HIGHWAY CAPACITY AND FREIGHT MOBILITY: THE CURRENT STATUS AND FUTURE CHALLENGES

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BEFORE THE

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HIGHWAYS, TRANSIT AND PIPELINES

OF THE

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TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

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HIGHWAY CAPACITY AND FREIGHT MOBILITY: THE CURRENT STATUS AND FUTURE CHALLENGES

Wednesday, May 10, 2006,

HOUSE OF REPRESENTATIVES, COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,SUBCOMMITTEE ON HIGHWAYS, TRANSIT AND PIPELINES, WASHINGTON, D.C.

The subcommittee met, pursuant to call, at 10:00 a.m., in room 2167, Rayburn House Office Building, Hon. Thomas E. Petri [Chairman of the committee] presiding.

Mr. PETRI. Good morning. The Subcommittee hearing will come to order.

I would like to welcome all of our members and witnesses to today's hearing on Highway Capacity and Freight Mobility: The Current Status and Future Challenges.

Transport experts have expressed deep concern regarding the freight capacity shortage on America's highways. The last several decades have witnessed steady growth in the demand for freight transportation, but freight capacity, especially highway capacity, is expanding too slowly to keep up with demand.

This hearing will be the first of a series of hearings examining the imminent shortage of freight capacity on U.S. highways. The first hearing will focus on the current status of the highway system as it relates to freight mobility. Our witnesses today will present a big-picture perspective to provide members with the understanding of the immediacy of the freight capacity shortage caused by expanding freight transportation needs versus the lack of transportation capacity. Also, the witnesses will provide a forecast of where freight capacity is heading and what challenges are emerging.

The next hearings in this series will focus on more specific issues, including congestion around port terminals and rail facilities, infrastructure funding challenges, and freight logistics.

The U.S. economy depends on its interconnected transportation network to move various goods around the Country efficiently and reliably. Over 19 billion tons of freight, valued at $13 trillion, was carried over 4.4 trillion ton miles in our Country in 2002. Since 1980, the interstate highway lane miles have risen by 16 percent, while vehicle miles traveled on these roads increased by 123 percent.

Trucks are more frequently used to haul virtually all commodities in the U.S. when compared to other modes of transportation.

About 70 percent of the total value of freight shipments in the U.S. is hauled by trucks.

Freight congestion problems are most apparent at bottlenecks on highways. Most bottlenecks are found on highways serving major international freight gateways like the Ports of Los Angeles and Long Beach, at major domestic freight hubs like Chicago, and in major urban areas where transcontinental freight lanes intersect congested urban freight routes. These bottlenecks accrue significant truck hours of delay totaling upward of 243 million hours annually. At a delay cost of $31.25 per hour, the direct user cost of these bottlenecks is about $7.8 billion per year.

Last summer, our Committee passed the widely supported Safe, Accountable, Flexible, Efficient Transportation Equity Act, a legacy for users better known as SAFETEA-LU. In response to the freight capacity concerns, we included in that legislation several programs that are specifically designed to improve the movement of freight.

The bill provided $1.9 billion for the National Corridor Infrastructure Improvement Program; it provided $833 million for the Coordinated Border Infrastructure program; it provided $1.8 billion for a new program to fund projects of regional and national significance. The bill provided $100 million to fund the Commercial Vehicle Information Systems and Networks, pronounced CVISN, program.

SAFETEA-LU funds several research programs and studies designed to improve freight mobility, including a Freight Planning Capacity Building Program, a National Cooperative Freight Transportation Research Program, and a Motor Carrier Efficiency Study.

We have two panels of witnesses before the Committee today. The first panel includes Mr. Jeffrey Shane, Under Secretary of Transportation Policy at the United States Department of Transportation. The second panel includes witnesses who are active in transportation research and matters of freight mobility and highway capacity. That panel consists of Mr. Lance Grenzeback, Mr. John Larkin, and Mr. Michael Meyer, Professor at the Georgia Institute of Technology.

I now yield to Mr. DeFazio's sit-in, Mr. Pascrell, for any opening statement he may choose to make.

Mr. PASCRELL. Thank you, Mr. Chairman. For quite a while we have been talking about congestion on our Nation's highways, and we all agree something must be done and that the highways have become our back roads. Fortunately, there is no quick fix here.

It is estimated that by 2020 New Jersey will have 1.4 million additional residents, 21 percent more jobs, and will double the amount of freight moving into and out of the State. A total of 34 billion additional vehicle miles will be traveled.

We would like to increase highway capacity in some congested areas. I am supportive of funding for highway construction funding; however, increasing road capacity cannot be the only answer for the State I live in, the State of New Jersey, or for the Nation. New Jersey is the most densely populated State in America, approximately 1,100 people per square mile, leaving little room for physical expansion. We are in the process of even thinking about macadaming our bathrooms pretty soon. New Jersey has more cars

per square mile than any other State. And it is all supposed to run on an infrastructure conceived of over 100 years ago.

We cannot plan a strategy just to pave over what is left of New Jersey. It is incredibly important to utilize what current roads and transit systems we have in the most efficient manner possible. In terms of increasing this efficiency, intelligent transportation systems are a critical part, I believe, of the equation. Improving operations and management performance for freight transportation on our highways is critical to maintaining the health of our Nation's economy. The Nation's economic engine is built on an efficient highway system, a key component in our global competitiveness.

So I am eager, Mr. Chairman, to hear from our panel members this morning on the ways they intend to work together to improve our freight capacity, and look forward to a very interesting hearing. Thank you, Mr. Chairman.

Mr. PETRI. Thank you.

Other opening statements? Mr. Duncan?

Mr. DUNCAN. Well, Mr. Chairman, very briefly, just let me thank you calling this important hearing. And I agree with the things that you have said and that Mr. Pascrell has said.

I happen to have the privilege to represent one of the most popular areas in the Country as far as people moving in, so the population is growing rapidly. We have two interstates that meet in our district and a third that comes just outside the district, so our traffic problems are in some ways just becoming horrendous. So we need to really look into this subject, maybe encourage more reliance on rail freight and other methods.

So I just think the timing of this hearing is very appropriate and the subject matter is very, very important, and I thank you for calling this hearing. Thank you.

Mr. PETRI. Thank you.

Mr. Michaud.

Mr. MICHAUD. Thank you very much, Mr. Chairman. Mr. Chairman, I want to thank you, first of all, for recognizing me, and Mr. Ranking Member, and thank you for holding this very important hearing. I will keep my statement brief and ask that I might be allowed to submit the rest of it along with supplemental material for the record.

I want to bring this Committee's attention to an important aspect of today's hearing topic that is of great importance to my home State of Maine. You heard from two previous speakers about the density of their district. Maine is a very rural State, and I want to address that issue important to Maine.

This Committee should consider this problem because bottlenecks in one State affects commerce everywhere in the Nation. Currently, most of Maine's interstate highways are subject to federally-mandated truck weight limits of 80,000 pounds. However, Maine's State limit is 100,000 pounds, and it can't be lowered due to the demand on Maine's major industry, especially forest products and agriculture.

As a mill worker for over 28 years, I know it is crucially important that we move these heavy loads over our State. Unfortunately, as a result of the mismatch between the Federal and State regulation, heavier trucks must be diverted off the interstate onto State

roads that pass through a number of Maine communities. This has a negative impact on safety, the economy, and the system.

By contrast, allowing an exemption for the Federal weight regulation for Maine interstate would benefit tremendously. This change is supported by every municipality in the State of Maine, by their chamber of commerce, by safety groups, and by the entire Maine delegation, Republicans and Democrats. It would greatly improve safety, eliminate more than three crashes every year, fatal crashes in Maine, according to the federally mandated study. This safety concern is very real.

Although I have been working on this exemption since I became a member of Congress three years ago, the risks of current rules were made tragically clear again just last week, when a truck killed an elderly pedestrian in Bangor, Maine. The truck would have never been on that street if not for the weight rules. The truck should have been on the highway, where it belonged.

Exempting Maine from regulations would also help increase commerce and capacity in the entire system, allowing 6-axle, 100,000 pound trucks on the interstate would increase payloads by up to 44 percent over 5-axle, 800,000 pound trucks. Reducing the number of trucks on the road would cut the amount of fuel used by approximately 6 percent and it would enhance trade between Canada and the northeastern U.S. by eliminating the 200 mile truck weight gap that exists on Maine's interstate system.

In conclusion, Mr. Chairman, if we want to improve safety, decrease travel time, speed commerce, increase trade among our States, and make our system more efficient, we must consider this issue as part of any discussion for future of our highway system in meeting the capacity crunch that we currently have in the State of Maine. The Maine Department of Transportation had commissioned a study about a year ago that addressed a lot of the concerns about safety, about the travel of the interstate was increased to 100,000 pounds, and actually the cost.

I know it is unusual, Mr. Chairman, but we do have several folks from the State of Maine who traveled to Washington today to talk to members of both sides of the aisle about this very important issue. It is an issue that could save lives.

And in this room we see a lot of folks from the Maine Motor Transport who are here today, as well as the Maine commissioner of the Department of Transportation and his staff to help work with the Federal Highway folks, as well as members of Congress, to deal with this issue. So if I might, Mr. Chairman, if I might recognize and ask the members of the Maine Motor Transport and Maine commissioner and his staff to please stand in the audience.

And that is not the whole population of the State of Maine.

[Laughter.]

Mr. MICHAUD. Pretty close, though.

So with that, Mr. Chairman, I yield back the balance of my time.

Mr. PETRI. Well, thank you, and we welcome our guests from Maine, and the rest of the audience as well.

Mr. Mica, any——

Mr. MICA. Well, thank you, Mr. Chairman. I will just remark briefly and thank you for holding this important hearing. And whether you are from Maine, Florida, California, the Midwest, we

all face the same challenge right now. And whether we are looking at highways, ports, airports, any of the infrastructure, rail infrastructure across the Country, we are facing a crunch. One of the questions we are going to have to answer is how we finance all of this, particularly our highway system and transit system. And as we look at alternative energy sources, the very core basis of our financing of our trust fund, our aviation system, we see very significant issues.

I don't have the answers. I am anxious to hear from those that deal with the industry to come up with some creative solutions. And I find most of those usually come from the private sector or from people who deal in some of these key areas that make our economy grow, like trucking, rail, aviation. . But it is critical that we provide the infrastructure so that we can conduct the business of this Country, which is business.

So, again, a very critical subject today, highway capacity and freight mobility, on which we are so dependent but also, right now, so handicapped. So I look forward to this hearing and the comments of these witnesses. Thank you.

Mr. PETRI. Thank you.

Mr. Higgins, any comments?

Mr. HIGGINS. No, thank you, Mr. Chairman.

Mr. PETRI. Mr. Miller.

Mr. MILLER. Thank you, Mr. Chairman. This is a very important hearing for Southern California. I represent an area that services basically the Ports of Long Beach and Los Angeles, and if you look at the impact not only of truck traffic with the containers that come through our region, but the rail traffic, on the freeways of 91, 60, 10, 5, 57 are incredibly impacted.

In some degree people from our region feel like we are subsidizing the rest of the Nation because we suffer the impact from the import and export. In fact, about 25 percent of all the imports and exports go through my district. Yet, we don't feel that the adequate dollars are coming to mitigate that impact. And it is going to get worse the next 20 years; they are projecting impact to increase by about 70 percent. I don't know how we are going to deal with it.

If you listen to the news on any of our local stations about the truck accidents that occur on the freeways, especially the 91, it is probably the most impacted bottleneck we have in that region. And if you look at the amount of transports coming from the harbors through that area, trucks just stop, and that is not a good thing to happen. When you have trucks and, you know, residential traffic that we get going on and off the freeway, that creates a huge problem for our area.

So hearings like this, Mr. Chairman, are extremely important. If you heard the level of frustration from individuals in my district, they are sitting at what we call Alameda Corridor East, they are sitting at at-grade crossings, not only commuter traffic, but the trucks trying to deliver goods, sitting there watching trains go by. We need to deal with these at-grade crossings. We need to deal with the capacity on some of our freeways; restricted truck lanes, additional lanes. Specifically the 91, we have to do something about that. That has a huge impact. In delay with commuters alone, they

figure the cost is about $31.25 per hour per commuter trying to sit on those freeways and trying to get back and forth to work.

So I look in some way to partnership with the Federal Government so we can alleviate the impact on our local highways and freeways. But it is something that I appreciate that we continue to talk about. The more we talk about it, the more expectations we increase, I believe, on the part of the people in our area, but in government that we have to deal with the problems we are facing. And as Mr. Mica said, it is not just the trucks, it is not just the rail, but it is also the airports. We have a huge issue with our airports in our local region, trying to get people in and out. The amount of goods UPS and FedEx have hubs in our area.

So this is a good debate and I applaud you, Mr. Chairman, for having it today. Thank you.

Mr. PETRI. Thank you.

Mr. DeFazio.

Mr. DEFAZIO. Thank you, Mr. Chairman. Please excuse my being tardy; I had to deliver a speech. Thank you for holding this hearing. You know, recently, in the Rail Subcommittee, we held a hearing on our congested railroads, and this is the twin to that problem, the problem with our congested highways.

It is estimated that more than two billion gallons of fuel was wasted last year due to congestion and traffic backups. Now, that is a lot of fuel and that is a lot of money with the increasing price of fuel. The number of hours lost to productivity was absolutely huge, in addition.

So this is an investment that needs to be made, an investment in America. It is something that can't be exported in terms of jobs when we build infrastructure to better move our people and our goods.

And it is something that we must get ahead of. We have got the congestion today, it is bad, but when you look at the projected 70 percent growth over the coming decades in the movement of freight, it is going to be horrendous in the not too distant future if we don't get ahead of it. And the kinds of issues that will be raised in these hearings and the kind of solutions that hopefully we will put forward will serve America well for the future.

So, again, thank you for holding this hearing.

Mr. PETRI. Thank you.

Are there any other opening statements? If not, we will turn to our first panel, which consists of Mr. Jeffrey Shane, Under Secretary of Transportation Policy at the U.S. Department of Transportation.

We have your opening statement. We look forward to your summary. Thank you.

TESTIMONY OF JEFFREY SHANE, UNDER SECRETARY FOR TRANSPORTATION POLICY, U.S. DEPARTMENT OF TRANSPORTATION

Mr. SHANE. Thank you, Mr. Chairman. And let me add my voice to all those who have thanked you for conducting this very important hearing; indeed, the whole series of hearings that I know you are embarking upon. There is no any more important issue to the

economic vitality of America than our transportation system, and these hearings will be a very important focus on that.

We are grateful to Congress for the tools that SAFETEA-LU included, specifically with reference to freight. We look forward to seeing more of those added.

I bring you greetings, of course, from my boss, Secretary Mineta, a former member of this body, who sends you all his warmest regards. I am here also representing Acting Federal Highway Administrator Rick Capka, and we want to discuss issues of highway capacity and freight mobility today. And, finally, it is a special pleasure to have Maine's commissioner here and the delegation from Maine. That is a special treat for all of us.

I don't have to lecture this Subcommittee on the growth of our economy recently. GDP increased by 46 percent between 1990 and 2003. More important for today's purposes is the fact that in the last 15 years U.S. foreign trade more than doubled. And if you take a look at this first slide that is going to be put up, you will see that projected volumes will be even greater by 2020, given current growth rates.

Now, this slide, I should point out, is simply reference to the volume of trade coming through our ports. And if there was any need to emphasize what Congressman Miller was talking about, that large tower on the left represents the Ports of Los Angeles and Long Beach. All of that trade ends up you know where, on our highways and on our rail system. So despite the fact that this slide is all about ports, it obviously portends a huge problem for us in the movement of freight generally.

A growing economy and population generates a lot of freight movement. And while continued economic growth is dependent on a number of factors, a key factor, and one that we think hasn't received sufficient attention, is the efficient and reliable operation of our Nation's freight transportation systems. Trucks are the predominant mode for freight movement. Trucks now carry 60 percent of the volume and 70 percent of the value of the freight movement in this country. The enormous gains and efficiency that we brought about through trucking deregulation are seriously threatened today by road congestion, the costs of which are borne by shippers and manufacturers and operators, and ultimately, of course, by consumers.

DOT believes the congestion is not an insurmountable problem, but solutions are going to require a far more economic approach to capacity expansion and improved productivity of the existing highway infrastructure.

A critical tool in assessing overall system performance and scope of the congestion problem is improved freight data. That is really what I want to spend most of my time talking about this morning. It is imperative that we provide timely and reliable data to transportation planners and investors so that scarce resources are allocated efficiently.

Freight movement is graphically displayed on the second slide, a map that shows truck movements in 1998. The map is a product of the Federal Highway Administration's Freight Analysis Framework, or FAF. The FAF is the Department's principal resource today for understanding freight movements in the United States.

To run this analytic tool, commodity, origin, and destination data are collected at the national and regional level. A key component of data feed for the FAF maps is the Commodity Flow Survey. I can't emphasize enough how vital good data collection is to this analytical capability. The commodity tonnages are then converted to truck payloads and, through modeling, are assigned to routes in the freight transportation network. It is those truck assignments that you see on this slide.

The FAF provides a tool not just for the Federal Highway Administration, but for the entire Department of Transportation, because it helps us predict future demand. For example, forecasting freight flows, while taking into account economic variables, produced this year 2020 version of the map you just saw. As you can see, the freight flows are quite considerably more voluminous.

And in this next slide, comparing freight volumes to available highway capacity, you will see the congestion on our transportation network as we project it in 2020, assuming, of course, that our highway infrastructure remains static. And none of us hopes that it will remain static.

The FAF also lets us consider "what if" scenarios of proposed capacity expansion, shifts in modal choice, or in the case of disasters, an outright loss in capacity. Equally important to our national and regional analysis, State and local transportation officials can use FAF data with local freight data to improve project planning at that level. The Federal Highway Administration is currently working with numerous State DOTs to refine FAF with additional data to make it more useful to planners at all levels.

An exciting new effort within the Federal Highway Administration's Office of Operations uses actual trucks on the road to measure the performance of the Interstate System. This effort, reflected in the slide that is up now, provides a way to monitor the velocity and the reliability of truck movements on the Interstate System. Five freight-significant corridors were initially selected to prototype this effort. Data from those five corridors are being collected from approximately 250,000 trucks, and are used for speed and travel time reliability measures for those corridors. Last month we expanded the program to a total of 25 corridors. The slide you see here shows the reliability of travel times on the initial five corridors that we selected for the month of October 2005. This new analytic tool provides views into system performance that we didn't have before and that help us determine where we should be targeting our investment dollars.

We have also provided each member of the Subcommittee with copies of the most recent edition of Freight Facts and Figures, along with a FAF profile of each member's respective State. A broad range of freight-related material is always available from the Federal Highway Administration's Office of Freight Management and Operations on their Web site and, of course, directly.

Operational improvements, through improved system pricing and broader technology deployment, are critical to addressing congestion as always. The Department continues to support broader State flexibility to establish more efficient pricing mechanisms. And, in addition, we are working with technology developers and State and local governments to develop intelligent transportation systems for

both vehicles and infrastructure that help to relieve congestion and improve system reliability.

Mr. Chairman, I see that my time is up. I know that the next panel will be talking about a lot of other efforts of the Department of Transportation that implicate freight policy. I am proud to say that freight policy generally is playing a far more conspicuous and important role in the agenda that we have at the Department of Transportation than ever before.

Secretary Mineta attaches huge importance to it, we all do. We are delighted that Congress is focusing on it in this way and we look forward to working very closely with you. And I would just pause there and welcome any questions that members may have. Thank you very much.

Mr. PETRI. Thank you.

Mr. DeFazio?

Mr. Pascrell?

Mr. PASCRELL. My first question is this: Ultimately, solving the freight mobility problem still boils down to money. Our highway account in the trust fund is running out of money. We all know that. What does the Department intend to do next year when the prospects of that eventually becomes more certain? Will you recommend to the President to cut guaranteed spending for highway programs or will you recommend raising revenues to sustain authorized investment levels included in the SAFETEA-LU? That is my first question,

Mr. SHANE. Thank you, Congressman.

Mr. PASCRELL. Because one year is tomorrow.

Mr. SHANE. Yes. We are painfully aware of the pending shortfall in highway trust fund resources, and there is no question that the Department will be focusing a lot of energy into trying to figure out how we respond to that problem.

SAFETEA-LU, as you know, created the National Surface Transportation Policy and Revenue Study Commission, which will be kicking off very shortly. We are looking to that Commission, in the first instance, to provide recommendations for dealing with this shortfall, and those recommendations will certainly inform the Department's deliberations as we move forward. It is just impossible for me to predict right now what the Department will propose to the Administration and the Administration to Congress, other than to say that none of us at DOT, least of all Secretary Mineta, thinks that we can do with less investment into our highway system than we have today. We need more. What the sources of that investment will be will be an important source of a national policy debate, I have no doubt.

Mr. PASCRELL. So the situation is no different on a Federal level than it is on a State level in terms of the leveraging of your own trust fund so that more dollars can come in to your particular State. We have the same problem in New Jersey. We are struggling for a means to bolster those numbers. We have been struggling with that on a Federal level. We have to come to grips with this and make a decision, because these projects need to be continued and new projects, as you have heard, you know, need to be designed and ready to be put in place.

You also emphasized the role private investment plays in addressing the capacity problem. But private investment focuses on returns to investors, as it should, and not necessarily trying to meet the highest transportation priorities of a State or a Nation that you and I may agree on. One of our witnesses on the second panel—I just glanced through the testimony—points out in his testimony that most of the traffic delays on our highways occur at interchanges, which generally are not suitable for private investment, as it is difficult to impose tolls at an interchange and to turn a profit.

How can we address the most severe transportation congestion problem in our Country by relying on private investment? I would like to hear this.

Mr. SHANE. It is a great question, Congressman, and I don't think anybody is here to argue that the country can rely entirely on private investment to support our transportation infrastructure. I think our expectation is that it will always be a mix, that there will be opportunities for private investment. There is a lot of private capital out there that is available for our transportation infrastructure, and we should try to take advantage of it where we can and where it makes sense as a public policy proposition. There will also be plenty of opportunities for the public sector to weigh in and ensure that we have the transportation capacity that we need.

It will be a mix. Again, I just don't have perfect knowledge of what we are going to decide in the future. I do know that there isn't sufficient flexibility right now at the State level to take advantage of that private sector capital that is available. And one of the things the Department and the Administration have been proposing is that we try to enhance the flexibility available to States to facilitate decision-making at the State level consistent with the best needs of our States. We think that Federal law presents too many impediments today to the flexibility that the States deserve.

Mr. PASCRELL. In conclusion, Mr. Chairman, are you sending a clear message to the States that you are in gear to assist them in the planning for the future when so many lives are dependent upon it and so many dollars are dependent upon it? Are you sending a clear signal that the Federal Government is ready to implement its responsibility, or are we going to talk about planning for the next ten years?

Mr. SHANE. I sure hope we are sending that clear signal. Of course, you would have to ask those who we are sending it to and see if they have received it. But I can tell you that certainly within the course of the next several weeks we are ramping up dramatically our outreach in terms of trying to extend resources, extend help and consultations to all of our States in an effort to address these vital economic questions.

Mr. PASCRELL. Thank you.

Thank you, Mr. Chairman.

Mr. PETRI. Mr. Duncan?

Mr. DUNCAN. Well, thank you, Mr. Chairman.

Very briefly, Mr. Shane, I mentioned the rapid growth in Knoxville and East Tennessee area, and the fact that we have two interstates that come into Knoxville and a third one just outside of Knoxville. What I see happening—I mean, I remember—it has not

been too many years ago—when the interstate in Knoxville was just two lanes on each side and there was really no congestion. And now we are going to five lanes on each side all through Knoxville and outside Knoxville; yet, we still have worse traffic, really, than I face up here. And part of that is because of the rapid growth; part of it is because we are within 600 miles of two-thirds of the population and we have millions of people coming to Tennessee and through Tennessee.

But what I am getting at is I assume that the Department is taking into consideration not only the population base that is already there, but the future growth and then, in addition, the location and the fact that you have so many people coming through areas like that. But where are we headed? I mean, you know, are we going to have to go to ten lanes on both sides in 20 years? And of all these things that you have mentioned, all these analytical tools, all these programs, what do you think is the most hopeful or the most significant thing out of all those things you have mentioned to us and all the things the Department is considering?

Mr. SHANE. Well, assuming that we have good information about the demand that we face, that we can plan properly based on the facts, my own view is, for reasons that you have quite clearly explained, the addition of more and more and more lanes is not going to provide the kind of solution that we ultimately need, and my own expectation is that the real solutions will be found in a combination of technology and economic tools, such as pricing mechanisms calibrating the use of our existing capacity more effectively through the use of admittedly controversial ideas like variable tolls on our most congested highways, and freight-only lanes with a user fee basis such that we end up using this infrastructure in the most efficient possible way.

When the United States deregulated the providers of transportation back in the late 1970's and early 1980's, we found a lot of capacity in the existing infrastructure. It gave us probably a quarter century's reprieve in terms of the capacity of the infrastructure that existed at that time. That particular tool has now been exhausted in terms of its value for capacity purposes. We now have to find some new tricks in our bag. And my own—I will call it a personal view, if I may—my own view is that technology and economics are where much of the new solutions will be found.

Mr. DUNCAN. Well, I will just close with this and say that, you know, I talk to people from all over the Country from other States who just can't believe the bottleneck and the traffic that is through the Knoxville area. It far exceeds—if you just look at our population, you just wouldn't believe it. I mean, we do have in Knox County a little over 400,000 people and then, of course, the surrounding counties are growing the fastest. But we need some help, and I hope you will take a look at the whole situation there.

Mr. SHANE. Just to follow up, Congressman, those bottlenecks are unacceptable.

The importance of these hearings, Mr. Chairman, is that we now have an opportunity to focus national attention on problems like that. The inability to focus enough attention on those issues I think is what has hurt us in the past. So I am hopeful that, working together, we will really begin to address these issues. The impact on

national economy is not sufficiently understood. It is absolutely vital that we solve these issues.

Mr. DUNCAN. Well, I would just like to be able to get to work faster in Knoxville than I do up here, and right now I can't. Thank you.

Mr. PETRI. Thank you.

Mr. Mica?

Mr. MICA. Thank you very much, Mr. Chairman.

Thank you, Mr. Shane, for your testimony. As you heard in my opening remarks about the truck weight and what that can do for the bottleneck, when you look at the increase in highway traffic that is projected in the near future, as well as the increase in trade through Canada, do you agree that if you can take care of a bottleneck in one section of the Country, that it could help commerce throughout the Country at the national level?

Mr. SHANE. Absolutely. There are certainly corridors and bottlenecks that have a huge national impact.

Mr. MICA. My second question, I just want to follow up on Congressman Pascrell's remarks about in order to take care of congestion, it is going to cost money. But, actually, a study that was done in the State of Maine—because part of the interstate system has 100,000 pounds, the other part is 80,000 pounds—actually, when they increased the weight limit on the southern portion in the State of Maine, it actually saved money for highway and bridge repair, and that is a recent report. And that is why I think it is very important, when you look at congestion issues, that you also look at the weight limit issue, which will not actually cost money in all cases, but actually could save money, number one.

Number two, sticking with the weight limit issue, has the Department done a weight limit study on the impact to the State of Maine? And if so, what was the outcome of that study at the Federal level?

Mr. SHANE. An impact on the State of Maine of?

Mr. MICA. Yes, on the State of Maine. Have you looked at the whole weight limit issue and what effects it has on the State of Maine as far as congestion, as far as cost, as far as safety?

Mr. SHANE. I don't know the answer to that question, Congressman, I may have to supply it for the record, unless one of my colleagues happens to know. I don't believe we have, Congressman, but I will verify that.

Mr. MICA. My last question, Mr. Chairman, is also in the State of Maine, in the Lewiston-Auburn area, we are working with the private sector to look at congestion problems, and they actually were talking about improvements in the Lewiston-Auburn area that actually can ease the congestion in the Chicago area, Illinois area. Is that conceivably possible that that could happen?

Mr. SHANE. We have been looking at a variety of options for Chicago and even stationed an office there in an effort to help with the throughput on Chicago, because Chicago, like border crossings that you are familiar with, has a disproportionate impact on the national economy, and the effort to address congestion there is obviously one of the top items on our agenda.

Mr. MICA. But are you looking at other ways to ease the burden in Chicago's congested area by looking at what can be done in

Maine, for instance, that could actually ease that type of burden? And if you haven't been looking in that area, is that something the Department is willing to do?

Mr. SHANE. The Department, yes, is willing to examine any option that is likely to enhance the efficient flow of freight through the system; it is important to the economy, being what it is. Yes, Congressman.

Mr. MICA. Thank you very much.

I yield back, Mr. Chairman.

Mr. PETRI. Thank you, Mr. Mica.

Mr. MICA. Thank you, Mr. Shane, Mr. Chairman.

Let me take this sort of progressively. One of the problems we have is—first of all, everybody said we are drowning in congestion, we need more infrastructure and we are going to have to have more infrastructure.

One of the basic problems I found is our whole setup for planning at the very core of expanding some of the infrastructure seems somewhat outdated. The structure of some of the metropolitan planning organizations and our requirements there don't mesh with, basically, reality. Today we have jurisdictions that you can no longer tell where they begin and end. Yet, you have a planning policy that sometimes doesn't match those jurisdictions.

Do you have any recommendations in the planning process itself to change, to deal with, again, what we see out there in these areas? You put up on the chart that just sort of blended together, but the planning process hasn't kept up with that.

Mr. SHANE. My impression, Congressman Mica, is that there is a variety of quality, if you like, out there among our metropolitan planning organizations. Some actually have the jurisdiction that you would hope; others,——

Mr. MICA. Do not

Mr. SHANE.—as you suggest, do not. And the Department, of course, has a whole host of tools that we make available in an effort to enhance the effectiveness of the planning process. We are talking about freight this morning, and I know the Administration proposed, as part of what the Administration included in SAFETEA in its bill, was the suggestion that every one of the departments of transportation at the State level include a freight coordinator, somebody that would work with MPO specifically to keep freight very high on the agenda. The old saw is, of course, freight doesn't vote and, therefore, when people are trying to solve congestion problems, they don't pay enough attention to goods movement. We didn't make the cut with that proposal, but I think there are other ways we can enhance the visibility of freight within the planning process, and we are trying to do that.

