

**COMPREHENSIVE TRUCK SIZE AND WEIGHT LIMITS STUDY**  
**STAKEHOLDER OUTREACH EVENT #1**  
**May 29, 2013**

**INTRODUCTION AND OVERVIEW**

**Caitlin Hughes Rayman, Director, Highway Office of Freight Management and Operations**

Good afternoon. Thank you for joining us today for the comprehensive truck size and Weight Limits study. We have a large crowd this afternoon. Hopefully, you picked up an agenda when you signed in. There are also handouts at the front desk. Today I would like to introduce our first speaker. Jeff Paniati is the Executive Director of the Federal Highway Administration. Join me in welcoming Jeff Paniati.

**Jeff Paniati, Executive Director of the Federal Highway Administration**

Good afternoon. We want to welcome our guests today, and thank you for taking the time to be part of this first public meeting to look at the impact of truck size and weight. The importance of this issue is reflected by the number of people represented here in this room as well as several hundred more people across the country who are joining us. They represent families, businesses, and governments at all levels. A wide and comprehensive range of subjects will be discussed. Whether you are here to share your concerns about safety, or to identify a truck configuration that is vital to your industry, or for any other reason, the purpose of this session and ones like it are to get your input into the work that we are doing. We invite your suggestions for improving the way the study will be carried out. That is the focus of today's session to get your input on the front end of this activity. We want to your concerns, questions, and constructive ideas. I hope when we wrap this session up this afternoon, you will have the opportunity to learn about the study because that will be part of what you hear today. And, you will be able to tell us what you think.

In a few minutes, we will walk through the components of the study areas and after that, we will break into groups so that we can look at how these topics will be addressed over the next year or so. Before we do that, I want to let you know that USDOT Secretary LaHood and FHWA Administrator Victor Mendez have made it clear from the moment they arrived here at USDOT that safety is the highest priority for the organization. As we go through this study, we want to make sure that the work we do here is data-driven, is objective, and is transparent. Congress has tasked us with a complex and critical initiative. We take this job seriously. Only through careful analysis and unbiased study can we understand the true impacts of trucks on Interstates and in our lives.

We will make all research available for scrutiny by the public, and we also will have an independent peer review team. We will be looking for feedback from a variety of different mechanisms along the way, and we will provide updates in the form of additional public input sessions. On behalf of USDOT, FHWA is leading a multimodal team and directing the study. Once the data has been collected, we will develop a report for Congress, and we will include the findings of the publicly driven effort. Now, it is not our intention to formulate a policy response or draft legislation; our job is to synthesize the results of the study effort and to provide a

summary of the data analysis that we do to Congress within the next 18 months. Our intent is, very clearly, to meet that deadline. We know in conducting this study there are diverse views in America on the subject and that there are diverse views in how we conduct the study. We've already heard some of those. We share the interest of all parties in getting this done right. And, we want to make sure it is done with public input and with an independent peer review, as I mentioned earlier. It is a complex topic, and there are a number of areas of analysis.

First, as part of the study we will examine the safety impacts and enforcement of various truck sizes and weight. As I indicated earlier from Secretary LaHood all the way down through the US Department of Transportation, safety is our number one priority. So we need to know with great certainty how trucks of different configurations perform on our roadways and braking distance, we know, is the key to safety and will be a focal point of the work we do in the study. Every driver, passenger, and every pedestrian deserves our best efforts in this area of analysis, and we will provide that. Secondly, we will look at the infrastructure impacts for bridges and pavements. Maintaining the quality of performance of our roadway infrastructure for all users comes at a cost of time and money. Therefore, we want to know more about the impact of the trucks operating today. Third, we will study the effects of alternative truck configurations on the transportation network of the United States. The Nation's economy depends on efficient and affordable transportation services operating on a safe and reliable network. Trucking has the widest impact in our multimodal goods movement system, operating from origin to final destination of much of America's freight. In the study we will do the critical job of looking at how various truck sizes and weights could change the way goods are shipped in the United States. We know that freight demand is increasing and growing every day in the U.S., and whether the need is to support our export goals or to handle an influx of shipping through Panama or simply to move food from farm to the table, we must consider the role of trucking and what type of truck configurations are providing the service.

This study will consider everything from lives to livelihoods. And as such we must do the best job we can. I urge you to stay engaged as we proceed. We have a strong team leading this effort at USDOT. It is a multimodal team as I mentioned earlier. These folks are looking for your input and opinions as we go forward. I encourage you to be engaged, and I thank you for your time and interest.

**Caitlin Hughes Rayman**

Thank you, Jeff. Next I would like to introduce Jack Van Steenburg, the Chief Safety Officer for the Federal Motor Carrier Safety Administration.

**Jack Van Steenburg, Chief Safety Officer for the Federal Motor Carrier Safety Administration**

Good afternoon everyone. Thank you Executive Director Paniati. I am pleased to welcome our safety partners, trucking industry, and interested parties to this listening session today. On behalf of FMCSA, I appreciate the partnership with Federal Highway and the opportunity to discuss the size and weight study. As the chief safety officer, I can assure you that safety is our number priority. In fact, that is what our mission is all about: to reduce crashes. We regulate over 525,000 motor carriers. We oversee 4 million active CDL drivers. We do this in conjunction with our 12,000 officers and enforcement people who are out on the road dealing with trucks every

day. These professionals out in the field conduct 3.6 million roadside inspections and are responsible for doing about 20,000 compliance reviews of motor carriers. Last year alone, about 20% of the trucks that we inspected were placed out of service, 5% of the drivers we inspected were placed out of service, and we issued over 2,000 out-of-service orders to carriers that were unsafe. The public expects drivers and truck companies to operate safely, and that is what we want to do to ensure that we meet the expectations of the public. We want to maximize all our resources, and we do that through many programs. We have had success nationwide over the last several years—a 28 percent reduction in commercial vehicle-related deaths. It is encouraging, but it is not enough and we will not be complacent. Every single day, about 10 people are killed in large truck-related crashes. It is a reminder that we need to do more and more. The comprehensive truck size and weight study stands apart from previous studies. Map 21 puts safety in the forefront. You've heard Executive Director Paniati talk about what's going to be in the study, and some of the interesting aspects for us are the crash frequency and the enforcement methods. That is why we are a part of this cooperative effort. We evaluate the roadside data on a regular basis, and if we could use the results of these studies, we will most assuredly do that.

I want to thank you for allowing me to give our perspective from the Federal Motor Carrier Safety Administration. We pledge to work with everyone out here including Federal Highway and the contract team on this study. We offer our services, and we will engage our state partners as well. Today and in the future, I encourage you to actively participate in the study and in this listening session. We have had success at FMCSA in our listening sessions in the past, and we do listen to what you say. We also learn a lot. I believe and know that this is going to be the case with this study. We will be listening to what you say, and we will take into consideration everybody's comments. I thank you. Our DOT team is here to listen. Have a good day. Thank you.

### **Caitlin Hughes Rayman**

Thank you very much, Jack. I would like to turn to the first presentation that was available to you when you checked in. For the folks on the web, I believe you will be able to see this through the webinar as well as on the screen. You can download the presentations from our website now or after the session. As an introduction, I am Caitlin Hughes Rayman, the Director of the Federal Office of Freight Management and Operations, and I'm very happy to be here today.

I'm going to give you an overview of the truck size weight and study initiative, covering a little bit of the Map 21 requirements, providing an overview of the scope discussion of what we are looking for today and through the next week or so as input to some alternative configurations that we will be studying, as well as goals for today in the public input session, and brief you on the study schedule. As many of you know, Map 21 set out the goals of the study ultimately to report to Congress; it's under section 32801. It requires that we complete a comprehensive truck size and weight limit study. As mentioned earlier, the study will be an objective, data-driven initiative that will use the most current, best-suited analytical methods, tools, and models. We hope to get input on those today. We will evaluate and compare the differences between trucks loaded at or below current federal truck size and weight limits and those operating in excess of both limits. We will produce findings in highway safety and truck crash frequency, and severity; pavement and bridge infrastructure service impacts, the cost effectiveness of enforcement, and implications for the national transportation system, including modal share changes of freight

movements that would result if federal truck size and weight limits were to change. I would like to reiterate what was said earlier by the Executive Director, we are not here to make policy in this study. We are simply looking at the impact of various truck sizes and weights on the infrastructure, on safety, and on modal shift.

As mentioned, here are the sections of the study we will be discussing in detail in the breakout sessions today: safety, pavement, bridge, and compliance, also known as enforcement, and then modal shift—what happens within truck fleets if size and weight changes were introduced or what would happen to other modes.

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The study is set up to look at the three configurations. Those are in current use: the five-axle, 80,000 pound gross vehicle weight configuration. We have also added the five-axle, 88,000 thousand pound configuration; and the six-axle, 97,000 pounds gross vehicle weight configuration. We have the ability to study three additional configurations and that is what we hope to gain today. We will make final selections. I would like to add that the alternatives that we would like to consider are ones that are currently in use in the US or Canada, and potentially from other countries, but things that could be operated practically between international system. We want to see what those types of vehicles do in terms of the impacts on safety and infrastructure. For stakeholder outreach, we have a federal highway truck size and weight oversight panel. You will meet those people today in the breakout sessions. We are going to identify the critical research that stakeholders would like us to consider in the context of the study limits defined by Congress, and provide input for the mechanisms for public input. We would like you to participate in the study throughout in identifying configurations, and we would like you to understand where we are headed in terms of the study analyses. We have four public input sessions scheduled. The first one is today, and we will have two more throughout the evolution of the study over the next year. Then as we wrap up this study, we will have this presentation and discussion of the technical findings. We intend to do these with webinar capability; the next two sessions may be held elsewhere. We will have one in the fall; we do not have a date or location identified at this time, but we will keep you updated through the same process we did to advise people of today's session. This is a high-level project schedule. Feel free to check your PowerPoint or download it later. Essentially, you can see that the process will take about 12 months to complete, and I would like to also add that the independent peer review will occur concurrent with the study work.

The alternative truck configurations I mentioned earlier, you can see in your packet. There is also on the web a worksheet for looking at what is out there and offering suggestions for additional configurations. There is a somewhat complex matrix; feel free to put in as much or little detail as you would like. It is there for your use, to guide you, but we are mainly interested in understanding simply the vehicles that folks would be interested in our studying and understanding the pros and cons of a particular vehicle type.

We will have breakout sessions on alternative configurations in this room and then another on data models and methodology. If you are interested in weighing in on how we will be looking at pavement, bridge impacts, or modal shift, safety, compliance, or enforcement issues, you can join that breakout session in the room down the hall. Finally, we have three points of contact here today: myself, and two members of my team, Ed Strocko and Tom Kearney, who is on the

web breakout now. Ed is in the back of the room. Feel free to e-mail us the following the session if you have questions or concerns or throughout the process. The website is a good resource to go to for the latest work on the study. We will be publishing materials and information as we progress.

I would like to turn the microphone over to Bryna Helfer from the Office of the Secretary for instructions on the rest of today. Thank you very much.

### **Bryna Helfer, Office of the Secretary for Transportation**

I know most of you who know me know I do not use a microphone for a reason. The people on the webinar are here so I will stand here. Caitlin and Jack outlined that we are here to listen to you guys today. The way that the event will flow we will move this up so we will have more time. In 10 minutes, you guys can take a quick break to find out where we will be. We will repeat every session twice. We are going to have two rooms; participants in this room will discuss alternative configurations while participants in room six will focus on models and methods and methodology data. We are going to be going through the full methodology—safety, bridge, piece by piece. Then we are going to have about an hour and 20 minutes in each session and take a 10-minute break. You can stay in the same session or shift to the other conversation. If you want to cover both, you can go to the other one. If you feel like you just want to be here for alternative configurations all day, you can do that. Online, we are going to have our own session. So the 300 people online, we will have our own conversation, and we will start that in about 10 minutes. We need to shift the speakers and head that way. We will get started in less than 10 minutes; actually, for those of you online, stay there. You do not have to do anything differently except you may want to download the presentation which you can do.

