity in order to handle the ever-growing volumes of intermodal freight. These capacity improvements include main-line rail expansions, intermodal terminals, operations, and equipment. This paper presents some of the capacity improvements for which Frederic R. Harris, Inc., has provided engineering and intermodal logistics planning and design.

Recent and planned main-line rail expansions have included double-track, triple-track, grade-crossing improvements and even new route developments. Some of these projects include the following:

Seattle to Tacoma capacity improvements
Seattle to Everett capacity improvements
Double-track junction to commerce triple track
San Joaquin corridor improvements
LOSSAN Santa Ana double track
LOSSAN Miramar Hills double track
Recent and planned intermodal terminal projects developed or served by the railroads include the following:

- Burlington Northern Santa Fe Stockton yard
- Port of Tacoma
- Port of San Diego 10th Avenue terminal
- Port of Oakland just-in-time
- Port of Long Beach Piers T and A
- Port of Los Angeles terminal island transfer facility, on-dock rail intermodal system, and west basin on-dock intermodal container transfer facility
- Burlington Northern Santa Fe commerce yard
- Burlington Northern Santa Fe Barstow yard

Frederic R. Harris, Inc., offers logistics planning for intermodal freight movement and has also successfully applied industrial engineering techniques to the analysis of intermodal freight terminal operations using discrete event simulation modeling, including the following:

- Yard operations with cranes, transfer circulation, storage, and trucker interface.
- Gate operations with ability to size gate and analyze one-step–two-step processes.
- Terminal access simulation of vicinity roadway traffic using origin-destination analysis.

**COMMERCIAL VEHICLE ITS**

**U.S. Department of Transportation, Joint Programs Office**

Commercial vehicle ITS applies technologies to help enhance safety and simplify credentialing and tax administration, roadside enforcement, freight and fleet management, and vehicle operations. It also has applications to intermodal connections, such as at rail and seaports and international border crossings.

Commercial vehicle ITS involves linking key information systems in order to exchange information on safety, registration, fuel tax, hazardous materials and commercial driver licenses between carriers, states, state agencies, and national systems. This infrastructure is designed to provide the motor carrier industry with a straightforward way to electronically obtain all the credentials needed to operate legally. At the same time, it provides states with current information on a carrier’s status, allowing inspectors, for example, to focus on those carriers with the worst safety records and expedite travel of carriers with good records.

**METRANS**

**University of Southern California**

Overview of the METRANS University Transportation Center, focusing on research of goods movement through ports.

**PORTWAY INTERNATIONAL: INTERMODAL CORRIDOR ACCESS PROJECT**

**New Jersey Department of Transportation**

Portway is a series of freight system improvement projects that will strengthen access to and between the Newark–Elizabeth air–seaport complex, intermodal rail facilities, trucking and warehousing-transfer facilities, and the regional surface transportation system. These facilities and their access routes are the front door to global and domestic commerce for the state and the greater metropolitan New York region. The project is necessary to relieve current high levels of congestion in this busy freight service corridor and to meet growing future demand for access to port facilities and intermodal rail yards. Phases I and II of this improvement route extend about 12 mi (19.3 km) from the seaport in the south to the Little Ferry rail terminal in the north. Phase III of the portway corridor would extend to the east to the new terminal highway service system serving Port Jersey and potential new port facilities at the military ocean terminal at Bayonne. Another potential phase would extend south into Union County to a railroad terminal and industrial development site at Trembly Point. Current cost estimates for Phase I only are $730 million.

**GLOBAL MARITIME AND TRANSPORTATION SCHOOL**

**U.S. Merchant Marine Academy**

The Intermodal Association of North America (IANA) through its Foundation for Intermodal Research and Education (FIRE) and the Global Maritime and Transportation School (GMATS) at the U.S. Merchant Marine Academy in Kings Point, New York, have announced plans to jointly offer a professional training course in intermodal freight transportation.

The rapid evolvement and globalization of transportation systems combined with an increasing rate of technological advancement have necessitated a great demand for a highly qualified workforce in the intermodal industry.
providers, users, suppliers, and third parties) that has both solid industry knowledge and a professional skills base. The course is designed to provide participants (primarily directed to midlevel intermodal freight executives involved with strategic planning, logistics, program management, and technical operations) with these key tools for success.