Mr. MICA. Well, the next part would be actually permitting and moving projects forward. I was involved in one interchange on the interstate in Florida which I started when I was a staffer with Senator Hawkins in the early 1980's. I didn't get it done, actually, until I was in Congress, and I have been here 14 years. It was at least seven years into my term, so it took 20 years. I see so much redundancy and time. I know we have put some provisions into our new SAFETEA-LU bill on that. Are there enough tools there to

move this process forward, or should we come back and look at that? Because we are going to have to build some of these.

Mr. SHANE. I agree. The President issued an executive order a few years ago creating a process to focus on precisely those kinds of administrative bottlenecks. I guess it is fair to say the President likes administrative gridlock even less than he likes physical gridlock on our roads.

So we have had a process chaired by Secretary Mineta where we identify key projects that have been stuck, where we haven't been able to get the Federal approvals from the variety of agencies that have to give those approvals, and give them deadlines and force decision-making. I mean, the decision may be no, but we need to know that in order to move to plan B, and that is what hasn't been happening.

I am proud to say that that process has actually delivered a lot more efficiency in the process than we have seen before.

Mr. MICA. Another question deals with you said we need some variable tools and just approaches maybe even with pricing. What projects have been approved? Are there any you can cite as examples that we are looking at that may or may not be successful?

Mr. SHANE. Probably the most exciting experiment took place in California with a State road called SR–91, which has variable tolling and which gets people home. This is in Southern California.

Mr. MICA. I think I went on that, but I heard that that was a mixed result.

Mr. SHANE. I have heard that it is not a mixed result, that the people that are willing to pay for a little bit of speed are very happy with it. And, of course, by getting them off the road that is not tolled, they end up even benefitting those that are not paying tolls. So I can't say that I have been there personally, and I haven't looked at it personally, but I have been hearing some very positive reports about it. Obviously, it is one example and we will be looking at a variety of others. There have been other tests which have been interesting as well.

Mr. MICA. Thank you.

Mr. PETRI. Mr. Higgins. No questions? Let us see. Mr. Bishop? Well, Mr. Matheson. No? No one else? Oh, Mr. DeFazio.

Mr. DEFAZIO. Mr. Shane, in responding to Mr. Pascrell, you talked about the barriers to flexibility for the States. Now, I would kind of like you to be explicit there. I am puzzled as to what you are talking about, since, as far as I can tell, particularly my State, they are more innovative than the Federal Government and they have plenty of flexibility; they do bonding, which the White House didn't want to do, and other things. So what are we talking about here?

Mr. SHANE. The most conspicuous example I can think of Congressman DeFazio, is the prohibition against the tolling of an interstate highway that already exists.

Mr. DEFAZIO. Oh, so we should allow people to take taxpayers who have paid for a highway and then charge them tolls to use the highway that the taxpayers paid for?

Mr. SHANE. Well——

Mr. DEFAZIO. That would be a step forward?

Mr. SHANE. I am not sure who the "we" is in the sentence. The idea is to allow people to decide what they would like to tax themselves for. I am just saying that the Federal Government is now putting up barriers to flexibility——

Mr. DEFAZIO. OK, but is there another barrier? Since I happen to disagree with that as a barrier, do you have any other barriers? I just would like to hear about them.

Mr. SHANE. I can supply for the record——

Mr. DEFAZIO. OK, so the one thing we are talking about is the Bush Administration wants to allow States——

Mr. SHANE. To decide.

Mr. DEFAZIO.—to impose tolls on the Federal interstate system that was paid for by taxpayers. OK, so that is your big step forward. That is great. I am sure the public will be thrilled with that. I guess, then, is that going to—we mandated a commission in SAFETEA-LU, and I understand Secretary Mineta is going to convene the commission later, and hopefully we will get some things other than this idea, which was rejected by the Congress, to allow tolling on existing interstate capacity from that commission. Can you give us any insight into the schedule or what the commission is going to look at?

Mr. SHANE. The first kickoff meeting, I believe, is on the 24th of this month, and I imagine they will establish a schedule once they are all assembled for that first meeting.

Mr. DEFAZIO. OK. Well, then that was helpful.

Mr. SHANE. Congressman, Congress actually did allow some tolling of existing Interstates in a pilot program, as you know.

Mr. DEFAZIO. Right, in a very limited way, and that was opposed by many of us.

It seems to me what we are talking about here seems to be a constant refrain from this Administration which would be a step back from the idea of an integrated Federal transportation system. I mean, Representative Duncan talked about the problems of Knoxville. If we are just going to say to the States, we are going to give you tools to deal with your problems, but we are strapped for resources here at the Federal level and we just really can't afford the 1950's version of an integrated, efficient Federal highway system I think that would be a tremendous step backward, and I am concerned that that does seem to be sort of implied in a lot of what you are talking about here.

I want to be assured that the Federal Government is going to continue to look at an integrated system that we are going to continue to try and invest, partner with States, whether or not the States partner with the private sector, to resolve bottleneck problems. For instance, this Congress rather generously chipped in to help Oregon in SAFETEA-LU with its cracked bridge problem, which isn't just an Oregon problem, it is Interstate 5. It is the third busiest truck route in America; it carries commerce from Canada, Mexico, and California, the fifth largest economy in the world. It serves the entire West Coast and is a gateway for things moving east. I think there was some recognition by the Congress that the problems of Oregon are not just Oregon's problems, they are national problems, and I think what Representative Duncan and oth-

ers are saying are many of these key choke points are national problems. I hope there is still recognition of that.

Mr. SHANE. There is more recognition today, Congressman DeFazio, than we have ever had in the past at the Department of Transportation and within the Administration, and I think that is what the importance of this hearing is. If there is one point I would like members of the Subcommittee to take away from my testimony, it is that the Department of Transportation is more focused now on the importance of integrating our solutions and addressing these congestion issues effectively than ever in the past. We have a much better sense of what the economic consequences of failing to address those problems is and it is a national priority, and that is why we are so enthusiastic about the series of hearings.

Mr. DEFAZIO. OK, I am pleased to hear that.

One other quick question, Mr. Chairman.

Will there be any cognizance of what we would call least-cost planning, looking at least-cost alternatives by the commission? That is, you know, we can focus here narrowly on freight, trucks; we can focus in the Rail Committee narrowly on Class I railroads and their capacity problems. But the bottom line is the solution is some combination of those things, it is not one or the other. And I am hoping that we will be looking at both fuel efficiency, which would be what is more efficient in the movement of freight, and least-cost alternatives, which cause to break down some of these artificial barriers we have set up between funding for our highway system and funding or working and partnering with the rail system.

Mr. SHANE. That is a superb suggestion and I think we are in the same boat in terms of what we hope the Commission will do. But I can't do anything more than hope, along with you, that it will address all of these things. Secretary Mineta will have more of an opportunity, obviously, to suggest an agenda in his role as chair, and we will try to make sure that nothing is left unexamined.

Mr. DEFAZIO. OK. Thank you.

Thank you, Mr. Chairman.

Mr. PETRI. Thank you.

Let us see, Mr. Hayes, any questions? Mr. Simmons.

Mr. SIMMONS. Thank you, Mr. Chairman.

Thank you, Mr. Shane. One of the other witnesses that will be in the second panel, Mr. Larkin, has written an interesting piece called "The World is Not Flat for the Transports," and on page 4 he talks about railroads and says railroads are not the relief valve. He talks about how truckers and the railroads are cooperating, which is laudable. He talks about how the railroads have turned the corner and are more involved in shipping lighter density, higher value manufactured goods, and so on and so forth.

I come from New England. We don't have a lot of space to build a lot of new road capacity. We do have freight rail delivery. We think it works; it keeps the trucks off the highway. You go up to I–95, 91, 395 at times, 84 at times, the traffic is creeping along at 30 to 35 miles an hour. On weekends I–95 is 20 miles an hour for the better part of the day. You know, it is hard to create new lanes when you are going through densely populated historic towns that

have been around for 300 years; there is just not a lot of space there.

What significant efforts are you making to try to incorporate long-haul freight and new systems of using long-haul freight with trucks to alleviate some of these problems? And what effort is the Department of Transportation making to assist the railroads in their capital needs so that they can incorporate some of these new technologies?

Mr. SHANE. The Department has been working—and you will hear much more about this from the members of the next panel—on a freight policy framework for the Nation. It is not a Federal freight policy that we are looking for; we are looking for a national freight policy, because governments at all levels will have to necessarily participate in that, as well as the private sector, and providers of transportation as well. And I think it is out of that framework, which is a very detailed framework with specific assignments that we are going to see some solutions emerge. I don't have bright ideas to propose this minute to some of the questions that you were just asking.

In terms of rail investment, the railroads, for the most part, are private sector. All of our freight railroads are private sector companies and they have been ramping up their capital expenditures and capital investment rather dramatically in very recent years, after, I think, a long period when even they would admit that there probably was insufficient investment. That is one promising development. At the Federal level, there is a program called the RRIF program. It is a loan guarantee program available to railroads. And I know that the railroads themselves are seeking some legislative help in finding some other resources. But, by and large, for freight rail, we do not have a large infrastructure finance program along the lines that we have for highways or even for airport construction.

Mr. SIMMONS. Given the current situation and the projections for the future, is that no something that perhaps should be changed as a matter of policy?

Mr. SHANE. The Administration has looked at it. At this point in time, I don't think the Administration has a recommendation in that regard. I think there is still the expectation that the railroads will find, in what has been a very productive revenue environment over the last few years, the capital, without having to tap the Federal Treasury to ensure that the capacity is expanded and keeping up with demand. But time will tell as to whether that assumption is correct.

Mr. SIMMONS. Well, I just offer, Mr. Chairman, that we make substantial investments in highway transportation. We make substantial investments in air transportation. Lord knows on passenger rail we are sinking a billion dollars a year into entities like Amtrak, and it seems to me, if the private rail system needs capital for investment to upgrade and facilitate its cooperative efforts with the trucking industry, that that should be a point of interest for us.

And I yield back.

Mr. PETRI. Thank you.

Other questions on this side? Mr. Taylor?

Mr. TAYLOR. Thank you, Mr. Chairman.

I would like to follow up on Congressman Simmons' excellent line of questioning. We have a similar situation with a short rail line in South Mississippi, owned by someone from out of State and who is now looking at in the neighborhood of $60 million to repair, in some instances, 100 year old bridges for a rail line that, in all honesty, serves about four companies at a fairly remote part of Mississippi, but a part of Mississippi, and it is the life and death of those four companies.

So to follow up on his line of thinking, given the price of fuel, given the cost of building roads, it really would be the lost cost alternative to continue to supply these four industries with a rail line. And I am curious, what, if anything, is the Administration proposing along those lines? I think $3.00 a gallon diesel fuel should be changing the way all of us look at moving products. So what is the Administration proposing along those lines?

Mr. SHANE. Congressman Taylor, my understanding is that Congress, I believe it was last year, enacted an investment tax credit for the short line railroads, which is a huge assist for a railroad like the one you are describing in taking on the investment that it is proposing right now. The Administration honestly doesn't have any additional tools in the bag to suggest; that was a very big win, I think, for the short line railroads.

Mr. TAYLOR. It doesn't sound like a very big win at all. It sounds like nothing has changed from when we had $0.70 a gallon diesel fuel. And if we as a Nation and the citizens are sincerely concerned about trying to get the price of fuel down, one of the only ways we are ever going to do that is to get the demand for fuel down. And one of the ways we should be doing that is to keep as much heavy freight that is normally on the railroads traveling on the rails. And, yet, when something like this comes along——

Look, this guy isn't going to recover $50 million in the next 50 years on that line. But he is keeping that heavy freight off the roads; he is doing it in a more fuel-efficient manner than if he was trucking it. I am not trying to put the truckers out of business, but there is a time and a place for each of them. So if we, as a Nation, are serious about fuel efficiency, if we are serious about minimizing unneeded traffic off our highways, this is something we absolutely ought to be doing.

Mr. SHANE. Well, I don't think we are disagreeing. I think Congress responded—when the short line railroads came seeking some help in support of this sort of capital investment, Congress responded with an investment tax credit. That is a public subsidy to investment in rail infrastructure. That is something that the Class I railroads do not have today. In fact, I think they are probably seeking that from Congress today. So Congress will have opportunities to look at some of these proposals and see whether or not there are other things that can be done in support of enhancing rail infrastructure. Right now the short lines already have some pretty important help thanks to what Congress did last year.

Mr. TAYLOR. If I may, what kind of help do you provide to the States? If the State of Mississippi or any State recognized a problem like this and said, yes, this is the most logical way to solve this particular problem and that we, as a State, are willing to invest

in it, what programs, if any, are there for a Federal-State partnership to improve that line, or even take over that line?

Mr. SHANE. We have a program called TIFIA, which is Transportation Infrastructure Finance and Innovation Act. It was originally part of TEA–21. And it provides low-cost financing, loan guarantees, and in some cases, direct loans from the Federal Government that can be used for intermodal facilities, for highway facilities, for a variety of transportation facilities.

Mr. TAYLOR. How about rail line improvement? How about replacement of bridges?

Mr. SHANE. Direct rail construction, no, but intermodal facilities that benefit railroads, yes.

Mr. TAYLOR. OK, how about rail repair? Are you calling construction and repair two different things or the same thing?

Mr. SHANE. Well, I am distinguishing, between the rail bed itself, the right-of-way, and the intermodal facilities where rail intersects with other modes of transportation. We talked earlier about the need for an integrated system. That integrated system is enhanced by the connectivity we provide at these intermodal yards, and the intermodal yards are eligible, including rail yards, for TIFIA help, as well as a very new tool that is available called private activity bonds. I am proud of this one because the Administration, through the Treasury Department, decided to extend private activity bond financing to intermodal facilities as well for the first time; that is to say, tax-exempt bond financing, the proceeds of which can be made available to a private sector development such as a railroad for purposes of an intermodal facility. And these are important steps forward.

Mr. TAYLOR. Who on your staff could we sit down and talk with? I don't think you have a program that suits our needs, but I am willing to try. So who on your staff?

Mr. SHANE. Well, you don't have to go to my staff, you can come to me.

Mr. TAYLOR. OK.

Mr. SHANE. If you want to talk to any member of the staff, we will provide a list of experts for you.

Mr. TAYLOR. If you would be kind enough to leave your phone number.

Mr. SHANE. Thank you. Will do.

Mr. TAYLOR. Thank you, Mr. Chairman.

Mr. PETRI. Thank you.

Mrs. Schmidt.

Mrs. SCHMIDT. Thank you.

And thank you, Under Secretary Shane, for your testimony. One particular ongoing project in my district, the Eastern Corridor Project, would provide much needed capacity to the greater Cincinnati area. Projected travel benefits to this project will include saving an average of 15,000 hours of congested related daily each day, saving 50 million vehicle miles annually by providing an east-west travel corridor, and reducing vehicle hours traveled by 21,000 hours per day. It is a project my community has been working on for almost 15 years.

The Federal Highway Administration has been very helpful and willing to meet my office on a monthly basis, and I appreciate that

very, very much, but has not been able to determine when a record of decision will be requested. I don't expect you to answer this right now, but I would very much appreciate it if the Department could follow up with me and let me know when a record of decision will be requested so we will be able to move on to Tier 2 of this project.

And, Mr. Shane, it is something that the folks that have been working on this project ask me continually, and this is a great public-private partnership effort and something my community really, really wants. So if you could give me that answer, I would be greatly appreciative. And I will leave my office number with you.

Mr. SHANE. Thank you, Congresswoman Schmidt. Thank you for not expecting an answer this morning, and I promise to provide an answer for the record and to you directly.

Mrs. SCHMIDT. Thank you.

Mr. PETRI. Other questions on this side?

I just would like to, I guess, conclude your portion of the testimony by thanking you for being here and for the prepared statement that you submitted. I guess what you are trying to do is using more data collection technology to determine where—scientifically, not just anecdotally, where there are choke points and delays in particularly freight movements across the Country as an assist in determining how we deal with that.

This is a very important effort, I think. I am told by people in the trucking business in particular that after 20 years of paying for a lot of improvements in our standard of living by greater efficiency in the whole transportation sector of our economy, which I think includes inventory costs and things, that that downward movement has ended and, in fact, we are now seeing an increase in the cost of transportation, not just because of fuel but because of other costs in our economy, and that bodes very poorly, if that trend continues, for our overall international competitiveness, particularly as some of our emerging competitors are sure to be more efficient as time goes on.

So we have got a major—we really do need to stand back and analyze the problem, and then figure out if we can deal with it through technology or through better utilization of additional capacity or a combination of things.

Are you doing any efforts or would it make any sense to try to—experts in the field talk about congestion pricing and this kind of thing. My trucking people say that they don't use a lot of the tolled highways now because they can only make a certain amount per shipment, and the total tolls are more than what they can make, so they go off toll road, and that causes more accidents and various other problems, and that is not really counted for currently.

But they would think it would make sense possibly to have some kind of a discount for tolls if they drive, when the roads are empty. Maybe it could be balanced with higher tolls during the day and lower tolls at night, or some sort of way of utilizing the system on a 24-hour basis. We have huge unused capacity on a time basis, even though we have congestion on the same roads going to and from our ports or during commuting hours and so on, when everybody is trying to use those resources.

Is that a fruitful area to work on?

Mr. SHANE. Absolutely, Mr. Chairman. In fact, we have a very successful example of precisely that technique being used at L.A.-Long Beach with a so-called Pier Pass Program, which is through a pricing mechanism designed to do precisely what you are suggesting, using all 24 hours of the day de-peaking the very congested port area around L.A. and Long Beach.

And it has brought enormous efficiency, at least for the time being, to that very important area. As you heard, this is one area that has an impact on the entire Nation. We think there are lots of opportunities for doing precisely those kinds of experiments in other parts of the country as well.

Mr. PETRI. Thank you.

Mr. Oberstar?

Mr. OBERSTAR. It is always good to have Secretary Shane at our Committee. He brings a very thoughtful, constructive approach to the policy debate in great issues in transportation. And I read with great interest the paper that Secretary Shane submitted to the Committee and which he summarized. I am glad to see you are making use of the Texas Transportation Institute data, which I think is very instructive and very frightening, frankly, on the march of congestion across America.

But Mr. Mica raised a question earlier, posed a question about what approaches and how to deal with this problem, but I think the question missed the point and I think your response was not comprehensive. Restore the "i"—intermodalism in transportation.

Some years ago you and I had a discussion about the effects of ISTEA, the Intermodal Surface Transportation Efficiency Act, and you observed that at a gathering of assistant secretaries at DOT, in the aftermath of passage of that legislation, you suddenly realized that no one had been talking, that none of the modal administrators had been talking to each other; they were all doing their own things. The common term is stovepipes. And your observation was that in the brief time remaining under that Act before the termination of the first Bush Administration, there was considerable discussion, exchange of ideas among the modal administrators and the assistant secretary policy level people.

It seems to me that that has diminished in time, the "i" disappeared from TEA–21. And while structure was retained in TEA–21 and some structure retained in TEA-LU legislation, the emphasis has shifted away from intermodalism.

Give me your thoughts today about how thinking intermodally, relating modes to each other, rather than looking at market-based solutions and finding ways to tax people on top of the tax they have already had on the roadways, how can more fertile ideas come out of policy discussions internally and then with us in the policy formation arena and in the market contribute to relieving congestion?

Mr. SHANE. Thank you, Congressman Oberstar, and thank you for the kind words. I guess I can't disagree with your perception of what seems to be going on if you are just looking at the surface of the Department of Transportation. We certainly haven't changed the structure, and it is true that intermodalism isn't part of the label any longer that we apply to our authorizing legislation.

But I can tell you that within the Department itself intermodalism is embedded now in a way we haven't seen before. And this

is impressionistic, so I will be probably hard-pressed to give you a lot of concrete examples, but the administrators do talk to each other.

There are councils within the Department in which the administrators all participate. Several administrators from different modes participate on the Intelligent Transportation Systems Management Council, and in the Research and Development Planning Council that we have set up. We have a variety of things which probably don't see the light of day because they are inside baseball, they are the way we manage the Department of Transportation in which we bring the modes together, ensuring that we are seeing some cross-fertilization there.

There is a lot of cross-fertilizing still to be done, to be sure, and I don't want to suggest for a moment that we have achieved the millennium. Far from it. We still have too much stove-piping, I think.

But we are making important strides. And we have been assisted in that regard with the legislation that Congress has delivered to us. What I was talking about before, the private activity bonds for intermodal facilities, is $15 billion of borrowing authority available to the private sector with tax-exempt bonding for intermodal facilities. That is an important one.

We hoped to have a set-aside for intermodal connectors in what ended up being SAFETEA-LU, and we have discussed that before. That didn't make the cut with Congress. I am not even sure I know why, but the fact is the intermodal connectors are still eligible facilities, and we are putting an emphasis on trying to get that last mile of our transport infrastructure up to par along with the rest of the system.

Mr. OBERSTAR. That is helpful and it is encouraging to know that there is discussion underway. It is certainly not apparent up here, because none of those folks come and talk to me or other members that I am aware of. But a good example—and I will conclude, Mr. Chairman. I know other members have questions.

But we know the increasing congestion on the roadways. We know the increasing congestion on the railways, that the Nation's railroads now are finally earning a return on equity, they are mobilizing capital to invest in roadbed and rolling stock, locomotives and freight cars, but they are behind the curve because for so many years they didn't have that capital to invest.

The railroads want the truck sector to take more containers and carry more on the road. The trucking sector wants the railroads to carry more of their trailers because they don't have—it is nearly 7 million trucks. They don't have the drivers, they don't have the equipment. And with the just-in-time delivery system, where their highways become rolling warehouses, they are all stretched.

So that is a preamble to the question does the Federal Highway Administration administrator and his staff get together with the Federal Railroad administrator and his staff, under your aegis or someone else's, or under the secretary's? Does that happen? Do they talk about this issue? Do they say is there some contribution we can make to this dilemma?

Mr. SHANE. They do talk together and they talk with the Secretary, and they do that in the context of a broad initiative which

the Secretary is organizing to address congestion across the Country as a systemic problem.

Mr. OBERSTAR. They must be keeping it a big secret.

Mr. SHANE. Well, it won't be a secret for long, Congressman Oberstar; it has been in the works. And I don't want to steal anybody's thunder, least of all my boss's, so I hope you will forgive me if I just leave it there.

I wouldn't leave out, however, the Maritime Administration. One important component of our freight system should be our highways on the water, something we call short sea shipping.

Mr. OBERSTAR. Short sea shipping, exactly. I was leaning toward——

Mr. SHANE. Yes. And we have been looking very closely at that. We don't have the luxury today of ignoring any possible relief from the congestion that we face, so every one of these modes of transportation has got to be integrated better.

Again, I am not pretending that we have achieved what I think your vision and the vision of many members of Congress is in terms of intermodal transportation planning in the country. I am not trying to say we have done it all by any means. I am just saying that we have made progress, and we will continue to make progress. It is not a problem that we have forgotten about or are ignoring.

Mr. OBERSTAR. Well, that is encouraging. And I also want to further encourage the Department to look at our inland waterways, the system of locks and dams on the Mississippi, Ohio, Illinois river system, the St. Lawrence Seaway, which does come directly under the Department's authority, are underutilized and under capacity, that is, the locks of today are—except for lock and dam 26 at Alton, Illinois, are the size of the largest locks in the 1930's. They need to be upgraded. Every time you break up a tow in order to get through those locks, you are taking time, increasing demurrage charges, increasing other costs for the most efficient, energy-efficient, cost-efficient means of moving bulk commodities.

Mr. SHANE. I should really add in that context, Congressman Oberstar, that the President created a new committee on the marine transportation system, an interagency committee at the cabinet level—this is an elevation of the issue from where it had been before—to ensure that, for example, the Corps of Engineers and the Department of Transportation and the Maritime Administration within DOT are all talking together about precisely the importance of ensuring that the inland waterway system continues to contribute to our transportation system, and is utilized far more effectively than it is today. So I appreciate your mentioning that.

Mr. OBERSTAR. Thank you, Mr. Chairman.

Thank you, Mr. Shane.

Mr. PETRI. Thank you, sir.

And that concludes the first panel.

The second panel consists of Mr. Lance Grenzeback from Cambridge Systematics; John Larkin, Managing Director of Stifel, Nicolaus and Company; and Dr. Michael Meyer, Professor at Georgia Technical University.

Gentlemen, we welcome you and we thank you for your prepared statements, and we look forward to your summaries of approximately five minutes. We will begin with Mr. Grenzeback.

TESTIMONY OF LANCE GRENZEBACK, CAMBRIDGE SYSTEMATICS; JOHN LARKIN, MANAGING DIRECTOR, STIFEL, NICOLAUS AND COMPANY, INC.; MICHAEL MEYER, PROFESSOR, GEORGIA TECHNICAL UNIVERSITY

Mr. GRENZEBACK. Mr. Chairman, distinguished Committee members, my name is Lance Grenzeback. I am Senior Vice President with Cambridge Systematics. We provide transportation policy, planning, and managing consulting services to Federal, State, and local transportation agencies and to public sector companies.

I am very pleased to appear before you to describe the findings of our recent work for the Federal Highway Administration on identifying and measuring delays to trucks caused by highway bottlenecks.

In the 1970's, transportation planners developed methods to map and forecast automobile flows in metropolitan areas, and as congestion increased through the 1980's and the 1990's, the methods were improved to identify bottlenecks, measure their delay cost to drivers, and develop solutions. There was, however, no parallel effort to analyze national freight flows until 1999, when the Federal Highway launched a program to map and forecast those freight flows.

I was one of a small team of consultants working for the Federal Highway on this initiative. This program, called the Freight Analysis Framework, produced the first comprehensive national maps and forecasts of freight flows. This map is one of the early products of that program; shows the density of truck freight on the national highway system. And when we analyzed this, what we found were increasingly congested highway and rail freight systems.

In 2004 the FHWA asked us if we could identify major truck bottlenecks on the highway system and estimate their economic cost. We identified 14 types of bottlenecks that caused some 240 million hours of delay and, by our estimate, caused truckers $8 billion in lost time in 2004. Interchange bottlenecks accounted for most of the delay, about 124 million of those hours, at a cost to truckers of over $4 billion.

This map shows the location of the major highway interchange bottlenecks. You will note that most of the bottlenecks are at urban interstate interchanges.

Next slide chart shows the distribution of truck hours of delay for these bottlenecks. Of the 227 highway interchange bottlenecks that we identified in our initial scan, some 35 caused more than a million truck hours of delay each.

Working last year with the Ohio Department of Transportation, we analyzed major highway freight bottlenecks in Ohio; we identified specific choke points within the bottlenecks, and estimated the type, value, and the origins and destinations of the truck freight caught up in them. The diagram shows the critical choke points within the interchange of I–70, I–71, and State Route 315.

This interchange is one of three very closely spaced bottlenecks along the corridor through Downtown Columbus. At bottlenecks

like these, we found that precisely tailored improvements, such as redesign of a single ramp or repositioning a merge lane, coupled with much more aggressive and better corridor traffic management, could be quite cost-effective at reducing delays.

Now, while a few States, such as Ohio, are moving to address the problem of freight bottlenecks, we do not have Federal policies and programs in place that recognize bottlenecks as a national scale problem that threatens to choke our highway freight system. Bottlenecks are a sizable problem today, and, as Mr. Shane mentioned, they are going to become a bigger problem in the future. Over the next 20 years, economic growth and trade will nearly double the tonnage of freight moved in the United States, and this means more shipments and more trucks traveling more miles.

When trucks are delayed at highway bottlenecks, shipping costs go up, the reliability of deliveries drops across industry and retail supply chains, and businesses react by holding more inventory and passing the cost on to consumers eventually. The net effect is an erosion of the competitive position in national and global markets, slower economic growth, and fewer jobs.

We need a national programmatic approach to reducing highway bottlenecks. A relatively small number of bottlenecks account for a large share of the delays, and they are widely scattered across the Nation; however, they sit squarely on the crossroads of our transcontinental and regional truck routes. The solutions are site-specific and expensive, and few cities and States can justify the cost to fixing these bottlenecks alone, but the bottlenecks are felt nationwide.

We built the interstate system in part to gain the benefits of interstate trade, and we have been so successful that we risk choking on the traffic congestion today and losing the benefits of both interstate and global trade. We can now identify the critical bottlenecks, and we must implement the solutions and reduce delays, particularly the nationally significant bottlenecks, to improve freight productivity.

As you begin your debate about reauthorization, I would encourage you to take a close look, as you are, at the congestion on our Nation's highways to advance a national freight policy that recognizes bottlenecks as impediments to freight flows and trade, and focus programs such as the Interstate Highway Program, programs of national and regional significance on those major highway freight bottlenecks.

Thank you for the opportunity to appear before you today, and I would be happy to answer your questions at the appropriate time.

Mr. PETRI. Thank you.

Mr. Larkin.

Mr. LARKIN. Mr. Chairman, Ranking Member DeFazio, distinguished members of the Subcommittee, good morning, and thank you for inviting me to address this important topic.

My name is John Larkin, and I am Managing Director of Transportation Research at Stifel, Nicolaus in Baltimore. My formal education consists of a B.S. in civil engineering from the University of Vermont, an M.S. in civil engineering from the University of Texas at Austin. Interestingly, my masters thesis was entitled "Modeling Future Truck Weight Patterns as Influenced by Alternative Vehicle

Weight Legislation." I have also earned an MBA from Harvard University.

My professional career began in 1979, after working in transportation consulting at Dan Zimmerman and in strategic planning at CSX, I became a member of the Alex Brown Transportation Research Team in 1987, where I worked for 11 years. While at Alex Brown, I was involved in dozens of investment banking transactions involving the Nation's largest trucking companies. Later, from 1988 to 2001, I served as CEO of Railworks Corporation, a publicly traded company that sold products and services to the Nation's railroads and public transit authorities.

More recently, I formed the Transportation Research Team at what became Stifel, Nicolaus and Company on December 1st of last year. At Stifel, Nicolaus, we provide research to institutional investors regarding 27 public companies that operate within the freight transportation industry.

It is hoped that my 29 years of relevant experience will help you craft the legislation that will shape the future of our freight transportation industry in order to promote continued economic growth. That future growth is becoming progressively more reliant on the trucking industry and, in turn, our Nation's highway system for the efficient movement of freight throughout our Country.