We also have a third room; that is room 5. Let's say I don't want to talk about alternative configurations, and I don't want to do feedback and modeling, but I do have something to say to you and have something to share with you, Ed Strocko is going to be in room 5. For general input, they will be there throughout the afternoon.

Room 6, all afternoon is alternative configurations. I'm sorry, media room all afternoon--alternative configuration; room 6, all afternoon, is going to be models and data and then we will run through each twice. We will get through a full set of presentations and full set of comments twice. We also have questions for you guys. There are things we need your help on. So we will be asking you guys questions.

What else would I want to say to you before I send you off? Any questions about the process? There will be recorders in every room and flip charts. Everything is being recorded on the web. We are serious about listening, right? Any questions about process? We are going to introduce you guys to the leaders. I have to use the microphone, I'm sorry. Tretha—Tretha's not here, but she will moderate the model discussion. Karen, can you stand up? And, Scott Greene, where are you? Karen will be in the room with you along with Tretha and a couple of other people and in room 6. Ed Strocko and Shira will be in room 5, to hear your input. Caitlin and Luke and someone else are going to be right here. Webinar folks, we will start in 3 to 5 minutes. Everyone else, we will give you 10 minutes to get situated. The bathroom is at the end of the hall. We will get back together here at 4:15 p.m.

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**[Breakout Sessions ]**

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**WEBINAR – BREAKOUT**

Bryna Helfer: Hi everybody. We are back. And we are excited to be in the webinar with you. There are 300 people online. We felt that you being in one of the break out rooms did not give you the full opportunity to really engage with us. The way we will flow the day is we have a number of folks here and at headquarters, and I will introduce you to them. We have a series of presentations followed after each. We will have a series of conversations after each intermittently throughout the afternoon. We will be here for couple of hours. We may take a break at some point just so everyone can get up and stretch. I want to do an introduction: Jim March, retired from the Federal Highway Administration; Mary Lynn Tischer, FHWA Office of Policy; Tom Kearney, FHWA; Jennifer Symoun, SAIC; Joanne Sedor, retired FHWA; Erin Dean, CDM Smith.

I don't know that I introduced myself earlier but I am the facilitator today. Tom, you will start with alternative truck configurations, is that right? And you will have to talk a little bit louder.

**Alternative Configurations**

Tom Kearney: It's important to start off with the alternative truck configurations because as the government task manager on this project, this is of selfish interest today. We need your input. We have certain configurations that have been defined that we are going to integrate into the study and evaluate. They would be 80,000 pounds, five axle truck that becomes the basis if you will. That is the federal legal weight limit in the configuration and is not uncommon. We also want to take a look at the five axle truck running at 88,000 pounds. The reason behind that was interest in seeing how that truck behaves when it is approaching the gross vehicle manufacture weight rating.

Bryna Helfer: The third -- hold on. We are advancing the slides. Let me go back and see where I jumped?

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Tom Kearney: You did not jump anything. 97,000 pounds was contained in the legislation.

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Tom Kearney: The top line is the 5-axle in the 80K in the 88K. This configuration is being promoted by Congressman Mike Michaud from Maine and Congressman Reid Ribble from Wisconsin, and they are looking for configurations to expand the productivity of the highway systems, the vehicle of interest, it will be evaluating that truck and it was identified in the language of section the 3801 in MAP-21. It is the yellow or green area up there. Those are the given configurations; they are in. The ones down the bottom are just examples. Our good friend, Jim March, who is with CDM Smith, is consulting throughout this contract and is familiar with the configurations down on the bottom of the slide. Jim was involved in a uniformity scenario in 2004. These are pictures of some of the vehicles that that team investigated. These are just meant to be examples. They are intended to provide a perspective to begin. By no way are we advertising or recommending that you consider these. These are pictures to get you on the track

of the input that we are looking for today. We have worksheets that are set up. This is a little bit of a wonder. It works with the worksheet: control access, non-controlled access, roadway systems, under these categories are very important regarding the infrastructures' ability to afford safe mobility tied to the configurations. Under the headings of operations permitted on networks, there are roadway networks that we will be looking at how certain vehicles behave from an operational standpoint and infrastructure impact standpoint. The Interstate system is always very interesting to the Federal Highway Administration, and it is where we have weight oversight interest and jurisdiction. Principal arterial systems as of MAP-21 are our new national highway system defined in law last fall. The national truck network is the network that was promulgated in the 1980s. During a rule-making required by the 1982 Surface Transportation Assistance Act, it is the network that the STAA a vehicle has guaranteed mobility rights on, not requiring a state issue permit. Those are three systems that are of interest at the federal level. Number of axles: we start looking at how these vehicles start the having, we need some finer demonstration. How many axles? It will be different for different configurations depending on whether the commodity being transported is of low density or higher density. The number of axles will be different. With the ability to register different axle configurations is there as well as the gross vehicle weight. Low density meaning those are the cube outs, the loads that you run out of physical space in the trailer before you hit your weight limit. High density, meaning weight controls how much you can load on the truck. You will not cube out. That is how we want the forms--matrix input from you--so that we can do a good job of evaluating these alternative configurations. On the bottom there, we took those three that are in the study and we filled in certain aspects. We have already filled in some of the information that we are looking for just the purpose of examples. When you are recommending configurations, one of the most important pieces to our study team (the USDOT study team) is advantages and disadvantages that are tied to anything you would recommend. Why are you recommending it? What is the benefit of recommending it? Is there a downside to the configuration? We need to know these things. We are asking for input on this very important worksheet here. Any notes, side thoughts, qualifiers that you want to put on the worksheet, goes in the third column to the right. Those are the tools and instruments that we set up for the alternative configurations.

At this point, I am going to share with you how US DOT is going to deal with some of the input that we hopefully get today? How will we make a decision? Narrow it down to the three that will be introduced into the study. Keep it simple. Keep it easy to understand. The first consideration is it has to be a configuration that is in current use in the US, Canada, or elsewhere. That means anywhere. Australians just did studies on B configurations in Australia. The Germans just finished the longer combination vehicle study within Germany. Netherlands just has a trial underway right now. Configurations being looked at and the reason why we want that current use considered. If you come up with something that is very illusionary, we will not have a lot of base information. We will not be able to do a good engineering job of evaluating the performance and the benefits of the configuration.

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Bryna Helfer: One quantification people want to know whether it's the outer bridge for the axle to the truck configuration or is it the trailer length.

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Tom Kearney: The second criteria we are using right now: operational, practical use in the US. In other words, it has to be something that reasonably we expected operate out on the network.

We don't want to come up with configurations, once again, that are beyond the ability of the heavy truck manufacturing industry to produce the vehicle or the infrastructure to be able to accommodate its mobility. Those are the two commonsense practical tests to apply here to come up with configurations. Want to reiterate, with support from the consultant shop that is supporting us in the technical work here, we will be making the final configurations decision. I expect that there will be a wide conversation across the US DOT agencies. Ultimately the Secretary will decide which configuration are studied.

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Bryna Helfer: You guys are doing a great job of giving us some good points on the chat box. We encourage you to do that. We have a couple questions for you all. In your chat box for now, can you please tell us what are the key elements? When we are thinking of selecting alternative configurations, what are the key elements. Somebody said the eight- and nine-axle B double is in use in Canada. This is about not putting it on the road, but what are we going to study? What are the configurations we should include in the study? We are not making a decision to put these on the road. We just want to know what the key elements are when selecting these for the study. Which ones should we study? Using your chat box, we will ask you guys, as many people as want to can type in there. We have another question, what is the total length from the first axle to the last axle. Is that a consideration?

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Tom Kearney: That is input. Those are the first two columns on the work sheet.

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Bryna Helfer: So if you have suggestions for what the total length should be from the first point to the last couple from the first axle to the last axle, we would appreciate your input on that. Safety should be a key factor. Somebody is suggesting 28 footers.

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Tom Kearney: That is interesting that you bring that up twin 28-foot trailer configurations as the legal operation in use in the national network today. That is not a consideration that we would take into the study. Right now, that is a federal, legal. They require a base case within federal limits.

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Bryna Helfer: So alternatives -- alternative configurations.

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Bryna Helfer: Are dump trucks part of that?

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Bryna Helfer: Are you suggesting dump trucks? Or are you asking if we would consider dump trucks? We are open to anything that is an alternative configuration which is outside the legal framework right now.

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Tom Kearney: Correct. It does not need to be a longer combination vehicle. Can it be a single trailer with heavier weight or a longer trailer with multiple axles beyond the 97,000? Absolutely. That's another category in the middle of the worksheet.

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Bryna Helfer: Is that part of the alternative configuration at this point or are there exceptions to the current law? Do you have examples of those? Five axle 80,000 pounds and 88,000 pounds are the most important.

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Tom Kearney: Can I give you an example Jim? Sugarcane running at 100,000 pounds in Louisiana in harvest season. That becomes part of the study. It leads you to safety, pavement, and bridge impacts. That would fall into the category of above federal size and weight limits. That vehicle would bump up, and we would be evaluating how much additional payment consumption is occurring. How much additional bridge repair is that causing? If there are other cases, it's part of the advantage, disadvantages that should be listed on the second worksheet.

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Bryna Helfer: Could the study review one-axle trailer use? I know with 53 three axle, four axle, and five axle vans; reefer and drop bottom trailer tandems.

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Mary Lynn Tischer: Some people are identifying and asking questions, but what we would like to know is what you would want us to study.

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Bryna Helfer: Good point, Marilynn. Thank you.

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Bryna Helfer: What suggestions do you have? We are interested in what are the key elements for configurations that we would study?

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Tom Kearney: That is a good answer. They say the key elements are having current impacts on permits issued in damage assessment for pavement and bridges.

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Bryna Helfer: Good job.

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Bryna Helfer: We are going to listen to a little bit more than we will go to the next question. We have a lot to cover his afternoon.

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Mary Lynn Tischer: I can't read it.

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Mary Lynn Tischer: 10-axle, Rocky Mountain doubles, at 129K. Less weight per axle? Are you suggesting that that is a vehicle that we should address?

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Bryna Helfer: Jim Barney? Is that your recommendation?

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Bryna: We would like what current state allows on the Interstate. What are the considerations for configurations within the study? That is what we are looking for here. Let me move to the next question here. You guys can keep going. Jennifer, let's go to the next question. Some of you are starting to get into this, but as you consider the elements, what are the benefits of the elements? Why do you think that the elements you are suggesting, relative to different size axles and trailer size and length, what are the benefits of studying those? We will get to these in a minute. But what are the benefits of studying those elements?

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Bryna Helfer: Real-world conditions. Okay.

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Bryna Helfer: Not in perfect conditions. A little off productivity.

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Bryna Helfer: What are the benefits in the studies for studying these specific configurations? And what are the considerations. We will continue with any of these questions at this point.

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Tom Kearney: Jim Leroux, Barney trucking: 60% more product move is a large performance measure. Make sure with that thought in your mind gives us the input of what vehicle you have in your mind when you say 60% more payload?

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Bryna Helfer: He did already.

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Bryna Helfer: This is very helpful.

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Tom Kearney: I'm sorry, Jim you are ahead of me.

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Bryna Helfer: More products move with less drivers working. What are the elements of the configurations? What are the benefits of studying those elements? Examples of the benefits of those elements?

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Bryna Helfer: And what are the disadvantages of selecting very specific elements. You have been seeing on the chat function a number of suggestions. What are the disadvantages? People are talking about advantages; are there any disadvantages in selecting specific elements? We are going to pick the configurations; we want to know the pros and cons for selecting those configurations.

