



**STATEMENT OF JOAN CLAYBROOK
CO-CHAIR OF
ADVOCATES FOR HIGHWAY AND AUTO SAFETY**

ON

**“OPPORTUNITIES AND CHALLENGES FOR IMPROVING TRUCK SAFETY
ON OUR HIGHWAYS”**

BEFORE THE

SENATE COMMERCE, SCIENCE, and TRANSPORTATION COMMITTEE

**SUBCOMMITTEE on SURFACE TRANSPORTATION and
MERCHANT MARINE INFRASTRUCTURE, SAFETY, and SECURITY**

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Good afternoon Chairman Blumenthal, Ranking Member Blunt, and Members of the Surface Transportation and Merchant Marine Infrastructure, Safety, and Security Subcommittee of the Senate Committee on Commerce, Science and Transportation. Thank you for inviting me to testify before you today. I am Joan Claybrook, Consumer Co-Chair of Advocates for Highway and Auto Safety (Advocates) and former Administrator of the National Highway Traffic Safety Administration.

Founded in 1989, Advocates is a coalition of consumer, health and safety groups and major insurance companies working together to promote safety on our roads and highways by advocating for laws and regulations that prevent crashes, save lives and reduce injuries. Advocates is a unique coalition dedicated to improving traffic safety by addressing motor vehicle crashes as a public health issue. One of our major safety priorities is the unnecessary and unacceptable death and injury toll caused by truck crashes. I appreciate being invited to testify before you today on the opportunities and challenges for improving truck safety on our highways.

Introduction

Advocates has been involved in the issue of motor carrier safety and truck driver hours of service regulations for 25 years, and with good reason. Truck crashes are a serious, deadly and costly problem to families, our health care system, and to the economy. Government data and statistics illustrate the emotional and economic toll of large truck crashes on the public. Large truck crashes killed 3,921 people and injured another 104,000 in 2012.¹ Over the past decade (based on the most recent available data from 2003 through 2012), large truck crashes have claimed, on average, the lives of over 4,000 people and injured nearly 100,000 each year.² This is equivalent to a major airplane crash every week all year long. In the past ten years a total of 44,204 people have been killed and nearly one million people have been injured in crashes involving large trucks.³ Despite declines in the overall fatality and injury statistics during the 2008-2009 recession, fatalities and injuries in large truck crashes have experienced increases every year since 2009. The fatality total has increased by 16 percent and the number of people injured has increased by 40 percent since the low point in 2009.⁴ Of the people killed in crashes involving large trucks in 2012, 73 percent were occupants of other vehicles, 18 percent were occupants of large trucks, and 10 percent were non-occupants (pedestrians, pedal cyclists, etc.).⁵ The annual cost to society from crashes involving commercial motor vehicles is estimated to be over \$99 billion.⁶

Advocates is gravely concerned with the recent increases in truck crash deaths and injuries as these numbers continue their march toward a return to pre-recession levels. Unfortunately, several deeply flawed U.S. Department of Transportation (DOT) initiatives as well as adoption of special interest rollbacks in safety regulations will only contribute to the mounting death and injury toll unless changes and course corrections are implemented. My testimony this afternoon addresses several of these major issues related to commercial motor carrier regulation and truck safety policy, including the attack on the safety reforms incorporated in the 2011 hours of service rule, the on-going problems with the credibility and reliability of the DOT Comprehensive Truck Size and Weight Limits Study and the weakening of important motor carrier and truck provisions in the Generating Renewal, Opportunity, and Work with Accelerated Mobility, Efficiency, and Rebuilding of Infrastructure and Communities throughout America Act, known as the GROW AMERICA

Act, recently released by the Administration and introduced in the House of Representatives as H.R. 4834.

Safety Reform of the 34-Hour Restart Rule Under Attack by Special Trucking Interests

Driving a commercial motor vehicle (CMV) is a challenging, exhausting and dangerous occupation; extremely long work weeks are just one of many factors contributing to this reality. Truck driving continues to be identified as one of the most dangerous occupations in the United States.⁷ Nearly 600 drivers of large trucks were killed in 2012 and another 21,000 were injured in truck crashes.⁸ More fatal work injuries resulted from transportation incidents than from any other event in 2012.⁹ Roadway incidents alone accounted for one out of every four fatal work injuries.¹⁰ Despite these facts, CMV drivers are exempt from the maximum hours and overtime requirements of the Fair Labor Standards Act¹¹ which govern compensation for employees working more than 40 hours a week. Since 1938, CMV drivers have been limited to driving within the first 60 or 70 hours of their work week (depending on their schedule). Prior to the 2003 final rule, a truck driver who used all 60 or 70 driving hours was not allowed to drive again until their 7 or 8 day work week was over and a new work week began. This ensured that drivers were provided a full weekend off-duty to rest and recover from the arduous driving schedule.

The 2003 Hours of Service (HOS) final rule, however, instituted the 34-hour restart which allows drivers to restart their 60 or 70 hour driving limit at any point during the work week by taking just 34 hours off duty; this is in comparison with the normal weekend of about 60 hours off for people working a 9-to-5 job. The trucking industry embraced this change because it increases the average maximum work week to 82 hours; more than double the time the average American works. This increase in driving and work hours enabled the industry to realize a huge cost savings by using fewer drivers to move the same amount of freight and eliminating 48,000 trucking jobs.¹² Many drivers are paid by the mile, meaning that if the truck isn't moving, the driver isn't earning. Aside from encouraging truck drivers to drive as long and as fast as possible, the complete opposite motivation from what is needed from a safety viewpoint, this also means that drivers viewed the restart as a way to increase their paychecks. In short, the unrestricted 34-hour restart, as implemented in the 2003 final rule, was a giveaway to the industry that allows motor carriers to cut their bottom line, overwork drivers even more, and in the process convince drivers that it was all for their benefit.

Advocates opposed the unfettered use of the 34-hour restart since it was first adopted in the 2003 HOS final rule.¹³ The reason is that the restart provision allows long-haul truck drivers to drive and work more hours, and therefore get less off-duty rest, each week than was permitted before the 2003 HOS rule was adopted. The startling decline in driver sleep and increase in driver fatigue was documented in the results of an anonymous 2006 survey of truck drivers sponsored by the Federal Motor Carrier Safety Administration (FMCSA) which reported:

About 38 percent of the drivers said they sometimes and 6.7 percent said they often had trouble staying awake while driving. About 13 percent reported that they often or sometimes fall asleep while driving; 47.6

percent said they had fallen asleep while driving in the previous year. Although only 23.4 percent said they often or sometimes felt fatigued while driving, 65 percent reported that they often or sometimes felt drowsy while driving. A third of the drivers reported that they became fatigued on a half or more of their trips.¹⁴

The survey was conducted after the 2003 HOS final rule was implemented and the unrestricted 34-hour restart provision went into effect. The survey showed that nearly two-thirds of truck drivers surveyed (65 percent) admitted to driving while tired and nearly half (48 percent) reported that they actually fell asleep behind the wheel while driving in the previous year.¹⁵ These self-reports, which most likely underestimate the true extent of the fatigue problem, indicate that many truck drivers were operating vehicles while tired or fatigued under those HOS rules.

Equally troubling is the fact that truck drivers reportedly obtained far less than 7 hours of sleep each night, well below the 7 to 8 hours of sleep the agency had found drivers needed to be alert and to perform the driving task safely. According to the FMCSA:

The studies of restricted sleep show that over days of mild, moderate, or severe sleep restriction (1) alertness and performance degrade as cumulative sleep debt rises; (2) even mild sleep restriction (loss of less than 1 hour of sleep a day) degrades performance over days. Seven to 8 hours of consolidated night-time sleep in each 24 hours appear to sustain performance over multiple days, if not longer, for most people.¹⁶

This scientific finding about the dangers of restricted sleep is troubling because truck drivers were found to get less than 7 hours of sleep each day.¹⁷ This fact is supported by other research that has shown that adults in the general population who reported getting an average of less than 7 hours of sleep a day were more than twice as likely to report nodding off or falling asleep while driving in the previous 30 days compared to adults who received more than 7 hours of sleep.¹⁸ Lack of sleep among truck drivers explains the high levels of driver fatigue and fatigue-related crashes that occur. Advocates has opposed allowing the unrestricted use of a 34-hour restart because the unrestricted 34-hour restart permits drivers to maximize their work hours, up to 82 hours of work and driving on average each week, and contributing to driver fatigue.