The freight transportation system in the United States is the backbone of our growing economy. As our rate of consumption increases, industries consolidate, and supply chains lengthen, the freight transportation industry is being asked to move considerably more freight over longer distances.

However, it is simultaneously constrained by a set of scarce resources that have not been able to expand sufficiently to satisfy the growth and demand. Without carefully developed plans that permit industry capacity to grow in line with demand for freight transportation, the current capacity shortage could become a significant drag on the rate of domestic economic growth.

Eighty-one percent of the Nation's freight bill is generated by the trucking industry, according to our estimates. While railroads, pipelines, and barges play major roles in the transportation of bulk commodities such as coal, natural gas, and grain, most manufactured goods, food, and consumer products are moved by truckers over our highway system, the primary component of which is the interstate system.

The interstate system was developed conceptually in the 1950's and built out throughout the 1960's, 1970, and 1980's. As segments of the interstate system near the end of their 30 year design life, pavement and bridges need to be overhauled. The highway bill passed in 2005 is mostly focused on the rehabilitation of those 30 year old assets, included relatively few provisions for meaningful incremental capacity additions that would have positioned our highways to handle the anticipated growth and demand. A progressively less productive trucking industry has to cope with a highway system that is becoming increasingly congested not just in urban area during rush hour, but on links between big cities during traditionally non-peak periods.

In addition, truckers are already unable to add capacity due to a chronic shortage of drivers. Global Insight, a well known consult-

ing firm, has projected that the driver shortage will increase sixfold over the next eight years. If this scenario plays out, significantly fewer drivers than we would require will be attempting to haul more freight over longer distances on highways that are becoming increasingly congested.

Furthermore, recent changes in the Federal Hours of Service Rules have imposed additional constraints on driver productivity. Highway safety lobbyists are pressuring the Federal Motor Carrier Safety Administration to enforce the new Hours of Service Rules more rigorously and to further tighten down on the current rules.

Finally, Federal size and weight loss have not changed appreciably since 1982 and, as a result, it has been virtually impossible to improve the productivity of the relatively few good drivers which exist. The ongoing capacity crisis in the trucking industry is placing significant constraints on trucking companies' ability to meet the growing demands of their increasingly global customers. We need a plan to expand capacity, ideally through significant infrastructure additions and alterations to existing regulations in order to enhance truck drivers' productivity.

The bottom line is that the economic vitality of the United States truck industry and the highway industry system are inextricably linked. In order to support sustained economic growth, we need a healthy trucking industry, and in order to support a healthy trucking industry, we need a fluid highway system that allows scarce drivers to be as productive as possible.

Again, thank you for inviting me to testify on this important topic.

Mr. PETRI. Thank you.

Mr. Meyer. Dr. Meyer.

Mr. MEYER. Thank you, Mr. Chairman. My name is Michael Meyer. I am a Professor of Civil Engineering and Director of the Georgia Transportation Institute at the Georgia Institute of Technology. And this year I have the pleasure of serving as the Chairman of the Executive Committee of the Transportation Research Board and also chaired the TRB Freight Roundtable that Secretary Shane mentioned earlier.

A truly national strategy intending to provide greater efficiency in the transportation component of the freight supply chain should examine a broad range of bottlenecks and opportunities in terms of port capacity; limitations in terms of availability access to ports; looking at line haul routes, both rail and highways; pricing incentives, disincentives, et cetera. Today, however, I am going to talk specifically about the road network and road congestion.

Now, you have seen two speakers already use the Freight Analysis Framework and pictures of the national road system in terms of the flows. It is a very important and interesting perspective. However, I am going to take a slightly different one because, as has been suggested already in Knoxville, Southern California, Portland, Maine, Portland, Oregon, and other metropolitan areas, many of these bottlenecks are occurring in metropolitan areas.

So this first slide shows you some analysis that has been done in Atlanta. This is the projected congestion on the Atlanta Freeway system in the year 2030. Let me note that red is not good. The red color indicates serious congestion. I would also note that this is

congestion after the metropolitan area has spent $54 billion to improve the road system and the transportation system.

The next slide shows Dallas-Fort Worth. The table suggests that, in fact, in the year 2025, in Dallas-Fort Worth they are expecting 42 percent more roads congested in their road system, as well as 120 percent increase in total delay.

The next slide shows Seattle. Again, red is not good, projected congestion in the Seattle network in the year 2030.

The next slide is Miami, another port city, similar to Seattle, which again suggests that future congestion in that city's road system is going to be rather severe.

And then the final slide shows Denver, which there, as well, suggests that the number of lane miles of three hours or more of severe congestion will increase by 91 percent in the year 2025, and the number of lane miles of severe congestion will increase by 88 percent.

I could have shown similar slides for Knoxville and for any other urban area in this Country, large and small. This is what the metropolitan planning organizations do with regard to their modeling, and I think it provides a very interesting perspective at a much more site level, at the interchange level in some cases, as Lance mentioned, about some of the problems and challenges that we are facing.

Well, what can we do about it? The next slide suggests that in fact there are some things that I talk about in a little bit more detail in my written testimony. Number one, we do need to elevate freight mobility as part of the national transportation policy. Secretary Shane already talked about the national freight policy framework, again, that came out of the roundtable that I chaired.

It is absolutely essential that that framework be implemented. That framework recognizes that enhancing freight mobility requires progress on many fronts, ranging from institutional regulatory changes to adding capacity to multi-modal transportation networks where it makes economic sense. And I believe that that framework can be used to identify strategies and institutional responsibilities for adopting a national freight policy.

Next, the bottlenecks. And Mr. Grenzeback has already talked about bottlenecks, freight bottlenecks in particular. Congress did, in SAFETEA-LU, provide for authorization of targeting intermodal freight transportation initiatives. I think that is a project and a program—a program, I should say, that in fact is very, very important for the Nation and needs to be expanded.

Third, funding. Encourage public-private partnerships. Certainly, that is something that we have seen a great deal about in this Country, although as Congressman Pascrell mentioned earlier and as I say in my written testimony, it is not a panacea for funding the transportation system in this Country. Somebody has got to step up to figure out how we are going to provide that funding base for roads that in fact the private sector will not be interested in because the volumes do not justify private investment.

Implementing system operation strategies. Much of what we talk about has to do with geometric design capacity increases. We can get more efficiency out of our system through the applications of ITS, Intelligent Transportation System technologies, scheduling, et

cetera. That is something that the Federal Government has provided some leadership in and should continue.

Next is focusing on freight mobility corridors. This is something that I, along with others, many years ago suggested would be an appropriate focus for both planning, as well as policy and investment.

Next, I am convinced looking at transportation—where we have been, where we are, and where we are heading—that we are going to see more interest in what I call freight-only facilities. We just completed a study in Atlanta looking at truck-only lanes and saw that, in fact, they would have a significant improvement in terms of the productivity of both trucks, as well as reducing congestion on the freeway system in the region.

Next, incorporating freight considerations into the transportation planning process. This is not obviously a public sector issue, it certainly is private sector, but the transportation sector has a lot to offer through the planning process.

And then, finally, I can't help but mention research, given that is what I do. Congress was kind enough to provide dollars in SAFETEA-LU to focus on transportation research. I think more needs to be done. That, of all the research initiatives, probably has the greatest return for the dollar of the research programs authorized by Congress.

Mr. Chairman, thank you very much. I do provide more information in my written testimony. Thank you.

Mr. PETRI. Thank you.

Mr. DeFazio?

Mr. DEFAZIO. Thank you, Mr. Chairman.

Mr. Larkin, when you talked about the return on capital for the railroads, I think we are all kind of familiar with that, but it seems to me that I don't know if the economics are going to change because of high fuel costs and whether rail—of course, they are having capacity problems and I think they have been pretty woefully, for the most part, and Union Pacific, incredibly mismanaged.

What potential do you see there? I see we need to better utilize that. I think if we look at a least-cost model, rail for movement most of the length of the West Coast is going to far outstrip truck if you don't have the disadvantage of problems with delivery time and all that. I mean, do you have any idea? Should the Federal Government be——

I have one mill owner, crusty old guy, big picture of Ronald Reagan behind him on the wall, but he waxes poetic about how well the Government ran the railroads in World War II, and maybe we should just nationalize them. I don't know if I would quite go as far as this very conservative right-wing Republican to nationalize the railroads, but, short of that, what do you see as the solution? How are we going to better utilize and integrate rail? I think we need to.

Mr. LARKIN. The first point I would make is that I don't believe that the railroad managements are necessarily making decisions that are in the best interest of an integrated national transportation system. What they are trying to do is, for the first time in many years, consistently earn a return that is in excess of their weighted average cost of capital, and the easiest way for them to

do that is to actually be very selective with respect to what freight they decide to haul and to very aggressively put in place price adjustments on the freight that they are currently hauling. That has really been driving the margin expansion we have seen over the last couple of years, primarily in the carload area.

Interestingly, year-to-date, rail carload volumes are up less than one percent year over year, which doesn't exactly give you a warm and fuzzy feeling that the railroads are really bailing out the transportation capacity problem.

Intermodal is a bit of a different story here. That rate of growth has been about five or six percent this year, some railroads are growing a little faster than others, many working closely with international steamship lines to move the containers inland, which reduces the amount of highway congestion that we currently are experiencing.

And, most interestingly, I think the trucking companies have finally come to the conclusion that the railroads are really not competitors, but partners, and you are seeing very strong relationships developing between the top 10 or 15 truckload carriers and the railroads to try and take as much of the long haul truckload freight off the highway and put it onto the highways. I think at some point, here, within the next couple of years, though, we are going to run into capacity constraints more so in the form of terminal capacities in urban areas, where real estate is very expensive and where society in general does not like these facilities located close to their places of business or close to their residences.

So I think it is in those intermodal facilities where the Federal Government can probably play the most productive role in terms of assisting the conversion of market share in long-haul high-density lanes, like Chicago to Los Angeles, from the highway onto the railroads.

Mr. DEFAZIO. OK, so you are thinking the most appropriate place for the partnerships or the Federal investment is in those nodes, essentially, the intermodal.

Mr. LARKIN. I think the intermodal facilities is where you can get the most traction and the most bang for your buck, as it were. The railroads are doing a pretty good job of addressing the bottlenecks in their line haul networks through specific investments in passing sightings, double track mainline, triple track mainline, things of that nature.

And perhaps the one area of focus that is not talked about much is that they are beginning to try and mimic the operations of the Canadian National, which is running a very efficient scheduled operation that has probably generated somewhere in the order of 50 percent incremental capacity just by running the railroad more efficiently.

Mr. DEFAZIO. OK.

Mr. LARKIN. So there is really not a whole lot, I don't think, that Federal policy can do there; that is a question of good management, as you alluded to earlier.

Mr. DEFAZIO. Right.

Mr. LARKIN. But when it comes to putting in place the facilities that allow for the efficient transference of boxes, be they trailers

or containers, from the highway to the rail, that is where I think you can be helpful.

Mr. DEFAZIO. Mr. Meyer, did you have any thoughts on that?

Mr. MEYER. Well, Congressman, I was nodding my head because a couple years ago I had the opportunity to participate in an international scanning program by the U.S. Department of Transportation, and we went to Europe and we were looking at what the Germans and the Dutch were doing in terms of their governments, and they were focusing on the intermodal terminals in terms of public dollars because that is where they felt they could get the most efficiency to influence the market as much as possible to get freight onto rail versus trucks. So I completely agree with Mr. Larkin that that really is a target of opportunity for Federal interest, as well as possible investment.

Mr. DEFAZIO. OK. Thank you.

Thank you, Mr. Chairman.

Mr. PETRI. Thank you.

Mr. Hayes, any questions?

[No response.]

Mr. PETRI. I wonder just maybe—well, first of all, thank you very much for your testimony. I was taken by your analysis of choke points and trying to look at the cost of those choke points and figure out some way of encouraging people to deal with them. Of course, the costs aren't concentrated right where the choke points are, so we have got a public policy challenge in terms of marshaling the resources to deal with them and make the system more efficient overall.

And that seemed to me to be kind of an example of a greater problem, and that is that a lot of this congestion, you reach a point where suddenly things clog up and then efficiency drops real fast. So we have tried on the margins to meter traffic in and get people on a quasi-voluntary basis to withholding entering the system to keep the overall efficiency up, and that pays off in terms of greater throughput from the existing capacity.

If you agree that, as a Country, we have got kind of a growing problem, and I think you do, in terms of figuring out policies that will maintain and increase the efficiency of our system rather than seeing things freeze up more and more, do you have any—and you made a few suggestions in your testimony, I think. But if you were in charge of things, what sort of policy process would you put in place, or what could we do to work on incentives, besides just throwing money at the problem, to, as a Country, figure out how to efficiently—how to increase efficiency in this area?

Clearly, it will pay off and, clearly, if we don't do it, we are going to have all kinds of problems and we will wonder why we have those problems, and it will be because, 30 years before, people did not get us moving in the right direction in terms of making the Country more efficient in the movement of goods, people, and that kind of thing.

Do any of you have any comments or things you would like to talk about? You know, and I am not saying a lot of specifics, but also standing back and figuring out some mechanism or way we can do it to move forward. My concept was that we try to figure out some advisory body through the National Science Foundation

or through the Transportation Research Report or something that uses the resources of the private sector—because FedEx and Schneider Trucking, all kinds of people now are investing huge amounts and they are logistics companies.

But we are not a logistics government, we are a highway or this or this, and we aren't using that data or that approach adequately to figure out how to make our system work and get a maximum return for the huge investments that people are making in communications technology and all the rest of it.

Mr. Grenzeback?

Mr. GRENZEBACK. Yes. I certainly recognize the problem you have described. The approach that we have been using in work in Oregon and in Washington State now and on the I–95 Corridor Coalition has been to sort of trace the supply chain to begin to break down the freight that is flowing through a region and begin to look at it sort of industry-by-industry and begin to follow the freight as it comes in through the ports and moves onto rail and truck, and begin to identify how that flow works and look at the bottlenecks that are there. It works very well at the metropolitan scale and at the State scale if the State DOT is organized to deal with it at that level and can bring in the shippers and the carriers who work there.

Where it begins to break down and I think we have a national problem is looking at the freight flow across States, where it goes across jurisdictions. And we do not have in place really the mechanisms to do that. We are going to begin to do that for the I–95 Corridor Coalition, looking at freight flows across portions of the East Coast; however, when you come to the question of how do I then allocate priorities and monies to fix those bottlenecks, we fall between the stools of either the Federal system or the State funding, and I think that would be something to look very closely at. We have begun to look at ideas like a multi-State or regional infrastructure bank in which we could pool monies from several States, have them matched by the private sector.

A good example, in looking some years ago at the mid-Atlantic rail operations in the kind of New Jersey to Virginia area, one of the hugest bottlenecks turns out to be in Baltimore, Howard Street Tunnel, and how you go through that area. It was never designed for the volume of north-south traffic that we would like to carry through there, and it can't relieve highway traffic unless you get through.

But that is an immense bottleneck on the rail side. And if Maryland has to bear all of the costs of dealing with that, it is going to be impossible to fix. So the question is can we provide a structure of some sort less than purely Federal but is regional that allows us to both pool funds and also distribute the benefits back on there.

So there is an approach to begin to look at the kind of freight that flows through those bottlenecks, look at the origins and destinations of that, begin to figure out which industries and which States and which communities are affected by that, and begin to parse that back and say, you know, who ought to bear some of the costs, as well as the benefits and the risks of that.

Mr. LARKIN. I would suggest that when this commission that is going to look at this problem convenes, that they may want to consider a hierarchy of modes that is a little bit more expanded than we have now. Right now we have single-unit trucks running 3,000 miles in fairly high density lanes. That doesn't make a lot of sense from an energy efficiency point of view, from a labor efficiency point of view, from an infrastructure efficiency point of view.

We ought to be using single-unit trucks, truck trailer combinations to deliver freight locally and to operate in light-density shorter haul lanes. We should really give a serious look at heavier, more of a combination of vehicles to run on your medium-density routes, you know, for example, maybe from New York City to Buffalo, New York. That is not a good intermodal market; the economics don't make sense, but it makes a whole lot of sense to run double trailer combinations behind a single power unit with a single driver there. We may want to expand that system behind a very limited system which exists today and is only really operational on a selected number of toll roads.

Beyond that, I think there are other lanes where some lighter density intermodal, rail intermodal alternatives may make some sense. Quite a number of years ago someone invented an intermodal product called the Road Railer, and only one company has been able to make that successful, that is Norfolk Southern with their Triple Crown operation.

But as many of the other railroads have shut down their intermodal operations and tried to funnel all the traffic through the highest density lanes, connecting only the biggest cities, many of the smaller cities that used to have intermodal service simply don't have it anymore, and all of the burden for hauling the freight to and from those cities has fallen on the trucking industry. So something that would perhaps incentivize the use of a lighter-density intermodal product like Road Railer might be worth thinking about.

And then the double-stack technology that we have already is awfully efficient and really does make a lot of sense to try and channel as much of the freight into those double-stack lanes as possible between the big cities like Dallas and L.A., Seattle and Chicago, Chicago and New York, perhaps even Chicago and Atlanta. But double-stack is not going to work in 95 percent of the markets; that is where we need to look at some of these other alternatives.

And then, as a last comment, I think somebody mentioned the concept of using the inland waterway system or short sea shipping to try and provide a bit of a relief valve. It is worth looking at. It is probably not going to solve the problem broadly, but it may get us around one of the bottlenecks like the Howard Street Tunnel, which I suspect would probably cost something on the order of a quarter of a billion dollars to rebuild so that you could run double-stacks through it.

Mr. MEYER. Mr. Chairman, if I might make a couple comments as well.

I think, in response to your question, in some sense the answer is it all depends on what you are focusing on. You have a spectrum of where you have transportation infrastructure that is clearly the responsibility of government today—roads, that type of thing. The

other end is infrastructure that is clearly the responsibility of providers such as railroads. Then you have the in-betweens, where you have kind of got public-private activities going on.

In the area where you have public sector responsibility in terms of infrastructure, State Highway Departments, that type of thing, I think a lot can be done to look at different ways of examining what the needs are with regard to freight movement. I mentioned to you already the truck-only lane study that was done in Georgia. Prior to that study, the State DOT really had not thought much about it. Now they have jumped with both feet into that concept and we have two corridors now under design to do those kinds of truck-only lanes.

On the private side, in terms of how do you influence or try to influence what happens with regard to transportation infrastructure there, I think you are really talking about taxing and other types of incentives to get that to happen, I don't think you are necessarily talking about direct Federal investment. And then there are those in-between like the intermodal terminals where in fact you do have issues with regard to what is the role of the Federal and State government along with the private sector.

Going back to your question about process, I would just simply note that, as I said earlier, I do chair this freight roundtable, which includes Secretary Shane and members of his staff, along with representatives from APL, the president of APL, shippers, Dell, Johnson and Johnson. That roundtable was supposed to have ended about a year or so ago, and the process, the dynamic of having the public and the private people together to talk about these issues that actually came up with this so-called framework has been so good that people don't want to end it.

And there are a lot of States, such as Minnesota and Washington State, Oregon and others, that have actually formed freight advisory committees to help advise governments at the State and metropolitan levels what needs to happen with regard to incorporating freight more into the investment strategies of those things.

I would love to see more of that happen because when I have been involved in those types of activities, when I was with the State DOT myself or now with the TRB and the freight roundtable, a lot of really good things come out the other side that really do make a difference. So a process—I don't know if it is a TRB group, if it is an advisory committee, or whatever the case is, but anything that can be done to encourage that fertilization, cross-fertilization at the Federal, State, and local levels I think would be well worth it for the Nation.

Mr. PETRI. Well, within companies and within factories, they have all these different techniques for improving the flow of material and continuous improvement, identifying bottlenecks, all of that. And it is not that different in concept in terms of sitting back and looking at North America or whatever and moving people and goods within our larger circumstances.

Clearly, railroads and feeder things is sort of just a basic thing, that is not really too applicable, but when you start getting into huge volumes moving through congested areas, we are going to have to come up with some better mechanism, whether it is public or private or advisory, to help direct the larger community to mar-

shal resources and do continuous improvement or move things away from those areas, whatever seems appropriate, or else we are going to be wasting a lot of resources and be very inefficient, and it could costs us long-term as an entity trying to survive in a bigger world.

So I just appreciate your contribution here today. I hope you are probably working with and advising the commissions that we have asked to address some of these issues. We are eager to put in whatever time we can do to help contribute to this. It is not a silver bullet or a short-term solution; it is trying to come up with some overall approach.

And more resources may be one component, but until we spend the time and effort to try to sort of think through how we are going to solve problems, coming up with more resources, they won't be used as efficiently as they could be. And it is clear people will support more resources if they feel they are getting a return on them, but we have got to come up with ways of giving people that assurance, and your testimony is helping us in that regard, so I thank you very much for being here today.

The hearing is adjourned.

[Whereupon, at 12:00 p.m., the subcommittee was adjourned.]

OPENING STATEMENT OF
THE HONORABLE RUSS CARNAHAN (MO-03)
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON HIGHWAYS, TRANSIT AND PIPELINES
U.S. HOUSE OF REPRESENTATIVES

Hearing on
Highway Capacity and Freight Mobility:
The Current Status and Future Challenges

Wednesday, May 10, 2006, 10:00 AM
2167 Rayburn House Office Building

Mr. Chairman and Mr. Ranking Member, thank you for hosting this important hearing.

The economic development of many regions of America, especially those regions west of the Mississippi, like my own district, have been tied to the development of vast efficient interstate transportation networks, beginning with the railroad in the nineteenth century followed by the highway system in the twentieth century. As we begin the twenty-first century, I find it both fitting and necessary that we again examine our freight transportation systems in hope that they will be as strong in the next century as they are today.

I welcome the witnesses to our subcommittee hearing today and am eager to learn from your testimony. Thank you.

TESTIMONY OF LANCE R. GRENZEBACK
Senior Vice President
Cambridge Systematics, Inc.
100 CambridgePark Drive, Suite 400
Cambridge, MA 02140

on

FREIGHT BOTTLENECKS ON HIGHWAYS

before

THE SUBCOMMITTEE ON HIGHWAYS, TRANSIT AND PIPELINES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

Wednesday, May 10, 2006

Introduction

Mr. Chairman, distinguished committee members, my name is Lance Grenzeback. I am a senior vice president with Cambridge Systematics. We provide transportation policy, planning, and management consulting services to Federal, state, and local transportation agencies and to private-sector transportation and investment companies.

I am very pleased to appear before you to discuss freight bottlenecks on highways. In my remarks I will:

- Describe the findings of our recent work for the Federal Highway Administration (FHWA) on identifying and measuring the delays to trucks caused by major highway bottlenecks;
- Argue that the level of congestion on our freight network is becoming a significant problem; and
- Recommend that you consider a programmatic approach to reducing these bottlenecks.

Background

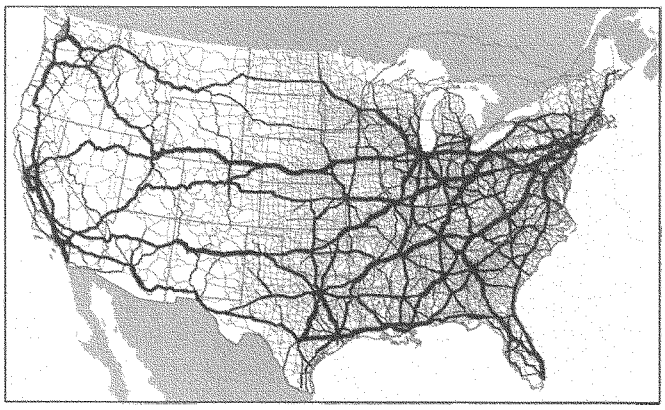
In the 1970s, transportation planners developed analytical methods and computer software to map and forecast traffic flows in metropolitan areas. They used these transportation models to plan new roads and transit services. As congestion increased through the 1980s and 1990s, the models were improved to identify bottlenecks, measure the cost of bottlenecks in driver-hours of delay, and test traffic management strategies as well as capital improvements. The information was used by the FHWA, state departments of

transportation (DOTs), and local governments to organize transportation programs, set priorities, and allocate funding among projects.

There was no parallel effort to analyze national freight flows until 1999, when the FHWA launched a program to map and forecast national freight flows. I was one of a small team of consultants working for the FHWA on this initiative. The program, called the Freight Analysis Framework (FAF), produced the first, comprehensive national maps and forecasts of freight flows by truck, rail, air, and water. Exhibit 1 is one of the early products of the program; it is a map showing the density of truck freight on the National Highway System.[1]

What we found were increasingly congested highway and rail freight systems. In a follow-on study for the I-95 Corridor Coalition, we investigated rail bottlenecks in the *Mid-Atlantic Rail Operations Study*,[2] and then in the *Freight-Rail Bottom Line Report* commissioned by American Association of State Highway and Transportation Officials (AASHTO), we looked at the national implications of rail bottlenecks and the economic costs if the freight railroads could not keep pace with the growth in freight demand.[3]

Exhibit 1. Truck Freight Flows, 1998



Source: FHWA Freight Analysis Framework Program.

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[1] See http://www.ops.fhwa.dot.gov/freight/freight_analysis/faf/index.htm.

[2] *Mid-Atlantic Rail Operations Study*, prepared by Cambridge Systematics, Inc. for the I-95 Corridor Coalition, April 2003. PDF copy available at http://www.camsys.com/publi01.htm.

[3] *Freight-Rail Bottom Line Report*, prepared by Cambridge Systematics, Inc. for the American Association of State Highway and Transportation Officials, January 2003. PDF copy available at http://www.camsys.com/publi01.htm.

Freight Bottlenecks on Highways

In 2004, the FHWA asked if we could identify major truck bottlenecks on the highway system—specific physical locations on highways that routinely experience recurring congestion and traffic backups because traffic volumes exceed highway capacity—and estimate their economic cost.

My colleagues Richard Margiotta and Daniel Beagan developed a method to do this. It involved identifying congested highway sections by scanning the FHWA's voluminous Highway Performance Monitoring System database, estimating truck volumes using Freight Analysis Framework data and state traffic counts, and calculating truck-hours of delay using a simplified queuing model, called QSIM. The method is an advancement on an earlier effort to identify freeway bottlenecks for the American Highway Users Alliance.[4]

We located and estimated truck-hours of delay for 14 types of highway truck bottlenecks. Exhibit 2 lists the types of bottlenecks and the annual truck-hours of delay associated with each type. The bottleneck types are sorted in descending order of truck-hours of delay by the type of capacity constraint (e.g., interchange, steep grade, intersection, and lane drop). The individual bottlenecks in each category are unique and assigned to only one bottleneck type. Bottlenecks are not double counted across types.

The bottlenecks identified in our initial scan accrue 243 million hours of delay annually. At a delay cost of $32.15 per hour, the conservative value used by the FHWA's Highway Economic Requirements System model for estimating national highway costs and benefits, the direct user cost of these bottlenecks is about $7.8 billion per year.[5] With better data and the next generation of analytical tools, we will undoubtedly find additional bottlenecks and the economic price tag will be greater.

Of the four major types of capacity constraints studied—interchanges, steep-grades, signalized-intersections, and lane-drops—interchange bottlenecks account for the most truck-hours of delay, estimated at about 124 million hours annually in 2004. The direct user cost associated with interchange bottlenecks is about $4 billion per year.

Exhibit 3 shows the location of the highway interchange bottlenecks for trucks. The bottleneck locations are indicated by a solid dot. Most are urban Interstate interchanges. The size of the open circle accompanying each dot indicates the relative annual truck-hours of delay associated with the bottleneck.

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[4] Cambridge Systematics, Inc., *Unclogging America's Arteries: Effective Relief for Highway Bottlenecks, 1999-2004*, American Highway Users Alliance, Washington, D.C., February 2004.

[5] The FHWA Highway Economic Requirements System model uses a current value of truck time of $32.15 per hour. Other researchers have suggested higher rates, typically between $60 and $70 per hour.

Exhibit 2. Truck-Hours of Delay by Type of Highway Freight Bottleneck

Bottleneck Type			National Annual Hof Delay, 2004 (Estimated)
Constraint	**Roadway**	**Freight Route**	
Interchange	Freeway	Urban Freight Corridor	123,895,000
			Subtotal **123,895,000***
Steep Grade	Arterial	Intercity Freight Corridor	40,647,000
Steep Grade	Freeway	Intercity Freight Corridor	23,260,000
Steep Grade	Arterial	Urban Freight Corridor	1,509,000
Steep Grade	Arterial	Truck Access Route	303,000
			Subtotal **65,718,000‡**
Signalized Intersection	Arterial	Urban Freight Corridor	24,977,000
Signalized Intersection	Arterial	Intercity Freight Corridor	11,148,000
Signalized Intersection	Arterial	Truck Access Route	6,521,000
Signalized Intersection	Arterial	Intermodal Connector	468,000
			Subtotal **43,113,000‡**
Lane Drop	Freeway	Intercity Freight Corridor	5,221,000
Lane Drop	Arterial	Intercity Freight Corridor	3,694,000
Lane Drop	Arterial	Urban Freight Corridor	1,665,000
Lane Drop	Arterial	Truck Access Route	41,000
Lane Drop	Arterial	Intermodal Connector	3,000
			Subtotal **10,622,000‡**
			Total 243,032,000

Source: Cambridge Systematics.

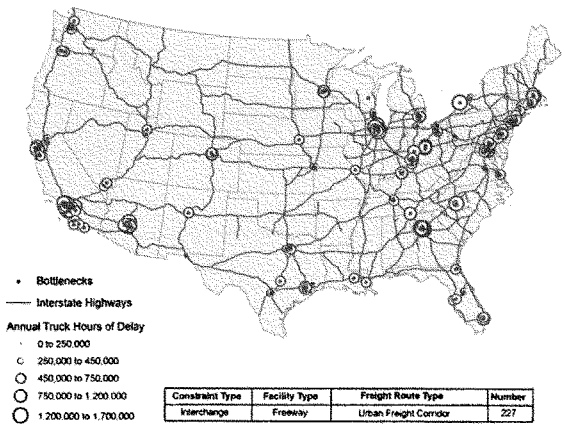
* The delay estimation methodology calculated delay resulting from queuing on the critically congested roadway of the interchange (as identified by the scan) and the immediately adjacent highway sections. Estimates of truck-hours of delay are based on two-way traffic volumes. However, the methodology did not calculate delay on the other roadway at the interchange. This means that truck-hours of delay were calculated on only one of the two intersecting highways or two of the four legs on a interchange, probably underreporting total delay at the interchange. The bottleneck delay estimation methodology also did not account for the effects of weaving and merging at interchanges, which aggravates delay, but could not be calculated from the available HPMS data. Estimates have been rounded to the nearest thousand.

