

NSTSCCE

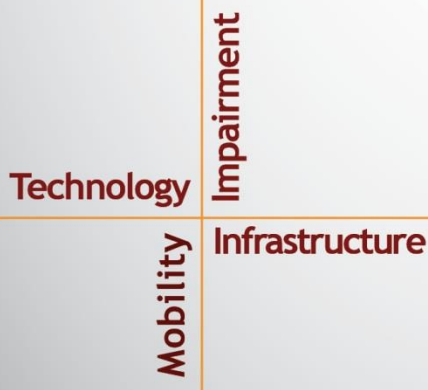
National Surface Transportation
Safety Center for Excellence

Supporting CMV Driver Distraction Outreach Efforts

Letter Report Summary

Justin F. Morgan • Alejandra Medina • Myra Blanco • Richard Hanowski • Vikki L. Fitchett • Hollie E. Fitzgerald • Joshua Radlbeck

Submitted: April 8, 2015



ACKNOWLEDGMENTS

The authors of this report would like to acknowledge the support of the stakeholders of the National Surface Transportation Safety Center for Excellence (NSTSCE): Tom Dingus from the Virginia Tech Transportation Institute, John Capp from General Motors Corporation, Lincoln Cobb from the Federal Highway Administration, Chris Hayes from Travelers Insurance, Martin Walker from the Federal Motor Carrier Safety Administration, and Cathy McGhee from the Virginia Department of Transportation and the Virginia Center for Transportation Innovation and Research.

The authors also wish to extend their gratitude to Mr. Eric Cohen and the management of DriveCam for their assistance in this project.

The NSTSCE stakeholders have jointly funded this research for the purpose of developing and disseminating advanced transportation safety techniques and innovations.

TABLE OF CONTENTS

LIST OF FIGURES.....	iii
LIST OF TABLES.....	v
LIST OF ABBREVIATIONS AND SYMBOLS	vii
CHAPTER 1. INTRODUCTION.....	1
BACKGROUND	1
PURPOSE AND GOAL	2
CHAPTER 2. INFORMATION REVIEW AND SUMMARY OF CHANGES.....	3
LITERATURE REVIEW	3
SUMMARY OF CHANGES.....	3
CHAPTER 3. READABILITY.....	5
BACKGROUND	5
READING EASE SCORES.....	5
CHAPTER 4. SUMMARY, CONCLUSIONS, AND NEXT STEPS.....	7
APPENDIX A. REVISED TEXT	9
DRIVER DISTRACTION	9
TIP #1: DO NOT LET OBJECTS OUTSIDE OF YOUR TRUCK DISTRACT YOU	9
TIP #2: DO NOT TEXT WHILE DRIVING	10
TIP #3: DO NOT USE A DISPATCHING DEVICE WHILE DRIVING	11
TIP #4: DO NOT DIAL A HANDHELD PHONE WHILE DRIVING.....	12
TIP #5: DO NOT READ, WRITE, OR USE PAPER MAPS WHILE DRIVING	13
TIP #6: AVOID EATING AND DRINKING WHILE DRIVING	13
APPENDIX B. REVISED TEXT: SPANISH LANGUAGE TRANSLATION	15
DISTRACCIÓN DEL CONDUCTOR	15
CONSEJO #1: NO DEJE QUE OBJETOS FUERA DE SU CAMIÓN LO DISTRAIGAN.....	15
CONSEJO #2: NO ENVÍE MENSAJES DE TEXTO MIENTRAS CONDUCE	16
CONSEJO #3: NO USE LA RADIO U OTRO SISTEMA DE DESPACHO O COMUNICACIÓN MIENTRAS CONDUCE.....	18
CONSEJO #4: NO MARQUE UN NUMERO DE TELÉFONO EN SU TELÉFONO CELULAR MIENTRAS CONDUCE	18
CONSEJO #5: NO LEA, ESCRIBA, O USE MAPAS IMPRESOS CUANDO CONDUCE	19
CONSEJO #6: EVITE COMER O TOMAR CUANDO CONDUCE.....	20
APPENDIX C. ANTI-DISTRACTION TIP SHEET (ENGLISH LANGUAGE).....	21
QUICK TIPS FOR AVOIDING DRIVER DISTRACTION	21
1: <i>Do not let objects outside of your truck distract you</i>	21
2: <i>Do not text while driving</i>	21
3: <i>Do not use a dispatching device while driving</i>	21
4: <i>Do not dial a handheld phone while driving</i>	21
5: <i>Do not read, write, or use paper maps while driving</i>	21
6: <i>Avoid eating and drinking while driving</i>	21
APPENDIX D. ANTI-DISTRACTION TIP SHEET (SPANISH LANGUAGE).....	23
CONSEJOS RÁPIDOS PARA EVITAR LA DISTRACCIÓN DEL CONDUCTOR	23
1: <i>No deje que los objetos del exterior de su camión lo distraigan</i>	23
2: <i>No envíe mensajes de texto mientras conduce</i>	23
3: <i>No use sistemas de despacho o comunicación mientras conduce</i>	23
4: <i>No marque un número de teléfono en su teléfono celular mientras conduce</i>	23