Advocates favored rescinding unfettered use of the 34 hour restart because rather than provide workers with needed rest, it in fact increases the hours they can drive and work from 70 to 82 hours a week. However, since the 34-hour restart has not been rescinded, Advocates supports the safety reforms adopted by the FMCSA in the 2011 HOS final rule which were only implemented one year ago in 2013. The reforms included three adjustments to the prior HOS rules: the implementation of a half hour rest break within 8 hours of reporting for duty, and two limitations on the use of the 34-hour restart. Prior to the 2011 final rule, drivers were able to restart their weekly driving hour limits by taking an abbreviated 34-hour off-duty period at any point in their schedule. The unfettered use of the restart enabled drivers to work and drive an average maximum work week of 82 hours. The 2011 final rule modified the 2003 HOS rule by requiring that at least 168 hours (7 days)

elapse from the start of one 34-hour restart before the next restart can be taken. The other safety reform requires that each 34-hour restart include two time periods between 1 a.m. and 5 a.m. Both of these reforms to the restart option ensure that long-haul truck drivers have additional opportunities to rest and recover from their prior work week of 60 or 70 hours of driving, and additional hours of other work, before getting behind the wheel for the start of their next long work week.

The FMCSA included an explanation of the necessity and benefits of these changes in the 2011 final rule:

Because research has shown that long weekly work hours are associated with a higher risk of crashes, sleep loss, and negative health effects, the rule also limits the use of the restart to once a week, which, on average, will cut the maximum work week from 82 to 70 hours. The provision allows drivers to work intensely for one week, but will require them to compensate by taking more time off in the following week. Research has long demonstrated that daytime sleep is shorter in duration and lower in quality than nighttime sleep. The rule requires any driver working long enough to need a restart to take off at least 34 consecutive hours that include 2 periods between 1 a.m. and 5 a.m., the window of circadian low. This provision will give those drivers who both routinely work at night and put in very long work weeks an opportunity to overcome the chronic fatigue that can build up when working nights.¹⁹

Driver fatigue plays a significant role in a substantial number of truck crashes. In the 2011 HOS final rule, the FMCSA relied on the estimate that 13 percent of large truck crashes were due to fatigue. The Agency supported this estimate in its response to comments during the regulatory process when it identified that the Regulatory Impact Analysis (RIA) for the 2000 Notice of Proposed Rulemaking (NPRM) used a 15 percent estimate. The RIAs for the 2003 and 2007 rules also used a 15 percent estimate in the sensitivity analyses. Furthermore, the National Transportation Safety Board (NTSB) observed that “truck driver fatigue may be a contributing factor in as many as 30 to 40 percent of all heavy truck accidents.”²⁰

The FMCSA’s estimate is based on an analysis of the Large Truck Crash Causation Study (LTCCS) in which it found that truck driver fatigue was coded as a factor in 13 percent of all crashes.²¹ In 2012, there were 317,000 police reported motor vehicle crashes involving large trucks, including 3,464 fatal crashes, 73,000 injury crashes, and 241,000 property damage only crashes.²² At 13 percent involvement rate (one in eight crashes), fatigue was likely a factor in as many as 41,000 crashes. This is likely a conservative estimate considering that fatigue is notoriously hard to identify short of a confession or direct observation of a sleeping driver, something the agency acknowledged in the final rule when it noted that “fatigue is difficult to determine after the fact”.²³ Because their jobs are on the line, drivers will rarely acknowledge they were sleeping or fatigued when driving. Regardless, the sheer scale of the problem is clear evidence of the impact improvements in driver fatigue can have on safety and saving lives.

Moreover, at the direction of Congress in section 32301 of the Moving Ahead for Progress in the 21st Century Act (MAP-21), Pub. L. 112-141, the FMCSA recently completed a field study of the restart provisions in the 2011 final rule. The findings of the study were conclusive that restarts with two or more nighttime periods, as required under the 2011 HOS final rule, helped to mitigate fatigue when compared with restarts with only a single nighttime period as had previously been allowed. The study found that drivers using 34-hour restarts with only one-nighttime period:

- Exhibited more lapses of attention, especially at night.
- Reported greater sleepiness, especially toward the end of their duty cycles.
- Showed increased lane deviations at night and in the morning and afternoon.
- Slept predominantly during the day.
- Worked predominantly during the night.
- Drove longer hours and typically at night.²⁴

In summary, the once-per-week limit on the use of the 34-hour restart, on average, cuts the maximum work week from 82 to 70 hours. This is still a lengthy work week which is nearly double the total work hours of the average American. The provision also still enables drivers to alternate extended work weeks with shorter work weeks, providing truck drivers with the flexibility necessary to meet the demands of today's freight industry. Similarly, the requirement to take two overnight off-duty periods between 1 a.m. and 5 a.m. ensures that if a driver uses the 34-hour restart to extend the work week beyond the 60- or 70-hour driving limit (depending on their work schedule) the rest period will contain two night-time periods to permit the driver to obtain the most restorative type of sleep. A minimum of two night-time periods is needed to prepare him/her for the rigors of the extended work week and the demanding job of safely operating a commercial motor vehicle weighing 80,000 lbs. on our highways shared with other motorists.

On June 5, 2014, the Senate Committee on Appropriations held a Markup of the Transportation, Housing and Urban Development (THUD) Appropriations Act for 2015,²⁵ during which Senator Susan Collins (R-ME) introduced an amendment which prohibits the DOT from enforcing the safety reforms adopted by the FMCSA in the 2011 HOS final rule.²⁶ The amendment passed despite opposition from Advocates and child, truck and highway safety groups, labor, truck crash victims, law enforcement, consumer, medical and public health organizations as well as several large trucking companies and U.S. DOT. The Collins Amendment, Section 133 of the THUD bill, would not only undermine the safety reforms to the 34-hour restart that the expert agency, the FMCSA, has determined improve public safety on our highways, but it would also usurp the jurisdiction of the authorizing body, the Commerce Committee and this Subcommittee, by legislating a substantive change in federal law on an appropriations bill. We oppose Section 133 of the Senate THUD bill on both safety and jurisdictional grounds and support the Booker Amendment which would retain a study of the 34-hour restart and strike the anti-truck safety provisions from the Senate THUD bill. This amendment, which was introduced by Senator Cory Booker (D-NJ) on the Senate Floor on June 18, 2014, is co-sponsored by Senators Richard Blumenthal (D-CT), Barbara Boxer (D-CA), Sherrod Brown (D-OH), Richard Durbin (D-IL), Dianne Feinstein (D-CA), Kirsten Gillibrand (D-NY), Mazie Hirono (D-HI), Edward Markey (D-MA), Robert Menendez (D-NJ), Christopher Murphy (D-CT), Jay Rockefeller (D-WV),

Brian Schatz (D-HI), Charles Schumer (D-NY) and Elizabeth Warren (D-MA). The THUD bill was pulled from consideration on the Floor on June 19, 2014.

Opponents of the recent changes to the HOS restart provisions have claimed that the new limitations force drivers to take a break when they aren't tired and then, following the break, force them back on the road all at the same exact time. These assertions are patently false and have no factual basis. First, the HOS rules do not govern sleep, but merely ensure that carriers must provide drivers with ample time for drivers to obtain needed rest. Second, the HOS provisions do not specify when a restart must be taken or when a driver must return to duty following a restart. The rule requires only that any restart taken must end no earlier than 5:00 a.m. at the end of the 34-hour restart period, but the rule does not require or suggest that a driver must start operating at that exact moment.

Furthermore, the rule does not state in any way, shape, or form that drivers must all take their restarts at the exact same time on the exact same day. Restarts occur on different days of the week. If the claims of the rule's opponents were accurate, that would mean that all 5.6 million commercial motor vehicle drivers operating in the U.S., across the myriad of industries they serve, would all be maximizing the use of their hours, would all be on the exact same schedule, and would all be returning to duty at the same time and same day of the week all year long. This just does not happen; this is not the way the system works. The fact is the restart limitations only affect a relatively small percentage of drivers, those operating on the most extreme schedules, and it is those drivers who need and benefit from the 34-hour restart safety reforms in order to be able to perform their jobs properly and to drive their long hours safely.

Due to the high levels of fatigue self-reported by truck drivers since the 34-hour restart was adopted, the increasing number of truck crashes, deaths and injuries that are occurring as the economy recovers, and the increasing level of freight tonnage being shipped by truck, the reasonable safety reforms to curb the negative impact of the 34-hour restart are essential to protect the travelling public and the safety of truck drivers on our highways. No other mode of freight transportation comes close to causing the mortality and morbidity toll of truck crashes. It is not acceptable, agreeable or reasonable that special trucking interests are asking the public, professional truck drivers and lawmakers to accept these enormous losses as a cost of doing business in moving freight by trucks across our country.