‡ The HPMS sampling framework supports expansion of volume-based data from these sample sections to a national estimate, but does not support direct estimation of the number of bottlenecks. Estimates of truck-hours of delay are based on two-way traffic volumes. Estimates have been rounded to the nearest thousand.

The truck-hours of delay caused by individual highway interchange bottlenecks are significant. The top 10 highway interchange bottlenecks each cause an average of 1.5 million truck-hours of delay. Of the 227 highway interchange bottlenecks, 35 cause more than 1 million truck-hours of delay each; 103 more than 500,000 truck-hours of delay; and 173 more than 250,000 truck-hours of delay annually. Only a few dozen of all the other truck bottlenecks cause more than 250,000 truck-hours of delay annually.[6] Exhibit 4 shows the distribution of truck-hours of delay for urban Interstate interchange bottlenecks. The top 25 interchange bottlenecks are described in the attachment to this testimony.

[6] Twelve steep-grade bottlenecks, two signalized-intersection bottlenecks, and one lane-drop bottleneck accrued over 250,000 annual truck-hours of delay annually; however, the Highway Performance Monitoring System database has limited information to identify these types of bottlenecks, especially signalized-intersection bottlenecks.

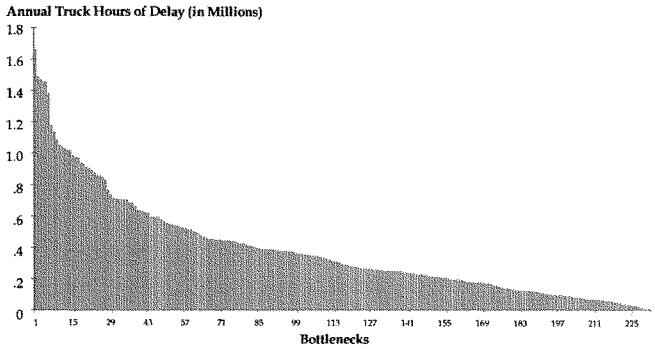
Exhibit 3. Major Highway Interchange Bottlenecks for Trucks



Constraint Type	Facility Type	Freight Route Type	Number
Interchange	Freeway	Urban Freight Corridor	227

Source: Cambridge Systematics, Inc.

Exhibit 4. Distribution of Truck-Hours of Delay for Urban Interstate Interchange Truck Bottlenecks, 2004.



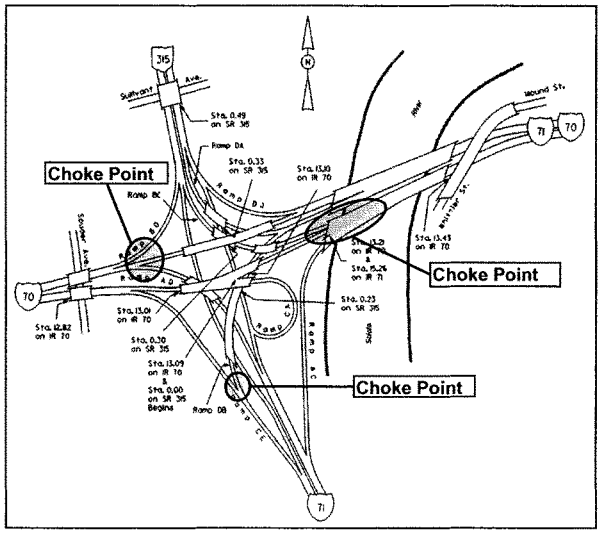
Source: Cambridge Systematics, based on FHWA Freight Analysis Framework data.

Working last year with the Ohio DOT, a Cambridge Systematics team led by another of my colleagues, Gary Maring, analyzed a set of major highway freight bottlenecks in Ohio.[7]

[7] "Ohio Freight Mobility, Access, and Safety Strategies," prepared by Cambridge Systematics, Inc. for the Ohio Department of Transportation, March 2006.

We identified specific choke points within the bottlenecks and estimated the type, value, and origins and destinations of the truck freight caught in them. Exhibit 5 shows the critical choke points within the Interstate 70, Interstate 71, and State Route 315 interchange in Columbus, Ohio. This interchange is one of three closely spaced bottlenecks along the I-70/I-71 corridor through downtown Columbus.

Exhibit 5. Columbus, Ohio I-70, I-71, SR-315 Bottleneck Critical Choke Points



Source: Cambridge Systematics, based on Ohio Department of Transportation data, 2005.

Strategies to Reduce Delay from Freight Bottlenecks on Highways

Bottlenecks such as the I-70/I-71 interchange in Columbus can be dissected and redesigned to reduce delays to truck and automobile drivers. The Ohio DOT estimates that selective redesign of portions of the I-70/I-71 corridor could eliminate upwards of 80 percent of the delays and crashes experienced today. The project would involve reconstruction of approximately 2 miles of the corridor, converting slopes to retaining walls, consolidating ramps, adding a new through lane in each direction, and using new frontage roads to collect and distribute traffic.

But they also found that less aggressive, more precisely tailored improvements such as redesign of a single ramp or repositioning of a weave or merge lane could cost-effectively reduce delays at some congested bottlenecks. Ohio DOT estimated that actions like these

could reduce the growth of congestion at major bottlenecks within the state from four percent annually to less than one percent annually.

Other strategies can be paired with engineering solutions to reduce delay. These include: traffic information services tailored specifically to truckers, especially long-haul truckers, to help them anticipate bottlenecks and route around them; much more aggressive incident management; addition of truck-only and truck-only-toll lanes; and expansion of intermodal rail service, especially medium-haul service (e.g., 300-500 miles). Our Ohio bottleneck study found that coordinated bottleneck improvements could be highly cost beneficial, generating significant user benefits as well as benefits to the state and regional economies.

Case for a Programmatic Approach to Freight Bottlenecks on Highways

While a few states such as Ohio are moving to address the problem of freight bottlenecks on highways, we do not have Federal policies and programs in place that recognize these bottlenecks as a national-scale problem that threatens to choke our highway freight system. We need to do so, and do so soon.

Bottlenecks at Interstate highway interchanges are a sizeable problem today, costing truckers alone $4 billion annually. Bottlenecks will become a bigger problem in the future. Over the next 20 years, economic growth and trade will nearly double the tonnage of freight moved in the United States. This will translate into more shipments in more trucks traveling more miles. Between now and 2035, total truck-miles of travel are projected to increase at a rate averaging about 2.5 percent annually, with truck-miles of travel rising faster than automobile-miles of travel.[8]

Trucks will contribute to bottleneck congestion, but they will be heavily exposed to it as well. Trucking is the dominant freight transportation mode. According to the U.S. DOT's 2002 Commodity Flow Survey, trucks carried 67 percent of domestic shipments by tonnage, 74 percent by value, and 40 percent by ton-miles.[9]

When trucks are delayed by major highway bottlenecks, shipping costs go up and reliability drops across industry and retail supply chains. Businesses react by holding more inventory and passing the costs on to customers. The net effect is an erosion of competitive position in national and global markets, slower economic growth, and fewer jobs.

We need to take a national programmatic approach to highway bottlenecks because, while a relatively small number of bottlenecks account for large share of the delays and they are

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[8] U.S. Department of Transportation, Federal Highway Administration, *The Freight Story*, page 12, and recent estimates by Global Insight, Inc.

[9] Bureau of Transportation Statistics and U.S. Census Bureau, "2002 Economic Census, Transportation, 2002 Commodity Flow Survey," Table 1b. Shipment Characteristics by Mode of Transportation for the United States: Percent of Total for 2002, 1997, and 1993.

widely scattered across the nation, they sit squarely on the cross-roads of our transcontinental and regional truck lanes. The solutions are site specific and expensive, especially in densely developed urban areas. Few states and cities can justify the cost and effort of fixing these bottlenecks alone. But the delays are felt nationwide.

We built the Interstate system to gain the benefits of interstate trade. We have been so successful that we risk choking on traffic congestion and losing the benefits of both interstate and global trade. We can now identify the critical bottlenecks to this trade, measure their costs to shippers and carriers, and target solutions. We must implement solutions at these nationally significant bottlenecks to improve freight productivity.

As you begin the process of reauthorization of the surface transportation legislation, I would encourage you to take a close look at the congestion on our nation's highway system, advance a national freight policy that recognizes bottlenecks as impediments to freight flows and trade, and focus programs such as the Interstate Highway program and the Projects of National and Regional Significance program on major highway freight bottlenecks.

Attachments

The attached exhibits list the top highway interchange bottlenecks for trucks. Exhibit A lists the top 25 interchange bottlenecks ranked by annual hours of delay for ***all trucks***. Exhibit B lists the top 25 interchange bottlenecks ranked by annual hours of delay for ***large trucks making trip greater than 500 miles***.

There is overlap between the tables, but the ranking by all trucks tends to flag interchanges in the nation's major freight hubs and trade gateways that serve high volumes of metropolitan and intercity truck traffic. The ranking by large trucks making trips greater than 500 miles tends to flag interchange bottlenecks that sit astride the key intersections of the nation's long-haul and transcontinental freight corridors.

In the tables, AADT is the abbreviation for Annual Average Daily Traffic, the number of vehicles, including automobiles and trucks of all sizes, traveling the critically congested roadway each day. AADTT is the abbreviation for Annual Average Daily Truck Traffic, the number of trucks of all sizes traveling the critically congested roadway each day.

A copy of the white paper, ***Initial Assessment of Freight Bottlenecks on Highways***, is available at http://www.fhwa.dot.gov/policy/otps/bottlenecks/bottlenecks.pdf.

Exhibit A. Top 25 Highway Interchange Bottlenecks for Trucks
*Ranked By Annual Hours of Delay for All Trucks**

Bottleneck				2004												
				All Vehicles		All Trucks			"Large Trucks Making Longer Distance Trips"							
									All Trips					Trips Greater Than 500 Miles	
Location	Urban Area	Critically Congested Route No.	No. of Lanes	AADT	Daily Minutes of Delay per Vehicle	AADTT	Percent of All Vehicles	Annual Hours of Delay All Trucks	AADTT	Percent of All Trucks	Annual Hours of Delay	Annual Commodity Tons	Annual Commodity Value	Percent of Large Truck Trips	Annual Hours of Delay
I-90 @ I-290	Buffalo-Niagara Falls	90	4	136,500	8.3	33,100	24%	1,661,900	7,300	22%	367,000	2,632,500	$2,968,000	58%	212,900
I-285 @ I-85 Interchange ("Spaghetti Junction")	Atlanta	285	8	265,300	10.0	27,100	10%	1,641,200	7,800	29%	472,600	2,943,700	$3,262,000	52%	245,800
I-17 (Black Canyon Fwy): I-10 Interchange (the "Stack") to Cactus	Phoenix	17	6	217,300	9.2	28,900	13%	1,608,500	9,000	31%	501,600	3,326,700	$3,792,000	48%	240,800
I-90/94 @ I-290 Interchange ("Circle Interchange")	Chicago-Northwestern IN	90	8	305,800	9.7	26,300	9%	1,544,900	9,200	35%	540,400	3,718,000	$4,218,000	53%	286,400
San Bernardino Fwy	Los Angeles	10	8	268,700	7.2	34,900	13%	1,522,800	11,200	32%	488,700	4,094,500	$4,780,000	31%	151,500
I-94 (Dan Ryan Expwy) @ I-90 Skyway Split (Southside)	Chicago-Northwestern IN	94	8	271,700	7.9	31,600	12%	1,512,900	11,100	35%	531,500	4,485,900	$5,089,000	53%	281,700
I-285 @ I-75 Interchange	Atlanta	285	6	226,300	9.6	25,700	11%	1,497,300	7,400	29%	431,500	2,792,800	$3,095,000	52%	224,400
SR 134 @ SR 2 Interchange	Los Angeles	134	8	247,900	8.3	29,600	12%	1,489,400	9,500	32%	477,500	3,473,000	$4,054,000	31%	148,000
I-77 @ Tryon Rd	Charlotte	77	6	170,500	8.3	29,600	17%	1,487,100	7,300	25%	367,000	2,700,200	$2,983,000	45%	165,200
Long Beach Fwy	Los Angeles	710	8	246,100	8.3	27,500	11%	1,380,300	8,800	32%	442,400	3,217,100	$3,756,000	31%	137,100
I-20 @ I-285 Interchange	Atlanta	20	6	187,200	8.3	27,000	14%	1,359,400	7,800	29%	392,100	2,943,700	$3,262,000	52%	203,900
I-80/I-94 split (Southside)	Chicago-Northwestern IN	80	4	139,600	8.6	25,600	18%	1,343,600	9,000	35%	472,400	3,637,200	$4,127,000	53%	250,400
SR 60 @ I-605 Interchange	Los Angeles	60	8	233,000	8.3	26,100	11%	1,314,200	8,400	32%	422,300	3,070,900	$3,585,000	31%	130,900
Pulaski Rd @ I-55	Chicago-Northwestern IN	55	6	197,200	7.5	28,700	15%	1,300,400	10,000	35%	453,700	4,041,300	$4,585,000	53%	240,500

Exhibit A. Top 25 Highway Interchange Bottlenecks for Trucks (continued)
*Ranked By Annual Hours of Delay for All Trucks**

Bottleneck				2004												
				All Vehicles		All Trucks			"Large Trucks Making Longer Distance Trips"							
									All Trips					Trips Greater Than 500 Miles		
Location	Urban Area	Critically Congested Route No.	No. of Lanes	AADT	Daily Minutes of Delay per Vehicle	AADTT	Percent of All Vehicles	Annual Hours of Delay All Trucks	AADTT	Percent of All Trucks	Annual Hours of Delay	Annual Commodity Tons	Annual Commodity Value	Percent of Large Truck Trips	Annual Hours of Delay
I-75 @ I-85 Interchange	Atlanta	75	10	339,600	9.1	23,400	7%	1,288,800	6,800	29%	374,900	2,566,300	$2,844,000	52%	194,900
I-93 @ I-95 Interchange	Boston	93	6	188,400	8.3	25,500	14%	1,280,100	2,800	11%	140,800	1,020,000	$1,220,000	36%	50,700
I-290 @ I-355	Chicago-Northwestern IN	290	6	223,100	8.3	24,800	11%	1,246,200	8,700	35%	437,300	3,515,900	$3,989,000	53%	231,800
I-405 (San Diego Fwy) @ I-605 Interchange	Los Angeles	405	10	331,700	9.8	20,900	6%	1,243,500	6,700	32%	398,600	2,449,400	$2,859,000	31%	123,600
I-80 @ Central St.	San Francisco-Oakland	80	8	270,200	8.3	23,800	9%	1,196,700	7,800	33%	392,100	2,851,500	$3,329,000	29%	113,700
San Gabriel River Fwy	Los Angeles	91	10	295,700	8.1	24,100	8%	1,194,300	7,700	32%	381,100	2,815,000	$3,286,000	31%	118,100
I-20 @ Fulton St.	Atlanta	20	6	207,300	8.1	23,700	11%	1,172,700	6,800	29%	336,500	2,566,300	$2,844,000	52%	175,000

* Annual Hours of Delay for All Trucks is the number of hours of delay accruing annually to all trucks delayed by congestion at the bottleneck (e.g., Daily Minutes of Delay per Vehicle multiplied by 2004 AADTT for All Trucks). Because the underlying Highway Performance Monitoring System data do not detail traffic counts by time of day, the actual number of trucks exposed to peak-period congestion is unknown, and therefore the reported truck hours of delay shown here provide good index to the relative impacts of the bottlenecks, but are not reliable absolute numbers.

Exhibit B. Top 25 Highway Interchange Bottlenecks for Trucks

*Ranked By Annual Hours of Delay for Large Trucks Making Trips Longer Than 500 Miles**

Bottleneck				2004												
				All Vehicles		All Trucks			"Large Trucks Making Longer Distance Trips"							
									All Trips						Trips Greater Than 500 Miles	
Location	Urban Area	Critically Congested Route No.	No. of Lanes	AADT	Daily Minutes of Delay per Vehicle	AADTT	Percent of All Vehicles	Annual Hours of Delay All Trucks	AADTT	Percent of All Trucks	Annual Hours of Delay	Annual Commodity Tons	Annual Commodity Value	Percent of Large Truck Trips	Annual Hours of Delay
I-24 @ I-440N Interchange	Chattanooga (TN-GA)	24	4	118,200	8.3	18,500	16%	927,500	9,200	50%	462,500	3,330,000	$3,750,000	85%	393,100
U.S. 95 @ I 15 Interchange ("Spaghetti Bowl")	Las Vegas	95	6	199,900	9.8	11,300	6%	670,400	5,600	50%	333,100	1,992,500	$2,286,000	90%	299,800
I-90/94 @ I-290 Interchange ("Circle Interchange")	Chicago-Northwestern IN	90	8	305,800	9.7	26,300	9%	1,544,900	9,200	35%	540,400	3,718,000	$4,218,000	53%	286,400
I-94 (Dan Ryan Expwy) @ I-90 Skyway Split (Southside)	Chicago-Northwestern IN	94	8	271,700	7.9	31,600	12%	1,512,900	11,100	35%	531,500	4,485,900	$5,089,000	53%	281,700
I-75 @ I-74 Interchange	Cincinnati (OH-KY)	75	6	193,100	9.7	19,200	10%	1,128,900	6,900	36%	405,300	2,735,200	$3,044,000	63%	255,300
I-10 @ I-110 Interchange	Baton Rouge	10	6	150,400	7.2	15,200	10%	665,000	8,600	57%	375,200	3,163,900	$3,591,000	68%	255,100
I-80/I-94 split (Southside)	Chicago-Northwestern IN	80	4	139,600	8.6	25,600	18%	1,343,600	9,000	35%	472,400	3,637,200	$4,127,000	53%	250,400
I-285 @ I-85 Interchange ("Spaghetti Junction")	Atlanta	285	8	265,300	10.0	27,100	10%	1,641,200	7,800	29%	472,600	2,943,700	$3,262,000	52%	245,800
I-17 (Black Canyon Fwy): I-10 Interchange (the "Stack") to Cactus	Phoenix	17	6	217,300	9.2	28,900	13%	1,608,500	9,000	31%	501,600	3,326,700	$3,792,000	48%	240,800
Pulaski Rd @ I-55	Chicago-Northwestern IN	55	6	197,200	7.5	28,700	15%	1,300,400	10,000	35%	453,700	4,041,300	$4,585,000	53%	240,500
I-290 @ I-355	Chicago-Northwestern IN	290	6	223,100	8.3	24,800	11%	1,246,200	8,700	35%	437,300	3,515,900	$3,989,000	53%	231,800

Exhibit B. Top 25 Highway Interchange Bottlenecks for Trucks (continued)

*Ranked By Annual Hours of Delay for Large Trucks Making Trips Longer Than 500 Miles**

Bottleneck				2004												
				All Vehicles		All Trucks			"Large Trucks Making Longer Distance Trips"							
									All Trips						Trips Greater Than 500 Miles	
Location	Urban Area	Critically Congested Route No.	No. of Lanes	AADT	Daily Minutes of Delay per Vehicle	AADTT	Percent of All Vehicles	Annual Hours of Delay All Trucks	AADTT	Percent of All Trucks	Annual Hours of Delay	Annual Commodity Tons	Annual Commodity Value	Percent of Large Truck Trips	Annual Hours of Delay
I-40 @ I-24 Interchange	Nashville	40	4	147,600	8.3	14,600	10%	735,200	5,800	40%	291,600	2,099,300	$2,364,000	77%	224,500
I-285 @ I-75 Interchange	Atlanta	285	6	226,300	9.6	25,700	11%	1,497,300	7,400	29%	431,500	2,792,800	$3,095,000	52%	224,400
I-35 @ Martin Luther King Jr.	Austin	35	6	229,500	8.3	12,600	5%	635,000	11,200	89%	563,000	4,123,900	$4,768,000	39%	219,600
I-15 between Tropicana and Flamingo	Las Vegas	15	6	165,900	6.4	12,400	7%	486,700	6,200	50%	242,800	2,206,000	$2,530,000	90%	218,500
I-12 @ Amite River, Baton Rouge	Baton Rouge	12	4	105,000	6.4	14,400	14%	561,900	8,100	57%	317,200	2,980,000	$3,383,000	68%	215,700
I-75 @ U.S. 35 Interchange	Dayton	75	4	127,400	8.3	18,400	14%	923,100	7,900	43%	397,100	3,131,600	$3,485,000	54%	214,400
I-90 @ I-290	Buffalo-Niagara Falls	90	4	136,500	8.3	33,100	24%	1,661,900	7,300	22%	367,000	2,632,500	$2,968,000	58%	212,900
I-20 @ I-285 Interchange	Atlanta	20	6	187,200	8.3	27,000	14%	1,359,400	7,800	29%	392,100	2,943,700	$3,262,000	52%	203,900
I-75 @ I-85 Interchange	Atlanta	75	10	339,600	9.1	23,400	7%	1,288,800	6,800	29%	374,900	2,566,300	$2,844,000	52%	194,900
I-264 @ I-64 Interchange	Louisville (KY-IN)	264	6	181,100	8.3	16,400	9%	825,500	5,400	33%	271,400	1,990,200	$2,218,000	69%	187,300
I-55 (Stevenson Expwy) @ I-294 Interchange	Chicago-Northwestern IN	55	6	172,600	9.6	17,200	10%	1,001,600	6,000	35%	349,900	2,424,800	$2,751,000	53%	185,400
I-80 @ I-480 Interchange	Omaha (NE-IA)	80	5	173,600	7.9	13,800	8%	658,500	4,500	32%	215,500	1,638,000	$1,856,000	86%	185,300
I-76 @ SR 77 Interchange+J179	Akron	76	4	122,600	8.3	14,000	11%	705,200	7,000	50%	351,900	2,774,800	$3,088,000	52%	183,000
I-15 @ I-215 Interchange (the "Fishbowl")	Las Vegas	15	6	165,600	6.6	10,100	6%	403,200	5,000	50%	200,300	1,779,100	$2,041,000	90%	180,300

* Annual Hours of Delay for All Trucks is the number of hours of delay accruing annually to all trucks delayed by congestion at the bottleneck (e.g., Daily Minutes of Delay per Vehicle multiplied by 2004 AADTT for All Trucks). Because the underlying Highway Performance Monitoring System data do not detail traffic counts by time of day, the actual number of trucks exposed to peak-period congestion is unknown, and therefore the reported truck hours of delay shown here provide good index to the relative impacts of the bottlenecks, but are not reliable absolute numbers.

STIFEL NICOLAUS

Transportation & Logistics

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The World Is Not Flat For The Transports

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Between repeated drubbings on the tennis court at the hands of my 16-year-old son over the recent, year-end holidays, I found time to read The World Is Flat by Pulitzer-Prize-winning author and New York Times columnist Thomas L. Friedman. In his bestselling book, Friedman argues persuasively that economic globalization is accelerating, and is leveling the global economic playing field in the process. In the words that form both the primary theme and the title of the book, globalization appears to be "flattening" the world. Now more than ever, individuals, organizations and corporations have access to information and resources that make their businesses and other endeavors more sophisticated, organized and competitive. The diverse group of catalysts driving this global "flattening," in Friedman's view, include an over-capitalized, global, fiber-optic communications network, increasingly widespread access to the internet, extensive use of advanced search engines, motivated, low-cost labor pools in China and India, a focus on technical/engineering education in Russia and Eastern Europe, and the growth of integrated, global supply chain management businesses such as UPS (that now boasts the fitting slogan, "Your World Synchronized").

While the book clearly defined many of the competitive pressures that are quietly mounting against our domestic economy (Is anyone in Washington paying attention to these trends?), I was particularly struck by the author's admission that certain jobs and industry segments are essentially insulated from these "flattening" forces. No matter how globally integrated and "flat" our economy becomes, Friedman points out that some industries are simply unable to be "offshored," outsourced, or automated. The U.S. freight transportation industry came to mind immediately as a good example of an industry that should remain a notable exception to this pervasive global trend. Though it is increasingly critical to the functioning of the U.S. and global economy, the freight transportation industry cannot be outsourced to a call center in Bangalore, India, cannot be "offshored" to a manufacturing plant in central China, and cannot be automated by the application of new technologies. Freight transportation, in our view, is an industry that will continue to operate the old fashioned way, with human beings working hard to produce the revenue ton-miles day-in and day-out, even in a flattening world. A fully integrated global economy, as we envision it, will still require an actual truck driver to run an actual load of freight down the highway, a real engineer to operate a train as it moves down the track, and a bona-fide riverboat pilot to guide a consist of barges down the river to its final destination. In fact, a clear understanding of globalization may help investors understand our contention that transportation assets (including the industry's human capital) should become even more essential, and thus more valuable, in the new global economy. We suggest that the insulated nature of the domestic freight transportation business should present companies capable of operating in an increasingly complex and global environment with an unprecedented opportunity to distinguish themselves both operationally and financially, especially in light of the secular tightness in supply and demand the industry should continue to face for the foreseeable future.

Though the freight transportation industry has become more productive over the years (as examples, domestic railroads generated over 400% more revenue ton-miles per employee in 2004 than they did in 1980, and truck semi-trailers on average provide roughly 46% more interior cubic capacity than they did in 1980), we believe we are now in the midst of a long-term tightening of domestic freight capacity and domestic freight demand. In fact, productivity improvements seem to have plateaued recently, just as the global economic forces Friedman discusses in his recent book have been helping to drive an acceleration in the growth of domestic transportation demand.

In this piece, we attempt to demonstrate that U.S. transportation stocks are no longer the highly cyclical companies they were in previous business cycles. In our opinion, as long as demand continues to outstrip supply, the carriers capable of effectively dealing with the many challenges the industry is currently facing—i.e., elongating supply chains, domestic labor shortages, increasingly stringent EPA emissions rules, tightening safety and security rules, increased highway and port congestion, and local political resistance against the construction of new transportation and supply chain facilities—are presented with a significant opportunity to create significant, incremental shareholder value from this day forward.

In the ensuing paragraphs, we attempt to justify this long-term industry outlook by reviewing each of the drivers of increased freight transportation demand, as well as the forces working to limit the expansion of domestic freight transportation capacity.

Freight Transportation Demand Drivers

Elongation of Supply Chains
Gone are the days of fully integrated, regional economies. Winners in the manufacturing and retail sectors now source raw materials, components, and finished goods on a global scale, and they endeavor to serve a global market with their respective products and services. In basic terms, businesses today are leveraging new technology, access to virtually unlimited information and an expanded portfolio of transportation services to reap the benefits of purchasing economies of scale and/or less expensive labor, sourcing both goods and human capital on another coast or in another country. The theory is that the purchasing economies and/or the labor savings more than offset the increased transportation cost required to move the goods over longer distances. While on the surface it might appear that transportation demand should grow more slowly than GDP as the domestic economy continues to become increasingly dominated by non-transportation-intensive industries such as health care, financial services, and technology, the elongation of supply chains tends to offset virtually all of the impact associated with these trends.

Evolution of Big-Box Retailers and "E-tailers"
Not long ago, regionally focused discount chains dominated the retail industry. Today, in contrast, regional chains have been essentially replaced by national and international retail behemoths with massive supply-chain leverage. They utilize purchasing economies and well-oiled, elongated supply chains to carve out a significant competitive advantage (indeed, one could argue that Wal-Mart is more aptly defined as a supply-chain company today than as a retailer). The big-box retailers and e-tailers have developed insatiable appetites for truckload and intermodal capacity as they have built enough volume to justify purchasing full-load transportation, which costs significantly less than LTL (less-than-truckload) or ground parcel services.

Moreover, we believe most retailers have not yet finished expanding their geographic footprints. Wal-Mart, for example, plans to build another 555-600 new stores internationally in 2006 on top of the 6,096 it already operates, and the company is already the largest of its kind. In our opinion, big-box retailers' and e-tailers' demand for full-load transportation services should continue to grow more rapidly than domestic full-load transportation providers will be able to expand their capacity. (see reasons for this in the discussion below on industry capacity constraints).

Population Growth
Much of what is presently hauled around the United States can be characterized as food and consumer non-durables. Demand growth for this type of merchandise tends to track population growth, as few consumers tend to shortchange themselves when it comes to non-durables (e.g., paper towels, disposable diapers, cereal, prepared/pre-packaged foods). As the distribution channels for food and consumer non-durable goods gravitate towards either the big-box model or the e-tail model, we believe demand for freight transportation services should rise disproportionately, especially as the big-box retailers continue to build distribution channel models that stretch their supply chains.

Economic Growth/Increased Consumption
Those of us living in the United States live in a world of increasing productivity, an essentially zero (frequently negative) savings rate, and instant gratification. Increasing productivity driven by the application of technology, "offshoring," or simply the extension of the average work day (does the work day ever end for those that carry cell phones, Blackberries, and other productivity enhancing tools?) has led to an economic growth rate that exceeds the rate of population growth. With a national savings rate hovering around zero, consumption has continued to rise as the average American has chosen to pass up a conservative financial strategy for increased consumption now. The only real "savings" that exist today are wrapped up in potentially temporary "paper profits," such as financial instruments and real estate. It seems to us that the race is on to spend, spend, and spend even more in order to "keep up with the Joneses." When it comes to the latest electronic gadgetry and fashions, the largest affordable houses, and the latest automobiles or SUVs, it seems that no one wants to be left behind. We believe that increased productivity and a savings rate that often dips below zero are more reasons freight transportation demand should continue to grow faster than population growth in the United States.