The intensive, highly interactive program will be conducted in-residence on the campus of the U.S. Merchant Marine Academy. Program facilitators will include many expert commercial practitioners from the intermodal industry augmented by top Academy faculty, guest lecturers from regulatory and policy organizations, and academia from other fine institutions. This combination affords the student the opportunity for exposure to a wide range of subject matter perspective and experience. The program includes best practices case studies and a field visit to intermodal transportation facilities in the port of New York–New Jersey. The first two programs are scheduled during the weeks of June 12–16 and August 28 to September 1, 2000.

IANA/FIRE is North America’s leading industry trade association representing the combined interests of intermodal freight transportation companies, including intermodal truckers–highway carriers, railroads, water carriers and stacktrain operators, intermodal marketing companies, and industry suppliers. The mission of IANA/FIRE is to promote the benefits of intermodal freight transportation and encourage understanding and innovation through outreach and education.

The GMATS is a nonappropriated fund entity of the Maritime Administration, U.S. Department of Transportation. As part of the U.S. Merchant Marine Academy, GMATS offers the most extensive maritime and transportation professional education programs in the United States for private sector, government, and military organizations.

ALAMEDA CORRIDOR TRANSPORTATION AUTHORITY

The Alameda Corridor will dramatically improve railroad and highway access to the ports of Long Beach and Los Angeles. The two ports comprise the San Pedro Bay Ports, the largest port complex in the United States. The complex is located on the doorstep of the Pacific Rim—the largest and fastest-growing marketplace in the world.

As a result of the dedication of the two ports and their staffs and the other members of the joint powers authority that make up the Alameda Corridor Transportation Authority, the corridor was developed to consolidate the operations of the three freight railroad carriers into one high-speed, high-capacity corridor. The route, to be constructed along Alameda Street, will include the elimination of all at-grade highway crossings of the railroad, while consolidating 90 mi (144.8 km) of branch-line tracks into one 20-mi (32.18-km) corridor. A distinct improvement to the region will be the elimination of traffic conflicts at nearly 200 at-grade highway crossings of the tracks, saving an estimated 15,000 hours of delay per day for vehicles sitting and waiting to cross as the trains pass. In addition, Alameda Street will be improved to provide better access from the ports to freeway ramps. In doing so, the Alameda Corridor will accommodate the increase in rail and truck traffic associated with the ports’ growth and will significantly reduce the negative impacts of that growth on the environment and neighboring communities.

The implementation of this program will have far-reaching impacts of national significance for the economic vitality of southern California and the nation.

Project objectives include the following:

- Reduce highway traffic delays,
- Improve safety,
- Improve rail operations,
- Mitigate environmental impacts,
- Improve economy,
- Maximize cost-effectiveness, and
- Minimize construction impacts.

IDEA PROGRAMS

Transportation Research Board

The TRB Innovations Deserving Exploratory Analysis (IDEA) programs encourage investigation of innovative concepts with potential for breakthroughs in transportation. Grants averaging around $85,000 are awarded to individuals, companies, nonprofit organizations, and universities that have submitted proposals for projects IDEA committee members believe will lead to new technologies or methods for improving the safety and efficiency of the transportation system in the United States.

DREDGING OPERATIONS AND ENVIRONMENTAL RESEARCH

U.S. Army Corps of Engineers

Congressionally mandated missions of the U.S. Army Corps of Engineers (USACE) include navigation and environmental protection. Dredging is essential for achieving this navigation mission, because waterborne transportation is the most efficient means for national and
international commerce. Protection and enhancement of the environment during waterway infrastructure operation and maintenance dredging are substantial priorities of the USACE. Research and development are integral components of managing the USACE dredging program to ensure an efficient and environmentally sustainable navigation system.

The USACE Dredging Operations and Environmental Research (DOER) program conducted by the U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi, is addressing technical requirements of the USACE field operating division and district offices. Identified requirements of these field officers have been categorized into six specific applied research focus areas, including contaminated sediment characterization and management, environmental windows for dredging operations, instrumentation for dredge and site monitoring, near-shore–aquatic placement of dredged material, innovative dredging equipment and process technologies, and ecological risk management for dredging and disposal projects. Objectives of the DOER program are to develop technologies, methodologies, and techniques to ensure that the operational and environmental issues of the USACE dredging program are adequately and efficiently met.
### APPENDIX D

#### List of Conference Participants

<table>
<thead>
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