Serious Problems Plague the Credibility and Reliability of the DOT Comprehensive Truck Size and Weight Limits Study

The American people are clearly opposed to having larger trucks on the highways besides them. A May 2013 public opinion poll by Lake Research Partners found that 68 percent of Americans oppose heavier trucks and 88 percent of Americans do not want to pay higher taxes for the damage caused by heavier trucks.²⁷ Attached to my testimony is a summary of public opinion polls that show the high-levels of opposition to bigger, heavier trucks that the American public has steadily maintained over the past 19 years. I request that this document be placed in the hearing record. In MAP-21, Congress required the Secretary of Transportation to conduct a comprehensive study of truck size and weight issues (Study) including the safety performance of trucks that would be bigger or heavier (or both) than

current truck size and weight configurations.²⁸ This Study is intended to advise Congress and the American people about whether allowing larger trucks on the highway is a wise policy choice. That is why we are so concerned about the incredibly inadequate manner in which this Study has been conducted to date. The Study has run into serious problems in its approach and methodology; these issues cannot be ignored and must be resolved before the Study is completed.

The Study is being conducted by the Federal Highway Administration (FHWA), a modal Administration within the DOT. The Study ran into problems from the outset when the FHWA did not publish a public bid notice or issue an open public request for proposals (RFP), but rather sent the contract terms and solicitation to a select group of just four contracting companies. While not exactly a “no-bid” contract, the letting of the contract and restricting the pool of consultants was not a transparent transaction. Moreover, the contractor selected through this closed bid process came with a built-in bias against existing truck size and weight limits. The general contractor selected has previously performed studies for several states and, in each and every instance, found that the states could and should increase truck size or weight limits, or both, on state roads. The contractor’s reports also promoted and encouraged increases in federal size and weight limits.²⁹ The prior history and record of the contractor on these specific issues should have immediately raised red flags. The contractor’s clear track record of support for increases in truck size and weight at the state level should have disqualified the company from consideration as the general contractor for the Study.

Criticism of the Study plan has also come from the National Academy of Sciences (NAS) Peer Review Committee on the Comprehensive Truck Size and Weight Limits Study. The NAS established a Peer Review Committee at the request of DOT after safety groups demanded an outside review of the DOT study plan and implementation of the Study. We believed it necessary to have an independent review of, and check on, the work performed by the Study contractor and the FHWA supervisory staff by outside experts. Then-Transportation Secretary Ray LaHood agreed. The NAS Peer Review Committee was asked to file two reports, one after the initial phase of the Study and another after the Study is completed but still in draft form.

The report on the initial phase of the project was issued by the NAS Peer Review Committee in March 2014 and it critiqued the approach taken by FHWA and its contractor in the Study plans and literature searches (desk scans) in each of the five subject matter areas that are part of the Study.³⁰ While such initial phase reports are usually only a few pages in length, the NAS Peer Review Committee issued an extensive 51-page report (NAS Report) on the initial phase of the Study finding numerous and serious problems and errors in the work performed.³¹ The entirety of the criticisms and problems found by the Peer Review Committee in the NAS Report are too extensive to list here. I will provide some examples taken from the NAS Report’s review of the Highway Safety and Bridge subject matter areas. A more complete summary of all the NAS Report criticisms of the Study are attached to my testimony, which I also request be submitted for the hearing record.

With regard to Highway Safety, the NAS Report pointed out that the Study plan and the desk scan for the Highway Safety area neglected, without any explanation, to include a

number of pertinent and well-known studies by credible researchers on truck crash severity and brake defects, including case-control studies that are the most valuable means of controlling for driver experience and driving records in analyzing crash risk.³² Moreover, the Study plans and desk scans also inexplicably ignored the FHWA's own previous study of truck size and weight issues conducted in 2000 which concluded that longer combination vehicles have a statistically significant (11 percent) higher crash rate than single-trailer trucks.³³

The NAS Report also pointed out that while the desk scans included references to regulations in foreign countries that permit longer combination vehicles (LCVs), "the review of safety research does not cover studies of the effectiveness of such regulations in mitigating hazards associated with larger trucks."³⁴ These are just a few of the criticisms raised in the NAS Report in the safety area. The Study plans and desk scans also failed to identify a more recent analysis that indicates that double-trailer trucks have about a 15 percent higher fatal crash rate than single-trailer combinations, and that single-trailer trucks with six or more axles have an extremely high fatal crash rate compared to the overall single-trailer truck fatal crash involvement rate.³⁵ The type of omissions noted in the NAS Report indicates a distinct and seemingly deliberate pattern of overlooking safety information and data that show the negative aspects of longer, heavier trucks while including all information that might be considered favorable to longer, heavier trucks.

Advocates has criticized the reliance of the Study on voluntary industry-supplied data provided by selected segments of the trucking industry because it introduces bias into the Study data analysis. Voluntary data and information cannot be independently verified and likely exclude unfavorable negative data and information that proponents of longer, heavier trucks may not wish to provide. Moreover, the source of the data and information is a stakeholder with a strong economic interest in the outcome of the Study and therefore, the use of voluntary industry-provided data is unacceptable.

In addition, Advocates is concerned with the use of a static "snapshot" of freight tonnage, ignoring estimated future increases in truck freight shipments. This assumption allows the Study to conclude that heavier/larger trucks, which carry more freight, will make fewer trips and result in fewer trucks on the road. This is a false premise. The number of registered trucks in the U.S. has continually increased, including after each past increase in truck size and weight limits.³⁶ FHWA confirms this trend documenting that the number of large trucks increased by nearly 42 percent between 1987 and 2002, and that the vehicle miles traveled (VMT) by large trucks increased by 50 percent over the same time period.³⁷

For the Study, the FHWA has adopted a "no forecasting policy" with regard to future freight tonnage shipped by truck. This decision contradicts the FHWA's own estimate of a significant increase in shipments – a *63 percent increase in truck freight by 2040*.³⁸ Therefore, the Study is at complete odds with what will occur in the real world – there will be more large trucks, not fewer large trucks, carrying freight in the future, and that an appreciable percentage of those truck trips will be made by heavier and/or larger, longer truck combinations depending on the analysis of the Study. This fact cannot and should not be ignored in the analysis of the Study. In addition, since the estimated increases in freight demand also predict that trucking will be the predominant mode for most of the increases in

freight movement – and trucking is, comparatively, the most dangerous mode from a safety standpoint – the shift to larger/heavier trucks may exacerbate the significant safety losses already incurred in trucking operations.

Failure to take expected growth of freight into account is unrealistic and objectionable and will severely damage the validity of the Study, limit its use as a policy tool, and provide misleading results to Congress.

Additionally, the Study is using crash and operating data on LCVs currently conducted in sparsely populated, rural states and carried out under special controls and restrictions. This data cannot be readily transferred or extrapolated for application to more densely populated states and urban areas as the 2000 DOT Comprehensive Truck Size and Weight Study clearly pointed out.³⁹ Yet, this is exactly what FHWA intends to do in the Study. The safety performance of extra-long double and triple-trailer trucks operating in a state like Wyoming should not, indeed cannot, be used to support conclusions about the safety performance of these gigantic rigs operating in densely populated, more urban states in the eastern United States.

The NAS Report also identifies many other problems in its review of the bridge structure desk scan, and validates criticisms made by Advocates and many others that the methods employed in the Study are not objective or comprehensive. For example, the NAS Report:

- Points out that the bridge desk scan “does not include a comparative evaluation of alternative methods of assessing bridge costs of changes in size and weight limits[,]”⁴⁰ and “does not review the results of past studies of the effects of changes in truck traffic on bridges.”⁴¹
- Concludes that the references supplied in the desk scan “appear to be primarily those that are necessary to support a predetermined plan of analysis”⁴² rather than a search for pertinent and related data and information on bridge structures.
- States that the “principal risk of changes in [weight] limits is that the bridge inventories will decay more rapidly than expected[,]”⁴³ yet the bridge desk scan “does not identify methods or data sources to support estimates of the impacts of changes in [weight] limits on bridge barriers, medians barriers, or railings.”⁴⁴

It appears that the Study authors do not feel the need to review or document how they plan to estimate bridge deterioration costs that result from any specific change in truck weight limits. Perhaps they have a preconceived view which is not supported in the desk scan or maybe they are making it up as they go along. The lack of transparency in the process prevents us from knowing the answer to this conundrum.

The final example I will mention of the problems in the bridge desk scan critiqued in the NAS Report is the fact that the Study authors plan to base the entire national bridge analysis on the 2010 District of Columbia Department of Transportation (DCDOT) truck size and weight study. However, as the NAS Report points out, that particular study is unpublished. It is unknown just how the analysis performed for an urban jurisdiction with fewer than 300

bridges will apply to and affect the national bridge inventory of over 600,000 bridges. Since the DCDOT truck size and weight analysis is unpublished, it is unknown if the methodology used in that analysis, even with modifications, has been tested and would be successful at producing an accurate analysis and national estimate. In short, it is ludicrous for a national, and supposedly comprehensive, truck size and weight study to rely on a bridge study conducted in an urbanized city and an unpublished and unverified means of analysis for a critical and essential portion of the Study.