Forces Constraining Domestic Freight Transportation Supply

Worsening Truckload Driver Shortage

Today's younger generations appear to be avoiding going to work in an industry that even remotely could be construed as "blue collar." The pay is less than spectacular, the hours are tough, and safety-related risks abound. When was the last time you heard someone say that they hoped their son or daughter someday decided to be a truck driver, a coal miner, a construction worker, an electrician, plumber, or table waiter (even though annual wages for many of these professions are on the rise)? The fact of the matter is that the Gen X/Gen Y crowd (sometimes called "the entitlement generation") can be generally divided into two groups: those with the aptitude and/or the desire to work hard academically in order to ultimately secure a high-paying, knowledge-related job, and those who lack the aptitude and/or those who are not willing to work hard enough academically to achieve a high-paying, knowledge-driven job.

The difficulty for recruiting truck drivers arises in the latter group. Their often blue-collar parents have repeatedly told them that they deserve better than their parents. Problems emerge when the parents' work ethic is not firmly ingrained within the child at an early age. To have a better life than one's parents requires some short-term sacrifice and a willingness to invest in one's future through study, training, or plain hard work. Many members of the second group hop frequently from one unsatisfying job to another. It seems each job either carries too little status, doesn't pay enough, involves too many hours, or requires too much effort. As a result, parents' dreams often go unrealized as the lack of work ethic pushes the child into even a more difficult position in life than the one created by the parents' hard work and diligence.

The winners and losers in the trucking industry over the next ten years will be determined by which carriers are able to sift through the Gen X/Gen Y crowd well enough to seat their trucks with reasonably responsible human beings that can/will pass a drug test, survive a background check, sleep in a truck, eat in truck stops, shower in truck stops, and meet customers' pick-up and delivery expectations. The definitive study on this subject, published in 2005 by Global Insight and the American Trucking Associations, suggests that by 2014 the trucking industry will be short 111,000 drivers (up from a shortage of 20,000 today).

Are immigrants the solution? Many immigrants drive taxi cabs, serve as cooks and wait staff in restaurants, perform maintenance and janitorial work, engage in landscaping activities, or work in child care. Interestingly, they do not, for the most part, drive our trucks. Can the industry and the public at-large get comfortable with allowing green-card-carrying immigrants, many of whom have difficulty with the English language, to go hurtling down the highway behind the wheel of an 80,000-pound rig, transiting the same interstates as our loved ones? Will Americans also get comfortable with the security risks associated with letting immigrants drive vehicles that have the potential to be converted into the ultimate terrorist weapon—a veritable bomb on wheels? How will the existing U.S.-domiciled truck driver population react to the use of immigrants for such important jobs? Only time will tell, though we have to doubt that the widespread use of immigrant truck drivers will become politically expedient at this point in U.S. history.

Worsening Highway Congestion

Highway congestion is no longer limited to the urban area during rush hour. Vehicle miles traveled has grown and will continue to grow faster than vehicle lane miles, according to the Department of Transportation's National Transportation Statistics. The recently passed federal highway bill provides little relief, as it is primarily designed to rebuild the vast interstate system which is nearing the end of its design life. The new funding will add little incremental capacity to the system. Truck drivers (the most precious commodity in the industry) can look forward to reduced productivity as highway congestion worsens in urban areas and on key links of the system connecting our more populous regions. There appears to be no easy answer to this seldom discussed issue.

The LCV Stalemate

An LCV (longer-combination vehicle) could be a truck tractor pulling three "pup" semi-trailers in combination, or a truck tractor pulling two 53' semi-trailers hooked together in combination. LCVs would likely enable a truck driver to increase his or her productivity by between 50% and 100%. However, a drop lot must be provided at most, if not at every, Interstate interchange, in order to enable drivers to unlock the increased productivity of LCVs. The cost of developing these drop lots would be significant, too, given the amount of development that has occurred near many interchanges and the resulting inflated cost of the required real estate. There is no money in the highway bill to support this type of project. Plus, the railroads and the highway-safety lobby have successfully shot down LCV proposals in the past. If an 80,000 pound rig is dangerous, a 130,000 pound rig must be almost twice as dangerous, or so the logic goes. Our sense is that LCVs will not provide any relief over the near- to medium-term, despite the fact that they may be one of the most logical solutions to the escalating transportation capacity crisis. There may be some relief possible over the longer-term, maybe around 10 years out, provided the safety lobby and the railroads would allow a factual review of the potential of LCVs.

FMCSA Safety Initiatives
As it stands now, the federal hours of service (HOS) rules, which have been modified twice in the past two years after remaining untouched since 1962, appear to have reduced truckload productivity by between 5 and 10 percent. The highway-safety lobby is still dissatisfied with the rules, even though truck-related safety statistics have been improving consistently. The next step in this ongoing process will involve the Federal Motor Carrier Safety Administration (FMCSA) issuing a rulemaking within the next several months that will likely require the use of on-board trip recorders throughout the trucking industry. The idea is that the agency needs to do a better job of enforcing the recently modified rules.

Our sense is that most of the large carriers, both publicly traded and privately held, have been good corporate citizens in this regard. They have quickly endeavored to modify operations in order to remain compliant with the changing hours of service rules. The abusers of the rules tend to be the smaller, privately held companies that are being pressured as a result of rising costs (i.e., fuel, insurance, equipment ownership, etc.), labor shortages, and their reliance on brokers to perform sales and marketing functions. Of economic necessity, many of these carriers become rogue truckers that survive by allowing drivers to falsify their log-books. Simply put, most drivers frequently drive for more hours than is permitted by law. This activity is "covered up" in the preparation of falsified paper logs. With on-board trip recorders, log-book falsifications are no longer an option. The economic loophole allowing many of these carriers to survive could soon be closed. As a result, these carriers are likely to exit the industry at accelerating rates, which means yet another freight transportation capacity reduction at a time when supply and demand are already tight. As an aside, it is interesting to contemplate the ramifications of this type of scenario for the burgeoning numbers of truckload brokers. Is it possible that they will soon be "tripping over one another" as they compete for a shrinking population of small truckers?

Industry Consolidation
We have written extensively in the past concerning "the core-carrier consolidation concept," which, in simple terms, refers to a vendor consolidation taking place within the truckload space. Shippers would prefer, in a perfect world, to deal with a smaller number of large fleets that have reduced their cost structures, improved service, and developed sophisticated management information and customer-interface systems. Historically, the large carriers have been able to grow by deepening their penetration at existing accounts, as the customer reduced the number of carriers with which it did business. This vendor consolidation process has slowed considerably, though, over the past five years, as large carriers have had trouble finding the qualified drivers needed to support growth. Instead, the carriers have turned their attention to growing their more driver-friendly operations (i.e., dedicated services, rail-based intermodal services, regional/distribution services, etc.) As the growth rates of these driver-friendly services accelerate, smaller, less competitive carriers should, once again, be forced off the edge of the competitive space, because many of them compete in these market niches. This modern-day version of the core-carrier consolidation process will, in our view, put the larger carriers more in control of their own destiny, as there will be a smaller number of small carriers, many of which traditionally have engaged in irrational pricing in the marketplace.

Railroads Are Not The Relief Valve
Historically, railroads have been best suited for hauling high-density, low-value commodities (e.g., coal, grain, aggregates, etc.) in most domestic freight lanes. However, railroads discovered fairly recently how to move lighter-density, higher-valued manufactured goods more efficiently in the long-haul, high-density intermodal lanes. After 50 years of endeavoring to avoid bankruptcy by shrinking capacity one step ahead of market share losses, the railroads have finally turned the corner. Unfortunately, though, they may have squeezed a bit too much capacity out of their networks during the downsizing years. Given the capital intensity associated with the railroad business and the fact that the industry has yet to earn its cost of capital, it appears unlikely to us that the railroads will be able to do much more than maintain their market share position going forward (i.e., growth to recapture some of the market share losses it endured over the last several decades should prove to be too costly to be realistic). Plus, railroads are not as flexible as trucking companies because they can only serve customers located along the railroad or those located in the general vicinity of an intermodal terminal. The cooperative spirit currently being displayed by the truckers and the railroads is laudable. However, we think it is naïve to believe that the railroads can provide capacity relief for the truckload driver shortage, increasing levels of highway congestion, the elongation of supply chains, and the increasing constraints imposed by trucking safety regulations. In our view, the railroads simply are not the silver bullet solution to the transportation capacity crisis.

Conclusion

How many industries have better underlying dynamics right now than the domestic freight transportation industry? We believe the prospect of long-term tightness in transportation supply and demand is a perfect platform on which skilled management teams can take share, improve their returns on invested capital, and generate significant free cash flow. In what other investment space can an investor buy shares of the best companies in a well-positioned, reasonably non-cyclical industry with pricing power for less than a market multiple? We reiterate our favorite transportation investment ideas at the moment, which include Celadon Group (CLDN; Buy; $28.82), CSX Corp. (CSX; Buy; $50.65), J.B. Hunt Transport Services (JBHT; Buy; $23.19), Quality Distribution (QLTY; Buy; $8.73), Norfolk Southern Corp. (NSC; Buy; $42.42), Old Dominion Freight Line (ODFL; Buy; $27.19), Ryder System (R; Buy; $41.00), Werner Enterprises (WERN; Buy; $21.27), and U.S. Xpress Enterprises (XPRSA; Buy; $17.79).

Stifel Nicolaus Target Price/Fair Value Estimate Matrix

January 12, 2006

Company	Ticker	Rating	01/12/2006	CY07E EPS	Target Price/Fair Value Estimate P/E multiple	Target Price/Fair Value Estimate	Potential% upside
Quality Distribution	QLTY	Buy	$8.73	$0.90	12.0x	$11	26.0%
U.S. Xpress Enterprises	XPRSA	Buy	$17.79	$1.75	12.5x	$22	23.7%
Ryder System	R	Buy	$41.00	$3.87	13.0x	$50	22.0%
Norfolk Southern Corp.	NSC	Buy	$42.42	$3.70	13.5x	$50	17.9%
Celadon Group [1]	CLDN	Buy	$28.82	$2.33	14.0x	$33	14.5%
Old Dominion Freight Line	ODFL	Buy	$27.19	$1.93	16.0x	$31	14.0%
J. B. Hunt Transport Svcs.	JBHT	Buy	$23.19	$1.60	16.0x	$26	12.1%
Universal Truckload Svcs	UACL	Hold	$21.61	$1.39	17.0x	$24	11.1%
FedEx Corp. [2]	FDX	Hold	$100.31	$6.52	17.0x	$111	10.7%
CSX Corp.	CSX	Buy	$50.65	$4.45	12.5x	$56	10.6%
Werner Enterprises	WERN	Buy	$21.27	$1.60	14.5x	$23	8.1%
Forward Air Corp. [4]	FWRD	Hold	$36.11	$1.75	22.0x	$39	6.6%
Heartland Express	HTLD	Hold	$20.90	$1.18	18.5x	$22	5.3%
United Parcel Service	UPS	Hold	$74.67	$4.20	18.5x	$78	4.5%
Landstar System	LSTR	Hold	$41.03	$2.01	21.0x	$42	2.4%
Burlington Northern Santa Fe	BNI	Hold	$68.55	$5.10	13.5x	$69	0.7%
Marten Transport	MRTN	Hold	$20.73	$1.40	14.0x	$20	-3.5%
Swift Transportation	SWFT	Hold	$23.00	$1.64	13.5x	$22	-4.3%
Knight Transportation	KNX	Hold	$21.34	$0.97	21.0x	$20	-6.3%
Union Pacific Corp.	UNP	Hold	$79.12	$5.90	12.5x	$74	-9.5%
C.H. Robinson Worldwide	CHRW	Hold	$36.48	$1.41	23.5x	$33	-11.3%
Arkansas Best Corp.	ABFS	Hold	$45.09	$3.20	12.5x	$40	NM
Central Freight Lines [3]	CENF	Hold	$1.85	($0.38)	NM	$2	

(1) CLDN is on June 30 fiscal year

(2) FedEx is on May 31 fiscal year

(3) CENF target price based on projected 2006 book value per share.

Source: Stifel Nicolaus estimates

STIFEL NICOLAUS

Equity Comps - Transportation

Comparative Valuation Matrix

(figures in $US millions, except per share amounts)

Company name (Ticker)	Rating	Price 01/12/2006	Diluted S/O	Market cap	Total Debt	Cash & equiv.	TEV [a]	Equity value as a multiple of: 2004A	2005E[b]	2006E[b]	2007E[b]	Book value	Enterprise value as a multiple of: TTM Revenue	TTM EBITDA	TTM EBITDAR [c]	TTM EBIT	TTM ROA	TTM ROE	TTM ROIC	PEG ratio[d]	Div. Yield	FCF Yield
Truckload																						
Celadon Group (CLDN)	Buy	28.82	10.5	301.3	7.4	6.3	302.4	29.7x	18.0x	14.3x	12.4x	2.9x	0.7x	7.4x	5.4x	11.5x	9.1%	15.3%	14.6%	0.82	0.0%	8.1%
Covenant Transport (CVTI)	NR	13.67	14.7	200.8	76.3	3.7	273.4	12.7x	59.4x	29.1x	23.6x	1.1x	0.4x	4.5x	3.9x	14.7x	1.9%	3.6%	3.3%	1.53	0.0%	-2.9%
Frozen Food Express (FFEX)	NR	11.99	19.5	234.4	0.0	7.8	226.6	17.1x	12.0x	10.3x	11.4x	2.1x	0.4x	4.6x	3.9x	8.3x	10.2%	17.4%	16.9%	0.91	0.0%	-0.4%
Forward Air Corp (FWRD)	Hold	36.11	33.1	1,196.1	2.3	78.3	1,120.1	34.5x	26.2x	22.9x	20.6x	7.3x	3.6x	15.7x	14.0x	17.8x	20.9%	25.1%	24.9%	1.47	0.7%	2.6%
Heartland Express (HTLD)	Hold	20.90	75.0	1,567.5	0.0	276.5	1,291.0	25.2x	22.5x	19.7x	17.7x	3.8x	2.6x	9.7x	9.7x	13.3x	12.6%	17.0%	17.0%	1.36	0.4%	4.2%
J.B. Hunt Transport Svcs. (JBHT)	Buy	23.19	171.6	3,980.1	75.7	3.7	3,991.2	21.6x	17.4x	16.2x	14.5x	5.0x	1.3x	7.7x	7.0x	11.1x	14.8%	26.4%	24.8%	0.97	1.0%	4.0%
Knight Transportation (KNX)	Hold	21.34	87.6	1,869.9	0.0	26.9	1,843.0	38.8x	30.5x	25.4x	22.0x	5.6x	3.7x	12.7x	12.5x	19.4x	13.6%	19.0%	19.0%	1.33	0.4%	0.1%
Landstar System (LSTR)	Hold	41.03	62.2	2,550.6	129.9	134.6	2,545.9	36.6x	21.1x	23.1x	20.4x	12.7x	1.1x	14.7x	14.4x	16.2x	15.9%	48.8%	31.1%	1.20	0.2%	5.5%
Marten Transport (MRTN)	Hold	20.73	22.0	456.5	36.3	0.8	492.1	25.6x	18.7x	16.6x	14.8x	2.4x	1.1x	6.4x	6.4x	11.9x	7.7%	13.3%	11.3%	1.35	0.0%	-0.8%
P.A.M. Transportation Svcs. (PTSI)	NR	18.02	11.3	203.8	26.3	9.0	221.1	19.2x	17.3x	13.9x	11.6x	1.2x	0.6x	4.5x	4.5x	11.6x	3.8%	6.4%	5.8%	0.89	0.0%	6.1%
Quality Distribution (QLTY)	Buy	8.73	19.0	166.7	281.7	1.4	446.5	12.3x	13.6x	11.6x	9.7x	NM	0.7x	6.9x	6.7x	9.6x	3.4%	NM	11.8%	0.65	0.0%	-3.7%
Swift Transportation (SWFT)	Hold	23.00	75.0	1,725.1	608.3	11.3	2,322.0	18.1x	16.3x	15.1x	14.0x	2.1x	0.7x	5.9x	5.4x	12.2x	5.1%	13.0%	8.8%	1.08	0.0%	-0.4%
Transport Corp. of America (TCAM)	NR	9.81	6.8	66.5	49.8	2.2	114.1	32.7x	39.2x	15.1x	13.1x	1.2x	0.4x	4.0x	4.0x	20.0x	1.1%	3.3%	3.3%	0.87	0.0%	-1.4%
Universal Truckload Svcs. (UACL)	Hold	21.61	16.1	348.3	0.0	31.2	317.1	19.5x	19.5x	17.7x	15.5x	3.2x	0.6x	10.4x	10.3x	12.2x	12.1%	17.3%	16.9%	1.20	0.0%	2.7%
USA Truck (USAK)	NR	29.80	9.6	287.5	104.8	3.9	388.4	37.7x	19.4x	14.1x	11.1x	2.0x	0.9x	5.5x	5.5x	12.6x	4.9%	12.6%	7.6%	0.74	0.0%	7.2%
Werner Enterprises (WERN)	Buy	21.27	82.0	1,743.8	0.0	20.5	1,723.4	19.7x	17.9x	15.2x	13.3x	2.1x	0.9x	5.4x	5.4x	10.9x	7.5%	11.9%	11.9%	0.93	0.8%	-4.7%
U.S. Xpress Enterprises (XPRSA)	Buy	17.79	16.6	295.3	177.1	15.4	457.0	15.3x	25.4x	13.0x	10.2x	1.3x	0.8x	6.4x	4.3x	18.2x	1.9%	5.1%	3.7%	0.58	0.0%	-5.2%
Min				66.5	0.0	0.8	114.1	12.3x	12.0x	10.3x	9.7x	1.1x	0.4x	4.0x	3.9x	8.3x	1.1%	3.3%	3.3%	0.58	0.0%	-5.2%
Mean				1,011.4	92.7	37.3	1,063.2	24.5x	23.2x	17.3x	15.1x	3.5x	1.2x	7.8x	7.3x	13.6x	8.6%	16.0%	13.7%	1.05	0.2%	1.2%
Mean (Asset-based TL only)				994.8	89.4	29.8	1,049.7	24.1x	24.2x	16.8x	14.6x	2.5x	1.1x	6.5x	6.0x	13.5x	7.2%	12.6%	11.4%	1.03	0.2%	1.1%
Median				348.3	36.3	9.0	457.0	21.6x	19.4x	15.2x	14.0x	2.3x	0.7x	6.4x	5.5x	12.2x	7.7%	14.3%	11.9%	0.97	0.0%	0.1%
Max				3,980.1	608.3	276.5	3,991.2	38.8x	59.4x	29.1x	23.6x	12.7x	3.7x	15.7x	14.4x	20.0x	20.9%	48.8%	31.1%	1.53	1.0%	8.1%
Stifel Nicolaus Transportation Average				6,005.9	1,095.2	235.9	6,855.0	25.0x	21.0x	17.3x	15.3x	3.5x	1.8x	9.6x	8.8x	14.2x	8.0%	16.6%	13.5%	1.07	0.4%	1.8%
Less-Than-Truckload																						
Arkansas Best Corp (ABFS)	Hold	45.09	26.0	1,174.1	25.9	105.3	1,094.7	15.0x	12.5x	13.4x	14.1x	2.2x	0.6x	5.3x	5.2x	7.5x	10.6%	18.3%	17.6%	1.13	1.3%	6.7%
Central Freight Lines (CENF)	Hold	1.85	18.2	33.7	37.8	0.4	71.1	NM	NM	NM	NM	0.6x	0.2x	NM	NM	NM	NM	NM	NM	NM	0.0%	NM
CNF Inc (CNF)	NR	55.17	58.2	3,209.3	597.7	798.0	3,009.1	21.0x	14.3x	13.0x	12.3x	3.7x	0.7x	6.1x	5.5x	8.4x	8.0%	27.6%	16.5%	0.82	0.7%	6.7%
Old Dominion Freight Line (ODFL)	Buy	27.19	37.3	1,013.7	139.6	6.4	1,146.9	25.5x	19.1x	16.2x	14.1x	3.1x	1.1x	8.0x	7.7x	12.7x	8.7%	16.3%	12.8%	0.88	0.0%	-3.7%
SCS Transportation (SCST)	NR	25.14	15.8	396.6	125.8	3.9	518.4	17.8x	16.3x	13.6x	12.4x	1.8x	0.5x	5.8x	5.4x	12.4x	4.2%	10.4%	8.5%	0.83	0.0%	-2.8%
Vitran Corp (VTNC)	NR	19.49	12.9	250.9	17.9	10.8	258.0	17.4x	13.8x	11.7x	10.1x	1.9x	0.6x	8.8x	6.7x	11.1x	8.8%	13.5%	11.8%	0.67	0.0%	0.1%
YRC Worldwide (YRCW)	NR	48.10	49.8	2,375.6	1,639.9	57.5	3,949.1	12.1x	9.2x	8.0x	7.9x	1.3x	0.5x	5.4x	5.1x	7.9x	6.0%	18.4%	11.5%	0.79	0.0%	7.7%
Min				33.7	17.9	0.4	71.1	12.1x	9.2x	8.0x	7.9x	0.6x	0.2x	5.3x	5.1x	7.5x	4.2%	10.4%	8.5%	0.67	0.0%	-3.7%
Mean				1,207.7	367.9	140.3	1,435.3	18.1x	14.2x	12.6x	11.8x	2.1x	0.6x	6.6x	5.9x	10.0x	7.7%	17.4%	13.1%	0.85	0.3%	2.4%
Median				1,013.7	125.8	10.8	1,094.7	17.6x	14.0x	13.2x	12.4x	1.9x	0.6x	5.9x	5.5x	9.7x	8.4%	17.3%	12.3%	0.83	0.0%	3.4%
Max				3,209.3	1,639.9	798.0	3,949.1	25.5x	19.1x	16.2x	14.1x	3.7x	1.1x	8.8x	7.7x	12.7x	10.6%	27.6%	17.6%	1.13	1.3%	7.7%
Stifel Nicolaus Transportation Average				6,005.9	1,095.2	235.9	6,855.0	25.0x	21.0x	17.3x	15.3x	3.5x	1.8x	9.6x	8.8x	14.2x	8.0%	16.6%	13.5%	1.07	0.4%	1.8%

(a) Total Enterprise Value = Market Capitalization of Equity + Total Debt - Cash + Market Value of Minority Interest
(b) Stifel Nicolaus estimates for those rated and First Call mean estimates for unrated securities.
(c) Enterprise value adjusted to include the capitalization of off balance sheet operating leases with lease expense (or rent expense) being added back to EBITDA for the valuation multiple calculation
(d) 2006E P/E divided by First Call mean or SN estimated long term growth rate
Excludes non-recurring items
Calculations may vary due to rounding
Source: Company data, First Call, and Stifel Nicolaus estimates

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Equity Comps - Transportation

Comparative Valuation Matrix

(figures in $US millions, except per share amounts)

Company name (Ticker)	Rating	Price 01/12/2006	Diluted S/O	Market cap.	Total Debt	Cash & equiv	TEV [a]	Equity value as a multiple of: 2004A	2005E[b]	2006E[b]	2007E[b]	Book value	Enterprise value as a multiple of: TTM Revenue	TTM EBITDA	TTM EBITDAR [c]	TTM EBIT	TTM ROA	TTM ROE	TTM ROIC	PEG ratio[d]	Div. Yield	FCF Yield
Asset-Based Logistics																						
CNF Inc (CNF)	NR	55.17	58.2	3,209.3	597.7	798.0	3,009.1	21.0x	14.3x	13.0x	12.3x	3.7x	0.7x	6.1x	5.5x	8.4x	8.0%	27.6%	16.5%	0.82	0.7%	6.7%
FedEx Corp. (FDX)	Hold	100.31	309.3	31,028.2	2,696.0	786.0	32,938.2	22.6x	18.7x	16.5x	15.4x	3.0x	1.1x	7.7x	7.1x	11.8x	8.0%	17.1%	13.5%	1.03	0.3%	2.2%
Ryder System (R)	Buy	41.00	65.5	2,683.5	2,218.3	140.5	4,761.3	13.8x	12.1x	11.3x	10.6x	1.7x	0.9x	3.9x	3.8x	10.2x	3.7%	14.1%	8.1%	0.71	1.6%	-14.0%
United Parcel Service (UPS)	Hold	74.67	1,122.7	83,832.8	5,032.0	3,890.0	84,974.8	25.7x	21.6x	19.4x	17.8x	5.0x	2.1x	11.5x	11.1x	14.6x	11.4%	23.4%	18.5%	1.32	1.8%	3.9%
Min				2,683.5	597.7	140.5	3,009.1	13.8x	12.1x	11.3x	10.6x	1.7x	0.7x	3.9x	3.8x	8.4x	3.7%	14.1%	8.1%	0.71	0.3%	-14.0%
Mean				30,188.4	2,636.0	1,403.6	31,420.8	20.8x	16.7x	15.0x	14.0x	3.3x	1.2x	7.3x	6.9x	11.3x	7.8%	20.5%	14.1%	0.97	1.1%	-0.3%
Median				17,118.7	2,457.2	792.0	18,849.7	21.8x	16.5x	14.7x	13.9x	3.3x	1.0x	6.9x	6.3x	11.0x	8.0%	20.2%	15.0%	0.92	1.1%	3.0%
Max				83,832.8	5,032.0	3,890.0	84,974.8	25.7x	21.6x	19.4x	17.8x	5.0x	2.1x	11.5x	11.1x	14.6x	11.4%	27.6%	18.5%	1.32	1.8%	6.7%
Stifel Nicolaus Transportation Average				**6,005.9**	**1,095.2**	**235.9**	**6,855.0**	**25.0x**	**21.0x**	**17.3x**	**15.3x**	**3.5x**	**1.8x**	**9.6x**	**8.8x**	**14.2x**	**8.0%**	**16.6%**	**13.5%**	**1.07**	**0.4%**	**1.8%**
Non-Asset-Based Logistics																						
C.H. Robinson Worldwide (CHRW)	Hold	36.48	172.4	6,287.9	0.0	315.1	5,972.8	46.2x	32.3x	29.0x	25.9x	8.4x	7.2x	20.1x	19.3x	20.4x	15.5%	27.2%	27.2%	1.72	1.4%	3.5%
EGL, Inc. (EAGL)	NR	35.89	53.4	1,917.7	33.3	131.3	1,819.7	34.8x	30.9x	22.4x	19.0x	3.9x	2.0x	11.0x	8.7x	14.1x	7.7%	18.0%	15.5%	1.02	0.0%	6.2%
Expeditors International (EXPD)	NR	66.22	114.1	7,558.7	0.0	461.5	6,860.6	47.0x	38.1x	32.3x	27.5x	8.6x	6.8x	22.3x	20.3x	24.7x	12.8%	22.1%	22.1%	1.77	0.2%	2.2%
Forward Air Corp. (FWRD)	Hold	36.11	33.1	1,196.1	2.3	78.3	1,120.1	34.5x	26.2x	22.9x	20.6x	7.3x	3.6x	15.7x	14.0x	17.8x	20.9%	25.1%	24.9%	1.47	0.7%	2.6%
Hub Group (HUBG)	NR	35.18	22.1	775.9	0.0	28.0	747.9	31.7x	23.0x	19.7x	16.3x	3.4x	4.0x	12.4x	11.3x	14.9x	6.2%	11.5%	11.7%	0.81	0.0%	6.5%
Landstar System (LSTR)	Hold	41.03	62.2	2,550.6	129.9	134.6	2,545.9	36.6x	21.1x	23.1x	20.4x	12.7x	1.1x	14.7x	14.4x	16.2x	15.9%	48.8%	31.1%	1.20	0.2%	5.5%
Pacer International (PACR)	NR	26.00	38.4	999.0	108.0	9.0	1,098.0	21.0x	17.8x	15.4x	13.8x	3.4x	2.6x	10.2x	8.1x	10.9x	9.5%	20.6%	14.9%	0.95	0.0%	7.8%
Quality Distribution (QLTY)	Buy	8.73	19.0	166.2	281.7	1.4	446.5	12.3x	13.4x	11.6x	9.7x	NM	0.7x	6.9x	6.7x	9.6x	3.4%	NM	11.8%	0.65	0.0%	-3.7%
Universal Truckload Svcs. (UACL)	Hold	21.61	16.1	348.3	0.0	31.2	317.1	19.5x	19.5x	17.7x	15.5x	3.2x	0.6x	10.4x	10.3x	12.2x	12.1%	17.3%	16.9%	1.20	0.0%	2.7%
UTI Worldwide (UTIW)	NR	90.48	32.7	2,959.6	130.8	146.4	2,794.4	43.9x	34.7x	27.6x	22.7x	5.4x	3.0x	18.6x	15.4x	21.9x	7.9%	17.0%	14.0%	0.91	0.1%	2.3%
Min				166.2	0.0	1.4	317.1	12.3x	13.4x	11.6x	9.7x	3.2x	0.6x	6.9x	6.7x	9.6x	3.4%	11.5%	11.7%	0.65	0.0%	-3.7%
Mean				2,476.0	68.6	133.7	2,372.3	32.7x	25.7x	22.2x	19.1x	6.2x	3.2x	14.2x	12.8x	16.3x	11.2%	23.1%	19.0%	1.17	0.3%	3.5%
Median				1,556.9	17.8	104.8	1,469.9	34.7x	24.6x	22.6x	19.7x	5.4x	2.8x	13.6x	12.7x	15.6x	10.8%	20.6%	16.2%	1.11	0.1%	3.1%
Max				7,558.7	281.7	461.5	6,860.6	47.0x	38.1x	32.3x	27.5x	12.7x	7.2x	22.3x	20.3x	24.7x	20.9%	48.8%	31.1%	1.77	1.4%	7.8%
Stifel Nicolaus Transportation Average				**6,005.9**	**1,095.2**	**235.9**	**6,855.0**	**25.0x**	**21.0x**	**17.3x**	**15.3x**	**3.5x**	**1.8x**	**9.6x**	**8.8x**	**14.2x**	**8.0%**	**16.6%**	**13.5%**	**1.07**	**0.4%**	**1.8%**

(a) Total Enterprise Value = Market Capitalization of Equity + Total Debt - Cash + Market Value of Minority Interest

(b) Stifel Nicolaus estimates for those rated and First Call mean estimates for unrated securities

(c) Enterprise value adjusted to include the capitalization of off balance sheet operating leases with lease expense (or rent expense) being added back to EBITDA for the valuation multiple calculation