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Tom Kearney: This specific question is very helpful to our US DOT team that will make the final decision what should we should be careful about? Where are the flags? What are the key indicator flags when evaluating the proposals that you are making for alternative configurations? We are considering unintended adverse impacts in the configuration. Julie brings up a good point. Will we be looking at truck parking as an element to consider in considering different configurations and the impact on the truck market.

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Tom Kearney: You don't understand the irony in your question because you are talking to the truck parking project manager at the same time. That has come up on more than one occasion from AIPAC the caliber the standpoint if we come up with a configuration that that is a little bit beyond what is in current use. There is an impact on the space needed to Barclays. We will not back up on the service, say trucking overall, therefore the ability to accommodate those vehicles must also be part of the study.

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Bryna Helfer: Your comments into the chat box are really helpful. We really appreciate you getting into the weeds with us on this. That is what will make the study. Don King says, one of the most useful things to study would be the configurations that are in use in certain parts of the country but not everywhere in the country. Is that something we may want to consider in selecting alternative configurations?

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Tom Kearney: At this point I will deferred to the corporate memory in the room and lean on consulting services and ask Jim March.

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Jim March: We were asked immediately after the 2000 study to take a look particularly at the use of longer combination vehicles in the Western states where at least some configurations were allowed and what the benefits would be of having uniform size and weight limits in those states. So each state would allow the configurations. In practical terms, I think the group felt it would make a lot of sense to look at particular regional options.

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Bryna Helfer: Let's look at the next question.

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Bryna Helfer: Are there any other areas, since this is about alternative configurations? Some are moving on to modeling and data analysis, but relative to selecting the additional alternative configurations, are there any other areas we should consider. We will open up the phone lines for just a few comments--maybe three or four. If anyone has a comment, I will open up the phone line so you can continue to use the chat box. We will look at other areas that we should consider, not in methodology or data modeling; we will get to that. We are interested in alternative configurations and the selections of those. Operator, is anyone queued up?

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Operator: Please press star and the number one on your telephone keypad.

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Bryna Helfer: You can keep using your chat box. There are people who want to share other areas that we consider for alternative configurations in this study.

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Operator: We do not have anyone on the line right now.

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Mary Lynn Tischer: Mr. Lynch: what does he mean by grandfathering older vehicle configurations? What do you mean by older?

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Bryna Helfer: What does that mean, Mark? Can you say a little bit more about that in the chat box or you can press star one and tell us by telephone.

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Bryna Helfer: [ pause ] We have people talking about blind spots, turning radii, degrees to which tucks can be integrated into urban and rural road environments. Amazing comments. Very helpful.

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Mary Lynn Tischer: Brian made another comment about structural inspections of vehicles such as trailer beams and floors at the edge. Are those increased inspections? Is that what you are trying to get at here?

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Tom Kearney: Mary Lynn, I would advise Brian that we will be talking about this under method, models, and data one we discussed safety. Because inspection and compliance oversight is a factor in this study that will be addressed.

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Bryna Helfer: Should we move onto modeling?

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Bryna Helfer: You guys can keep typing on configurations, and we will move to modeling. Are there any other clarifications that the team wants from the chat box at this point? We may get back to some of you on further clarification.

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Tom Kearney: [Indiscernible], my friend in New York City, what do you mean by obsolete infrastructure? Functionally obsolete facilities? Are we talking about roadways ? Clarify please.

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Bryna Helfer: Moving on to a new topic. Thank you everyone. This is helpful. You will see an important reminder. The worksheets are on the website; input is invited.

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Bryna Helfer: We will show you one more slide here.

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Tom Kearney: Thank you. Remember.

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Bryna Helfer: We will put this up throughout the webinar, but any additional comments today you can put in the chat box or you can submit longer comments to this e-mail (email address). There is a worksheet; do we have it loaded on the webinar?

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Bryna Helfer: This chart that you are seeing now can be downloaded on the website and you can go in, fill it out, and send it to the inbox. We are happy to have more details from all of you. This is amazing input on the configurations. Let's move on, Tom, to the methods and data modeling. Give us a chance; we are changing out the slides.

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Bryna Helfer: You can close the phone lines up, back to listen only.

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### **Methods and Data Modeling (Pavement)**

Bryna Helfer: We are going to start with pavement. Tom, go for it.

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Tom Kearney: We are going to get into pavement, Jim go back one and I will explain. Different elements that are in the legislation itself: safety, pavement, bridge, compliance, and modal shift. What we did to help with this study was to establish a policy oversight group that includes representatives from each of the modal agencies. They get together and give general feedback on the direction of the study, and get input. But, most importantly, those are representatives are keeping modal administrations up to speed as to where we are with the study and what is coming up. Important to me is the next level. That is the technical oversight committee. These are subject matter experts in each of these areas. In the modal agencies: Safety—George Hsu is working with the group and Luke Loy of FMCSA. Pavement and pavement research at Turner Fairbanks is working with the program representatives. Tom Yu who works in our Office of Infrastructure. Bridge--Ian Friedland is another at Turner Fairbanks. Compliance falls to me. That is our jurisdiction in the Freight Office. For Modal shift—we have Max Azizi, and he works with Mary Lynn in the Office of Transportation Policy. Max is partnering with Scott Greene, who is a policy representative with the Federal Rail Administration. We will introduce my team--the team supporting me in this study; there is a tremendous amount of talent and ability. We have a tremendous amount of experience in each of these areas as we dive in here.

We have had conversations with the technical oversight committee and also with an expert team offered through CDM Smith to address these areas within the study.

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Tom Kearney: Pavement Analysis: There has been a lot of work done in this area: truck interaction with pavement and consumption of service. There is a lot of research ongoing. In my position, I sit in Albany, New York, and I am helping to oversee a study where New York State is evaluating the impact of permitted trucks on pavement infrastructure and bridge infrastructure. That is the kind of work that we want to build on, not duplicate. There are a lot of studies and research that has been done globally in this area. For our study it is impossible to study every inch of pavement, even on Interstate systems. A sampling approach will be very important. Setting up a strata by which to set up sampling is going to be critically important. Regarding the environmental strength and conditions and environment of the pavement that is actually built within a geotechnical standpoint, what is the seasonal cycle of temperature differentials that affect pavement conditions. Following long-term pavement performance programs, set up a modeling of regimen and apply the latest and best software. That would be the AASHTO pavement mechanism methodology and tools. I am asking everyone in the webinar to start helping me think about where I can go to get the data that I need to support this analysis. In each section we will load traffic data, and we know right away we need volume and weigh-in data. We will evaluate pavement distresses, pavement life, and lifecycle costing. I envision that AASHTO will be a strong partner in this area. Pavement management is not something that the states have been doing for a short time. They have been in this game for many decades. That will be a valuable role to tap into regarding pavement distressing.

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Bryna Helfer: Jeff Whitaker is asking about lifecycle emissions costs, which is different than cost. Can you expand on that comment? Here we go.

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Tom Kearney: Regarding CO<sub>2</sub> from pavement application and rehab, Jeff, we are not going to be evaluating the air quality impacts of construction projects in this particular study. I am not saying that we do not have a really good problem statement that you could submit to the NCHRP [ Laughter ]. There is a tremendous amount of interest in that particular area. In this study we have our hands full, not in the scope.

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Tom Kearney: Along the way here, and this is just a suggestion. If someone asked USDOT to do payment analysis, this is something you have the opportunity to tell us how you would do it.

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Tom Kearney: Understanding the sensitivities: where are the trigger points and at what point do significant changes in payment condition and duration rate occur. We are tasked to figure out where those points are. And allocate changes and configuration an operating weight. That is the translation that we are going to have to do for the finer points regarding loading. What were the configurations? What were the weights for axles? What were causing some of those changes in the pattern of the pavement impact? Compare the results with other models. And that will be very interesting. Beyond the AASHTO model, which is the state-of-the-art model used today, what other models are out there? What would other models find and then of course make the statements to be representative of the payment infrastructure out there.

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Tom Kearney: We have the AASHTO Pavement ME Design model that is used by the Federal Highway Administration and most committees doing research. We also have a model that we traditionally have used for national pavement condition, the NAPCOM model. And that model has been used to support studies done over time and found on the US DOT website. [ Muffled Audio ] it has been used in studies that have been used widely in the past. We are saying that we are committed to using the latest available models through AASHTO. I know if we have 50 state DOTs online they'd be telling me they have better models than I do. And, I'm going to complain that you have better data than I do. [ Laughter ] Your knowledge and your ability to explain conditions is a lot better than mine. Remember we're feds.

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Bryna Helfer: Good question on the chat window. In regard to payment analysis should we be examining the impact on highway joints? When you are evaluating Portland concrete pavement structure, there is no way around that. You got to look at load transfer as part of the evaluation that you do, and the integrity of the structure is dependent upon the transferring the weight from five to flat. Jim, you have anything to at?

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Jim March: No, that is included in the NAPCOM model and certainly on the AASHTOWare model. In terms of materials will you be considering what type of materials in terms of the pavement off flexible, rigid how broad is our -- that would cover the entire universe. Asphalt, Portland concrete, and composite. Asphalt, cement pavement structure, Portland concrete but the composite, which is black on top of white. Basically the state went back and decided they had appropriate treatment action for -- structure and the best result was to over-lay it with -- regarding load transfer failure coming back through the reflection cracking. We have to look at all three pavement types.

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Tom Kearney: Composite. I call it composite. You can call it overlaid, composite and that covers every type of pavement structure that is out there. We tend to be very robust in our analysis and sampling technique. How many miles would be in the pavement type. A number in selecting big data collection model but at the backend of it we have got to be able to stand back up to be resent -- representative of the national growth hiring infrastructure growth system. This is not an easy step this is not a small or easy step.

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Paul: Tom, Rick in the chat box is suggesting that we include in our evaluation statements evaluating quality over time on toll versus non-toll roads. I was wondering if you could comment on that.

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Tom Kearney: Rick, I am just going to ask you to tell me why you think they are different? How you are collecting revenue or not electing revenue should not really impact the performance of the infrastructure. It is the difference in durability. You have toll roads with more of that surface and improvement under that pavement structure. There could be differences that will be picked up in the pavement evaluation as we are looking at inspection. We are going to be speaking on a national level in the study. That is a very, very difficult thing to do. To move from the finite element level of engineering up to a system-level. A big jump. We have to do it though.

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Bryna Helfer: Next slide. Help, who's got data?

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Tom Kearney: We will get to the data question and we will talk about it next. The payment performance on the top slide is the long-term performance data. That is the program that was put up in about the mid-1980s. It is decades old and they are doing very robust research during performance at the time. Once again performance considerations are the time of year, environment, and pavement surface type. All of those in LTP have delivered a massive, massive body of information and data that we have developed to support the study. That data is under view of one of our subject matter experts Cheryl Richter. Cheryl brings a lot of experience to the table to support this study. Truck traffic--well yes, we need truck traffic. We need to understand the actual load. So we need a lot of truck traffic data--what type of trucks are running over the section—and weigh-in-motion data. Weigh-in-motion data are needed to know what the laws are for the configuration. Right now the Office of Highway Policy Information, in fact, is monitoring this -- [ Muffled Audio ], vehicle classification data, and we can understand the configuration of travel, and we also get weigh in motion data at stations around the country every month from our Highway Policy Information Office, and we will be tracking them. [ Muffled Audio ] Tianji Tang is on the Oversight committee and is the director of the traffic monitoring program. We're going to be using that data, the state data. NAPCOM we have talked about the data. Design analysis they require a high level of finish data to run well. Which I just touched on motion data, HPMS as comp there is a tremendous amount of information of the office of policy information admission made out of state every year and we have pictures of traffic, highway infrastructure, highway -- we will be tapping into those data sets.