<i>5: No lea, escriba, o use mapas impresos cuando conduce</i>	<i>23</i>
<i>6: Evite comer o tomar cuando conduce</i>	<i>23</i>
REFERENCES	25

LIST OF FIGURES

Figure 1. Screenshot. FMCSA CMV Driving Tips entry page.	1
Figure 2. Screenshot. External object distraction.	10
Figure 3. Screenshot. Texting while driving.	11
Figure 4. Screenshot. Driver rolls vehicle.	12
Figura 5. Captura de Pantalla. Distracción externa a la cabina del camión.	16
Figura 6. Captura de Pantalla. Mandando mensajes de texto mientras conduce.	17
Figura 7. Captura de Pantalla. El conductor vuelca el camión.	19

LIST OF TABLES

Table 1. Summary of changes by section.....	4
--	----------

LIST OF ABBREVIATIONS AND SYMBOLS

Acronym	Definition
CMV	Commercial Motor Vehicle
FMCSA	Federal Motor Carrier Safety Administration
NSTSCE	National Surface Transportation Safety Center for Excellence
U.S. DOT	United States Department of Transportation
VTI	Virginia Tech Transportation Institute

CHAPTER 1. INTRODUCTION

BACKGROUND

Driver error is a primary contributing factor in many large-truck crashes.⁽¹⁾ Although driving a commercial motor vehicle (CMV) requires special licensure, CMVs are fundamentally dissimilar in comparison to passenger vehicles and require special skills and knowledge for their safe operation. However, not all CMV drivers are able to practice skills on a regular basis. Because of this, it is important to provide practical information to CMV drivers on the safe operation of these vehicles.

The Federal Motor Carrier Safety Administration (FMCSA) CMV Driving Tips website (<https://cms.fmcsa.dot.gov/safety/driver-safety/cm-v-driving-tips-overview>) is a source for information on safety and practical driving tips for CMV drivers and safety managers. The site provides information on several factors related to safe driving, including the importance of safety belts, driving too fast for conditions, understanding the risks of traveling on unfamiliar roads, inadequate surveillance, driver fatigue, driver distraction, following too closely, and not taking adequate evasive actions. Each of these areas provides information in the form of tips, many of which include a video example taken from naturalistic CMV driving studies performed by the Virginia Tech Transportation Institute (VTTI).