(d) 2006E P/E divided by First Call mean or SN estimated long-term growth rate

Excludes non-recurring items

Calculations may vary due to rounding

Source: Company data, First Call, and Stifel Nicolaus estimates

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Equity Comps - Transportation

Comparative Valuation Matrix

(figures in $US millions, except per share amounts)

Company name (Ticker)	Rating	Price 01/12/2006	Diluted S/O	Market cap	Total Debt	Cash & equiv	TEV [a]	Equity value as a multiple of: 2004A	2005E[b]	2006E[b]	2007E[b]	Book value	Enterprise value as a multiple of: TTM Revenue	TTM EBITDA	TTM EBITDAR [c]	TTM EBIT	TTM ROA	TTM ROE	TTM ROIC	PEG ratio[d]	Div. Yield	FCF Yield
Railroads																						
Burlington Northern Santa Fe (BNI)	Hold	68.55	396.8	27,203.4	6,403.0	274.0	33,332.4	23.9x	17.1x	15.4x	13.4x	2.7x	2.7x	8.7x	8.4x	11.9x	4.9%	15.1%	10.7%	1.14	1.2%	4.3%
Canadian National (CNI)	NR	78.30	296.5	23,216.0	4,291.4	102.6	27,404.8	23.4x	17.2x	14.7x	13.0x	2.9x	4.7x	10.7x	10.2x	13.3x	6.7%	16.0%	11.7%	1.18	1.1%	5.4%
Canadian Pacific (CP)	NR	40.43	161.8	6,542.8	2,590.0	74.7	9,058.1	23.1x	15.5x	12.9x	11.6x	1.8x	2.6x	7.9x	7.6x	11.5x	3.4%	8.7%	6.5%	1.29	1.3%	-0.4%
CSX Corp. (CSX)	Buy	50.65	239.8	12,147.4	6,005.0	590.0	17,562.4	27.3x	16.2x	13.3x	11.4x	1.6x	2.1x	8.0x	7.7x	12.7x	2.9%	9.5%	7.0%	1.11	1.0%	2.6%
Genesee & Wyoming (GWR)	NR	37.32	28.6	1,068.8	335.0	6.2	1,367.5	25.7x	21.2x	17.6x	15.3x	2.8x	3.8x	15.7x	14.1x	21.3x	5.8%	13.2%	9.7%	0.93	0.0%	3.6%
Kansas City Southern (KSU)	NR	25.21	66.7	1,682.6	1,607.7	72.4	3,217.9	NM	NM	33.2x	29.7x	1.2x	2.8x	16.7x	14.0x	38.8x	-3.4%	-9.4%	-2.2%	1.66	0.0%	-0.2%
Norfolk Southern Corp. (NSC)	Buy	42.42	415.0	17,605.3	6,958.0	1,050.0	23,513.3	19.5x	15.2x	13.3x	11.5x	2.0x	2.9x	8.5x	8.3x	11.7x	4.4%	13.2%	9.3%	0.95	1.2%	6.7%
RailAmerica (RRA)	NR	11.30	38.2	431.8	436.5	13.7	854.6	19.8x	13.6x	10.4x	8.8x	1.0x	2.0x	10.0x	8.6x	15.7x	3.1%	8.5%	5.2%	0.55	0.0%	-8.8%
Union Pacific (UNP)	Hold	79.12	268.2	21,218.6	7,466.0	337.0	28,347.6	27.4x	24.3x	16.0x	13.4x	1.6x	2.2x	9.9x	9.1x	16.5x	2.4%	6.5%	5.4%	1.60	1.5%	0.0%
Min				431.8	335.0	6.2	854.6	19.5x	13.6x	10.4x	8.8x	1.0x	2.0x	7.9x	7.6x	11.5x	-3.4%	-9.4%	-2.2%	0.55	0.0%	-8.8%
Mean				12,346.3	4,010.3	280.1	16,073.2	23.8x	17.5x	16.3x	14.2x	1.9x	2.8x	10.7x	9.8x	17.1x	3.4%	9.1%	7.0%	1.16	0.8%	1.5%
Mean (Class I Rails only)				15,659.4	5,045.9	357.2	20,348.1	24.1x	17.6x	17.0x	14.8x	2.0x	2.8x	10.0x	9.3x	16.7x	3.0%	8.5%	6.9%	1.28	1.0%	2.6%
Median				12,147.4	4,291.4	102.6	17,562.4	23.7x	16.7x	14.7x	13.0x	1.8x	2.7x	9.9x	8.6x	13.3x	3.4%	9.5%	7.0%	1.14	1.1%	2.6%
Max				27,203.4	7,466.0	1,050.0	33,332.4	27.4x	24.3x	33.2x	29.7x	2.9x	4.7x	16.7x	14.1x	38.8x	6.7%	16.0%	11.7%	1.66	1.5%	6.7%
Stifel Nicolaus Transportation Average				**6,005.9**	**1,095.2**	**235.9**	**6,855.0**	**25.0x**	**21.0x**	**17.3x**	**15.3x**	**3.5x**	**1.8x**	**9.6x**	**8.8x**	**14.2x**	**8.0%**	**16.6%**	**13.5%**	**1.07**	**0.4%**	**1.8%**

(a) Total Enterprise Value = Market Capitalization of Equity + Total Debt - Cash + Market Value of Minority Interest

(b) Stifel Nicolaus estimates for those rated and First Call mean estimates for unrated securities

(c) Enterprise value adjusted to include the capitalization of off balance sheet operating leases with lease expense (or rent expense) being added back to EBITDA for the valuation multiple calculation

(d) 2006E P/E divided by First Call mean or SN estimated long-term growth rate

Excludes non-recurring items

Calculations may vary due to rounding

Source: Company data, First Call, and Stifel Nicolaus estimates

STATEMENT OF DR. MICHAEL D. MEYER, P.E., PROFESSOR OF CIVIL ENGINEERING, AND DIRECTOR, GEORGIA TRANSPORTATION INSTITUTE,

GEORGIA INSTITUTE OF TECNOLOGY

BEFORE THE HIGHWAYS, TRANSIT, PIPELINES SUBCOMMITTEE OF THE HOUSE OF TRANSPORTATION AND INFRASTRUCTURE COMMITTEE

MAY 12, 2006

MR. CHAIRMAN, my name is Michael D. Meyer. I am a professor of civil engineering at the Georgia Institute of Technology and Director of the Georgia Transportation Institute. From 1983 to 1988, I was Director of Transportation Planning and Development for the Commonwealth of Massachusetts, where I experienced firsthand the challenges of providing a transportation system that served freight movement effectively and efficiently. This year, I am chairman of the Executive Committee of the Transportation Research Board (TRB) and in the past year have chaired the TRB Freight Roundtable formed at the request of the U.S. Department of Transportation (U.S. DOT) to provide input on the nature and characteristics of a national freight policy.

My remarks will provide a personal perspective on the surface transportation challenges facing the movement of freight in this country today and even more so in the future. In the limited time I have available it is impossible to cover all aspects of these challenges that truly deserve attention in understanding freight movement issues and identifying potential solutions. For example, those in the governmental transportation sector have come to appreciate the implications of global supply chains and logistics on the travel demands placed on the nation's ports, railroads, highways, and inland waterways. The Minnesota Department of Transportation, for example, in its 2002 Multimodal Freight Flows Study concluded, "logistics trends are placing increasing strain on the State's roadway infrastructure, which already is under pressure from the State's continued strong economic growth."

Thus, it seems clear that a truly national strategy intending to provide greater efficiency in the transportation component of the supply chain should examine a broad range of opportunities, ranging from port capacity, limitations in available access to ports, bottlenecks along the line-haul routes (rail and road), pricing incentives and disincentives affecting shipping choices, and many other considerations. Today, I will focus my attention on the road network, and the tremendous challenges facing the nation in providing a road network that meets the freight needs of our nation.

You will hear today from my colleagues about the significant growth in truck flows expected over the next several decades on the U.S. highway network. National maps that show freight flows certainly suggest that we will see substantial increases in truck usage on our nation's highways. The Freight Analysis Framework developed by the Federal Highway Administration (FHWA) is an impressive tool that allows one to conduct all kinds of analyses relating to freight flows. However, I much prefer to investigate the issue of road performance and, in particular, future road performance, by examining the projections of future road use as made by the nation's metropolitan planning organizations (MPOs).

Federal law requires that every urbanized area over 50,000 population have a designated organization that serves as that region's MPO. One part of the MPO's responsibilities is to prepare a regional transportation plan that identifies a strategy for improving the performance of the transportation system. In most cases, the analysis that precedes the development of this strategy includes modeling the current and future use of the road network. Given that these models are closely tied to local circumstances and expected

trends in economic and demographic characteristics of the region, they provide a good indication of what is likely to occur in the future on the region's road network. In addition, I like to focus on metropolitan areas because they represent the greatest concentration of warehousing, distribution centers, intermodal yards, and convergence of major roads in the nation. Because of this concentration and the concomitant attraction of freight trips, metropolitan areas also have the distinction of often being major bottlenecks in the nation's movement of freight.

I have provided in Exhibit A figures and tables that indicate future road network performance in several of our nation's largest metropolitan areas. The key message that surfaces from this exhibit is that many of our most important metropolitan areas are likely to experience significant growth in congestion over the next 25 to 30 years. The most congested roads not only handle the traffic flows of people trying to travel in their respective regions, but they also handle large truck flows as well. With respect to freight movement, Miami and Seattle are major ports of entry for international trade, much of which travels inland by truck. Atlanta, Denver, and Dallas-Ft. Worth are major distribution centers that attract and generate large volumes of truck trips. If one were to show comparable figures for cities like Chicago, Los Angeles, and New York, you would most likely see even greater expected bottlenecks. And although the scale is very different, smaller and medium-sized cities are expected to experience their own increase in localized congestion over the next two decades.

Several key characteristics of a metropolitan road network and of the level of performance it provides merit special attention as it relates to road freight.

- In almost all cases, trucks share the road with passenger cars, light duty trucks, buses and motorcycles. Thus, in metropolitan areas in particular, as population and economic activity continues to grow, greater demand will be placed on the road network. Trucks will be mixed in with even greater volumes of traffic.

- Although many shippers and trucking firms, especially those moving freight long distances, try to schedule trips around the peak periods in metropolitan areas, the sheer volume of movement results in many truck trips occurring at the same time as all other trips. In addition, by examining travel data from U.S. cities, there is a strong indication that the peak periods are becoming longer in metropolitan areas and that the most significant growth in traffic volumes over the past decades has occurred in the off-peak travel periods.

- Truck trips tend to be concentrated along certain routes and in specific areas of a region. Trucks traveling through Atlanta, for example, are directed to the circumferential highway surrounding the downtown area and then on to the interstate highways leaving the region. Because of the economies of scale and agglomeration associated with freight distribution, most metropolitan areas have very distinct districts where large volumes of trucks are concentrated, thus placing substantial demand on the roads leading to and from these areas.

- Port cities, especially those serving as major ports of entry to the U.S., have experienced tremendous growth in freight trips, both on rail and via truck. The tremendous growth in international trade has created demands for both enhanced rail capacity and improved truck access. And many of the port facilities are located in highly urbanized areas, thus reinforcing the point made above of truck traffic and general traffic flow being mixed together in ever increasing numbers.

- Although analysis such as the FHWA's Freight Analysis Framework provide important insights at the national or state levels on what is happening to freight flows, they often cannot distinguish the localized impacts of what happens to freight when it reaches it destination, which in most cases, occurs in metropolitan areas. Thus, for example, one large truck could deliver its consignment to a warehouse in a suburb of a metropolitan area. However, the delivery of the individual goods that make up this consignment could utilize many different delivery vehicles using both the region's major freeway system, but more importantly local streets. It seems likely that the tremendous growth expected in major truck flows in the nation will result in tremendous growth in truck trips on local streets as well.

- The 25-year transportation investment plans for most U.S. metropolitan areas, required as part of federal transportation legislation are providing substantial amounts of investment in the region's transportation system--$54 billion in Atlanta, $61 billion in Chicago, $57 billion in Seattle and $45 billion in Dallas-Ft. Worth. This sounds like massive investment in the regional transportation systems of these metropolitan areas....and it is. However in many cases, such as in Atlanta, even after this level of investment, the performance of the major road network is expected to worsen. This is primarily due to the expected growth in population and corresponding travel, and the limited amount of funding that is available to improve the core highway network, which would be a very expensive undertaking. Even if funding were available, it would be difficult if not impossible to build expansive new infrastructure in urban areas that could be as disruptive as many of the urban freeways were in the late 1960s and early 1970s.

My testimony so far has painted a rather "constrained" vision of what might be possible for improving the movement and productivity of freight. In reality, the nation has no choice but to identify strategies and actions that provide the opportunity for the freight sector to be as efficient and globally competitive as possible. The issue becomes more complex because of the traditional roles of government and private firms in the freight sector, where market forces probably have more of an influence on decisions than government policies. However, it seems to me that the nation is at a major turning point with respect to its transportation system (and not just as it relates to freight movement). Some of our traditional funding sources (that is, the Highway Trust Fund) are coming under increasing strain. The growth in personal and freight travel is expected to climb dramatically over the next several decades, and yet we are struggling just to keep the performance of our future transportation systems no worse off than they are today, and in some cases we are lucky to keep the expected deterioration in network performance in single digit percentages. There is every expectation that our ports and air cargo facilities,

many of which are located in the middle of major metropolitan areas, will see significant increases in goods moving through their facilities, with much of this being moved via the road network.

Contrast this with other nations that are dramatically increasing their freight-handling capacity. I had the opportunity over the past three years of visiting Europe, Latin America, and Asia as part of the U.S. Department of Transportation's international scanning program. The focus of these particular scans was on how other nations were viewing freight movement and logistics and how they were preparing for expected future growth. The results of these scans were eye-opening. Nations who were major participants in global trade, or who had great ambitions to become major participants, were making major investments in infrastructure and were developing innovative financial and institutional arrangements that would position them nicely to take advantage of increasing trade opportunities (most impressively in China). Importantly for the U.S., almost all of these investments were focused on facilities and capabilities that would be needed to handle expected increases in trade with the U.S. and with the Asian market. The scans suggested to me that if we think we have problems with our road networks handling freight flows today, just wait 10 years!!

What do we as a nation need to do about the transportation challenges facing the freight and logistics sectors? Having been a participant in, and an observer of, transportation in the U.S. for almost 30 years, I realize there is not an easy, single dimension answer to this question. However, I offer the following observations and recommendations for the Subcommittee's consideration.

1. *Elevating freight mobility as an element of national transportation policy* is essential. Mr. Ron Widdows, Chief Executive of the American Presidents Line noted before a meeting of the U.S. DOT/TRB Freight Roundtable that I chair, "government leadership is needed... the problems will not be solved by the private sector alone...and addressing the problems that put the flow of commerce in the U.S. at risk in a more robust manner should be a priority." The *national freight policy framework* that has been developed by the U.S. DOT/TRB Freight Roundtable is a good "point of departure" for providing what Mr. Widdows suggests. The framework proposes the following vision for a national freight policy: "The United States freight transportation system will ensure the efficient, reliable, safe and secure movement of goods and support the nation's economic growth while improving environmental quality." The framework also recognizes that enhancing freight mobility requires progress on many fronts, ranging from institutional and regulatory changes to adding capacity in the multimodal transportation network where it makes economic sense. This framework should be utilized to identify the strategies and institutional responsibilities for adopting and implementing a national freight strategy.

2. *Removing freight bottlenecks* that have national implications for the movement of freight should be a primary focus of any national policy aimed at enhancing freight mobility. For purposes of my testimony today this primarily means alleviating congestion on the nation's road network at locations serving a significant number of truck trips. Of course, by reducing congestion at these locations one is also

improving travel for non-freight trips as well, thus obtaining multiple benefits from such a programmatic focus. Congress began such a program in SAFETEA-LU when it authorized a program for targeting intermodal freight transportation initiatives. The Freight Intermodal Distribution Pilot Program provides $30 million through 2009 for grants to facilitate intermodal freight transportation initiatives at the state and local levels to "relieve congestion and improve safety, and to provide capital funding to address infrastructure and freight distribution needs at inland ports and intermodal freight facilities." Although this is an important beginning, the program is woefully underfunded and, with projects pre-selected in the legislation, lacking in needed flexibility to choose the most beneficial projects.

3. Funding transportation projects is always an issue, especially for large projects. Although limited funding can be targeted at specific locations where investment will make a difference (for example, intersection improvements on access roads to ports or intermodal terminals), in most cases, the freight bottlenecks referred to above will be very expensive to address. Many occur on metropolitan freeway systems where, because of community and environmental constraints, it would be very difficult to add additional infrastructure. This suggests that bypass routes or more fully using the existing road right-of-way will likely be a focus of many improvement strategies

   Encouraging public/private investments in such improvements should be a major focus of transportation policy. The beneficiaries of such improvements can be identified and the calculus of estimating enhanced productivity benefits can clearly signal the private sector on whether the investment makes sense from the market perspective. However, let me provide a note of warning. Public/private partnerships are not a panacea to the nation's challenge in funding our transportation system. By definition, private investment will occur only where economic benefits will accrue to those investing. This means that large freight volumes need to be using a particular highway for such benefits to be perceived, and thus only the most traveled roads will likely be candidates for private investment. This leaves substantial investment need on the rest of the road network, which will require either additional funding from the usual sources (for example, motor fuel taxes) or use of other innovative funding sources (for example, metropolitan-level sales taxes dedicated to transportation purposes).

4. The Pilot Program referred to above focused on expanding the physical capacity of the transportation system to handle freight movement, that is, building more highway lanes or improving highway geometric designs at bottleneck points. Enhancing the capacity of roads to handle traffic can also occur by *implementing systems operations strategies* that promote more efficient traffic flow. Such strategies could include the use of intelligent transportation systems (ITS) technologies for promoting the most efficient routing through a road network, scheduling strategies to reduce the overlap of freight movement and other uses of the road network, network control strategies such as improved traffic signalization that reduces delay at intersections, etc. Federal incentives and leadership in this area has occurred in the past 10 to 15 years, and should continue.

5. Many years ago I along with others suggested that the appropriate focus for national transportation investment aimed at improving freight mobility was at the multi-state corridor level. *Focusing investment on freight mobility corridors* recognizes the fact that opportunities for improving freight movement do not exist just at ports or in metropolitan bottlenecks. SAFETEA-LU provided over $2.8 billion to fund transportation projects of national interest to improve transportation at international borders, ports of entry, and in trade corridors. Once again, this is a good foundation for a program that could have major national benefits, but one that deserves more resources.

6. I am convinced that we will see in the future more interest in *providing separate freight-only facilities* that segregate the movement of trucks from that of the general public travel. Of course, over long distances, the best example of this is the movement of intermodal freight on the nation's rail system, which by its very nature provides a separate right-of-way for freight movement. But with respect to trucks, many metropolitan areas are now examining the concept of truck-only facilities and in some cases truck-only toll facilities. I was part of such a study in the Atlanta region that investigated the feasibility of adding truck-only toll facilities to the region's road network. Given the large numbers of trucks using this road network, the study showed that a substantial number of trucks would use such facilities. In some cases, we estimated that as much as 87 minutes would be saved by a trucker using the truck lanes during the afternoon peak period. Importantly, and this is an important selling point to the general public, by removing trucks from the general purpose freeway lanes, congestion was reduced to the general public as well. As far as I could tell, providing truck lanes was as much a "win-win" situation as I have seen in the transportation field for a long time. The federal government can provide important leadership in fostering this concept and in providing incentives for public/private partnerships in developing such lanes where appropriate.

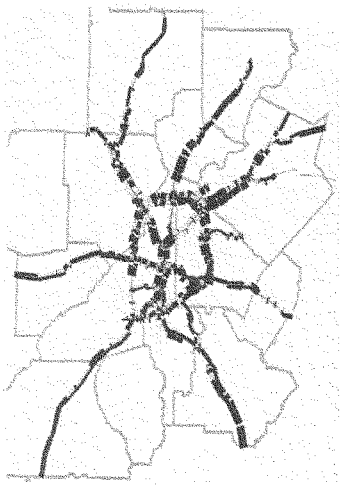
7. Most of my career has been spent either conducting research on or participating in statewide or metropolitan transportation planning. I am a firm believer that with respect to the public provision of transportation infrastructure and services the transportation planning process is an important part of the strategy for enabling any new focus or initiative to be engrained into the governmental approach toward improving the transportation system. Quite frankly, only recently and, in many cases, only in a few states and metropolitan areas has freight movement even been considered by transportation planners. The belief was that freight movement was an issue that belonged to the private sector. *Incorporating freight considerations more fully into the transportation planning process* can have important long-term benefits to the nation's transportation system. This could entail the identification of professional responsibility in a state DOT or metropolitan planning organization, enhancing planning capacity for dealing with freight issues (for which funding was made available in SAFETEA-LU), and of course providing programmatic funding for freight-oriented projects (which always gets the attention of the transportation planning community).

8. Finally, although I am not here today in my role as Chairman of the TRB Executive Committee, I have spent much of my professional career in the research arena. I strongly believe that research provides the foundation upon which the nation can anticipate future challenges and lay the knowledge groundwork so that our successors will have the tools needed to meet these challenges. *Continuing to support strategic research on freight transportation* is an essential component of a national and federal freight policy. Congress provided for the first time a national research program on freight transportation when SAFETEA-LU authorized $3.75 million per year for the years 2006-2009. This program, along with others such as the Strategic Highway Research Program and the Surface Transportation Environmental Cooperative Research Program, provide a much needed research foundation for dealing with many of the transportation issues facing the nation today and likely in the future. I suspect with respect to the freight research program we will find many more research project needs than there is funding. However, given the importance of freight to this nation, I cannot think of many other research initiatives in transportation that could potentially show the greatest return for the research dollar. Thus, it is important to support such research, and expand it when possible.

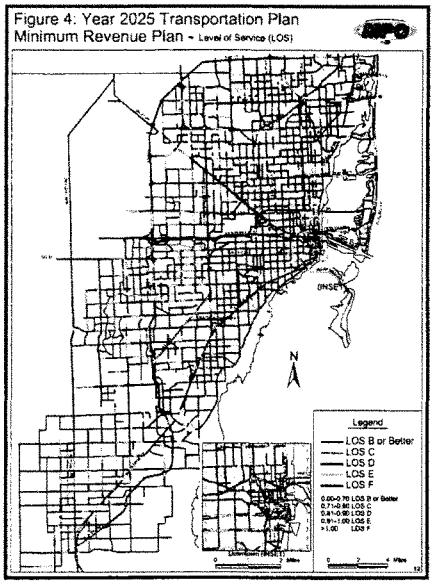
Mr Chairman, I appreciate the opportunity to speak before the Subcommittee today. The freight sector, a vitally important component of our nation's economy, relies heavily on the efficient and reliable movement of goods, much of which occurs on the nation's highway system. Based on the future projections of the use of this system, it seems likely that significant bottlenecks will seriously affect that ability of freight to move from one part of the country to another. This will be especially true in and around metropolitan areas. My testimony has outlined some of the initiatives that the country should take now to address these challenges. I have great faith in the resiliency of our transportation system to respond to capacity constraints, bottlenecks, and interruptions. However, it seems only prudent to do everything we can do today to limit the impact that such disruptions could have in the future. It is good planning to do so. It is good policy to do so. And it is common sense to do so.

Thank you for your time and consideration.

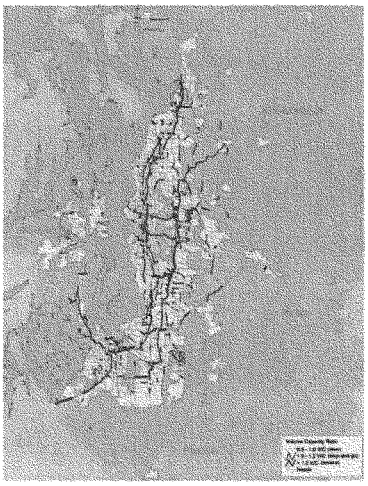
Exhibit A: Expected Congestion in Representative Cities



Expected Congestion on Atlanta Roadways, Afternoon Peak, 2030



Expected Congestion on Miami Roadways, Afternoon Peak, 2025



Expected Congestion on Seattle Roadways, Afternoon Peak, 2030

	1999	2025	% Change
Vehicle Miles Traveled	125 M	235 M	87%
Roadway Capacity	23.2 M	34.8 M	50%
Total Delay (Veh Hrs)	1.3 M	2.9 M	120%
% Roadways Congested	38%	54%	42%

Expected Congestion on Dallas-Ft. Worth Roadways, Afternoon Peak, 2025

Ave Weekday	2001	2025	% Change
Person hours of delay	308,987	790,819	156%
Lane-miles of severe congestion	1,600	3,000	88%
Lane-miles with 3+ hours severe congestion	455	870	91%

Expected Congestion on Denver Roadways, Afternoon Peak, 2025

for the record

Statement of Congressman Michael H. Michaud
On Highways, Transit and Pipelines Subcommittee Hearing on Highway Capacity and Freight Mobility: the Current Status and Future Challenges
May 10, 2006

Mr. Chairman, thank you for recognizing me and thank you for holding this important hearing. I'll keep my statement brief, and I ask that I be allowed to submit the rest of my statement along with supplemental materials for the record.

I wanted to bring this committee's attention to an important aspect of today's hearing topic that is of great importance in my home state of Maine, and that this committee should consider as we discuss the capacity challenges that we face, since bottlenecks in one state affect us everywhere as a nation.

Currently, all of Maine's Interstate highways, except the Maine Turnpike and I-95 in Kittery, are subject to the federally mandated truck weight limit of 80,000 pounds. However, Maine's state road limit is 100,000 pounds — and it is a limit that cannot be lowered due to the demands of Maine's major industries, including paper and other forest products. As a 29-year mill worker, I know how crucial it is to be able to move these heavy loads in our state.

Unfortunately, as a result of the mismatch between these regulations, heavier trucks must divert from Interstate highways onto primary and secondary roads that pass through a number of Maine communities. This diversion has negative impacts on safety, the economy, and the transportation system.

Allowing an exemption from the federal weight regulation for Maine's Interstate would be tremendously beneficial — and is supported by every municipality in Maine, chambers of commerce, safety groups, and the entire Maine delegation. It would greatly improve safety, reducing Maine's crash rate by more than three crashes each year according to a federally-mandated study.

This safety concern is very real. Although I have been working to exempt Maine from the federal regulation for years, the risks of the current rules were made tragically clear just last week, when a truck killed an elderly pedestrian in a collision in Bangor, Maine. That truck would never have been on that street if not for the weight rule — the truck should have been on the highway where it belonged.

The change would help increase commerce and capacity in the system. Allowing 6 axle 100,000 pound trucks on the Interstate would increase payloads by up to 44 percent over 5 axle 80,000 pound trucks, reducing the number of trucks on the road. It would cut the amount of fuel required by approximately 6 percent. It would enhance trade between Canada and the northeastern U.S. by eliminating the current 200 mile truck weight limit "gap" that exists along non-exempt portions of Maine's Interstate system.

This change would even decrease cost, since Interstates are built to accommodate heavy trucks, while state roads are not.

There are two possible options for fixing the problem. One is Congressional legislation to exempt the remaining Maine Interstate mileage from federal weight limits, thereby allowing

higher state truck weight limits on Maine's Interstate system. The other is reducing state weight limits on state-jurisdiction roads, effectively removing the need for truck diversions from the Interstate system. However, as I discussed above, a reduction of the non-Interstate highway weight limits would have a devastating impact on the Maine economy, and is therefore impractical.

To discuss in further detail, it is worth noting the benefits of an exemption from a variety of standpoints. When it comes to safety, according to a recent MaineDOT study, federal exemption legislation would reduce Maine's crash rate by more than three crashes each year by shifting heavy truck traffic to safer roadways. The study noted that the crash-rate experience of 5- and 6-axle combination trucks was seven to ten times higher on Maine's non-Interstate highways than on the Maine Turnpike, which is currently exempted from federal weight limits. The study noted that this experience is consistent with national findings that rural Interstate highways are three or four times safer than rural secondary roads.

A federal truck weight exemption would also remove an estimated 7.8 million loaded truck-miles of travel from Maine's primary and secondary road system each year, diverting the traffic to the safer Interstate Highway system. Fewer trucks means reduced exposure to crash situations, resulting in safer highways for all users. Allowing heavier trucks to use the Interstate would also reduce overall travel time, thereby saving driver hours and reducing the tired trucker problem.

In regards to the economy, Maine's businesses are at a competitive disadvantage with businesses in surrounding jurisdictions due to the current lower weight limits on Maine's Interstate system. Enacting a federal truck weight exemption would help Maine's businesses level the playing field, by reducing overall transportation costs. Allowing the use of loaded 6 axle combination trucks on the Interstate would increase payloads by up to 44 percent over that carried by the 5 axle combination truck, thereby reducing the number of trucks needed to transport given levels of commodity.

A federal truck weight exemption would also reduce the amount of fuel required to transport a given volume of load in Maine by approximately 6 percent. A federal truck weight exemption would enhance the trade corridor between Canada and the northeastern U.S. by eliminating the current 200 mile truck weight limit "gap" that exists along non-exempt portions of Maine's Interstate system. The federal truck weight exemption would also lower transportation costs by decreasing truck mileage and fuel usage, resulting in cost savings for consumers.

It is important to note that the current disparity in truck weight limits often forces heavier weight trucks onto the state's primary and secondary highway systems, which are not built to the same structural standards as the Interstate highway system. However, the increased pavement consumption of a 6-axle combination truck over the 5-axle is relatively small, due to the advantage of adding an axle to offset the weight increase and the reduced number of trips by the loaded vehicle.

MaineDOT study findings indicate that an Interstate truck weight exemption would save the state of Maine between $1.3 million and $2 million annually in bridge and pavement costs. A companion MaineDOT study of the currently exempted Maine Turnpike estimated that the federal truck weight exemption on that highway, which allows higher state weight limits, saves the state between $2.1 and 3.2 million annually in bridge and pavement costs. Lowering the state truck weight limit would reduce the per vehicle infrastructure impacts. However, the

increased number of loaded trucks (up to 50 %) at the federal gross vehicle weight limit of 80,000 pounds would offset any gain from having lighter vehicles.