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Bryna Helfer: [ Laughter ] So I will help you out here. You guys are giving us some amazing things. You suggested data out of Europe. Just focus right now on studies instead of on data. Are there any past studies focused on pavement that we should include in the literature review as a first step any research? Are there any good studies out there that you guys know of that we should be looking at as a base to get us started here to understand what the universe is at this time?

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Paul: There's one. All right. [ Laughter ] It looks like someone has recommended a study done by Jonathan Regher at the University of Manitoba in Canada.

Bryna Helfer: We will take a look at that. Jim Barney, we like you. You are great for this study. You guys have the actual study, if you can e-mail us the study, copies of the study, or if you can hyperlink it and place it in the chat box. This has been very helpful.

There is a group lobbying for heavier weights. Are there studies that we can look into? That would be very helpful. Again, any past studies focused on pavement that would be useful here?

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Tom Kearney: Whoever recommended the University of Manitoba study, rest assured it will be looked at. Jonathan is a very active member of our DOT Committee. He also will be a tremendous asset as well as the entire University of Manitoba that has a tremendous amount of experience studying larger trucks in Canada.

Bryna Helfer: Is there anybody online who has worked with the Darwin model and actually operated it? Can you let us know who you are? The question is, if you use the Darwin model,

what has been your experience with it? Is doing a study on bridge for overweight. When will that study be available? Is that in the early stages or almost done?

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Bryna Helfer: I'm going to move to the next question that you guys are typing in the studies. Similarly, what models are currently available for estimating the cost of pavement damage caused by larger trucks? So this is beyond studies but like the Darwin model. What models are available, what is been your experience with those models? Moving from studies to models -- you can keep giving us studies if you have them, keep sending links. What models do you have experience with? What are they? Even if you don't have experience, what is your experience with models for estimating the cost of damage? Western Governors Association recommended studying the extent of reduction in GHG emissions, traffic congestion. Did they do the study, Barb? Or is it just a recommendation? We are looking for models now. What models are available for estimating the cost of pavement damage?

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Tom: Thank you Brian. We will call Jim Beasley. And I appreciate you bringing him to our attention. If there is anyone we are not aware of, they are the ones we want to get in touch with. The ones that we are aware of—good; it is an affirmation that we are on the right track.

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Bryna: You guys are on doing a great job of telling us about studies. Is it that you do not know about models? Or is it that people do not have their hands around what models might be? Other people that might have models that estimate the cost across the pavement damage? The project enough spend a lot of time and effort in pavement damage models and -- once you start adding costs, things get rather, rather challenging.

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Tom Kearney: The model is not for the cost, the estimated cost gives you the model damage for the pavement.

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Tom Kearney: As you know she and I are good friends and usually do not agree, and she is probably right again. [ Laughter ] .

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Bryna Helfer: Once again, who has views of the Darwin model? North Carolina uses the Darwin model. Can you elaborate a little bit on modeling recommended for futures studies? Challenges with the model? I like this better than being in a room with you guys because you guys are all online downloading all this and this is awesome.

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Tom Kearney: I hope downstairs is getting 10% as much as we are now.

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Bryna Helfer: This is great. This is amazing. On the modeling, I am just curious if people can say just a little bit more about the challenges with the modeling or -- we have a couple of good comments that getting payment damage is harder than getting the cost (we're going to get to crashes in a minute). In a little while we are going to move to safety. We are definitely going to get there.

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Tom Kearney: Australia has a wide variety of pavement research that could be useful for the US DOT. I am very familiar with the work in Australia and the tremendous amount of information available through the research that they have conducted down there.

Participant: There were challenges in using the Darwin model but it did the job in the end.at the job. Bryna Helfer: Thank you very much. That was helpful.

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Bryna Helfer: Let's go to the next question. Are there any concerns regarding data sets or models when you look at pavement specific issues? Any concerns that you have regarding data sets or models when looking at specific pavement issues?

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Paul: Here's a great concern from Ron. Do the infrastructure models have the capability of estimating distances and lifecycle costs for variations in demand and variances in vehicle load? Thank you.

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Bryna Helfer: Thank you for the question..

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Tom Kearney: Reviewing content is very important. We are very committed not to accept any findings as is. Along with your references to studies, any area in the study that you feel we should deal with caution, we would love for you to identify them. We are not just going to do work that has been previously done. We're going to critically evaluate it, understanding accuracy, the limits of the study, and any weakness. So if you can help us with a jumpstart, say this is a study, however I don't like how they did this -- [ Indiscernible - multiple speakers ]. George, we will roll down and go back to your earlier comment and get more specific on that. So, thank you.

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Mary Lynn Tischer: Let me ask you a question on that? Can you scroll it down? You can scroll it up?

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Bryna: Keep them coming. [ Laughter ] Okay, so any other concerns on data sets or models when looking at pavement specific issues? I wanted to ask Leslie why she said that. What experience does she have with the AASHTO software.

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Mary Lynn Tischer: We are asking if you have a experience with the AASHTO model and can you explain what the issues are associated with it.

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Bryna Helfer: Operator, I am going to open up the phone lines in case anybody wants to give any verbal comments.

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Operator: We will pause for a moment to compile the Q&A roster.

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Operator: Press start and then the number one on your telephone keypad. Tom Kearney: Please do not let us do all the talking.

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Bryna Helfer: I appreciate that. Okay. I think that since there are no verbal comments, what we are going to do is we're going to move to the next topic. Again, this is all great on pavement. We will continue to accept your input throughout the webinar and then into the next week, but I think that we will go ahead and move on to modal shift and then we will take a short break after that. And then we will come back and finish up the afternoon.

## Modal Shift

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Tom Kearney: This is right down Mary Lynn Tischer's lane. Let me introduce Mary Lynn Tischer, the Office Director of Transportation Policy.

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Mary Lynn Tischer: Obviously, regarding the importance of modal shift, there are two aspects of what some people would refer to as modal shift. One is the changes in the distribution of truck traffic and the other is the shift to a mode in terms of a water mode in the middle of the country and rail elsewhere. And so that is a concern to us as presumably you increase the weight, you can in fact change the distribution of the fleet. And then also you can impact the amount of transfer from rail to truck.

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Mary Lynn Tischer: An example of an approach is that the best case would be estimated truck activity under existing truck size and weight limits, and estimated total logistics cost for base case vehicles. And then you would compare that with the scenario where truck activity under the alternative truck configuration is being studied. So we estimate the total logistics cost of the scenario and compare that with the total base case. Both intra-and inter-traffic shifts occur where the scenario case total logistics cost is lower than the base case logistics cost.

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Mary Lynn Tischer: So here is an example where we estimate the logistics cost for each alternative where it's dependent on distance and volume shipped, transit time reliability, commodity value, and commodity physical attributes. And you can see that we are looking at the county-to-county flows and commodity attributes, and by setting this now—studying the different networks and examining the activities on each of the networks identified. For example, we would look at the Interstate system, and we would look at the Freight Analysis Framework as examples.

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Mary Lynn Tischer: So, the question here is what data are critical for inclusion as part of the modal shift analysis? And it looks like we have thoughts from some people who have jumped in there.

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Paul: The question from Bruce Lambert: How are you doing county-to-county level flows given that the CFS and FAF do not seem to be set up for county level flows?

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Mary Lynn Tischer: Any assistance that you can provide would be most welcome. We realize that that is challenging. We would certainly like to do that, and we can do that in any number of ways. So what do you suggest?

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Bryna Helfer: We are really looking for your input here on data that are critical for the modal shift if those data sets aren't set up for this. What could it be?

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Mary Lynn Tischer: I see that Alex is suggesting that we identify the commodities that are candidates for modal shift, what marginal commodities are likely to shift, and also the type of commodity that could be part of the shift.

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Tom Kearney: In the 2000 study was that a recurring issue for certain commodities to be susceptible to modal shift competition? Did that also occur within a corridor setting?

Mary Lynn Tischer: Certainly—I-81.

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Mary Lynn Tischer: At least from one person.

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Tom Kearney: Good. We are on track. Remember, what Mary said can be taken to conduct this work. We are right now in the study putting together the project plan and impacts; with your conversation right now you are giving us ideas. You are helping us to fill in some of the blanks, and some of the corners that we need.

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Mary Lynn Tischer: You are saying that the farm forest products will not shift. Why would they not shift to a heavier or larger vehicle, for example, or with a heavier or larger axle weight?

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Jim March: I think from earlier in the chat we determined that truck and modal shifting is not an issue.

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Mary Lynn Tischer: What about the shift to a heavier truck?

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Jim March: We are already. We do not have to account for changing, but I will let him answer.

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Tom Kearney: That is a good point. Consider financial impact to short line railroads.

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Tom Kearney: Railroads the study period, not negotiable. It is a key, key issue that needs to be looked at. As part of the conversation when does was put together last summer. And once again, I think Jim, I would come back and say commodity dependent. Yes.

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In the 2000 study, we looked at all commodities. We didn't just focus on those that were identified through other analyses as being truck-rail competitive. We looked at all commodities. But there was a very small group that their value was uncharacteristic, or certainly the key ones could shift. And you can imagine being involved in the study as you are as part of the team, we would be walking down that path again.

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Tom Kearney: That's just due diligence and solid engineering.

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Paul: I have a question from a researcher here. Question: I assume in speaking of modal shifts we are speaking of future congestion on highways and the rail system and will that figure into alternative configurations that might affect the load shifts and congestion projections on the highway system.

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Mary Lynn Tischer: I would say that the main component. But we are also considering the discussion. Let's go to the next slide. Jennifer.

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Bryna Helfer: We talked about data. Again, models that have been used to estimate transfer of goods. And some of you are touching on this now between modes, rail versus trucks and between

roadway types and between truck types. So let us continue this conversation as you are already into it as you talk about rail versus truck. What are the models that have been used to estimate the transfer of goods again, between roadway types and between truck types. Let's continue the conversation.

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Tom Kearney: Here we are really looking for help. What models are used to estimate transfer of goods?

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Bryna Helfer: Or to multimodal forms. So are you suggesting some of those elements in a model. Thank you Joe. Capacity of other modes to handle the modal shift—that is a great one. Should the transfer of goods include a review of the time and efficiency impact of the transfer? That is a question for consideration. Good, these are great guys.

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Bryna: IHS Transearch has county-to-county data. DPL forms could be helpful in addressing the cost margins for shippers.

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Bryna Helfer: Very good. Very good.

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Bryna Helfer: These are very good points in terms of (now, you guys are into identifying things) identifying models that are to be considered in the modal shifts. Do you have any specific examples of models that have been used to do it?

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Bryna Helfer: People have stopped typing.

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Tom Kearney: In consideration of some of the modeling that goes on we will talk about a change in the federal size and weight limits and what kind of productivity can these trucks achieve. We are analyzing and evaluating every aspect of their performance, safety, bridge, and on and on. There is also the impact to the trucking community; for example, keeping the vehicle in a state of good repair. Keeping brakes in a high performance state and not increasing the maintenance cost on the truck or the trailer or the actual tractor itself. These are all important cost considerations. And we do believe the government language says comprehensive. We have to include these aspects in our investigation.

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Bryna Helfer: People have suggested permit fees as an indicator of additional damage due to overall weight loads and would be beneficial to reduce impacts.

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Tom Kearney: Georgia if you are basing this on impact, I would love to see the information and love to know what you're working on. I think that is a great approach. I do not think it is done a lot. And it is very, very thoughtful and it is the kind of information that would really help the study tremendously.

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[multiple speakers ] Suggested that railroads might have a model. I wonder if there is and if you might suggest where you might know of some data for modal shift.

