

DAY 2: CONCURRENT PANEL SESSIONS (PANEL 2A)

# Infrastructure Capacity and Connectivity

## Federal Perspectives

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### OVERVIEW

*Bonnie Green*

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.

### HARBORS AND CHANNELS

*Barry Holliday*

*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*

1977 to March 1991. Before that, he worked in the Dredged Material Research Program at the Corps Waterways Experiment Station in Vicksburg, Mississippi. He is the North American representative to the International Navigation Association, Communications Commission, and has served on the Board of Directors of the Western Dredging Association. He is also a member of the Committee on Tidal Hydraulics.

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 Kanahwa 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 to not 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 mega-ships, 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 economical 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 connectivity and for capacity in what some may see as a strange context.

I have just returned from a week in Hungary, working with the eastern and central European railroads, helping them harmonize their operations with western European railroads under the International Union of Railways. They, of course, are looking to the United States as the great model for interconnected, efficient freight rail systems, which participate in the private sector financing. Although we like to complain about our freight system, it is the model for the world. When I discussed the events

happening in the United States, I caused a great deal of concern in Europe by making a suggestion that I will also make here, that perhaps the United States is outliving its heritage of a private sector rail system. Perhaps we are reaching a point in our economy where we cannot tolerate constraints on future growth imposed by the private sector marketplace orientation. That may be heresy, but I think it is a direction where events appear to be pointing us right now.

The critical point of the public policy of the U.S. rail system was initiated by the rail merger I just talked about. As I said, the Burlington Northern may be national. Standing alone, it is probably a procompetitive or at least a "benign" kind of merger. It is an end-to-end merger, one that does not cause a great deal of concern at 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 cannibalizing 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*

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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.