The federal truck weight exemption would also reduce Maine's and the nation's dependence on foreign oil by eliminating the need to divert to less direct routes and increasing payload capacities, thereby reducing the number of truck miles traveled. Fewer trucks on the road result in lower emissions - a direct environmental benefit.

I have submitted the study attached with my statement for the record.

In conclusion, a federal truck weight exemption for the remainder of Maine's Interstate system will significantly improve overall roadway safety and the economic competitiveness of Maine's businesses, while reducing fuel and infrastructure costs and environmental impacts. It is a no-cost opportunity that benefits not only the state of Maine, but also the northeastern U.S. and eastern Canada.

--Attached Study--

Study of Impacts Caused by Exempting Currently Non-exempt Maine Interstate Highways From Federal Truck Weight Limits

Executive Summary

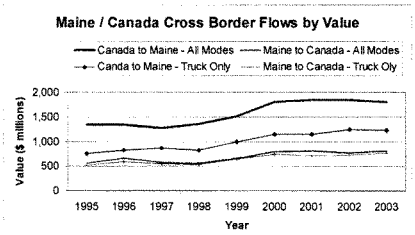
June 2004

Study of Impacts Caused by Exempting Currently Non-exempt Maine Interstate Highways from Federal Truck Weight Limits

Executive Summary

Introduction

Exhibit 1: Maine Trade with Canada 1995- 2003



The U.S. economy has become increasingly reliant on international trade. Transportation systems supporting efficient goods movement and roadway policies maximizing safe, efficient freight transportation are keys to U.S. competitiveness and job retention in an international environment. Since the implementation of the North America Free Trade Agreement (NAFTA), Canada has assumed the role as the primary trading partner with the United States. **Exhibit 1** displays the growth in trade moving across the border between Maine and Canada. Based on figures for the first eleven months of 2003, imports from Canada to Maine remain just under $2 billion, with about 60% of these goods moving by truck. Exports from Maine into Canada are worth about $800 million, with nearly all of this trade moving by truck. Over 90 percent of all freight (by weight) originating in Maine is transported by truck, with 75 percent of originating truck flows moving 250 miles or less. While rail and water modes offer some alternatives, the nature and composition of Maine's regional economy requires heavy reliance on truck transport.

Maine allows gross vehicle weights (GVW) of up to 100,000 lbs. on a 6-x-axle tractor semi-trailer (TST) on state highways. As a result, heavy combination trucks that would otherwise be through traffic on the interstate system divert to state highways upon reaching the non-exempt portions of Maine's interstate highway system.

Exhibit 2: Truck Weight Limits in Maine

Commodity	Special	All Other
Single axle weight limit	24,200 lbs.	22,400 lbs.
Tandem axle weight limit		
5-axle combination	44,000 lbs.	38,000 lbs.
6-axle combination	44,000 lbs.	41,000 lbs.
Tri-axle weight limit		
5-axle combination	54,000 lbs.	48,000 lbs.
6-axle combination	54,000 lbs.	50,000 lbs.
Gross vehicle weight limit		
5-axle combination	88,000 lbs.	80,000 lbs.
6-axle combination	100,000 lbs.	100,000 lbs.

Weight laws applying to state highways in Maine are found in Title 29, Chapter 21 of State Statutes and are summarized in **Exhibit 2**. Maine's weight limit for a 5-axle TST combination depends upon whether the vehicle is carrying "special commodities" as defined in statute. Broadly, special commodities are stone and aggregate products, farm produce and wood products. Six-axle combination trucks may carry up to 100,000 pounds provided they have registered to carry higher weight loads.

Special Conditions of operation for 6- axle combination trucks:

1) Special commodity 6-axle combinations may register for 90,000 lbs. and are allowed a tolerance to 100,000 lbs.; all others must register for 100,000 lbs.
2) The distance between the extreme axles, excluding the steering axle, must be at least 32 feet if carrying "special commodities" and at least 36 feet for other commodities.
3) The distance between the steering axle and the first axle of the tandem must be at least 10 feet.

Study of Impacts Caused by Exempting Currently Non-exempt Maine Interstate Highways from Federal Truck Weight Limits

Executive Summary

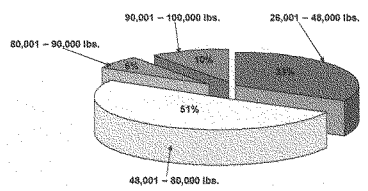
In 1998, Congress provided an exemption from the federal gross weight limit on the Maine Turnpike and a portion of I–95 in Kittery. The remaining interstate routes in Maine remain subject to the federal GVW limit of 80,000.

In 2002, the Maine Department of Transportation (MDOT) contracted with Wilbur Smith Associates to examine the impact a federal weight exemption on currently non-exempt portions of Maine's interstate system would have on safety, pavement and bridges. The study drew on numerous data sources to model how changes in weight policy would affect travel patterns of 5-axle and 6-axle TST trucks moving heavy commodities.

Maine Registered Vehicle Weight

In 2002 there were 138,709 registered commercial vehicles in Maine. Nearly 90% of all registrations are single unit vehicles. More than half (57%) were registered for less than 26,000 lbs. Of the vehicles of 26,000 lbs. or more, only 3,262 (16%) were registered to exceed 80,000 lbs. These statistics reinforce that the vehicle population examined in this study represent only a fraction of the total truck population.

Commercial Vehicles Registered in the State of Maine for GVW of More than 26,000 pounds.



Source: Maine Bureau of Motor Vehicles

Data Sources

Numerous data sources were used to model how changes in weight policy would affect travel patterns of 5-axle and 6-axle TST trucks moving heavy commodities. Three principal data sources were used to understand existing truck traffic (non-exempt scenario) and estimate changes in truck flows if the current federal weight exemption were extended to all Maine interstate highways (study scenario):

1. **Weigh-in-motion (WIM) sites**: Data from ten WIM stations in Maine and two in New Hampshire were used to develop estimates of *Equivalent Standard Axle Loads* (ESAL) and for network calibration. Records for every vehicle with five or more axles were extracted, resulting in the analysis of more than 10.5 million records.
2. **Vehicle classification counts**: Truck count data was taken from 842 vehicle classification stations maintained by MDOT. Counts for 5- and 6-axle TST combination vehicles were used to establish truck volumes on the base network, and to calibrate the truck traffic model.
3. **TRANSEARCH commodity data**: TRANSEARCH data provides volume and value by individual commodity and mode of transport throughout the U.S. This is a proprietary database providing county-level freight flows by mode and commodity, and is considered the premier source for intercity and intra-city commodity flows.

These data were supplemented with information from motor vehicle registrations, interviews with trucking firms and city officials, and with information from weight enforcement officials.

The top commodities after the filtering process are shown in the table of **Exhibit 3**. Several of these commodity groups were aggregated, and one (Secondary Traffic) was dropped from the analysis. More than 95% of Secondary Traffic moving in and through Maine is mixed commodities moving between warehouse facilities. Typically, mixed commodities "cube-out" (use available volume capacity) before "weighing-out" (use available payload).

Exhibit 3: Top Commodity Tons

Commodity Group	Tons
Petroleum or Coal	21,051,444
Lumber or Wood	18,044,677
Clay, Concrete, Glass, Stone	7,233,870
Secondary Traffic	6,768,652
Food or Kindred	4,147,817
Pulp & Paper	2,611,756
Nonmetallic Minerals	1,572,526
Chemicals	1,129,204
Fabricated Metal	868,926
Farm Products	724,813

Four primary commodity groups became the focus of the heavy truck flow modeling:

- Petroleum
- Wood & Paper
- Concrete and Stone
- Food, Farm & Fish Products

Together, these aggregated groups comprise more than 80% of the truck tonnage moving within Maine, or between and through Maine from other jurisdictions that allow vehicles in excess of 80,000 lbs. on their road systems. Flows were also examined at a detailed commodity level and filtered for *"special commodities"* that, under Maine weight laws qualify for a 10% weight bonus. **Exhibit 4** shows the special commodities selected from the database descriptions:

Exhibit 4: "Special Commodities" Extracted from TRANSEARCH

o Concrete Products	o Maine Products
o Portland Cement	o Fresh Fish or Whale Products
o Broken Stone or Riprap	o Frozen Fruit, Vegetables or Juice
o Gravel or Sand	o Frozen Specialties
o Dimension Stone, Quarry	o Ice, Natural or Manufactured
o Clay, Ceramic Minerals	o Forest Products
o Fertilizer Minerals – Crude	o Primary Forest Materials
o Misc. Non-metallic Minerals	o Lumber or Dimension Stock
o Clay, Brick or Tile	o Misc. Sawmill
o Ceramic Floor or Wall Tile	o Millwork
o Meat, Fresh or Chilled	o Plywood or Veneer
o Meat, Fresh Frozen	o Structural Wood Products
o Meat Products	o Treated Wood Products
o Dressed Poultry, Fresh	o Misc. Wood Products
o Dressed Poultry, Frozen	o Pulp or Pulp Mill Products
o Processed Poultry or Eggs	o Fiber, Paper or Pulp board
o Creamery Butter	o Pressed or Molded Pulp Products
o Ice Cream or Frozen Desserts	o Paper or Building Board
o Cheese or Special Dairy Products	o Ashes
o Processed Milk	o Metal Scrap or Tailings
o Processed Fish	o Paper Waste or Scrap

Exhibit 5 on the next page presents a flow diagram of the iterative process used to create the truck traffic model applied to the *Study Network*.

Exhibit 5: Study Network Development Process*

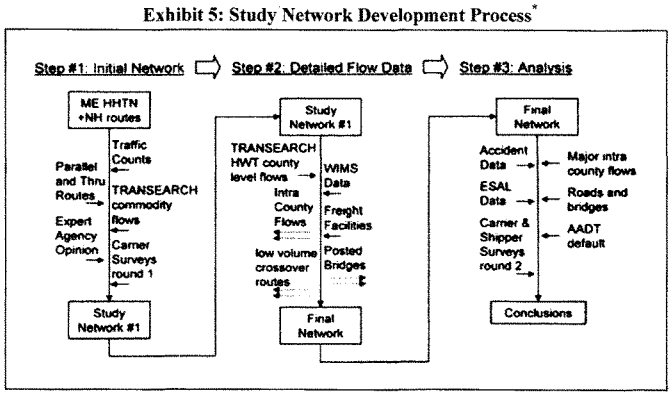
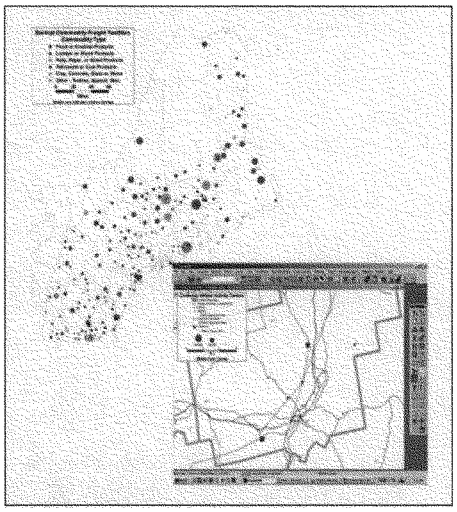


Exhibit 6: Heavy Commodity Freight Facilities



The commodity data purchased by MDOT included locations of major industrial facilities. The *Freight Locator Database* was used to identify facilities potentially receiving or producing products in exempt commodity groups (**Exhibit 6**). These facilities were added to the modeled traffic network as "centroids" for county level truck origins and destinations. A least travel time algorithm was applied to the data, and all truck flows were assigned to two sections of the Maine interstate system:

- I-95/Maine Turnpike
- Non-exempt Maine interstates

The network assignment algorithm was used to load all truck flows to the Maine interstate system and parallel routes were "turned-off." As a result, for any O/D pair requiring a north/south routing through Maine, interstate highways are treated as the only available routes.

* Diagram Abbreviations: HHTN = Heavy Haul Truck Network, AADT = Average Annual Daily Traffic

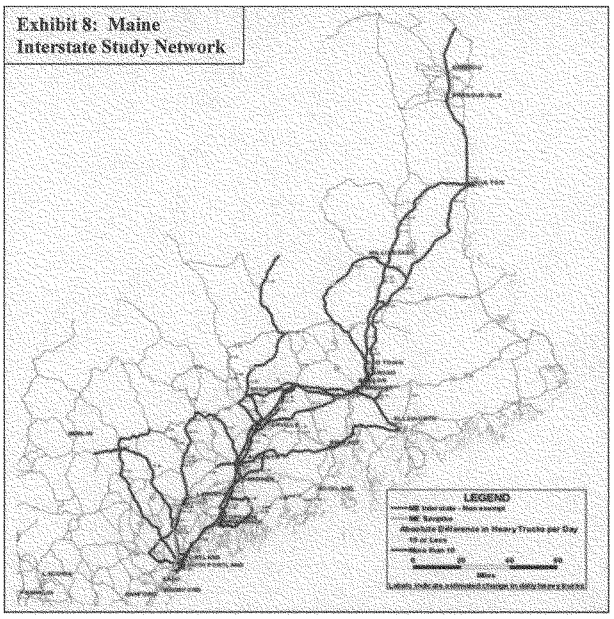
Exhibit 7: Theoretical Truck Count Estimates

Commodity Group	Total Truck Tons	Theoretical 5-Axle TST Count	Theoretical 6-Axle TST Count
Petroleum or Coal	13,135,524	460,896	386,339
Lumber, Wood & Paper	7,117,718	249,744	209,345
Food & Fish Products	1,087,548	38,160	31,987
Stone & Concrete Prod.	1,179,226	41,376	34,683
Total	22,520,016	790,176	662,354

Extending an exemption from federal weight limits to currently non-exempt portions of the Maine interstate system is expected to *increase* 5- and 6-axle TST traffic on I-95. TST truck traffic is expected to *decrease* on state roads and the Maine Turnpike, particularly where it parallels I-95 between Augusta and Portland. Payloads for 5- and 6-axle TST trucks were applied to the commodity tonnages to estimate theoretical truck counts.** The derived truck counts that were later distributed across the study network are shown in **Exhibit 7.**

Exhibit 8 shows the study network used to analyze safety and infrastructure impacts that would result from a federal weight limit exemption on currently non-exempt Maine interstate highways.

Exhibit 8: Maine Interstate Study Network



**A sample of empty 6-axle TST vehicles weighed by the Maine State Police found a wide range of tare weights. The theoretical tare weights used are from the USDOT Comprehensive TS&W Study and phone calls to semi-trailer manufacturers. These tare weights also fell within the range of empty vehicle weights for 5- and 6-axle trucks detected at Maine WIM stations.

Safety Analysis

"Geo-coded" crash data was available from the MDOT that could be used to analyze TST combination truck crashes by functional highway class in Maine. A previous study of truck size and weight noted a strong correlation between crash rates and functional highway class:

> *"Numerous analyses of crash data bases have noted that truck travel, as well as all vehicle travel, on lower standard roads (that is, undivided, higher speed limit roads with many intersections and entrances) significantly increases crash risks compared to travel on interstate and other high quality roadways. The majority of fatal crashes involving trucks occur on highways with lower standards.... The [fatal crash] involvement rate on rural interstate highways is 300 percent to 400 percent lower than it is on other rural roadway types and is generally the same for all vehicle types."*[7]

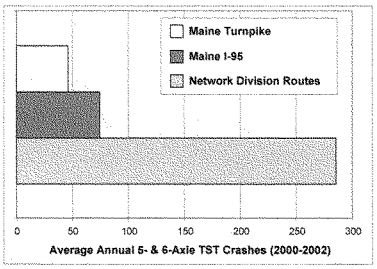
The geo-code crash analysis divided the 14,244 road segments of the study network into 3 groups of roadway facilities (*each network segment was in one, and only one, group*):

- *Non-Exempt Interstates*, controlled-access facilities expected to gain traffic in the scenario under study (i.e. exempt weights allowed on the interstate). 546 centerline miles (of two or more lanes, running in the same traffic direction).
- *Maine Turnpike*, controlled-access facilities. The northern parallel section of the Turnpike is expected to lose traffic in the study scenario. Crashes from the entire length of the facility - 242 centerline miles were included in the safety analysis.
- *Diversion Routes*, which constitute the rest of the *study network*, and which are expected to lose traffic, under an interstate exemption scenario - 4,538 centerline miles (primarily of two lanes, each running in opposite traffic directions).

Three years (2000–2002) of geo-coded crash data were filtered by recorded vehicle type to extract only crashes involving 5- or 6-axle TST trucks, with GVW registrations of 80,000 lbs. or more, and occurring on a facility in the study network. A total of 1,219 crashes from the three years of data passed both filters, constituting the crash sample.

Exhibit 9 shows the resulting annualized number of 5- and 6-axle TST crashes on the Maine Turnpike, non-exempt interstate, and study network diversion routes.

Exhibit 9: Annual Network TST Crashes



A process was then applied that attached TST average annual daily traffic (AADT) for road segments in the study network to crash data. The process allowed the study team to estimate "crash rates" expressed as TST crashes per "100 million vehicle miles traveled" (HMVMT) by type of highway facility in the study network.

[7] *Comprehensive Truck Size and Weight Study: Vol. III Scenario Analysis*, USDOT, Aug 2000. pp. VIII-3.

Exhibit 10 shows crash rates for 5- and 6-axle TST combinations registered to carry 80,000 lbs. or more. On the Maine Turnpike the computed rate is 27 crashes/HMVMT. The comparable rate for non-exempt Maine interstate highways is 42 crashes/ HMVMT. For all other study network routes the rate is 115 crashes/HMVMT.‡

Exhibit 10: Study Network TST Crash Rates

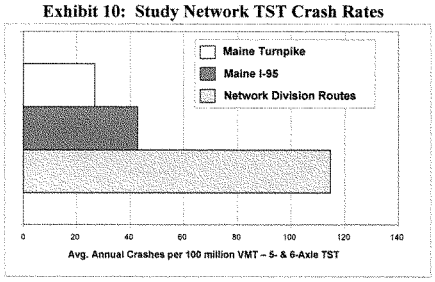
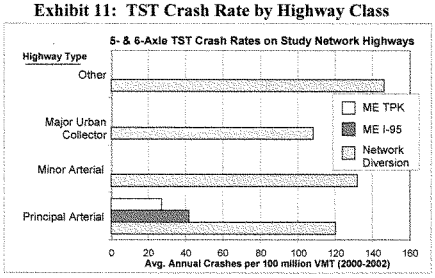


Exhibit 11 shows the crash rates for 5- and 6-axle TST combinations on study network facilities using federal definitions for highway functional class.

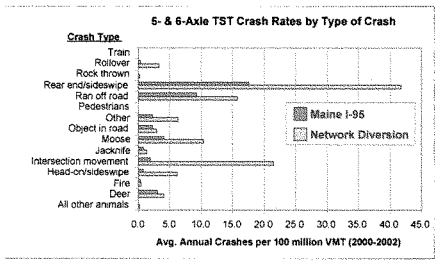
Exhibit 11: TST Crash Rate by Highway Class



The crash rate for 5- and 6-axle TST trucks of 27 crashes/HMVMT on the Maine Turnpike is of particular note, as it currently allows vehicles over 80,000 lbs. Crash rates on non-interstate facilities in the study network, including other principal arterials are at least four times higher than the crash rate on the Turnpike, and more than double the rate on the non-exempt interstate system.

Exhibit 12 displays the crash rates for 5- and 6-axle TST involvements, by type of crash, for non-exempt Maine interstate highways and all other functional highway classes in the diversion road set.

Exhibit 12: Study Network Crash Rates by Type



While diversion route crash rates are higher for all crash types, intersection movement, head-on sideswipe, and read-end sideswipe are all dramatically more prominent. Rear-end sideswipe crashes exhibit the highest crash by type rate for TST vehicles on non-exempt interstate facilities with a rate of 18-crashes/HMVMT. Nonetheless, the crash rate for rear-end sideswipe for non-interstate facilities is more than double, with a crash rate of 42 crashes/ HMVMT.

‡Crash counts and rates are based upon vehicle involvement where each truck (meeting the filter criteria) was counted as one involvement. A collision involving two trucks thus yields two vehicle involvements.

Exhibit 13: Study Network Crash Rate by Severity

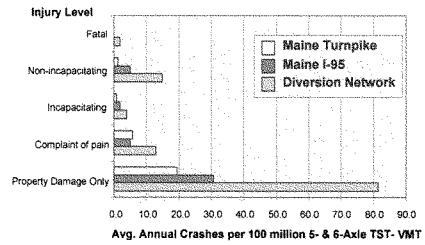
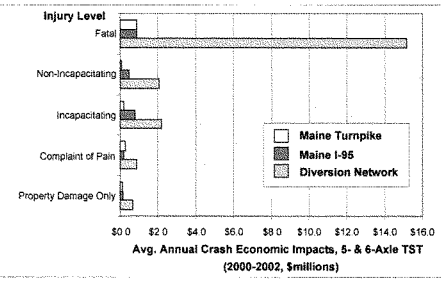


Exhibit 13 displays crash rates for the Maine Turnpike, non-exempt interstate highways and other functional highway classes combined for the study network by crash severity. The fatal crash rate of 0.2 crashes/HMVMT on both the Maine Turnpike and non-exempt portions of the Maine interstate is not visible on the graphic. The fatal crash rate of 1.9 crashes/ HMVMT on the diversion road set is nearly 10 times the fatal crash rate on interstate facilities. Incapacitating injury crashes are nearly seven times more prevalent on diversion roadways than on the Turnpike portions of I-95 and more than twice as prevalent as on non-exempt portions of Maine's interstate highways.

The geo-code dataset supplied by MDOT also contained FHWA defined "economic impacts" associated with vehicle crashes[§]. **Exhibit 14** shows the economic impacts associated with crashes by injury severity. The results are displayed for the three subsets of the study network.

Exhibit 14: Annual Economic Impact by Crash Severity



Fatal crashes involving 5- and 6-axle TST combinations on non-interstate facilities in the study network are estimated to carry an associated annual economic impact of $15 million per year. The associated economic impact on all Maine interstate facilities (Turnpike and non-exempt combined) for TST fatal crashes is $1.8 million per year.

Under the federal weight exemption scenario, it is estimated that non-exempt interstate highways would experience an increase of 3.8 crashes per year. The loss of traffic from other roadways in the study network would result in 0.7 fewer crashes per year on study portions of the Maine Turnpike, and 6.3 fewer crashes on non-interstate facilities.

The safety analysis indicates that if Congress were to extend the current weight exemption on the Maine Turnpike to all currently non-exempt interstate highways in Maine, the net impact to Maine would be a <u>decrease</u> of 3.2 crashes annually. The associated FHWA defined economic impacts would save $356,000 per year.

[§]USDOT, FHWA Technical Advisory T7570.2 Motor Vehicle Accident Costs, October 31, 1994.

Pavement Analysis

The State of Maine currently spends roughly $50 million each year on pavement rehabilitation and preservation. From an operations and maintenance standpoint, vehicle axle loads and environment are the primarily determinants of pavement wear. Changes to vehicle size and weight policy can substantially impact the costs for pavement maintenance and rehabilitation. The objective of the pavement analysis conducted for this study is to relate the impact from changes in axle loadings under the policy scenarios to reflect pavement damage in terms of potential state expenditures. The approach taken in this study uses pavement consumption factors referred to as Equivalent Single Axle Loads (ESAL) to estimate changes in pavement wear. (Note: An ESAL refers to the pavement consumption resulting from a single truck axle carrying 18,000 lbs.).

Using the data sources previously discussed, the study team calculated the incremental differences in truck volumes and associated ESAL loadings on the study network that were observed by model runs of both the base and study scenarios. As expected, if the federal weight exemption in force on the Maine Turnpike were extended to include currently non-exempt Maine interstate highways, 5- and 6-axle TST traffic on non-interstate highways and the Turnpike would decrease, while traffic on other interstate routes would increase. These changes are summarized by functional highway class in the table of **Exhibit 15.**

Exhibit 15: Summary Impacts to Maine Pavements for the Study Scenario**

Functional Highway Class	Change in Daily Truck Miles			Change in Daily ESAL Miles		
	5-Axle TST	6-Axle TST	Total 5- & 6-Axle TST	5-Axle TST	6-Axle TST	Total 5- & 6-Axle TST
Major/urban collector	-899	-4,497	-5,396	-3,481	-18,799	-22,280
Minor arterial	-458	-2,292	-2,750	-1,774	-9,579	-11,353
Other principal arterial	-2,219	-11,096	-13,315	-8,588	-46,380	-54,968
Principal arterial interstate	4,001	20,007	24,009	15,486	83,631	99,117

MDOT also provided historical cost details about their pavement resurfacing program, representing the *entire* mileage for each functional system. System-wide programmed pavement maintenance was used to develop *cost per ESAL-mile* normalized for each functional system element, which were then applied to the study network. It was assumed that historically pavement budgets would be programmed to system elements based on their need and that historically maintenance needs would be linked to the number of axle loads (expressed as ESALs) traveling over those systems. The historical budget data indicated shifts in expenditures overtime between functional highway systems. The levels of system allocation were used to develop a high and low cost impact range. The cost per ESAL-mile factors were applied to incremental ESAL loadings (positive or negative) to determine cost impacts for the study scenario. The pavement resurfacing cost impacts are summarized in **Exhibit 16.**

** The study scenario assumes a federal weight exemption on currently non-exempt portions of the interstate highway system in Maine. For this analysis "other freeways and expressways was grouped with other principal arterials.

Exhibit 16: Cost Impacts to MDOT Resurfacing from Interstate Weight Exemption

Functional Highway Class	Change in Daily ESAL Mi.	'98-'05 MDOT Resurfacing Cost/Daily ESAL-Mile (Low)	'98-'05 MDOT Resurfacing Cost/Daily ESAL-Mile (High)	Change in MODT Resurfacing Program (Low)	Change in MODT Resurfacing Program (High)
Major/urban collector	-22,280	$11.75	$25.58	($261,890)	($569,853)
Minor arterial	-11,353	$23.89	$47.84	($271,207)	($543,109)
Other principal arterial	-54,968	$19.29	$27.07	($1,060,331)	($1,487,862)
Principal arterial interstate	99,117	$5.97	$9.58	$591,542	$949,635
			Total Savings	**($1,001,886)**	**($1,651,189)**

It is estimated that if the current Turnpike Exemption were extended to all Maine interstate highways the policy would save the State of Maine between $1.0 million and $1.7 million in pavement rehabilitation costs each year.

Bridge Analysis

Bridges represent critical links and potential bottlenecks in highway transport systems for freight. The impacts of truck size and weight on bridge stress and fatigue remains one of the more controversial issues associated with truck regulatory policy, due to the complexity in analyzing a wide variety of structures and the high costs associated with bridge replacement. The current federal bridge formula also represents the limiting factor in current gross weight policy on the federal interstate highway system.

Bridge Impacts Analysis Methodology: Three loading cases were considered:

- Case 1: 80,000 lb. Truck, Base Loading
- Case 2: 88,000 Lb. Truck, 5-Axle Loading
- Case 3: 100,000 Lb. Truck, 6-Axle Loading

Cost impacts associated with a GVW policy change were analyzed from two perspectives:

1. The increase/decrease in normal wear and tear and its associated maintenance cost.
2. Long term effects of the loading with regards to fatigue of the bridge superstructure.

Two groups of bridges were analyzed in conducting the analysis, interstate bridges and non-interstate bridges. For each group of bridges, the study developed truck volumes by vehicle type, which apply for the three loading cases. Cost estimates were developed (in 2003 dollars) for two cost categories: 1) Periodic Maintenance and 2) Major Rehabilitation.

The list of bridges analyzed for the study scenario is shown in **Exhibit 17.** The bridges considered were defined by construction material, structural type, and relative span length. The maintenance cost analysis, was conducted for all structures with bridge decks. The longer term effects of exempt weight vehicles were studied by investigating the change in bridge fatigue life.

Exhibit 17: Maine Bridge Inventory Analyzed for Weight Policy Change

BRIDGE NAME	TOWN NAME	BRIDGE NAME	TOWN NAME
CNR CROSSING	Portland	BARKER BROOK	Richmond
CONGRESS STREET	Portland	VAUGHN STREAM	Hallowell
FORE RIVER	Portland	NEW MILLS	Gardiner
MEADER BROOK	Falmouth	BRIDGE STREET	Gardiner
GILBERT SMALL	Windham	WATER STREET	Hallowell
COLLIER BROOK	Gray	GRIST MILL	Mt Vernon
FOREST LAKE BROOK	Gray	VILLAGE	Vienna
PLEASANT RIVER	Gray	BELGRADE LAKES	Belgrade
MIDDLE RANGE	Poland	WATER ST BR. UNDERPASS	Augusta
RTE 122/OLD HOTEL RD	Auburn	AUGUSTA MEMORIAL BRIDGE	Augusta
FOSTER BROOK	New Gloucester	FATHER JOHN J CURRAN	Augusta
RT #1 UNDERPASS	Brunswick	HARDY BROOK	Farmington
PAUL DAVIS MEMORIAL	Bath	MILL POND	Farmington
WEST APPROACH	Bath	PROCTOR BROOK	New Portland
CORBETT	Salem Twp	MAIN STREET	Norridgewock
WILD RIVER	Gilead	COLLEGE AVE CROSSING	Waterville
PEABODY SCHOOL	Gilead	WYMAN CROSSING UNDERPASS	Fairfield
CRYSTAL LAKE OUTLET	Harrison	MARGARET CHASE SMITH S	Skowhegan
HORRS	Waterford	MARGARET CHASE SMITH N	Skowhegan
PROSPECT AVE	Rumford	WOOLEN MILL	Skowhegan
MORSE	Rumford	MAIN ST BR.	Fairfield
CNRR	Mechanic Falls	CAIN	Clinton
MECHANIC FALLS	Mechanic Falls	PARKMAN RD / FERGUSON STR	Cambridge
SAW MILL	Paris	MAIN STREET	Newport
FROST	Rumford	CORINNA	Corinna
MILL POND	Salem Twp	GUILFORD MEMORIAL	Guilford
CITY FARM CULVERT	Lewiston	MAIN STREET	Camden
JAMES B. LONGLEY MEMORIAL	Auburn	LINCOLNVILLE BEACH	Lincolnville
PARSONS MILL	Auburn	STOCKTON SPRINGS UNDRPASS	Stockton Springs
IRON	Auburn	WARD	Newburgh
MAIN ST. BRIDGE	Auburn	TIN	Bangor
LOCUST ST BRIDGE	Lewiston	MCRR/I-395	Brewer
MAIN STREET	Lewiston	STATE ST.	Bangor
JEPSON BROOK	Lewiston	JOSHUA CHAMBERLAIN	Bangor
FAIRGROUNDS CROSSING	Lewiston	PENOBSCOT BRIDGE	Bangor
DILL	Lewiston	RED	Bangor
NO NAME BROOK CULVERT	Lewiston	MAIN STREET	Ellsworth
NEWOEGIN CULVERT	Sabattus	SMITH BROOK	Lincoln
SABATTUS RIVER	Sabattus	JORDAN MILL	Macwahoc Plt
BRETTUNS POND	Livermore	MILL	Haynesville
FOSS	Leeds	HAYNESVILLE	Haynesville
RTE1 197	Litchfield	STONEY BROOK	Baileyville
POTTERS BROOK	Litchfield	B&ARR/US RTE 1 RR#208-96	Presque Isle
PLEASANT POND	Richmond	CLARK	Presque Isle
FARNHAM BROOK	Pittsfield		

The maintenance costs were calculated based on a five-year maintenance period. When annualized, extending a federal weight exemption to all currently non-exempt Maine interstates is expected to decrease annual maintenance expenditures $335,398 per year.