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There is also some suggestions that between truck type there is some of the private like they behind or Snyder order might have the models relative to some of this -- began as we are trying

to -- to guys we have been having some of these conversations but just to play out what's open the phone lines. Any of you guys can continue to chat but is one any indication that exist related to data custom models when studying data shifts.

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Bryna Helfer: Can you open the phone lines?

Operator: [Operator Instructions] please press star and number one on your keypad. We do not have anyone on the phone.

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Bryna Helfer: Okay thank you. What, if any, limitations exist related to data sets or models when studying modal shift? Again, does anyone have anything else? We have a few more people typing.

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Paul: Geographic granularity of the data that is available. Obviously we are looking for a more granular data set than we currently have in FAF. That is one limitation but we do have limitations on models regarding new roadway types or do we have models out there that have [ Muffled Audio ] accounted for the future impact in terms of congestion and the competitiveness of truck versus rail.

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Mary Lynn Tischer: We also talked about the accuracy of WIM data.

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Bryna Helfer: Someone suggested AR might have some shift data. Any related data sets or models? (Paul mentions that some have come through.) Estimated competitive effects might be one to consider.

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Bryna Heler: Limitations related to WIM accuracy and calibrations.

Paul: Many models do not take the general equilibrium approach but only the initial shock to the system. Very good, thank you.

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Bryna Helfer: Yes, this is great. Potential data source is tollbooths. Yes.

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Bryna Helfer: Reality check--somewhere north of 80% of American communities have no freight service beyond truck. But again, this is just a study. There may not be any modal shift at all; there may be, but that is all part of the study. And these elements came from Congress. The requirements for the study were directed by Congress.

That is an interesting case that you just described. That you just have truck and highway infrastructure available only. There are still two aspects of shift, not modal but shifts. We are looking at this in the bounds of the study. That is roadway type by roadway type. If we allow the heavier vehicle - the increase of federal truck size and weight limits - does that change in the travel demand pattern the use of highway system in any way. What is the impact on vehicle types within the vehicle population? If there is going to be a conversion, there is going to be an appetite within the industry to take advantage of a higher level of productivity, but it takes time to transfer and transform those fleets into more durable trailers, heavier horsepower tractors. Jim, in the past, in the 2000 study how did you take on the conversion of the truck fleet? This is one thing I am really interested in. It does not happen overnight in other words.

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Jim March: We didn't try to estimate what time period it would take. We just looked at a final state based on the operating cost differential knowing that it would depend upon the individual configuration to get to an end state equilibrium.

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Tom Kearney: There would be poor reliability coming up with that transition. Ok, Thank you.

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Bryna Helfer: So, is 2:15 PM. I think Tom Kearney want to take a 5 min. break or do you want to keep going.

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Tom Kearney: I think maybe a 10 min. break, because we are pushing about two hours. We will give you folks about 10 min. to rest your fingers and take a deep breath, refresh your brain and come on in because we have a couple of really, really high-powered areas that we need your input on including safety.

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Bryna Helfer: We are going to come back and talk about bridge safety, and compliance. So 10 min., it is 2:15 PM and we will be back at two 2:25 PM. We're gonna leave everything up so that if you have any comments on the things we talked about, alternative configurations, pavement condition modal shifts, or you can take a little break and we will see you back here at 2:25 PM. [ Meeting is on ten minute recess. Session will reconvene at 2:25pm Eastern Time. ]

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Bryna Helfer: Welcome back, everybody. Looks like you guys been actively putting in some interesting stuff while we were on break. So we are going to now move onto bridge analysis and then safety and compliance. Tom, do you want to go through the bridge section of the study?

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Tom Kearney: Absolutely, Bryna. Thank you. Once again what we have here is like the strawman, the idea of how we would approach a bridge structure analysis and we are asking you, each of you participating today, what if your boss walked up and ask you today to sit down and outline how you would do this. How would you conduct the bridge structure analysis comparing truck at and below federal truck size and weight limits and trucks operating in excess of that? And you have heard Jack Van Steenberg in his comments talk about what is happening on our roadway systems today is not okay. We want to, within this study answer that question to Congress, what is going on in our highway system today before we start evaluating changes in the composition of the trucking fleet that the industry is using to move goods. So here is the strawman that we put up for the bridge structure analysis. That is not without very careful thought -- the project team is very accomplished in this area, we have a very strong project team. Data base, 500 bridges, the number is arbitrary here it is sampling approach the 500 is based on the number of cases of individual bridges that can be evaluated during the time period given for the technical analysis. So instead of a comprehensive database the 500 bridges use the latest bridge analysis modeling tool that AASHTOWARE bridge rating program, use the traditional WINBASIC which is the bridge model used in our office of Transportation Policy – use that WINBASIC model upfront and at the back end of this particular analysis very useful model of the selection of individual bridges to be included in the study. We are going to have to make cost statements for the whole highway system and all bridges in the nation and that model is very beneficial in both cases. Now the effects of the structural demand with the alternative configuration versus trucks, we have to do that differential as I said with the AASHTOWARE

rating program and renewed the investigation of bridge deck fatigue, of the impact on bridge loading the ability to load heavier load on the network or change, maybe not change - can't change the mode exposure overall but change what is broadcast on an individual vehicle basis. Do all of those in our analyses within our bridge programs. Then, come up with findings, ways to modified ESAL based damage. We have got to get into ESAL based a little bit regarding the impact of the bridge deck during the bridge replacement. And we see that ESAL like the pavement can be introduced into the model approach here. Because fatigue analysis is very intense, element intense investigation and modeling exercise two representative bridges will be looked at regarding a very fatigue sensitive model investigation and then try to make those – two is here is two enough? Tell us what you think. Fatigue, anyone who is done fatigue analysis, please share with us. Is this the right level of effort, are we underestimating? Are we overestimating what we can accomplish with this model, with the assessment and analysis done? Once again, noncompliant trucks vs. legal trucks, really trucks that are above and trucks that are below and that includes a lot of trucks right now that are operating with in some cases statutory allowances.

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We have some states like Vermont and Maine running a 20 year pilot program running 100,000 pound trucks and they'd be evaluated as current over the federal legal. So Vermont and Maine are collecting data right now on the operation of the truck fleet up there would be very useful for the study that we will look at. Use the WINBASIC model upfront and use that for the sampling, the screening to come up with the candidate sites for the investigation. AASHTOWARE state of the art rating program and use that for the actual conduct in the evaluation of the bridges itself and then WINBASIC again to translate the output and the findings for the AASHTOWARE to network level cost for the bridges. Regional bridge deterioration models. We know they are out there, we know a lot of States have used them, they have used Vertis they have used different ones, and Vertis will be used by the way in the study in concert with AASHTO, we intend to use it in the study. However, once again, they have very specific models that they use at the state level, the structural engineering group works very closely with the bridge permitting group to identify routes where load that can be safely moved and the bridges that have the weight-bearing capacity to move the load we will be through AASHTO be looking at techniques, models, data that we need to complete the work within the study.

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Data: Of course the National Bridge Inventory, we get that every year so we will use that. Weight limits: Once again, they are set statutorily and they change by state but we will be looking at the weight limit information. Steel fatigue is a very, very important data element that will need to be collected in conjunction with doing the analysis. Weigh-in motion: NCHRP 12-76 with the use of motion data for bridge analysis, we are fortunate enough that it was written by three very smart rich engineers. Ted Moses and Michelle Gossen -- and the third one is part of our project team, Bala Sivakumar is a bridge structural engineer with Howard Needles Tammen and Bergendoff. And we have done projects with them. He is one of the co-authors of the protocol. So we will be using the WIM data correctly. State historical cost data is very, very valuable. We will be reaching out through AASHTO trying to get that information. Once again when it comes to capital program development capital program proposals an evaluation at the State levels and the state DOT, going through the management layers to get to the governor's office to your financial controllers agency to get approval for your programming. A lot of time

and effort goes into that there is a lot of knowledge, a lot of information that we would love to be able to tap into that knowledge, share that in this comprehensive study.

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Paul: Tom, I have a few questions from the website that of come on in here on the bridge portion of the study. One of the questions is how do we chose the 500 bridges or however many bridges we had a sampling to, is 500, how do we arrive at that at our strawman? Is it an appropriate sample should it be larger or smaller?

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Tom: I would love to get feedback on the 500. It is an arbitrary number. We put that up feeling that if we were going to use Vertis and AASHTO software , if we were using WINBASIC at the front end and backend then over the course, over the period we have available to do the study, 500 bridges maybe the maximum we could possibly do. Now, will that be the sample size adequate enough to make a statement on the cost of the bridge infrastructure around the nation? 500 may be effective, 500 may be painfully short. We will need to go or that exercise to determine that. How will we do the sampling? We will have rich dataset of the National Bridge Inventory open to public structures that is over 20 foot if there is not a culvert and it gives us the information on the bridge structure type to give us information regarding different attributes so that we can start seeing what are the most common, we can start building cohort and populations if you will, that is the intent. 500, arbitrary number. We can do five. We can do 5000 we could lose a 0 and call it 50. It is a very arbitrary number. It is just to get you talking today. What do you think? Let us know.

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Paul: Ok, Tom. Another question comes in not all states use the LRFR. Load factor resistance forecasting not all states use that so that is something to consider. Additionally, Scot Becker thinks that we should also consider salt induced deck vibrations, fatigue of steel other comments there. Tom: Correct. How many bridges other in the LRFR? What is the capability of the data?

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Tom: We do not have a particular bridge experts in the room. There are a lot of bridges. 677,380. 610,000. There you go.

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Tom: Lots of bridges, and once again when you systematically and line them up -- now, unfortunately with bridges when you are doing research in this type, you will go into very fine detail. If you ask any bridge engineer in the country, can you model a bridge and make a statement about a second bridge he will tell you no. Every bridge is special and unique. And that is the difficulty when it comes to evaluations we are talking about with the bridges. They are designed to cross certain things, to perform certain services under certain conditions and there are a lot of elements of uniqueness. At a national level we can make comment, we can make statements and we do with the highway bridge and needs report but you take them with a grain of salt. When the bridge engineer sits down and looks at those modeling regimen or the data, he may have suggestions and ideas on how that would improve our study. We will be more accepting of network information.

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Paul: So a lot of people are suggesting that we should take a better look at the NCHRP 12- 78 which has total inventory in the NBI.  
Thank you that is very helpful.

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Once again, we are a little shorthanded on the bridge expertise in the room here. If I had Bala Sivakumar in the room here, He is probably a co-author of 12-78. He is a member of the committee in TRB. Very knowledgeable individual. And we feel pretty confident that we will be doing a good job of bridges as we will be doing a good job with pavement. We will do a good job of the study.

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Mary Lynn: Dennis Golabek brings up the issue of state policy regarding barrier and cable barrier design.

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Bryna: What models or studies are available? You guys have already gave us a number of studies that are available like 12-78, this is great. You are breaking it up for us structural bridge versus bridge fatigue. So if there are other examples that beyond the 12-78, we really appreciate those thoughts. Georgia, is offering, they are going to be meeting with a team, in the week of June 5 a have offered to bring this question to them. About which sites that are problematic and we will take you up with Georgia. Georgia Division, can you tell us your name? Is it just anyone in the Georgia division that can share with us? Can you share with us who you are or you can e-mail us if you do not want to put it up online?

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Dave Painter, Leon Kim and Dana Robbins, thank you guys. We will be in touch with you on a follow-up.

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Tom: Dana you are supposed to take good notes today.

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Bryna: Anyway, this is great. Any other suggestions about models or studies available beyond the 12-78. Somebody suggested that we reach out to Boeing aircraft engineers. And ATI erosion analysis division.

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Tom: Very good ideas.

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Bryan: The issue seems to get pushed aside all too often is the federal bridge formula standard. How will it be factored into the study?