The NAS Peer Review Committee Report made the following over-arching points about deficiencies of the Study:

- The available methods of analysis for use in the Study have “significant weakness” which have not been addressed.⁴⁵ The use of these compromised methods will impact the ability of the study to predict the results of changes in truck size and weight regulations and the Study conclusion will be of limited use in crafting future policy.
- The Study has been conducted in a backwards fashion, with the Study plans and methods of analyses determined before the desk scan review of available research and information was performed, stating that “in most cases the selection of methods appears not to have been a consequence of the desk scans.”⁴⁶ This calls into question the bias on the part of the Study team to rely on pre-determined methods.
- Each of the five desk scans, which are supposed to be the foundation of the Study, was lacking in at least one of three main elements; survey of current methods and synthesis of state of the art, identification of data needs and data availability, and synthesis of past results. “None of the desk scans fully provides all three of these elements.”⁴⁷
- Inadequate time to complete needed evaluation and development of appropriate methods and data. “The constrained schedule imposed by the congressional study charge may have precluded a more systematic approach to evaluation and selection of methods.”⁴⁸

In summary, the FHWA should not complete the current truck size and weight Study, and Congress should not consider, debate or adopt any changes whatsoever in federal truck size and weight laws, unless and until the DOT eliminates all known and inherent biases, implements major revisions in the approach and methodology, uses only statistically valid data, and adopts essential corrective actions that allow a thorough public review of all draft technical studies, reports and public comments. This Study will influence federal and state transportation policy, working conditions for truck drivers and law enforcement, national freight and intermodal investments, clean air and fuel economy goals, and the public health and safety of our families for decades to come. Because the flaws are so significant and the process lacks adequate transparency, at this point in time Advocates recommends that the Study be stopped until Congress and the public are assured that corrections have been made, a new unbiased contractor has been selected to manage the Study, and that the findings are unbiased, unimpeachable and unchallengeable.

Mr. Chairman, over the past year I have had the honor of being a member, appointed by Secretary of Transportation Ray LaHood, of the National Freight Advisory Committee (NFAC),⁴⁹ which was established to assist in the development of a national freight strategic plan and which is comprised of representatives from the trucking, shipping, aviation, rail, labor, elected officials, academia, ports, environmental and safety communities. The NFAC was charged with making policy recommendations to the Secretary of Transportation concerning freight movement to advance safe and efficient freight transportation through intermodal solutions. As part of our deliberations, we highlighted, as a high priority, the need for research of future forecasting that considers changes in demographics, buyer behavior, manufacturing practices, and other factors that could restructure current freight supply and demand patterns. The complexity of players and stakeholders, as well as the interdependencies involved in modern supply chains was also fundamental to our considerations. Of utmost importance was the projected steep increase in freight demands expected to take place by 2040. Additionally, we stressed the need for improvements in data collection. In fact, in our recommendations submitted to Secretary Foxx on June 12, 2014, we wrote, “The lack of sufficient funding and lack of access to industry raw or complete data has persistently undercut the timeliness and completeness of freight data as a basis for public and private sector decision-making.”⁵⁰ In contrast to the efforts of the Advisory Committee, the DOT appears content with using data in its analyses of freight issues that ignore real world conditions. In addition, DOT has taken few steps to upgrade its data systems and tear down the silos within DOT that could result in significant improvements in the coordinated use of transportation data, particularly with regard to freight policy.

The DOT Reauthorization Bill, GROW AMERICA Act

The Department of Transportation (DOT) surface transportation reauthorization legislation, the GROW AMERICA Act,⁵¹ introduced in the House as H.R. 4834, has a number of provisions related to motor carrier safety that Advocates supports including: Section 5102, Motor Carrier Operations Affecting Interstate Commerce, which clarifies the scope of out-of-service orders; Section 5104, High-Risk Carrier Reviews, which focuses enforcement on the highest risk motor carriers; and, Section 5302, Jurisdiction Over Brokers of Motor Carriers of Passengers, which extends certain aspects of the FMCSA’s regulatory jurisdiction to brokers of carriers of passengers.

Advocates also supports Section 5506 which would allow the DOT Secretary to determine whether to issue regulations to govern non-motor carrier contractors that exercise operating control over motor carrier operations. To the extent that non-motor carriers exercise control over motor carrier operations, they should be regulated and subject to violations, fines and penalties for failure to adhere to safety regulations, especially since contractors may have little or no experience regarding commercial motor vehicle operations. However, the provision as written, only states that the Secretary “may” issue such regulations while Advocates believes that the Secretary “should” be required to issue regulations to clarify that contractors are subject to the same safety and regulatory requirements when exercising control over motor carrier operations.

I would like to focus my testimony on three important statutory changes that have been proposed by the U.S.DOT in the GROW AMERICA Act which Advocates opposes.

First, Advocates opposes amending 49 U.S.C. § 31144(g)(1)(A) and (g)(1)(B) to delete the mandatory requirement that new entrant motor carriers receive an initial safety review within a reasonable period of time. Just two years ago, Congress established the requirement in Section 32102 of the MAP-21 law to mandate that safety reviews of new operators must be conducted within 12 months for new freight motor carriers and within 120 days for new passenger-carrying motor carriers or intercity bus companies. There is an important public safety rationale for this requirement. While new entrant carriers should be permitted to enter the industry, since their safety performance is unknown, they should be subject to a timely safety review so that unsafe motor carriers are not able to operate for extended periods of time without any safety review. The National Transportation Safety Board (NTSB) has expressed concerns with delays in new entrant safety audits for more than a decade.⁵² The NTSB has raised this concern as recently as two years ago in a report of a crash which killed four people and injured 58 when it stated:

The report notes that new entrants need not demonstrate their capability to operate safely before they begin carrying passengers, but the safety check must occur within 18 months of the commencement of operations. In 18 months, however, a carrier with two 50-passenger buses running two trips a day could have carried more than 100 thousand passengers before having its first safety examination; and the motor carrier involved in this accident operated for 22 months before its first safety check.

The public would be appalled if airlines could carry passengers before demonstrating their ability to do so safely. Query why a motor carrier should be allowed to carry passengers before demonstrating its safety fitness.⁵³

In proposing to change the word “shall” to “may” in Section 5105 of the GROW AMERICA Act, New Entrant Safety Audits, DOT would make such initial safety reviews discretionary, rather than mandatory. Adopting the proposed change would mean that an initial safety review could be conducted at any time or not at all. Weakening the requirement that was just enacted into law two years ago is detrimental to highway safety, is not justified with factual arguments by DOT and should be rejected.

Second, Advocates opposes the changing of long-standing existing law, 49 U.S.C. § 31136(a)(4), regarding the standard for safety regulations. Current law requires that, among other things, minimum safety regulations issued by the DOT shall ensure that “the operation of commercial motor vehicles does not have a deleterious effect on the physical condition of the operators.” This has been the law since first enacted in the Motor Carrier Safety Act of 1984,⁵⁴ and it has a well-established meaning that has been interpreted by the courts. The DOT proposes to replace the words “deleterious effect” with “significantly adverse effect” which clearly appears to raise the legal bar on challenges to federal regulations that impact the physical and medical condition of drivers.

This change is specifically intended to bar the courtroom door to truck drivers and others who are concerned about the impact that federal regulations have on the physical and medical conditions of commercial drivers. It is not a technical amendment but one clearly

aimed at making it significantly more difficult for concerns about driver working conditions to be raised in the context of federal regulations. We believe it is proposed in response to the well-founded claims raised in the HOS lawsuits that pointed out the deleterious effect of long work hours on drivers. If enacted into law, it will shield the federal regulations from challenges based on the medical evidence which shows that commercial drivers could be negatively affected, physically or medically by a proposed regulation. The result of the wording change will be to lower the effective level of protection afforded commercial drivers for physical and medical conditions under federal regulations since challenges under section 31136(a)(4) would be limited to only the most extreme situations. This does a disservice to truck drivers who have a difficult and physically demanding job in one of the most dangerous occupations, and it should be rejected by Congress.