Major Rehabilitation Costs: The costs for major rehabilitation were based on bridge area and the type of treatments considered included deck replacement; (joint and drainage system replacement), approach slab replacement, repainting, structural repair of corrosion/deterioration, and safety improvements. A major rehabilitation project as described would be necessary every 25 years on average. For purposes of this study, it is assumed that increasing truck weights would result in a second major rehabilitation project being performed on structures over 200 feet in total length. Only two structures fell into this category:

Route #	Town	Bridge Name	Rehabilitation Cost
U.S. 2	Gilead	Wild River	$228,096
Route 108	Rumford	Morse	$235,125
25 – Year Rehabilitation Cost Total			**$463,221**

The total estimated rehabilitation cost for these two structures was $463,221.00. Major rehabilitation costs were based on a 25-year period. Annualized cost for major rehabilitation on the two structures would be approximately $18,500 per year.

The bridge analysis found that extending the federal weight exemption currently in place on the Maine Turnpike would result in annual bridge maintenance and rehabilitation savings of approximate of $317,000 per year.

Impacts to Shippers and Carriers of Heavy Commodities

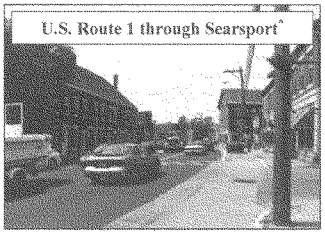
The consultant team also interviewed 15 companies in Maine that ship or haul heavy commodities, primarily timber, bulk liquids, stone and aggregates, garbage and heavy equipment. In addition to gaining information about preferred routes under various weight policy scenarios, the survey questionnaire also asked companies how they felt about the current federal weight policy on the interstate system in Maine.

Respondents believed that interstate facilities were the safest roadways as these highways are away from population concentrations, are multi-lane, well maintained, and enable overall less time on the roadway for the transportation of heavy or dangerous commodities:

> *"Safety is our biggest concern. The interstate, including the Maine and New Hampshire Turnpikes are the safest roads for heavy vehicle operations and petroleum transport."*

On the whole there was considerable consternation regarding the inability to legally use the non-exempt portions of I-95 in Maine. The primary reasoning from the respondents was that "the interstates were built to carry heavier loads." Companies generally responded that the exemption on the Maine Turnpike saves time and money, observing that interstate highways are "built better." The general comment was that everyone wins; interstates are better able to handle heavy loads and easier to maintain. Respondents believed that weight enforcement is easier as well, noting that weigh-in-motion stations can be used more effectively on exempt interstate routes because they would be the routing of choice for all heavy haulers.

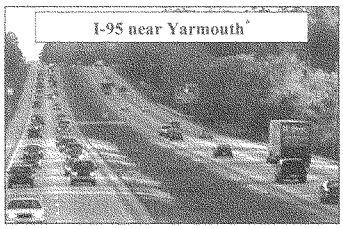
Impacts to Communities


U.S. Route 1 through Searsport*

Thirteen city officials from seven towns in Maine were also contacted for their opinions about the federal weight policy on the interstate highway system in Maine. Questions focused on three areas, impacts of large trucks in the community, complaints to the town or city about large trucks, and anecdotal information about truck crashes in the community.

The issues raised by city officials centered on safety, traffic congestion, air and noise pollution, road maintenance, economic consequence to business, and disturbance of the pleasant village center ambience. Overall, impacts of large trucks are considered very significant. Every local official interviewed expressed strong personal and community support for allowing large, heavy trucks on the interstate system in Maine. One city manager said:

"I don't know a single local official [in Maine] who wouldn't want big trucks on the interstate."


I-95 near Yarmouth*

Police chiefs contacted indicated that routing large trucks through downtowns created unnecessary safety hazards, especially when transporting hazardous materials. Alternate routes like U.S. 1 are heavily used by tourists and often bring traffic through historic city centers. Without exception, local officials expressed strong personal and community support for allowing large, heavy trucks on the interstate system in Maine.

Public Comments

During the month of February 2004, MDOT placed draft reports from the study on its web site. A press release also announced the availability of draft study report, and to provide notice of a public meeting on the study to be held on March 5th.

Public Meeting Response

Twenty-two people representing Maine towns and cities, industry, and the general public signed in at the public meeting held at MDOT headquarters in Augusta on March 5th. After a 45-minute presentation summarizing the study results, attendees were invited to comment. Of the eleven people commenting for the record at the public meeting, all spoke in support of the study findings, and further expressed support for extending the weight exemption on the Maine Turnpike to all interstate highways in Maine. Comments were provided by city officials, industry representatives, and the general public.

* Pictures courtesy of PACTS

The primary points made by those speaking at the meeting included:

- Primary reasons for supporting an interstate weight exemption were to reduce truck traffic on secondary roads where school buses and tourists frequently encounter large trucks, reduce the number of truck trips and improve overall traffic safety in the state.
- City engineers commented that pavement costs for secondary roads may be understated. They pointed out that the study did not include local investments and that overall the level of public investments in secondary roads has been inadequate over the past decade or more. As a result secondary roads have continued to deteriorate over time.
- Heavy truck transport is important to Maine's ability to support NAFTA trade, but tourism is also very important. Many towns on the secondary road system are tourist destinations and having heavy trucks traveling through downtown areas is unnecessary.
- Several city officials indicated that they would have preferred to have the study address emissions, especially the impact of trucking idling in downtown areas.

Written Comments from the Public

In addition to the comments about the study received during the public meeting, MDOT also received 39 written comments by mail or email. Of these comments, 24 opposed increasing weight limits on the interstate system in Maine, 14 favored increasing the weight limit on Maine interstates, and one expressed no opinion but posed several questions about the study conclusions. Letters supporting the interstate weight exemption policy nearly all cited safety and noise concerns resulting from heavy trucks using the secondary road system.

Several comments opposing the Interstate exemption believed that all highways in Maine should be restricted to 80,000 lbs. One respondent suggested raising the Interstate weight limit, but lowering the weight limit on state highways. Several other respondents opposed raising the Interstate weight limit arguing that the exemption would increase diesel fuel consumption and harmful emissions. Sixteen of the 24 comments opposing the study findings were expressed using a form letter containing the following language:

> *"I have just been made aware of the Maine DOT's study on truck traffic on I-95. This report recommends increasing truck weights to 100,000 pounds on the balance of I-95. I oppose this for the following reasons:*
>
> - *100,000 pound trucks are more dangerous.*
> - *100,000 pound trucks will still be operating on state highways. This is not going to solve Maine's problems of truck traffic on local roads.*
> - *This is just another attempt to slowly ratchet up the truck weights to the even more dangerous Canadian weights of 110,000 pounds to support the NAFTA.*
>
> *I am opposed to efforts to expand the number of roads that allow more dangerous, heavier trucks."*

The Towns of Bangor, Brewer, Corinna, Houlton, Lincoln, and Newport also sent letters or resolutions supporting the study findings and a weight exemption on Maine interstate highways.

Issues for Future Consideration

During the study, several issues were discovered related to truck size and weight policy in Maine that merit additional investigation:

- The detailed analysis of WIM data indicate that some roadways experience significant populations of 5- and 6-axle vehicles exceeding legal weight limits. This study did not contemplate the infrastructure costs associated with illegal loads. However, future considerations of GVW policy in Maine should examine enforcement and permitting practices that discourage illegal loads.

- While the population of carriers interviewed was small, some companies reported using retrofitted trailers and walking-spring suspensions. Research on the interaction of commercial vehicles and pavements suggests that truck properties, such as number and location of axles, suspension type, and tire type, are important factors that influence the degree and magnitude of pavement wear. Extending Maine's current weight limits could be done using quid pro quo options that would sunset outdated equipment and provide greater control over the types of equipment used for high weight loads. A permit system is one option that would provide incrementally higher weight limits to equipment that has proven to provide better handling and incur less damage to road infrastructure. Examples of equipment options are:

  - 6-axle TST combinations, with fixed axles (no lift axles) and air-ride suspension.
  - On-board scales capable of providing individual or axle group loadings.
  - Load axles equipped with dual tires (no super singles).
  - Permit issuance could be made conditional upon receiving (and maintaining) a satisfactory safety rating from a Compliance Review within the past year.
  - Other advanced vehicle technologies such as collision avoidance sensors or on-board recorders for hours of service could also be contemplated.

Study Conclusions

Extending the federal truck weight exemption to include currently non-exempt interstate highways in Maine would divert 5- and 6-axle TST combinations over 80,000 lbs. from the some portions of the currently exempt Maine Turnpike and non-interstate highways. **Exhibit 18** summarizes the economic impacts that would result from the contemplated policy change.

Exhibit 18: Exemption Impact Summary

Impacts are rounded to nearest $1,000	
Safety Economic Impacts	$356,000
Pavement (Low)	$1,002,000
Pavement (High)	$1,651,000
Bridge	$317,000
Annual Savings - Low	**$1,675,000**
Annual Savings - High	**$2,324,000**

The economic benefit to Maine resulting from exempting currently non-exempt interstate highways in Maine from federal truck weight limits is an estimated $1.7 to $2.3 million per year.

STATEMENT of Rep. JON PORTER (R-NV)
House Transportation and Infrastructure Committee
Subcommittee on Highways, Transit, and Pipelines
May 10, 2006

Mr. Chairman, I thank you for holding this hearing today on highway capacity and freight mobility.

Southern Nevada is one of the fastest growing regions in the country with 5,000 new residents a month. In 1990, Clark County's population was 853,000, by 2000 it was 1,429,000, and today it is well over 1,800,000. By 2030 Southern Nevada's population is expected to increase to 3,000,000.

With over 50 million tourist and 60,000 new residents each year Southern Nevada faces unique challenges when addressing the needs of congestion and bottlenecks on its highways.

According the Federal Highway Administration (FHA), 41 million tons of freight moved within the State of Nevada in 2002 and the state received over 44.5 million tons of freight from external sources. As we continue to experience unrivaled growth in the region, and an increase in the demand for commodities to support our growth, highway capacity and mobility is a major concern.

The shortage of freight capacity on America's highways raises several concerns; chief among those is safety and congestion. The FHA has determined that delays on our nation's highways result in over 243 million truck hours and cost over $7.8 billion per year. These delays also impact other motorist as they travel around their communities to work and other locations. Many of my constituents have voiced concerns about the congestion and bottlenecks they face daily.

As we seek to address these concerns it is imperative that we build public and private sector partnerships to explore the technological innovations needed to address freight mobility issues.

I am extremely interested in hearing the comments from my fellow subcommittee members as well as the testimony from the witnesses. I yield back.

Statement of
The Honorable Jeffrey N. Shane
Under Secretary of Transportation for Policy

U.S. Department of Transportation

Before the
Subcommittee on Highways, Transit, and Pipelines
Committee on Transportation and Infrastructure
U.S. House of Representatives
May 10, 2006

Chairman Petri, ranking member DeFazio, and members of the Subcommittee, it is my distinct pleasure today to represent Secretary Norman Y. Mineta, and J. Richard Capka, the Acting Administrator of the Federal Highway Administration (FHWA), to discuss with you issues of highway capacity and freight mobility.

The drivers of freight movement

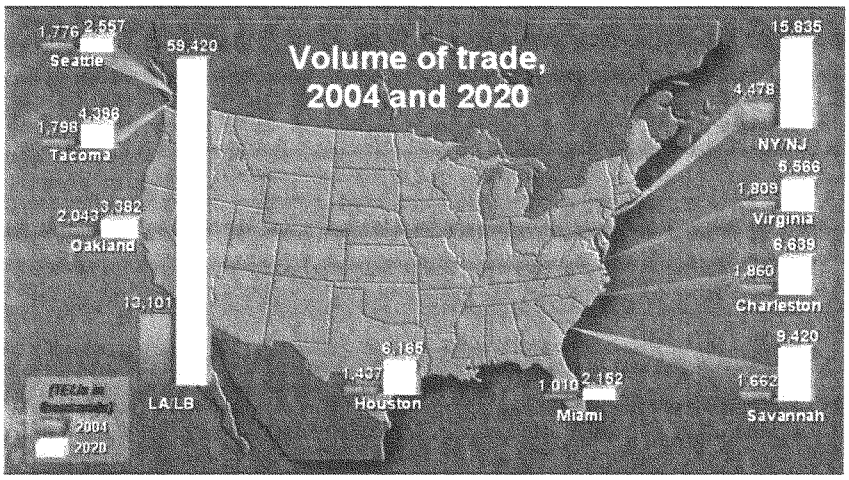
The past few decades have marked a period of tremendous economic growth for the United States. Between 1990 and 2003, employment grew by 16 percent, U.S. GDP increased by 46 percent, U.S. foreign trade more than doubled, and the U.S. population grew by 16 percent and is fast approaching 300 million. This period has also been a very productive one for the U.S. transportation sector. The Dow Jones Transportation Average (DJTA), composed of 20 stocks that are chosen to represent the transportation industry, is one of the most widely recognized gauges of the strength of the transportation sector. Between 1990 and 2003, the DJTA doubled; since 2003, it has doubled again. Today, transportation is woven into the economic fabric of the nation as never before. Open trade policies have lowered costs for U.S. consumers and promoted U.S. economic growth, but have also resulted in new strains on the transportation system.

That much economic power generates freight movement – a lot of freight movement. U.S. economic growth is dependent on the efficient and reliable operation of our nation's freight transportation system, and the logistics system employs well over 2 million Americans. The volume of freight growth across our country has accelerated over the last 15 years. Over that time period, freight volume has increased 18 percent and ton-miles increased 23 percent. The value of commercial shipments increased over 45 percent from 1993 to 2002. And while freight moves by multiple modes, the predominant mode for freight movement is by truck. Trucks now carry 60 percent of volume and 70 percent of the value.

The nation's highways handled over 1.5 trillion ton-miles of commodities in 2002; a substantial share involves long-distance trucking. By 2002, approximately 525,000

commercial trucks traveled 44 billion miles on trips greater than 200 miles and carried nearly 3 billion tons of goods worth over $4 trillion.

The construction of the Interstate System significantly expanded the reach of efficient truck movement across a much broader and more diversified geographic range than ever before. Simultaneously, containerization trends increased the velocity and efficiency of goods movement and removed significant transaction costs.



Source: U.S. Department of Transportation

This picture shows current container throughput at major seaport gateways, as well as projected volumes, given current growth rates.

Deregulation of the trucking and railroad industries unleashed enormous efficiencies in the U.S. transportation sector. Technological advancements improved information transfer increasing freight visibility. These changes have dramatically reduced inventory carrying requirements and freed up funds for further productivity gains. Logistics (transportation and inventory) as a percentage of GDP dropped from 16 percent in 1980 to 10 percent in 2000.

SAFETEA-LU's boost to responding to the challenges of freight mobility

Let me thank the Subcommittee and Committee on Transportation and Infrastructure for all of their work during the last surface reauthorization bill. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) included a number of important freight provisions. Although the Department will be testifying in the coming months on the implementation of SAFETEA-LU, I would like to highlight a few new and reauthorized programs affecting freight.

Five programs specifically have a freight emphasis or will provide substantial benefits to freight transportation. Projects of National and Regional Significance, the National Corridor Infrastructure Improvement Program, the Coordinated Border Infrastructure Program, the Freight Intermodal Distribution Pilot Grant Program, and the Truck Parking Facilities Program allocate $4.6 billion over five years to address some of the challenges to freight movement I referred to earlier.

SAFETEA-LU also made important changes to the Transportation and Infrastructure Finance Improvement Act (TIFIA) when it lowered the project threshold to $50 million and made more intermodal surface freight facilities eligible. SAFETEA-LU also amended the Internal Revenue Code by creating $15 billion in tax-exempt private activity bond authority for qualified highway and surface freight transfer facilities. These two additional tools encourage more innovative financing solutions to freight challenges.

SAFETEA-LU also invests in research, training, and education in freight professional capacity building to strengthen decision making at State and local agencies. The Act provides $3.5 million over four (4) years that will be used to support FHWA's established Freight Professional Development (FPD) Program to support targeted training and technical assistance to States and localities, and we look forward to it moving forward expeditiously. SAFETEA-LU also created the National Freight Cooperative Transportation Research Program, managed by the Research and Innovative Technology Administration (RITA), to study critical topics related to freight capacity and planning

Finally, the Department is eager to begin its work on the National Surface Transportation Policy and Revenue Study Commission, which I am pleased to say will hold its first meeting later this month. The Secretary, as Chair of the Commission, will call on the Department's freight modeling and analysis capabilities in support of the Commission's work.

National Freight Policy

In addition to the important changes made by SAFETEA-LU, the Department has undertaken a significant initiative to work with other governmental agencies and the private sector to improve the performance of the national freight system. These efforts have coalesced into a National Freight Policy Framework. The Framework began with the proposition that the Federal government is but one of many players involved in the U.S. freight transportation system. Effective policy solutions will require coordinated and collaborative action by both public and private parties. The Framework lays out objectives to achieve a vision, and then details strategies and tactics that the Department and its partners – both public and private sector – can pursue to achieve those objectives. We have begun the process of soliciting such input from all parties, and DOT looks forward to working with its partners to continue development of the framework over the coming months and years.

A new approach to freight solutions

With that as the backdrop, Secretary Mineta believes it is time to rethink assumptions and challenge conventional thought on how we build, finance, and manage the infrastructure in the United States. Right now, shippers, manufacturers, and operators are grappling with the costs of congestion – on top of near record energy prices. The objective of policymakers should be to reduce congestion, not simply slow the increase, through a broader implementation of market-based pricing mechanisms.

Today, in our 13 largest urban centers, drivers spend the equivalent of almost eight workdays each year stuck in traffic. According to the Texas Transportation Institute, in 2003, congestion caused 3.7 billion hours of travel delay and resulted in 2.3 billion gallons of wasted fuel, for a total cost of $63 billion. Commercial truck travel doubled over the past two decades. On one-fifth of the Interstate Highway System, trucks account for more than 30 percent of all vehicles. The Interstate System is a mixed use system and the congestion that affects our commutes also affects our ability to move freight through the transportation system; communities must work with limited capacity.

Congestion is not an insurmountable problem, but solutions will require more than physical capacity. We must do a much better job to improve productivity of existing highway assets. Fortunately, opportunities have emerged recently to do precisely that.

First, new technologies and operational improvements have enabled solutions to congestion that only a decade ago would have been impossible to implement. One such example is PierPass, where pricing has been used to shift truck traffic from peak hours to off-peak hours at the Ports of Los Angeles/Long Beach. A not-for-profit organization created by marine terminal operators, PierPass has significantly reduced congestion in and around the Ports, including on the previously clogged I-710. Another example of the use of new technology is the employment of variable and dynamic pricing as tools for congestion management, where pricing fluctuates based on traffic volumes. We have seen such technology employed in Southern California, specifically on SR-91 and I-15. In addition to other successful demonstrations, there is little question at this point that market-based pricing mechanisms offer enormous promise to reduce congestion.

Technology can also be harnessed to explore new ways of supporting infrastructure development and balancing costs and benefits for system users. Oregon's experiment to tax highway users based on total vehicle miles traveled instead of gallons of fuel consumed is one such example. The experiment is funded, in part, by a grant from the Department's Value Pricing Pilot Program. Several hundred vehicles in Oregon have been equipped with GPS devices or odometer sensors. When vehicles refuel at gas stations, summary data on vehicle usage is transmitted to the fuel pump via radio frequency, and the appropriate mileage tax is included in the overall purchase price of the gas.

In addition, the President's FY 07 Budget proposes a new pilot program to evaluate innovative ways to better finance and manage the Nation's highway system. In this pilot, $100 million will be made available for up to five States to conduct a large scale (State-

wide or in an urban/suburban area) field test using specific facility charges, charges based on system-wide use, or some combination.

Beyond innovative financing, operational improvements are critical to addressing congestion. Approximately half of all congestion is caused by non-recurring incidents such as crashes and mechanical failures, weather, construction and special events. FHWA's Office of Operations plays a key role in helping to mitigate freight-related congestion. FHWA is also working with new technologies, developing intelligent transportation systems (ITS) for both vehicles and infrastructure that help to relieve congestion, improve safety and enhance American productivity.

Finally, the Department will continuously work to support financing models that respond to market signals and allow for more private investment in transportation infrastructure. Where appropriate, we will work to facilitate projects that look beyond the traditional funding mechanism of government grants. Innovative approaches come in many forms, whether public-private partnerships, credit programs such as TIFIA, or tax incentives such as the Private Activity Bonds authorized by SAFETEA-LU.

SAFETEA LU also created new opportunities for States to use tolling to manage traffic and to finance the construction of more highway capacity. The law authorized the Express Lanes Demonstration Program, the Interstate Construction Toll Pilot Program, the Interstate System Reconstruction and Rehabilitation Pilot Program, and the extension of the Value Pricing Pilot Program. These programs are vital to funding additional capacity and rehabilitation of existing facilities. The Department will continue to explore the use of direct user fee approaches to increase opportunities for private capital investments and improve overall system performance.

A number of States have enacted "public-private partnership" laws, and a handful of States have comprehensive laws that permit a broad spectrum of private involvement in transportation projects. Private sector participation can facilitate decisions, bring needed capital to the table and deliver projects faster when projects are being evaluated. Private investment will also direct resources towards projects that generate the highest returns to both investors and the public. Two States that should be commended for their expansive public-private partnership laws are Virginia and Texas. Given these laws, it is not surprising that private involvement in these States has been robust and that considerable new capacity is either in the pipeline or up and running. We encourage all States to look at these mechanisms closely.

As freight continues to increase, environmental considerations must play an increasingly critical part in the planning, design, construction, and expansion of freight-related infrastructure. Acknowledging and including environmental mitigation actions early in the planning process could work to minimize resistance and conflict throughout the planning and construction phases.

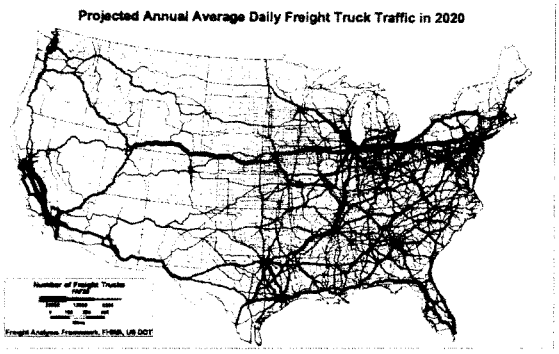
Understanding the dynamics of freight movement – data and modeling

The volumes of freight movement and their effect on the transportation system and the nation's economy make a compelling argument for our need to acquire reliable data and accurately model freight movement. Policy makers, investors, communities, business executives, entrepreneurs, and academics need to understand current and future freight activity to plan for and match infrastructure capacity to demand.

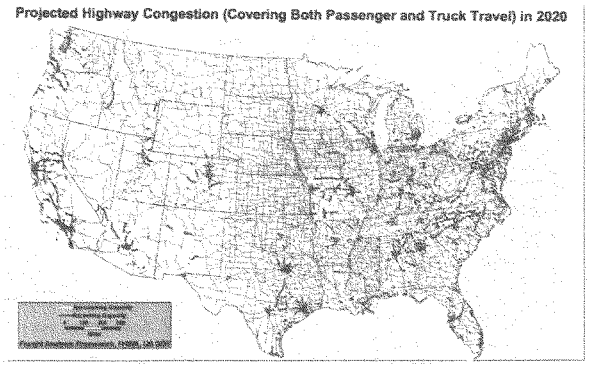
The Department has been developing that analytical capacity for the last five years. The Department's principal resource for understanding freight movement is the Freight Analysis Framework (FAF), which was designed, developed, and is maintained by FHWA's Office of Operations. The FAF has two main components; an integrated database of commodity (freight) movement, and a geographic information system (GIS) network of highway and rail routes over which the commodities move.

The Origin Destination (OD) database of freight movement is the foundation upon which the FAF is built. The bulk of the data that are contained in the current database comes from the Commodity Flow Survey (CFS), which is absolutely vital to the functioning of the FAF. The CFS provides tonnage and commodity type data on domestic shipments by mode of transport, and is conducted every five years as part of the Economic Census by the U.S. Census Bureau in partnership with the RITA's Bureau of Transportation Statistics of the U.S. Department of Transportation. The CFS is then augmented by other commodity flow surveys to create an OD matrix of commodity flows and related freight transportation activity among States, regions, and major international gateways. The data collected are at the national and regional level.

The OD matrix of commodity movement, which represents tonnages of commodities that move between origin and destination, is then converted to truck units and, through modeling, flowed over the GIS transportation network. The modeling of truck movement over the network generates the graphic representation of the data you see below.



This graph shows the predicted annual average daily freight truck traffic on the Interstate system in 2020.

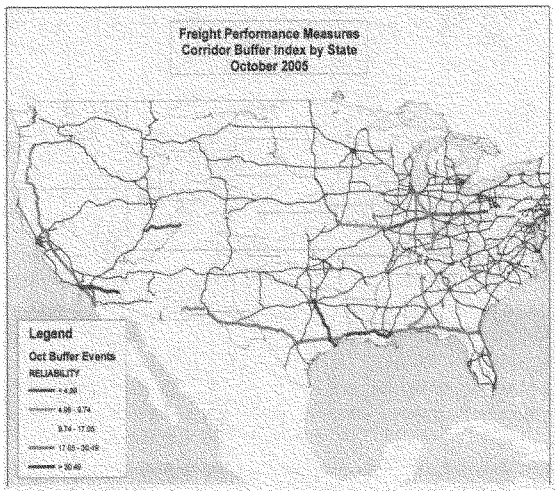


This graph shows the predicted areas of the Interstate system that will be congested (volume to capacity ratio >.75) in 2020.

FHWA continues to refine and improve its modeling efforts through initiatives such as a September 2006 Conference that they are sponsoring in concert with the Transportation Research Board (TRB). The goal of this conference is to develop a research agenda to advance the practice of freight modeling.

The FAF provides a powerful analytic engine to understand current freight movement and to predict future demand. From each five-year base, freight movement is forecast in five-year increments; for the 2002 base, forecasts will go out to 2035. The FAF enables "what if" scenarios to be conducted that can look at the effects of proposed capacity expansion, shifts in modal split, or, in the case of disasters, loss of capacity. FAF links the freight movement demand with infrastructure capacity. State and local transportation officials can augment the FAF data with local freight data to improve project planning at the local level, and FHWA is currently working with numerous State DOTs to advance this effort.

A new effort within FHWA's Office of Operations complements current urban traffic performance measures by using trucks as probes to measure the performance of the Interstate System. This effort is a public-private partnership between FHWA and the American Trucking Research Institute (ATRI). It provides a way to monitor the velocity and reliability of truck movement on the Interstate System. All identifying information is cleansed from the data stream so FHWA has no knowledge of which trucks are providing the data points. The FAF was used to select five freight significant corridors (I-5, I-10, I-45, I-65 & I-70) for study. Data from these five corridors was collected for the past year from approximately 250,000 trucks. From this data, FHWA is developing speed and travel time reliability measures for those corridors.



This graph shows the buffer index (BI) for five corridors of the Interstate system in October, 2005. The BI, a measure of reliability and variability, measures how much extra time one should allow to account for variations in the system.

In April 2006, this effort was expanded to a total of 25 corridors. FHWA is also establishing performance measures for border crossings using the same methodology and is in the process of developing those metrics.

We have barely scratched the surface of this new analytic tool. The data can be analyzed by time of day, direction, between origin/destination pairs, etc. It provides views into system performance we did not have before and helps us determine where we should be focusing our efforts. As with the FAF, FHWA is seeking to place this information in the hands of State and local officials for their use in managing the transportation system. To this end, FHWA is negotiating data sharing agreements and conducting case studies with seven States along the initial five corridors to determine ways States and local officials can utilize this data.

Capacity shortfalls in critical trade corridors and gateways pose a real threat to continued economic prosperity. The FAF is a critical tool for forecasting where demand either currently outpaces supply or soon will. The Freight Performance Measures (FPM) initiative can focus our efforts by providing a quantifiable metric of system performance.

The Department is doing everything possible to ensure that all the information derived from its freight modeling efforts is available to State DOTs, planners, academics, and the business community. Much of this information is now on FHWA's website, at http://ops.fhwa.dot.gov/freight. We have provided Subcommittee members and their staff with copies of the most recent edition of *Freight Facts and Figures*, which contains

a wealth of information on the performance of the national freight system, and with FAF profiles of their States.

Conclusion

To some measure, we are victims of our own successes. In a strong and growing economy inextricably linked to the global marketplace, the demand for freight mobility is challenging the national transportation system's capacity. While we are developing and improving our analytic capacity and transferring that capability to State and local transportation decision makers, the public sector has limited funds and the needs are great, despite record funding for surface transportation. But these are also exciting times. All of us involved in surface transportation need to be open to new approaches to building, financing, managing, and measuring the performance of the infrastructure that supports freight.

Thank you for the opportunity to speak today about highway capacity and freight mobility, and I will be happy to answer any questions that you may have.

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