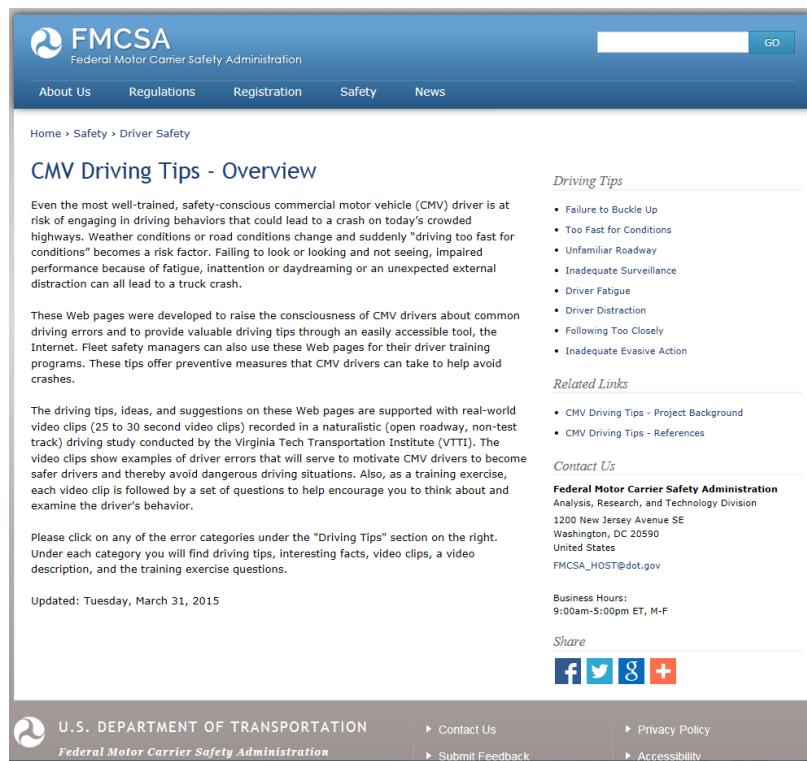


Figure 1. Screenshot. FMCSA CMV Driving Tips entry page.

Since the site was launched, there has been a rapid increase in both public attention to and research investigating driver distraction. This has included the publication of research specifically examining the risk associated with CMV distracted driving.⁽²⁾ Further, the United

States Department of Transportation (U.S. DOT) launched Distraction.gov, a website to help raise public awareness of the dangers of distracted driving. Thus, the National Surface Transportation Safety Center for Excellence (NSTSCE) sought to examine recently published research dealing with CMV distracted driving and update the distraction section of the site as appropriate.

PURPOSE AND GOAL

The purpose of this project was to review the driver distraction material on the CMV Driving Tips site and identify recently published research that may be included in a potential site update. In order to better reach the intended audience for this important information, three additional aspects of this effort were undertaken. The first aspect was to simplify the text. While CMV drivers have a wide range of educational backgrounds,⁽³⁾ providing text at a level requiring no greater than a high school education helps ensure that the message will be understood by the majority of drivers. This revised text is presented in Appendix A. The second aspect was to provide a Spanish-language translation of the information, as new agreements have allowed for increases in the amount of Mexico–United States CMV traffic.⁽⁴⁾ Following the initial translation, the text was reviewed by a number of native Spanish speakers from different countries in order to ensure that the effects of regional variations on the translated text were minimized. The Spanish-language translation of the revised text is presented in Appendix B. Finally, a one-page tip sheet summarizing the anti-distracted-driving tips was produced in both English (Appendix C) and Spanish (Appendix D). The goal of this project was to make the information on the CMV Driving Tips site more easily understood by the target audience, more accessible to a wider audience, and more relevant with up-to-date information.

CHAPTER 2. INFORMATION REVIEW AND SUMMARY OF CHANGES

LITERATURE REVIEW

Several databases (EBSCO, National Transportation Library, Transportation Research Board, and Google Scholar) and recent synthesis reports on CMV distraction were searched for recently published literature and reports on distracted driving.⁽⁵⁾ An effort was made to limit results to those dealing directly with CMVs; however, other studies closely related to an aspect of CMV operations were included when needed. Although this search yielded multiple results, the following references were used in the updated site text:

- Federal Motor Carrier Safety Administration (FMCSA). (2011). *Large truck crash causation study (LTCCS): Crash statistics*. Retrieved September 9, 2011, from <http://ai.fmcsa.dot.gov/ltccs/default.asp?page=reports>
- Hickman, J.S., Hanowski, R.J., & Bocanegra, J. (2010). *Distraction in commercial trucks and buses: Assessing prevalence and risk in conjunction with crashes and near-crashes* (Technical Report No. FMCSA-RRR-10-049). Washington, DC: U.S. Department of Transportation.
- Olson, R.L., Hanowski, R.J., Hickman, J.S., & Bocanegra, J. (2009). *Driver distraction in commercial vehicle operations* (Technical Report No. FMCSA-RRR-09-042). Washington, DC: U.S. Department of Transportation.
- Owens, J.M., McLaughlin, S.B., & Sudweeks, J. (2011). Driver performance while text messaging using handheld and in-vehicle systems. *Accident Analysis and Prevention*, 43(3), 939–947.
- U.S. Department of Transportation (U.S. DOT). (2010). Limiting the use of wireless communications devices. *Federal Register*, 75(186), 59118–59136.
- U.S. Department of Transportation (U.S. DOT). (2011). Drivers of CMVs: Restricting the use of cellular phones. *Federal Register*, 76(232), 75470–75488.