Third, Section 5512, regarding Pre-Authority Safety Audits (PASA) of Mexican motor carriers,⁵⁵ proposes to eliminate the requirement, which has been in effect for more than a decade, that a percentage of the PASAs and other safety-related reviews for Mexican motor carriers that wish to operate in the United States must be conducted in Mexico at the headquarters or operations hub of the motor carrier. Safety reviews and compliance reviews need to be conducted at the motor carriers' headquarters so that in addition to reviewing the books and records of the motor carrier, federal safety inspectors can also inspect the carriers' maintenance facilities and the condition of available equipment. By permitting Mexican motor carriers to have safety reviews conducted at "any location" selected by the FMCSA, this may well mean that foreign motor carriers may not necessarily have on-site inspections or safety reviews conducted at the carrier's home-base facility as is done for U.S. domiciled motor carriers. While this may ease the burden on DOT inspectors, it may not adequately ensure that the safety and procedures of foreign motor carriers will be adequately reviewed and inspected. This is especially troublesome as the three-year cross-border pilot program of Mexican trucking operations in the U.S. nears its end and a decision about the opening of the southern border becomes more imminent. DOT has not provided any adequate justification for recommending this major change.

Finally, I would also like to state our firm opposition to any proposals which would dramatically overturn existing national freight policy by forcing states to allow 33 foot trailers resulting in longer and more dangerous double or tandem rigs exceeding 85 feet in length, or three trailers exceeding 115 feet in length. Longer trucks are inherently more dangerous to passenger cars. The sheer size of these longer trailers – which adds at least 10 feet to the length of current double or tandem rigs – has far reaching and significant implications for the safe use of highways, bridges and ramps. This change could also open the door to triple-trailer trucks using three 33 foot trailers, which would be well over 115 feet long, compared to the average length of a family car, which is only about 16 feet long. These excessively long trailers threaten motorists sharing the road with trucks due to the "crack the whip" effect, in which small changes in steering by the tractor are amplified and cause large swaying effects (side-to-side motion) in the last trailer behind the truck cab. Longer trailers will also result in more off-tracking, in which the rear trailers cross into adjacent lanes and interfere with oncoming traffic as well as traffic headed in the same direction of travel. They can also swing into opposing lanes on curves and when making right-angle turns. Moreover, bigger trucks never result in fewer trucks despite industry's claims. Over three decades of research and real world experience show that allowing

bigger, heavier trucks always results in more trucks on the road. Currently 39 states (AL, AK, AR, CA, CO, CT, DE, GA, HI, IL, KS, KY, LA, ME, MD, MI, MN, MS, MO, NE, NH, NJ, NM, NY, NC, ND, OH, OK, PA, RI, SC, SD, TN, TX, VT, VA, WA, WV, WI) do not allow these longer trailers and they should not be forced to pay for expensive, wasteful infrastructure rebuilding to accommodate these oversized rigs on Interstate and freeway on- and off-ramps. Furthermore, industry-funded research which is being used to support increasing the size of trailers is neither objective nor unbiased. There have been no independent, peer-reviewed research and studies conducted on the operational and safety issues associated with the use of 33 foot trailers. Congress would never consider allowing a new drug on the market for public use solely based on one industry-sponsored study. Neither should the motoring public be used as human test subjects to conduct this research on longer trucks. We need look no further to see the destruction that can result in crashes involving current double-trailer trucks than the April 11, 2014, crash in Orland, California, when a Federal Express double-trailer combination truck crashed into a Silverado Stages motorcoach carrying 48 passengers, mostly high school students traveling to visit a college; the crash injured dozens and killed ten people including five teenagers.⁵⁶ We strongly urge you to oppose any increases to federal truck length policy. It is unsafe, not supported by data and unacceptable to the public.

Mr. Chairman, the Senate Committee on Commerce, Science and Transportation led by this Subcommittee has drafted and enacted some of the most significant lifesaving motor carrier laws that are protecting motorists and commercial drivers from death and injury. The FMCSA reauthorization provisions adopted in MAP-21 under the Subcommittee leadership of the late Senator Frank Lautenberg resulted in advancing overdue and needed reforms and improvements in truck and bus oversight and enforcement. With truck crash deaths and injuries climbing these past few years, it is critical to continue this legacy and address the unfinished truck safety agenda.

We look forward to the opportunity of working with Members of this Subcommittee to meet the challenges of enacting commonsense and cost-effective truck safety measures in the MAP-21 reauthorization bill. This concludes my testimony and I am prepared to answer any questions the Subcommittee Members may have.

End Notes

- ¹ *Traffic Safety Facts 2012 Data: Large Trucks*, DOT HS 811 868, NHTSA (May, 2014).
- ² NHTSA Traffic Safety Facts, Large Truck fact sheets 2003 through 2012.
- ³ *Id.*
- ⁴ *Id.*
- ⁵ *Traffic Safety Facts 2012 Data: Large Trucks, op cit.*
- ⁶ 2014 Pocket Guide to large Truck and Bus Statistics, FMCSA (May 2014).
- ⁷ *National Census of Fatal Occupational Injuries in 2012 (Preliminary Results)*, USDL-13-1699, Bureau of Labor Statistics, (Aug. 22, 2013).
- ⁸ *Traffic Safety Facts 2012*, DOT HS 812 032, NHTSA (2014).
- ⁹ Census of Fatal Occupational Injuries Charts, 1992-2012 (revised data), available from <http://www.bls.gov/iif/oshcfoi1.htm>.
- ¹⁰ Census of Fatal Occupational Injuries Charts, 1992-2012 (revised data)
- ¹¹ 29 United States Code § 213(b)(1).
- ¹² Regulatory Impact Analysis and Small Business Analysis for Hours of Service Options, FMCSA, Dec. 2002.
- ¹³ Hours of Service of Drivers; Driver Rest and Sleep for Safe Operations, Final Rule, 68 FR 22456 (Apr. 28, 2003).
- ¹⁴ Hours of Service of Drivers, NPRM (2010 NPRM), FMCSA, 75 FR 82170 (Dec. 29, 2010), *citing* Dinges, D.F. & Maislin, G., “Truck Driver Fatigue Management Survey,” FMCSA (May 2006), FMCSA–2004–19608–3968.
- ¹⁵ *Id.*
- ¹⁶ 2010 NPRM, 75 FR 82175 (citations omitted). The FMCSA NPRM went on to state that the Virginia Tech Transportation Institute (VTTI) naturalistic driving study of CMV drivers operating under the 2003 rule, measured sleep averaged 6.15 to 6.28 hours (the average includes both work days and days off); the average on work days was 5.6 hours. *See* Hanowski, R.J., Hickman, J., Fumero, M.C., Olson, R.L. & Dingus, T.A., “The Sleep of Commercial Vehicle Drivers Under the 2003 Hours of- Service Regulations,” *Accident, Analysis and Prevention*, Vol. 39, No. 6, November 2007, pp. 1140–1145. FMCSA–2004–19608–3977.
- ¹⁷ 2010 NPRM, 75 FR 82176 (“In the Virginia Tech Transportation Institute (VTTI) naturalistic driving study of CMV drivers operating under the 2003 rule, measured sleep averaged 6.15 to 6.28 hours (the average includes both work days and days off); the average on work days was 5.6 hours.” Citing Hanowski et al.).
- ¹⁸ “Unhealthy Sleep-Related Behaviors – 12 States, 2009,” Centers for Disease Control and Prevention, *MMWR* vol.60/No.8, p. 236 (March 4, 2011); Adults who reported obtaining less than an average of 7 hours of sleep per 24-hour period also showed a 39 percent increase in the likelihood that they would unintentionally fall asleep during the day at least once in the prior 30 days compared to adults who obtained more than an average of 7 hours of sleep.
- ¹⁹ Hours of Service of Drivers, Final Rule, FMCSA, 76 FR 81134; 81135. (2011 Final Rule).
- ²⁰ 2011 Final Rule, 76 FR 81169.
- ²¹ Hours of Service Rule, Regulatory Impact Analysis, FMCSA, (Dec., 2011).
- ²² 2014 Pocket Guide to large Truck and Bus Statistics, FMCSA (May, 2014).
- ²³ 2011 NPRM, 75 FR 82176.
- ²⁴ Field Study on the Efficacy of the New Restart Provision for Hours of Service, FMCSA (Jan., 2014).
- ²⁵ Transportation and Housing and Urban Development, and Related Agencies Appropriations Bill, 2015, S. 2438.
- ²⁶ Section 133 would temporarily suspend enforcement of the hours of service regulation related to the restart provisions that went into effect on July 1, 2013 and directs the Secretary to conduct a study of the operational, safety, health and fatigue aspects of the restart before and after July 1, 2013. S. Rep. 113-182 (June 5, 2014).
- ²⁷ Memo Re: Increasing the legal weight for trucks in the U.S., Lake Research Partners (May 7, 2013), available at <http://www.trucksafety.org/images/sts2013/sts2013-lr-memo-tsc.pdf>.
- ²⁸ Section 32801, Pub. L. 112-141 (Jul. 6, 2012).
- ²⁹ Study of Impacts Caused by Exempting the Maine Turnpike and the New Hampshire Turnpike from Federal Truck Weight Limits, June 2004; Northern Minnesota / Northwestern Wisconsin Regional Freight Plan, Nov. 2009; I-15 Corridor System Master Plan Freight: Trucks, June 2011; I-70 Dedicated Truck Lanes Feasibility Study Phase 2 Report, High Productivity Vehicle (HPV) Scenario Guidance 2011.