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Tom: That is a really good question. We are grappling with that with the project team right now. Do we relax, do we invite truck or evaluation into the study, not just bridge but to evaluate across the board that may not currently comply with the federal bridge formula? And we are having a discussion now with the project team of setting up a scenario of what we call bridge formula relaxed. In other words, gross vehicle and actual weight limits would be keyed in on but we would not limit the configuration of the vehicle for evaluation based on meeting the compliance with the current rich formula. There is a question, what do you recommend we do? Knowing the history and background of the federal bridge formula we are talking about engineering circa 1950s, it went to federalize into law in 1974. I know all this through Jim March and one of the books I've read by Jim. But the whole history of the bridge formula, can we only in the study run the whole study and do a good job with proposed configurations and have those same configurations always adhere to the bridge formula? Probably not.

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Bryna: Remind us the time frame of this study is to be done?

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Tom: We report those to Congress no later than Nov. 2014. However the compiled technical analysis will have to be done -- they are scheduled for March of 2014. That means each of these individual areas will be into a compiled analysis for each research report. That becomes the foundation for that report Congress.

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Bryna: That is very helpful. Okay. Good luck with that, Bryan Spoon says. I am just reading what is on the screen. I am just reading.

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Tom: I do want to point out to everyone really, I would consider the 2000 study funded at about \$5 million over the five-year period and there is a whole collection of technical papers that are included in that study. They are absolutely invaluable as part of that study. Jim, am I off by money or time? It was out rather large effort with a lot of resources.

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It was huge. So we had half the time in the budget. And we are holding ourselves to publishing the same level of quality that came out of the 2000 study.

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Bryna: So Idaho, bridges for the purpose of analysis, all bridges on state highways were split into groups there was work done there and Jim Larue from Barring trucking laid out a few things here.

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Tom: Thank you Jim.

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Bryna: As for bridges, AASHTO bridge committee on that . So this is really great. So, anything else on bridges we are going to open the phone lines. I know you guys have not used it much but I'm going to try again. Operator? Are there any questions on bridge model data or studies we will open the phone lines. Sit there and any takers this time.

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[ Operator Instructions ] And we do not have any comments over the phone.

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Bryna: All right, thanks operator. So, we are not going to move into safety. We have a lot to cover on safety. We have a lot of interest in this topic. So Tom why don't you talk to us about the safety analysis of this study.

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Once again, the task area under the project team is being led by an expert in commercial vehicle safety evaluation, modeling and assessment, John Woodrooffe and Dan Blower -- from the University of Michigan Research Institute. And they are also the keepers of the data base which is quite unique. Involved in TIFA data fatal accidents any brings in that data set to the study as far as the project team. So we start off on the safety side so what we're going to be looking at with in the safety analysis. I keep being told by those why been involved in prior comprehensive studies that they have never done it like this before. We are going to do the work that has been done before which is using simulation models to look at vehicles performance, tracking issues and evaluate safety on that basis but at the same time we are diving into the crash data. We are going to need to get into the state data crash data. Which we really do not have a very large national database that would tell us, crash involvement and crash frequency and severity. Very, very difficult to record that information. If we think about that accident on the freeway, were on

a highway system, and the emergency responders are responding to close lanes, the first thing in the mind of the emergency responders is to get the road clear tend to the folks that are hurt and injured and get the road cleared and get back into normal operation again. So they are not there to re-create an accident scene. We do not get a lot of information regarding weight as a factor of the severity and frequency of crashes. We're going to try to do that in this study, to get beyond the general estimates that NHTSA has and get beyond the large truck causation study database motor carrier maintains [ Indiscernible - low volume ] And look at what is contained in TIFA and we are going to be looking at really our charge is to look at crash frequency, crash severity, at the low federal size and weight limits or those vehicles that are above and then introduce them using simulation modeling if we change vehicle configuration, how would that impact the safety performance of the truck and safety in general overall. If you come up with an alternative configuration. Remember, you are still working on that and you'll be filling out your worksheet and you can tell us what one's to be looking at. But as you come up with a configuration quite possibly the configuration may be something in a state now, our intent would be to look within that state at their crash records at local level, state DOT level, to see what kind of information we can extract that would be imperative analysis that we need to do.

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So, general framework, once again when you look at the various figure parts up top. You can see the Michigan as a living lab; Michigan is the home of the centipede -- 164,000 pound truck on no less than 11 axles which is a legal operation into the state of Michigan down to Toledo, Ohio. So we can look at the accident record for that vehicle size. We can look at Michigan under the upper Peninsula. There is it terminus amount of logging that goes on, heavy forest product activity in that area. Michigan does not have an insignificant level of agricultural pressure for commodity movement. There is a lot of aspects and write in Dr. Woodrooffe's backyard. Typical of these pressures on transport industry is to haul heavier, actively in Michigan. So that we will start to look at Michigan as a living laboratory. What do you think about that? Let us know. Crash rate analysis - This experience is invaluable. Absolutely invaluable. Large fleets members in the American Trucking Associations - in some case they have incredible records on safety performance and the different kinds of configurations that they own and operate within their state. We will be working with the American Trucking Associations partnering with some of these larger companies to get information that will be helpful to support the study regarding their experiences with safety with some of these alternative configurations.

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The rest is the integrated analysis is to bring in these together in parts and generate findings and paint a picture with Specific measures, loading levels, vehicle types and then come out with the performance results. Desk scan to look at vehicle safety in regard to traffic, how did the vehicle hold up with the strain of increase payload. How good it would withstand loading and pressure. The loading and the strain of increase payload. There is a lot of that in a lot of different areas, South Africa, Australia, Africa, Brazil, are actively looking at what are the right size of trucks to meet our needs and the investment ability. And that was all said on one slide.

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Paul: Thank you. So a question that's come up as you have been talking about that. For configuration, the configuration that is not in widespread use it does not have a strong historical set of data, will be evaluating performance data in terms of breaking distances and this type of information on trying to model the safety impacts.

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Tom: Absolutely. It is important.

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Paul: Interest in exploring data beyond just the historical crash rates.

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Tom: You're absolutely right we live in an ever-changing world, and I do not want sound silly when we say that but we are looking at historical crash rates and delivering value to us. It delivers value in the study but really we have to do it and looking at the 2000 study, we keep going back on that. We hold that study in very high regard. They did a very important thing in that study and that is what are the characteristics of the fleet today -- and we need to do that on this study right across the board. We need to do that again. So does the value of the historical patterns fall away, maybe. I do not know. But we need to look at that fleet and characterize it we need to give it a complexion to look at what is moving out there today and why is it moving. See from safety standpoint how well is it behaving. We need this base case picture. Remember, Congress needs two things - we're going to evaluate the proposed changes in size and weight limits -- from a research stand point challenging. But we also have to in the language of 32 801 and safety will happen today if things were different. Are larger trucks causing higher concern from a safety standpoint. How much? What is the cost? Do we cover the cost? Congress is very parts active in their language and how we do the study and in a lot of ways it may be a challenge of doing this study a lot easier and more manageable. That 2000 study is all over the board. Every aspect, every angle you could ever imagine in the trucking but once again double the budget, double the time. We do not have the luxury. Thank you Congress for the outline, we are underway.

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Paul: So will there be the impact of heavier trucks and alternative configurations impact on barriers and other things on the highway?

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Mary Lynn: The way I would reason is that there is an interest in having us address the issues.

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Bryna: That is what we are looking for. This is very helpful. Also suggesting that truck incident data be separated out. So it's not just car versus truck or truck versus truck but break the bicycle and pedestrian crashes out. Let's move onto the next slide.

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Tom: Sure.

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This is once again not the incidental subject area to USDOT. This is our mantra, this is our banner. Safety is number one.

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To determine the safety performance results. Our method is being laid out here. Comment along the way. How you would do it today if boss were to ask you to do it today? Use the safety and violation analysis. Yes we will look at inspection records. Motor carrier safety administration when we were putting this together in the beginning, they were interested and they do not separate commercial vehicle safety and compliance findings in the work that they do. They are looking at violation patterns, maybe a way to start looking at the trucking fleet regarding their behavior. How well they behave. Use simulation to evaluate performance measures. Come up with different configurations. They need to be practical and tied to transport paths. They need to be tied to, this may really happened. There is a push for this kind of configuration gaining in

popularity. We saw that happened over the last five or six years. And that is in the construction dump trailers. They are all running over 80,000 pounds and they are running at six axels. And the reaction was changing configuration when we see the vehicles on the highway system a lot these days. Look at inspection records, how are they behaving, how well do they hold up? This will be analyzed within this methodology.

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Bryna: We have a comment here that you cannot be heard, Tom.

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Tom: Okay. I'm sorry. I will speak up and speak towards the speaker. My mistake. I was saying this is a methodology that we are standing up. Please comment on this. Give us what you think the best way to attack the safety analysis as we are evaluating, not only what is on the roadway today, but what we are also introducing, alternative configurations into the analysis. The truck crash, stability control, safety inspection, violation findings, they fall into the data area but they've fall into the methodology that is recommended here. Vehicle simulation. Very valuable. Very safe way. Very widely used. We are having a proposal by the project team to use Truck Sim. It is a widely popular used tool. Regarding tracking safety. That will be included within the study as one of the models. Anyone else out there have any good safety models? Let us know. Safety is, like I say, a key area. I did not mention another database. My old freight office director would be not pleased with me for not mentioning it, but the highway safety information system will also be used as part of this study. That is the database, that gets more into the barrier in the interstates, and more into the looking into the infrastructure component. Regarding roadway and highway infrastructure. All the data we can get, all of the models we can get, put them on the table in front of us, please; we need to consider them in this. Modal shift and safety are the two areas in this study that I find the most fascinating, to be the most intriguing, and without a doubt, the most challenging areas that I believe our ultimate customers for this study, which is Congress, is most keenly interested in. Those are the two areas, really, we need help. We are looking for your opinions today. Remember, today we are supposed to have a listening session, so at some point, tell me to be quiet because you want to talk. And type or use open the line when we make it available, please.

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Paul: We now have on the side available the data sources for our safety analysis that many of us have been talking about. If you have additional data sources to provide to us, please feel free to enter those in now. Any of the ones time mentioned are there.

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Bryna: These are some suggestions. Some of you are suggesting others. What is STAA? They should not be including in the crashes?

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Tom: They will not be. That is 1982 double trailer federal legal vehicle. That would be in the population of meeting current size and weight limit. Those are short double trailers 28 foot. Those short doubles are not of interest. There was push by industry not too long ago we so reauthorization from American trucking Association asking for another pallet. On the vehicle configuration. The twin 33 is on the sheet as an example of a double that could be recommended as a configuration. Practical and the industry has on the table in front of Congress at one point naming the question of reauthorization. We are not pulling rabbits out of the hat, we are listening to what is out there and what is in the conversation. Regarding the valuations that we will run these vehicles through.

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Bryna: What we, I'm sorry, Mary Lynn?

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Mary Lynn: To clarify, some are suggesting that we are careful with the data because some states may actually combine the data. So we just look at the data.

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Tom: Yes. WIM data especially. We have all ground our teeth at different times. When the passenger car is following too closely behind the trailer and we start seeing LCDs out there, with the trailer being very short and very tight, you have to be able to understand the what you are looking at. Preserve the good quality within the data sets.

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Bryna: We have eight comments and questions. Will that include the impact of enforcement evasion? Portland State University analysis and late 1990s shows evasion to be widespread. With the study include the probability and impact of enforcement evasion.

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Tom: We will jump to the next module and address that, the answer is yes, hang in there. We will get that.

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Bryna: Excellent. What data sources, if we put out as a strawman a potential data source, some of you are listening, what other data sources that are available to analyze crash rates tied to current federal legal limits and then are there any data sources that could be used to analyze crash rates tied to those operating above the legal limit. We would like to have some input on both of those, but we are really looking for specific data sources. You guys have been great on the pavement piece, bridge piece, we need the same rigor here on the safety piece. I know we have been at it for a couple of hours. We need just as much insight here as we got from you on bridge and pavement. What are some specific data sources. ITS traffic management centers is being suggested.