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- ³⁰ The five subject matter areas consist of: Highway Safety and Truck Crash, Bridge Structure, Pavement, Modal Shift, Enforcement and Compliance.
- ³¹ Review of U.S. Department of Transportation Truck Size and Weight Study, First Report: Review of Desk Scans (NAS Report), National Academy of Sciences, Transportation Research Board (March 31, 2014).
- ³² NAS Report, pp. 35-36.
- ³³ Comprehensive Truck Size and Weight Study (2000 DOT Study), FHWA-PL-00-029, vol. III, p. VIII-5, U.S. Department of Transportation (August, 2000).
- ³⁴ NAS Report, p. 33.
- ³⁵ An Analysis of Truck Size and Weight: Phase I – Safety, Multimodal Transportation & Infrastructure Consortium (Nov. 21, 2013).
- ³⁶ “Bigger, Heavier Trucks Just Means More Trucks That Are Bigger and Heavier,” Advocates for Highway and Auto Safety (Dec. 2013).
- ³⁷ Freight Facts and Figures 2011, p. 32, Table 3-7, FHWA Office of Freight Management and Operations, FHWA-FOP-12-002 (Nov. 2011).
- ³⁸ Freight Facts and Figures 2012, p. 9, Table 2-1, FHWA Office of Freight Management and Operations, FHWA-FOP-13-001 (Nov. 2012).
- ³⁹ 2000 DOT Study, vol. III, p. VIII-6.
- ⁴⁰ NAS Report, p. 11.
- ⁴¹ *Id.*
- ⁴² *Id.*
- ⁴³ *Id.*, p. 12.
- ⁴⁴ *Id.*
- ⁴⁵ *Id.*, p. 2.
- ⁴⁶ *Id.*, p. 1.
- ⁴⁷ *Id.*, pp. 1-2.
- ⁴⁸ *Id.*, p. 1.
- ⁴⁹ Notice of Establishment of National Freight Advisory Committee (NFAC or Committee) and Solicitation of Nominations for Membership, 78 FR 11727 (Feb. 19, 2013).
- ⁵⁰ Recommendations to U.S. Department of Transportation for the Development of the National Freight Strategic Plan, NFAC, p. 15 (June 12, 2014).
- ⁵¹ Generating Renewal, Opportunity, and Work with Accelerated Mobility, Efficiency, and Rebuilding of Infrastructure and Communities throughout America Act (GROW AMERICA Act), DOT proposed reauthorization legislation, available at http://www.dot.gov/sites/dot.gov/files/docs/DOT_surface_reauth-FINAL.pdf.
- ⁵² Highway Accident Report: Collision of a Greyhound Lines, Inc. Motorcoach and Delcar Trucking Truck Tractor-Semitrailer Loraine, Texas June 9, 2002, NTSB Report HAR-03/01, p. 37, “The Safety Board concludes that by conducting safety audits up to 18 months after carriers begin operation, the FMCSA potentially allows unsafe carriers to operate without oversight and without the benefit of the educational and technical assistance that the FMCSA provides during the safety audit.”
- ⁵³ Accident Report: Motorcoach Roadway Departure and Overturn on Interstate 95 Near Doswell, Virginia, May 31, 2011, NTSB Report HAR-12/02.
- ⁵⁴ Motor Carrier Safety Act of 1984 (MCSA), Pub. L 98-554 (1984).
- ⁵⁵ Audits and compliance investigations of Mexico-domiciled motor carrier.
- ⁵⁶ 48 People Involved in Bus and FedEx Truck Crash on Interstate 5, CBS SF, Mercer, B., Apr. 11 2014, <http://sanfrancisco.cbslocal.com/2014/04/11/48-people-involved-in-bus-and-fedex-truck-crash-on-interstate-5-1-still-missing/>.

19 Years of Public Opinion Polls and the Response is Always the Same – Consistent, Convincing and Compelling Opposition to Increasing Truck Size and Weight Limits

2014

- 73% of Illinois residents and 77% of Missouri residents oppose increasing the national cap on truck weight from 80,000 to 97,000 pounds.
Source: SMART Heavy Truck Survey Series, March 2014
- 80% of residents of the West Virginia 3rd District and 69% of Wisconsin residents oppose increasing the national cap on truck weight from 80,000 to 97,000 pounds
Source: SMART Heavy Truck Survey Series, May 2014

2013

- 68% of Americans are opposed to heavier trucks.
- 88% of Americans oppose increased taxes to pay for damage caused by heavier trucks.
Source: Lake Research Partners Poll, May 2013
- 75% of Kentucky residents oppose increasing the national cap on truck weight from 80,000 to 97,000 pounds.
- 78% of the residents of the Illinois 3rd District and 74% of the Pennsylvania 9th District oppose increasing the national cap on truck weight from 80,000 to 97,000 pounds.
- 72% of the residents of Kansas 1st and 2nd District, the Iowa 3rd District, and the Colorado 4th District oppose increasing the national cap on truck weight from 80,000 to 97,000 pounds.
Source: Poll taken 2013, SMART Heavy Truck Survey Series, May 2014
- 74% of the residents of the Indiana 4th District and the Missouri 8th District oppose increasing the national cap on truck weight from 80,000 to 97,000 pounds.
Source: Poll taken 2013, SMART Heavy Truck Survey Series, March 2014

2011

- 74% of Americans oppose the trucking industry's efforts to have Congress change the current law and allow heavier trucks on the roads.
Source: Lake Research Partners Poll, April 2011
- Nearly three quarters of registered voters oppose increasing the national cap on truck size from 80,000 to 97,000 pounds.
Source: Hart Research Associates, April 2011

2008

- 66% of Americans oppose changing the current law and allowing trucks carrying heavier loads on U.S. highways. *“Support for the measure is anemic (only 16% favor the efforts.) Opposition is deep and transcends gender, age, political identification, and region.”*
- Eight out of ten (82%) Americans feel trucks pulling double or triple trailers are more dangerous than those pulling just a single trailer.
Source: Lake Research Partners Poll, May 2008

2004

- By 77% to 16%, the public opposes increasing truck weight limits.
- 80% of Americans believe that trucks with two or more trailers are less safe than trucks with a single trailer.
Source: Lou Harris Poll, June 2004

1998

- By 71% to 21%, a majority of the American people are willing to pay higher prices for goods in exchange for tougher truck safety standards.
Source: Lou Harris Poll, April 1998

1996

- 88% of Americans oppose allowing bigger and heavier trucks on the highways.
- 80% are fully convinced that “trucks pulling two or more trailers are less safe than trucks pulling only one trailer.”
Source: Lou Harris Poll, May 1996

**National Academies of Sciences (NAS) Peer Review Committee Report
on the FHWA Comprehensive Truck Size and Weight Study Desk Scans
Highlights of NAS Report Criticisms**

NAS Report Summary

1. The desk scans (literature review) were performed to support the selected study methods rather than serving as the basis for the selection of an analysis method, which is the an established research practice. The desk scans often appear to be unrelated to the previously selected methods and serves little purpose other than to provide support for the previous determinations made in the study process.
 - a. “in most cases the selection of methods appears not to have been a consequence of the desk scans; that is, the scans were not on the critical path of the study.” (P.1 of NAS Report)
2. The disconnect between the desk scans and study plans appears to be a first example of bias or failure of the study to be conducted properly, and may also reflect the tight schedule.
 - a. “The constrained schedule imposed by the congressional study charge may have precluded a more systematic approach to evaluation and selection of methods.” (P.1)
3. Even where the method selected is the best available on-the-shelf choice, no evaluation or comparison is made with other methods to support the decision to use the selected method, which may be a further indication of bias.
 - a. “Nevertheless, even in cases where the best practical method is evident, comparisons with alternatives are advisable in order to demonstrate the superiority of the method selected.” (P.1)
4. The NAS Report cited three elements that the desk scans were missing which should be included in the final report as follows:
 - a. “a synthesis of experience in applying alternative methods of estimating each category of effect of changes in truck characteristics, leading to an assessment of the current state of understanding of the impact and needs for future research, data collection, and evaluation”. (P. 2)
 - b. “a critical synthesis of quantitative results of past prospective and retrospective estimates of each category of effect.” (P. 2)
 - c. “explain the sources of the differences between the new USDOT estimates and those of past studies”. (P. 2)
5. None of the desk scans contained all three of the elements which the NAS Peer Review Committee deemed necessary for the study to obtain “full value from past work.” This shows a lack of completeness and is again evidence of bias.