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Tom: I need crash data, I need frequency. I need characteristics of the trucks involved in the incident. Doing a comparative analysis that we are being charged to. Anybody have anything up their sleeve on that regard.

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Bryna: There is a limitation on some of the data. Low speed off tracking performance assessment, as it is now done, sometimes assumes six trailer wheel-based lane. That is some consideration for limitation and data set. It is not across the board. Somebody said it is important that we don't just take one state, that we don't extrapolate data from one state, but that it is applied nationally. Another limitation or consideration for the data. Other ideas for data sources really look at the study to include in this study.

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Mary Lynn: Oregon possesses crash data pertaining to triple trailer or -- operations.

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Bryna: Truck operating over the legal it weight limit with or without legal variance permits. Good point.

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Tom: You can go into the permit offices and get certain pieces of information. Weigh In Motion databases should be able to capture those businesses or at cases of trucks that may have been required to get a permit or may have been busy that day and did not get one.

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Bryna: Somebody is asking if ATRI may keep up with travel time. Does anybody know the answer to that?

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Tom: Dan Murray said yes. He will help me out. ATRI has done a tremendous amount of research and trucking including air quality impacts, most recently, they have been very interested in the discussions on a truck parking. We have been working with them on that. ATRI is a group we will be engaging with. We had a discussion with triple trailers connected by B hitches. And ATRI teamed with us on participating in this presentation on what their study was about. I would like to have industry partners online when we have discussions like that because it is a whole other level of sophistication and knowledge then just having a government guy like me only.

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Bryna: We are also interested in studies. Like we did in the first question. If you go back a couple of hours today. We asked what studies should we include in our desk review here. We would be interested in what studies you think are worth including in the lit review as we move forward. Data or studies. Will the study include data on financial impact of each event? We are looking for your insights on that.

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People are suggesting acceleration data. Since heavier trucks with the same horsepower torque gear that take longer to accelerate which can affect signal timing, on/off ramps, and the safety of that.

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I know we have a lot of different types of stakeholders online. We would like to get some diverse perspectives on here relative to your thoughts about studies and data. Considerations for data and studies that we should be including in this desk review is a first step. Earlier, when we were on pavement, you guys were sending out links and reviews. We will take similar detail on this topic -- if you have it. Again, if you don't have it right now, you can e-mail it and we will put up the website again. CTSWstudy@dot.gov. Right now, if you have it, that would be great. Somebody is suggesting insurance companies might have some safety data. Thank you, Jennifer for sharing that with us. That is the inbox. Right here, if you have specific studies that you think we should really take a look at and include or specific data sets that would be terrific. We have a wide range of stakeholders signed up today. We will like to hear from all of you relative to this topic.

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Mary Lynn: Ron has a different perspective. He's talking about racial and social justice implications on increased regulations. I assume you would like us to include some comment to that effect. That is how I interpret that.

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Bryna: Is that right, Ron? Looking for a perspective on here.

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Paul: I think what we are trying to get with this study is to look at impacts of alternative configurations along these lines. I don't know if we are doing anything in regards to

increasing regulations or requirements on particular kinds of trucks. As a part of this study. We are not suggesting that in this study is alternative configurations will be used, therefore, add certain requirements or costs. That is not what we are looking at at this time in regards to equipment or GPS or training or things like that.

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Mary Lynn: Or anything. I think you make a good point. What we are doing is just looking at what the impact would be of allowing these different kinds of trucks on the road.

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Bryna: Completing an evaluation aspect. Right now. That is great. Again, looking for data sources or studies that could be used or should be considered as part of the study would be great.

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Tom: While you are thinking about that? I want to go back and underlined some of the points you made. I had thought Mr. Paniata he made it clear in his presentation today. That was, this is not a study that will include any policy recommendation, it will not include any recommendation for rule-making process, we have been asked simple questions by Congress, what is the difference between this and this and what the consequences it we consider changing something. Those are the questions that we are going to answer. The other activities that follow are not within the scope of this study. How is it used legislatively, what is used on the road, we want to do a great job with the job at hand right now as it is laid out by Congress.

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Paul: To answer your question, Ron, I think the study would consider the higher maintenance costs on the drivers on the fleets as part of the alternative configurations. It would not necessarily consider any implications on potential increased regulations that would come along with any potential comparative configurations. We are not looking at making any regulatory changes as part of the study. We would however look at if we were to adopt alternative configurations, what would the impact be in terms of cost on to drivers.

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Tom: What we do when we get into the safety is the compliance and the enforcement piece, we are required to report back to Congress, what federal laws and regulations would be affected. So we will do that. We are not recommending what the changes to those would be. Should be. Could be. It's just where are they and what would be affected. That's within the scope.

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Bryna: Let's go to the next slide.

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Mary Lynn: Several people have talked about training, driver training. And that sometimes that the better, longer, combination vehicles have better drivers, better training. And we should be considering training.

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Bryna: Very helpful. We had talked about data and studies and you will give us more ideas on that. What models or analytical tools are available to evaluate crash rates, severity, frequency, other aspects. Again, at the current federal level and above the federal level. Looking at alternative configurations. What models or analytical tools do you recommend that we consider as we build the methodology for the study. We talked about data, we talked about studies, keep them coming, but we will drill more here specifically to the safety analysis. We want to hear from all stakeholders online. Some of you I know have been listening and you have been great, but if you have some good ideas, we would love for you to share them with us today.

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Tom: This question with crash rates, the project team is saying help. Please let us know. When it comes to models with regard to the crash rates, analytical tools; that becomes an area that I think we are looking for help. We are looking for good ideas.

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Bryna: No one is typing.  
Not a good idea. You guys stopped. You guys are thinking.

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Mary Lynn: Oh, somebody's typing.

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Paul: This is not related to cash rates, but I presume we will consider the impact of the interstate designed to old geometric requirements since we have that potential change in safety outcomes as a result of alternative configurations.

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Tom: Absolutely.

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If we are proposing or evaluating alternative configurations, changes in dimension, especially, alternative configurations will change within the envelope of the vehicle, we have to evaluate that against the ability of our infrastructure to accommodate safe operations on the system today. It's not only mainline it geometric design standards, we will be into the ramps pretty heavy. How do you get on our off the road? That is where the challenges occur. Outdated standards, modern standards, we will look at whatever the infrastructure, if there is a cost. If we have to come back out and say, for this vehicle configuration to safely operate on the system today, you will have to rebuild no less than 22,000 interchanges at an expense of..., that is a cost I feel we need in order to answer congresses questions. What happens if? That would be one of the what happens. If we need dedicated funds to go in and rebuild ramps all over the place to get this vehicle out on the system safely. That is part of it. Simulation, I think we are okay modeling there. Crash rate, I would like help. Crash analysis, crash analysis models, there has been a tremendous amount of work done up in the province of Ontario. Rob is not online today, he has looked at a lot of historic truck tracking data, looking at predictability modeling. What is the probability of a bad truck event happening under certain traffic situations. [ Lost Audio ]

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Bryna: We had some technical difficulties. Welcome back everyone.

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Tom: Short break.

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Bryna: We have just been waiting for you to give us good insights on models and analytical tools available to evaluate crash rates at varying frequencies. We are looking for specific recommendations here from across the board. We will hang on for just a few more minutes here to see if you can share with us, I fear we are having webinar fatigue at the moment that we need your insights at this critical point of safety. Stay with us on the safety conversation. We just have one more conversation after this which is on compliance. Again, we are looking for data studies or models or tools relative to evaluate safety and crash information.

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Paul: A lot of people seem to be talking about training. One thing that is coming through is in as much as we would consider the impact of infrastructure would be of alternative configurations

what the needs would be if we were to allow alternative configurations, perhaps we have to consider what the training needs would be if we allowed alternative configurations. I don't know if that is in the scope of work or not.

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Tom: That would be an extra cost component issue or not.

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That's a good point. It completes the thought if you will. There was comprehensive -- if it really were to happen, what would you do. Driver training is a component there.

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Bryna: We have another question on safety, what if any concerns or limitations related to prior studies or data sets should be taken under consideration during the study? You guys have listed a lot of good ideas and studies and links and we love that. But just as we discussed in the pavement and bridge studies, what if any, concerns or limitations should we consider relative to both studies and data sets?

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Tom: Howie Mann jumped the gun there. you had a great comment. It appeared that maybe within the New York Metro we take a look at the availability of truck parking or rest facilities in the pattern of truck crash. I would like to learn more about that. I think that is a fantastic notion or very valuable to the study, what you are looking at here. When we did have a discretionary program on truck parking, the applications that I received every year would have descriptions of safety problems tied to the lack of adequate truck parking facilities. Howie, you are not of the mark. Give me a little bit more information so I can follow up and get the project team a little smarter on your point.

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Bryna: Looking for concerns or limitations related to any prior studies or data sets that we need to really know about. Weather conditions, trucker experience, number of trailers.

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Tom: Thank you Dan Murray. I think I have a copy of that report already. That will be included in the desk scan.

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Bryna: Careful attention to penalties and how they will impact. Sample sizes. Thank you. This is great.

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Tom: They are recovering.

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Bryna: They just had some chocolate.

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Tom: Very important area. It reaches into the cost of landscaping in so many ways. Jim, prior work on evaluation in the truck and size and weight. Where did you find the most challenging regarding the safety? What areas did you walk away and say, gosh, I wish I had the data.

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Jim: The crash rates by configuration. There is little data out there when you are talking about long accommodation vehicles.

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Tom: Those are areas where we may be talking to industry for the records the larger properties have. In the data set. We have a lot of success accessing information. Other people have different

sources. Let me know. Howie, thank you for the reference. I think I have a copy of the truck stop study you did. If I do not, I will follow-up.

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Bryna: They went for coffee or chocolate. We are back in business here.

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Tom: I love that color blue.

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Bryna: Yes all of those hyperlinks. They are awesome.

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Any concerns or limitations. Any studies, any data, we want to hear from diverse perspectives here, there are over several hundred of you online. We really appreciate this. Some people have been asking what happens at the end of our webinar today. Just so you know, we will be posting the transcript of the webinar on the website here we will give you the website address. We will be doing a summary of all of the notes. We will be accepting comments for another week into the e-mail box. Very much appreciate all of your good information. We have one more topic. The next topic is compliance. Tom.

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Tom: To wrap up safety and pointing to safety studies, if you have hesitation or aspects within that these studies that cause you concern as you are asking us to look at them, make us aware. If you feel there is a study that was valuable but did not handle a certain aspect or element very effectively, bring it to our attention. Like I said, we are not wholesale swallowing prior work that has been completed. We are doing a critical analysis to convince ourselves in only using those aspects of the studies that will contribute to our study being what we envisioned it to be. I want to know our limitations and what makes you uncomfortable. Compliance analysis? The methodology? Once again, this was the shortest section in the law that Congress put in there. The work I do every day, it is definitely the most interesting area. And I do know and understand the importance of this area is the enforcement and the compliant piece in the methodology. We have information available through Federal Highway Administration, the annual state implementation or enforcement plans, state certifications that federal laws and regulations are being administered in each state. It produces a tremendous amount of information that comes back to federal highway that can show us patterns on ticketing, bridge formula violations, can't get back to the vehicle because these are wholesale, statewide, annual numbers. But we can take a look at that data and get a very good sense of the effectiveness of the enforcement as we have been asked to look at. Remember, compliance officers or inspection officers go over to inspect eight truck and do a level I inspection, that becomes a baseline. How many officers are involved? From what kind of equipment is involved? And how long does it take? You can cost that inspection. What happens if we change the size of that envelope in that vehicle roles and for the same level I inspection? What is the marginal increase in either person power, level of effort, time it takes, what is the cost differential? We have to answer that question to Congress, once again. If we are to change something, what are the consequences? What are the impact or implications. In the compliance methodology, we look at the violation rate by type or the truck that are being cited, or not compliant. Remember the motor carrier regulation not just size and weight with federal highway we are looking at. Do they have higher level of non-CDL violations, brake inspection violations, we want to look at these patterns. Keep the conversation from outside the hallway and put them in a report and analyze them and see what it what we can understand and know regarding violation rate. Obviously, the trucks that are at or below federal size weight limit will

not get a lot of overweight violations. We are looking more broadly at US DOT interest in compliance when we walk through these compliant analysis methodology. Permitting. Gather and compare permitting information. Looking at enforcement agency records. When we have oversized, overweight permits. Is there a high level of violation that goes along with that? When they go for an allowance do they go for X or X plus something else. As a typical business model. Just looking at the effectiveness of the enforcement. Setting the landscape. What would be the impact if we were to change federal size and weight limit? The cost of enforcement we can probably call in the colleagues that do the enforcement plans to do the annual certification. A lot of plans that we get a lot of certifications have crossed data. We may not have a complete set of cross data. How expensive is it to enforce federal size weight limit. I don't know if I can put that to the penny right now. Maybe to the ballpark. But not to the penny. We would like to make that a more refined measurement within the study. Inventory of federal laws and regulations that would be affected. I spoke to that earlier. We will be in Title 23 in 49 US states. Transportation, that is where NHTSA is and motor carrier is. We have to look at their laws and regulations in that title of the law while we are looking at the highways, the 23 title. And identified the laws and regulations that would be affected. If there were a change in the federal limits. Definitely within scope. Data I mentioned with certification, enforcement plans, enforcement costs and resources, may not have enough. I will probably bug Leo Penny going to the subcommittee on Highway Transport to get additional information, working with the project team as needed. The state permit data. Very valuable. With this regard regarding the compliant, the WIM data helps us define the population out there and profile in regard to weight. Here are some of the data sets. This looks like a short list to me. Do you think our participants can build it out for us a little bit?

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Bryna: What is the question here? Any comments related to anything related to compliance. We are looking for any of your thoughts related to compliance.

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Tom: Data, modeling, anywhere, all of the landscape, anything and everything?

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Bryna: We touched on a number of these things already. But anything that you guys have thoughts on relative to compliance is incredibly helpful.

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Mary Lynn: Virginia made a comment that you should look at all of this as state data and what would need to be changed with respect not just the federal laws but state laws. I think it was more of a point than a request that we do that.

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Tom: Thank you for the input.

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Bryna: Any additional comments related to compliance specifically to compliance will be really helpful. Or any other aspects of the study that we have not covered today. Alternative configuration, pavement, bridge, safety, modal shift, compliance, or other things that you guys think we should be thinking about moving forward. This will be a chance to do that. Operator, I know we have not had anyone take availability of the phone lines but want to give them one more chance.

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Tom: Someone please be.

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Operator: Again, to make a comment over there this phone, please press star and the number one on your telephone keypad.

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Mary Lynn: There was an earlier comment from Skip asking whether we would consider some new configuration and I think we would if you told us what it should look like and why.

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Tom: That was my begging and pleading upfront Skip Yeakle. Whether Volvo builds it or not, I do not care. Fill in the worksheet and let me know, what would it look like? What would be the configuration? How many axles? spacing? But more importantly, on the second sheet, please tell me the benefit and cost and advantage and disadvantage of running it. There are two parts.

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Bryna: Consideration of bridge rail and substructure impact is being suggested.

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Bryna: This is our closing ask for the day. Any additional considerations or compliance, safety, bridge, modal shift, alternative configurations, or anything else we have not covered today that you want to share with us. This is not your last opportunity to share. But before we, we are going to reconvene with the entire group at 4:15 with people in the room for those of you who want to join us again at 4:15. I think we are wrapping up in terms of this session. Can you go to the next slide? Here is the inbox for submitting comments. The website, we have the website address? Somewhere? We have it in the chat box. We will be posting the transcript and summary notes from downstairs. You can download all of the presentations, the configuration worksheet.

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Operator: No comments on the phone. I'm sorry, we do actually have a few queued up. The first one comes from someone who did not leave their name. Your line is now open.

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Wayne Pierce SHA: Hello?

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Bryna: Yes.

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Hi this is Wayne Pierce with the state highway and administration in Maryland. The question I had is: how it does the federal bridge formula work its way into this. I know there has been a lot of emphasis placed on trailer length, but shouldn't the focus be more so on wheelbase? Pertaining to weight?

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Tom: With respect to the bridge formula, yes, it would be the number of axles and the spacing and how we are broadcasting that payload weight to that bridge structure and reevaluate that using the federal bridge formula. A little earlier, we don't really want to, and we are going to evaluate and assess alternative configurations. We want to operate within a scenario that calls for the relaxed federal bridge formula to invite those configurations that by definition and at the outset would be violators of that federal bridge formula. So we want to have a scenario where we relax the bridge formula, if you will. But at the same time, we will be, that will when we say federal legal, that is one of the federal requirements in terms of setting a limit.

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Wayne: Okay. When you referred to the term relaxed federal bridge formula, is that, would that indicate that higher weights that you are suggesting for the different integrations and longer

trailer size, those type of suggestions would be beyond the parameters of the existing bridge formula? I mean, I guess, that's what I'm trying to ask.

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Tom: Whatever the federal bridge formula and its operation would dictate is the maximum gross vehicle weight limit or the other two tests, the bridge and the trailer test, if they were indications of a violation, under a scenario, we recognize and know that that violation occurs and yes, we are not going to pay attention to that right now and evaluate that vehicle on other grounds.

Regarding the pavement impact, bridge impact, safety, and performance implications. The federal bridge formula may be a little restrictive regarding what we could invite into the study for analysis. I don't want that restrict the suggestions that you put before us for the configurations and I wanted to assure you I am not going to throw out every recommendation you make based on noncompliance with the federal bridge formula.

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Bryna: Next question? Thank you Sir.

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Wayne: Thank you.

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Operator: A comment from Kip Hough, your line is open.

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Kip: I have a couple of closing comments. One thing that I do not think has been mentioned is that the bigger and heavier the vehicle is, the more fatiguing it's going to be on the driver to operate it. With heavier trailers, the driver will spend the majority of a driving shift steering one way in steering the other because of the characteristics of the combination; the back trailer will always be wagging the dog. Another thing that is really critical to keep in mind, generally, when it comes to snow, icy, icy roads especially icy mountains, the more articulation points in the vehicle, the heavier the weights make them especially more dangerous on icy roads making it much harder for the truck driver to control, but it also affect motorists who will be around the vehicle. You were also looking for studies. I remember one that the GAO did where they look at LCV safety and I believe they concluded that safety was unknown and one of the characteristics of that study was that very few states actually inspect longer combination vehicles from an inspector standpoint. If you are going to do so many inspections in a day or in a week or in a month or whatever. Do you want to spend time inspecting a truck and a trailer? Or a truck a trailer a trailer and a trailer. It's easy to see that they don't look at those account for one, yet, there is a lot of effort required. A lot of those things are not known but in general in instances where trucks are inspected that are above 80,000 pounds, generally, they find more violations.

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Tom: I can't thank you enough for the valuable comment you just made. I just want to ensure or assure you that everything you just said was captured. It is on the record and its put in front of us and I really thank you. Those are really good points.

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Bryna: Thank you. That is 1000%. Any other comments lined up operator?

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Operator: We do have one more comment again from the line of participant whose name was not left. Your line is open.

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Brian Spoon: This is Brian Stone. Spoon trucking. I don't think the study could be done without an addendum for driver training. As far as longer heavier vehicles. Plus what the impact of the states will have to reconfigure their weigh stations to allow for weighing these longer, heavier vehicles. And what is the safety involved in the current safety barriers we have on the interstate, whether it be guardrails or the wire or so on. What that impact would be as far as the heavier vehicle weights. And lengths. That is all.

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Tom: Highway safety information systems. Federal highway talks about the durability appurtenances like that to keep the roadway in a safe operating condition when we increase the weights obviously, we are asking our guide rail to stand up and do a heavier task. What is the breaking point regarding when we have to change the standard. We go to AASHTO, we know how they promulgate the standards, go to TRB look for research regarding where the breaking point is, identify these factors, very important. I do thank you for that comment. Can't agree with you more.

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Bryna: Anybody else lined up?

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Operator: There are no further attendees thank you.

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Everyone, we are going to leave the chat box open. At 4:15, the downstairs session will be convenient at a large group. We will leave it on and leave the phone line open. The inbox is posted here if you want to submit you can do it through the web or in the inbox. We thank everybody for your tremendous perseverance today in sticking with us for this long, but also for your valuable comments. For those of you who have join us back at 4:15 in the big room we will see there. Everyone else, we had wonderful meeting, keep them coming in.

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We will keep it open so they will keep coming.

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Thank you. [Break. Session will reconvene at 4:15 PM EST ]

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Caitlin Hughes Rayman : For those of the last session wanted to know when the study was due, it's a due October due October 1 of 2014.  
It is 4:15 and we promised to do the closing wrap-up at 4:15. Has the webinar been transferred back here at this point? Is the webinar dialed in? Okay. Thank you. Thank you very much for those of you who came and stayed today, it was very long, but a very informative from our end. We appreciated the diversity of opinion expressed today. We also want to express our great thanks to the people who dialed into the webinar and on the phone. We just about maxed out our web capabilities. With the 300 people who dialed in. I hope that we will get more for successive public input sessions. I will have to open up separate web lines. But thank you very much all of you for your engagement today. As was mentioned earlier, we will have, this was not mentioned, but we will have an initial draft version of the desk scan. We will develop that at the end of this month, hopefully. These are the products that we would like to put up on the web so people can see where we are in weigh in on this. We will also be engaging on the national Academy of Sciences on an independent peer review, the reason for mentioning this is that when we think the term peer review we think of something that occurs after the fact. But we wanted to let you know that this peer review will be conducted concurrent with the study. We will have experts led by

the National Academy TRB who will be following along with the development of the study looking as the researchers do their work, looking at the same materials and weighing in so that it is not a after-the-fact analysis. We will have that peer review run concurrently. The project plans and schedules for each task area, we got into that a little bit today, but we need to provide more detail on that. We will incorporate the thoughts that we heard today in the areas of pavement, modal shift, bridge, safety and obviously in the area of enforcement and compliance. We will pull these together by the end of next month. Look for these this summer on the web. We would also like to let you know that, we do not have it on a bullet, what happens here today is very helpful to us, but we also want it to be useful to people who were not able to participate. So we will provide a summary of what occurred here today. We will put that on the web as well. We heard some good input from people who are actually operators in the trucking community. Asking us to get more truckers. I would encourage you to direct those that you know in the trucking industry to go to the website and follow along and provide input. The next stakeholder meeting will be scheduled for mid-September. We haven't identified the location or the date but we will give you information so that you can participate in person or on the web. We may consider moving them to other locations around the country as well to expand participation. We will let you know for sure the e-mail and also by keeping in updated information available on our website. We are going to inform everyone who participated today whether they dialed in or appeared in person, of the details. Watch your inbox for this, details about outreach in the future. If there is anything we missed today, you think of something when you go home, go back and talk with your colleagues or counterparts or family members if you would like to come back and let us know what we should be looking at, we are happy to meet with you. Call us, e-mail us, provide input through the web, the e-mail you saw on the slides will be up and running throughout the period of the study for input. With that, I would like to thank you very much on the nose on behalf of the department for kicking off this important study. Thank you.

[ Event Concluded ]