- a. “None of the desk scans fully provides all three of these elements.” (P. 1-2)
6. The highway safety desk scan was lacking a method synthesis. The safety method synthesis which did appear incorrectly in the project plan lacked citations of the methods used. (P. 2)
7. The NAS Report states the mandated timeline may be affecting the availability of optimal modeling approaches and data sources in a negative manner by forcing the use of only those methods that are readily available rather than developing better, optimal methods of study were a longer timeframe considered an option.
 - a. “In none of the five major analysis areas of the USDOT study was the committee able to fully identify modeling approaches or data sources omitted from the desk scans that would be clearly superior to those selected by the USDOT study team (according to the descriptions of proposed analyses in the project plans) **and that would be available for use within the congressionally imposed study deadline.**” (P. 2, emphasis added)
8. The methods being used have significant weaknesses and uncertainties which can have large consequences for the predicted net impact. These methodological weaknesses were identified over a decade ago and have not been addressed, revised or improved over the intervening years.
 - a. “The primary difficulties in projecting the consequences of changes in truck size and weight limits are that **the available methods have significant weaknesses and that uncertainties that** are small in absolute terms (e.g., with regard to changes in truck traffic volume and distribution resulting from a change in regulations) **can have large consequences for the net impact of the regulatory change.** For these reasons, the 2002 [National Academy of Sciences’]Transportation Research Board [TRB] committee that reviewed past truck size and weight studies concluded that "it is not possible to predict the outcomes of regulatory changes with high confidence" (TRB 2002, 3). **The desk scans do not show that this shortcoming of such studies has been greatly reduced.** The recommended syntheses would be a means of conveying the uncertainties in the USDOT report.” (P. 2-3, emphasis added).

NAS Report Introduction

1. The NAS Report specifically highlights the constraints on the study as a result of the congressional timeline.
 - a. “USDOT faces significant time and resource constraints in completing the CTSW study.” (P. 5)

NAS Report General Observations

1. The NAS Report characterized the study plans as a “missed opportunity” and found that two elements were incomplete in most of the desk scans.

- a. “***However, as a whole, the scans represent a missed opportunity.*** Two elements that are incomplete in most of the desk scans would have been most useful in conducting the CTSW study: (a) identification of alternative methods, tools, and data for estimating impacts of changes in size and weight regulations that might have been applicable in the 2014 study or in future USDOT evaluations of these regulations and (b) syntheses of past studies that indicate reasonable ranges of values for impact estimates and allow comparison of the 2014 study's estimates with those of past studies.” (P. 7, emphasis added.)
2. The NAS Report states that the study contractor appears to have formulated the study plans first and conducted the literature review (desk scans) second, which is the reverse of the normal procedure of searching for all relevant and available studies, data and information prior to making determinations about the best methods to be used. The desk scans evidence numerous flaws. The basis for selecting certain referenced works in the desk scans but not including other relevant studies is unclear. Many works cited are not relevant and there is a failure to reference the primary research literature, especially in the highway safety desk scan (P. 35). This is further evidence of pervasive bias and lack of objectivity and acceptable research practices. The desk scans appear to be little more than a document dump rather than a search for all applicable research on each topic in support of developing an approach. In many cases, the desk scans omitted critical research while including numerous unrelated works.
 - a. “In most cases, the desk scans do not appear to have been instrumental in developing the study team's analysis plans but rather to have been prepared *after* the plans had been decided on.” (P. 7, emphasis added)
3. The NAS Report indicates that the time constraints of the study may have forced the approach taken in the desk scans. However, this may be a convenient cover for the contractor's selection of pre-determined methods. Had the recommendations of the previous NAS/TRB study (2002) been undertaken many of these shortcomings in the desk scans and project plans could have been addressed.
 - a. “This outcome of the desk scans may have been inevitable, given the compressed time span of the study, which would have necessitated early selection of analysis methods. If an ongoing federal program of monitoring and evaluation of trucking regulations, as recommended by the 2002 TRB truck size and weight study (TRB 2002, 6), had been in place, the priorities and analysis alternatives for the 2014 study could have been established at the outset.” (P. 8)
4. The desk scans should have included a synthesis of findings from past studies which would help identify “which uncertainties [in estimated impacts] critically hinder decision making on the regulations” (P. 8), and provide comparisons for findings of current study.

5. The study needs coordination between subject areas, fails to explain the structure of the overall study, and does not ensure datasets used in multiple areas are used consistently (like weigh in motion data which is used in four areas; bridge, pavement, modal shift, enforcement).
 - a. “an overall or crosscutting desk scan and plan for the CTSW study are needed to ensure that the work is coordinated and to allow interested parties to understand the structure of the study.” (P. 9)
 - b. “For example, weigh-in-motion (WIM) data are needed in the bridge, pavement, modal shift, and enforcement analyses. None of the desk scans contains a complete discussion of WIM data quality issues relevant to the study or of the accuracy of weight data required for each of the study analyses.” (P. 9)

NAS Report Comments on Individual Desk Scans

Bridge Structure

1. Thoroughness:
 - a. The desk scan is missing a comparison of alternative methods, especially disconcerting in light of previous NAS/TRB findings that methods in previous studies could not produce satisfactory results. Without such a comparison, the contractors are set to repeat the failures of the previous study.
 - i. “The desk scan does not include a comparative evaluation of alternative methods of assessing bridge costs of changes in size and weight limits. This omission is especially unfortunate if the conclusion of the committee that conducted the 2002 [NAS] TRB truck size and weight study (TRB 2002, 3) that ‘the methods used in past studies have not produced satisfactory estimates of the effect of changes in truck weights on bridge costs’ is accepted.” (P. 11)
 - b. References selected appear to only support the pre-selected method of analysis rather than being a summary of available methods, data, etc. in support of the selection of an optimal method. Another example of bias.
 - i. “The references selected for inclusion in the bibliography appear to be primarily those that *are necessary to support a predetermined plan of analysis* for the CTSW study.” (P. 11, emphasis added)
 - c. The desk scan ignores relevant past studies.
 - i. “The desk scan does not review the results of past studies of the effects of changes in truck traffic on bridges.” (P. 11)
 - d. The desk scan does not identify data resources and methods for carrying out all of the analyses that are required by statute.
 - i. “The desk scan does not identify resources for carrying out each of the MAP-21 required analyses related to bridges in the CTSW study. Estimates of the costs to the public of the bridge impacts of changes in truck traffic (e.g., costs of traffic disturbance of

- bridge closings and bridge construction) and assessment of the owners' abilities to recover their costs are presumably being carried out in other tasks of the CTSW study; methods of conducting such estimates are not discussed in the bridge desk scan (although some of the references cited may contain estimates of these costs).” (P. 12)
- e. In addition, the desk scan did not identify methods or data sources to support related analyses of impacts on barriers, medians, or railings. (P. 12)
 - f. The District of Columbia Department of Transportation (DCDOT) study, which is to serve as the basis for the bridge analysis, is unpublished and there is no summary in the desk scan. DC is a small largely urban region with a limited number of bridges.
 - i. “The desk scan describes a 2010 truck size and weight study conducted for the District of Columbia Department of Transportation (DCDOT) as (p. 18) ‘a basis of this study.’ ***The DCDOT study is unpublished, and the absence of a summary of it in the desk scan appears to be a significant omission.***” (P. 12, emphasis added.)
 - g. The desk scan did not cite all major relevant sources that are applicable or describe the shortcomings of the data. (P. 12) These omissions are not explained.

2. Missing Literature, Studies, Models or Data:

- a. The desk scan is missing in-depth reviews of studies of deterioration, while other cited studies aren't clearly related to the topic.
 - i. “The desk scan lacks in-depth review of studies of causes of deck deterioration, deck deterioration modeling, and deck deterioration quantification. The relevance to the CTSW study of some of the references on decks cited in Section 3.3 of the desk scan is unclear.” (P. 14)
- b. The desk scan review regarding fatigue is focused on fatigue vulnerability and not on expected change in fatigue life due to increased truck loads.
- c. The review of methods and results of past estimates of bridge shear effects is insufficient.
- d. The resources cited for Cost Allocation Study Methods and Methodology appear insufficient to execute the analyses planned.

3. Interpretation of Literature Reviewed:

- a. The desk scan appears to misinterpret at least two of the cited studies. At least one of which could offer an alternative analysis method which should have been compared with the selected analysis method.

4. Conclusions:

- a. “Desk scan lacks synthesis of analysis methods or of results of past estimates concerning the effects of changes in size and weight limits.” (P. 15)

Pavement

1. Thoroughness:

- a. A more systematic review of certain topics would have reinforced creditability of estimates and ensure that alternative methods were not overlooked. The errors and omissions of the desk scan noted below reflect either incompetence on the part of the contractor or willful omission in support of pre-selected methods.
 - i. No citation of cost model being used and no comparison with alternative models.
 - ii. No review of the data required for the modeling or alternative data sources, and no discussion of shortcomings of the data and method which could affect reliability of impact estimates.
 - iii. Pavement sections identified for use in the analysis may not be appropriate or may be outdated.
 - 1. “many LTPP [long-term pavement performance] sections [which the study plans to use] are more than 20 years old or were special test sections, and therefore they may not be typical of current practices.” (P. 18)
 - iv. Studies and programs noted in the project plan do not appear in the desk scan.
 - v. There is no discussion of the selected pavement model program in terms of its known drawbacks and limitations, a standard feature of good research and scientific method. No comparison with alternative models.

2. Missing Literature, Studies, Models or Data:

- a. The committee indicated that there is research which is ongoing and will not be available in time for the study.
- b. This ongoing research should have been cited to indicate limitations of present model and likely future improvements.

3. Interpretation of Literature Reviewed:

- a. One-third of the desk scan is devoted to wide tire research while the model selected for analysis is unable to quantify wide tire impacts. No discussion of this contradiction is included. The industry is moving towards increased use of wide tires and the inability of the model selected for the analysis to address this is a serious problem.

4. Conclusions:

- a. While the NAS Report concludes that the method selected is “reasonable”, it is not necessarily the correct, the most appropriate, or even the best available method. The NAS Report points out the following problems with the desk scan:
 - i. Synthesis of past studies is cursory.
 - ii. Desk scan needs synthesis of alternative methods to compare with selected method of analysis.
 - iii. Desk scan needs synthesis of estimates of impacts.
 - iv. While the model selected for the analysis appears correct, its success will depend on the selection of sample pavements not being biased.

- v. Desk scan mentions other analysis methods as a backup but provides no indication that these alternative methods are workable.

Modal Shift

1. Thoroughness:

- a. The models selected have weaknesses which were identified in the prior truck size and weight study (FHWA 2000). The congressional timeline or bias may be leading the contractor to use a sub-optimal method.
 - i. “The diversion projections of the mode shift models are not compared in terms of their utility or credibility for their intended applications. This omission is especially important in view of the limitations of the Intermodal Transportation and Inventory Cost (ITIC) model chosen for use in the CTSW study.” (P. 23)
 - 1. No discussion / comparison of previous results, reliability, uncertainty, or projections with outcomes.
 - 2. Problems with the ITIC model noted previously in the 2000 USDOT study.
 - 3. The committee notes that the time schedule of the study prevents development of an aggregate econometric model.
 - 4. No discussion of the suitability of the ITIC model to perform the analyses proposed.
 - ii. More mode choice models, beyond those only used in past truck size and weight evaluations, must be reviewed. Alternative methods have been overlooked.
 - 1. No overview of fundamental concepts of modal diversion beyond previous studies of truck size and weight.
 - 2. Desk scan is not comprehensive.
 - a. The scan includes hardly any sources from the academic literature, which is unfortunate since recent studies on logistics analysis may help inform the ITIC model.
 - 3. Desk scan lacking in discussion and references for effect of limit changes on volume of freight traffic.
 - a. NAS Report notes an ongoing research project which may review the ITIC model and will be ready at the end of 2014.
 - iii. Methods of estimating the effects of mode shift on other areas of the study (safety, cost, pavement, etc.) are not adequately covered.
 - 1. Effects on infrastructure not covered by that topic analysis must be addressed (for example changes to rail yards, transfer facilities).
 - 2. Effect on cost responsibilities to shippers, carriers and consumers.
 - 3. Effect on fuel efficiency: need to examine bottom-up vs. top-down analysis which has been shown to have problems.

4. Effect on environment focused only on greenhouse gases but not on other particulates.
2. Missing Literature, Studies, Models or Data:
 - a. The NAS Report points out a number of studies which were not referenced in terms of alternative models and estimates of various effects.
 3. Interpretation of Literature Reviewed:
 - a. The desk scan contained inadequate comparisons of ITIC model and alternative models, or potential shortcomings of ITIC model.
 - b. Limitations and assumptions used in the ITIC model must be addressed.
 4. Conclusions:
 - a. Limited synthesis of the literature.
 - i. Desk scan needs a synthesis of alternative methods, reliability and applicability to establish the state of the art.
 - ii. Desk scan needs a summary of past results for comparisons with current study findings.
 - iii. Desk scan must support selection of the method rather than desk scan supporting a pre-selected method. Yet another example of the impact of bias.
 1. “The committee's overall impression of the desk scan is that its intent is to justify a prior decision about the method to be used in the CTSW study. There is not a logical flow from literature review to synthesis to conclusion. The desk scan represents more a listing of reports and literature, followed by a conclusion that is likely based on availability of models, time to complete the study, familiarity with the methods, and budget.” (P. 29)

Highway Safety

1. Thoroughness:
 - a. The desk scan fails to document and support the methods selected and does not account for problems with the data and the influence of other regulations upon the safety of large trucks.
 - i. Alternative methods proposed in the project plan are not documented completely in the desk scan.
 - ii. While the desk scan discusses regulations in other countries, no review of studies of the effectiveness of these regulations is provided.
 - iii. NAS Report warns against comparing the safety of alternative configurations with special rules against current fleet without such rules for policy analysis.
 - iv. NAS Report advises that in light of past research, the safety analysis must account for the driver's influence on crash risk. Desk scan should describe the design of past studies that have measured this effect.

- v. No citation of the models to be used in the analysis or the sources for input to these models.
- vi. No examination of impact of regulatory changes on work zone safety.

2. Missing Literature, Studies, Models or Data:

- a. The NAS Report notes at least 6 relevant studies are not cited by the desk scan, one of which specifically notes “brake defects may be a more serious issue with increased weight” and another which shows that “crash injury is higher in double or triple trailer than in single trailer crashes.” (P. 35) Since these studies all indicate the negative impact of larger trucks, their omission is indicative of bias.
- b. The desk scan completely fails to include the safety findings of the 2000 FHWA comprehensive truck size and weight study which found that in nationwide use multiple-trailer configurations would have an 11 percent higher fatal crash rate than single trailer trucks.

3. Conclusions:

- a. The desk scans fails in a number of areas, providing no justification or explanation for the selected methods or assumptions made.
 - i. Fails to address critical methodological issues, and some observations are “open to debate”. (P. 36). Findings regarding methods (models and data) should be separated from results of past safety studies.
 - ii. Desk scan should have cited the basis for any findings presented to allow the reader to judge the strength of the finding.
 - iii. Synthesis of alternative methods and comparisons of findings would be helpful. No critique of the alternative case-control method and no justification for not considering this alternative. The case-control method is the gold standard for this type of study.
 - iv. Safety analysis must consider the impact of all effects of regulatory changes (on traffic volume, traffic distribution, enforcement, work zones etc.) on overall safety rather than limiting the safety analysis exclusively to changes in average crash involvement rates by configuration.

Enforcement and Compliance

1. Thoroughness:

- a. Missing discussion of future enforcement using new and emerging technologies.

2. Missing Literature, Studies, Models or Data:

- a. Insufficient sources for examining cost and effectiveness of enforcement.
- b. More detailed discussion needed of limitation of data sources.
- c. No description of how data limitations will be addressed.

- d. No sources for “potentially important categories of enforcement costs” (inspection times, replacing scales).
- e. No discussion of economic research on optimal fine levels.

3. Interpretation of Literature Reviewed:

- a. The NAS Report is concerned that that the contractor incorrectly concludes that compliance with trucks size and weight laws should be viewed as a cost to the industry. And although not specifically mentioned in the NAS Report, the contractor falsely assumes that there would be complete compliance with any new regulatory regime.
 - i. “The desk scan uncritically reports a statement of the 2002 [NAS/]TRB truck size and weight study (TRB 2002) that rigorous weight enforcement could increase overall truck shipping costs.” (P. 41)
 - ii. “The proceeds of illegal activities should not be regarded as benefits to society in benefit-cost analysis of enforcement programs (Trumbull 1990).” (P. 41)

4. Conclusion:

- a. A synthesis of results from prior studies is not presented.