SUMMARY OF CHANGES

The following are specific changes to note in the revised text, in addition to the overall rewriting of the site text using simpler verbiage; i.e., the site was rewritten to be at a higher reading ease score, thus resulting in text that is easier to comprehend (see Chapter 3). Although significant revisions were made to the text, all changes were kept in a consistent format with the other sections of the existing CMV Driving Tips site in order to make the update process as easy as possible.

Table 1. Summary of changes by section.

Section	Summary of Change
Introduction	Changed references to external and internal distractions to a simplified explanation of inside and outside. Updated statistic with more recent FMCSA-sponsored study.
Tip #1: Objects Outside of Truck	Rephrased to more clearly state distractions outside of the truck. Rephrased training questions to match updated text.
Tip #2: Cell Phone	Added description of distraction mechanism to explain why cell phones can be distracting. Updated statistics with more recent FMCSA research.
Tip #3: Eating and Drinking	Added description of distraction mechanism to explain why eating can be a distraction. Updated statistics with more recent FMCSA research.
Tip #4: Texting	New category
Tip #5: Dispatching Device	New category
Tip #6: Reading, Writing, Maps	New category

CHAPTER 3. READABILITY

BACKGROUND

Readability refers to the comprehension difficulty of text.⁽⁶⁾ Readability has important implications for the utility of the text. For instance, a legal document that is written at a readability level above that of its audience is unlikely to be fully understood (leading to the common complaint of a document being written in “legalese”). However, this effect is not limited to contracts. A recent study suggested that the community-sourced online encyclopedia Wikipedia is written at a readability level too difficult to be understood by most of its visitors.⁽⁷⁾ To ensure that the information on the Driving Tips website can reach a wider audience, some of the text has been rewritten to make comprehension easier.

READING EASE SCORES

Reading ease scores were initially developed in the interest of adult education.⁽⁸⁾ Studies demonstrated that texts with better readability typically were more completely read and comprehended by individuals.⁽⁹⁾ One of the early popular reading ease formulas was the Flesch Reading Ease score, which predicted the difficulty of an adult reading the target text in terms of level of education and human interest in the text. Reading Ease scores from 0 to 30 indicate material that is best understood by college graduates, material with scores from 60 to 70 can be understood by 13- to 15-year-old students, and material with scores from 90 to 100 can easily be understood by an 11-year-old student.

An update to the Flesch Reading Ease score was performed by Kincaid, who recalculated the Flesch Reading Ease score to provide a grade-level score.⁽¹⁰⁾ The resultant Flesch-Kincaid Grade-Level formula (and the related Flesch-Kincaid Reading Ease score) has become one of the most popular readability metrics. The Flesch-Kincaid Grade-Level formula takes into account the total number of syllables, words, and sentences within the text. The score produced by the metric can be interpreted as relating to U.S. grade levels ranging from 0 to 12. (There are Flesch-Kincaid Grade-level scores higher than 12 which represent additional years of education that are needed to fully understand the text.) While a higher Flesch Reading Ease score indicates text that is easier to comprehend, a higher Flesch-Kincaid Grade-level score indicates text that is more difficult to comprehend. For this project, all text was targeted at a 12th-grade level or less.

In order to ensure that the Spanish-language translations performed as part of this project resulted in text with an appropriate level, a Spanish-language readability formula was used to assess the translation. The Fernandez-Huerta readability formula is an adaptation of the Flesch Reading Ease score that takes into account the differing number of syllables, words, and sentences found in Spanish-language—as opposed to English-language—texts.⁽¹¹⁾ While the scores from the Flesch Reading Ease and the Fernandez-Huerta formulas are not directly comparable due to this adjustment for language variability, they operate on the same principle. For the Fernandez-Huerta formula, typical scores range from 30 to 100, with higher scores indicating text that is easier to read. As noted, for this project, the average score was targeted at a 12th-grade level or less, while the average score was 69 (a score of more than 70 is targeted for the 6th grade).

CHAPTER 4. SUMMARY, CONCLUSIONS, AND NEXT STEPS

FMCSA sponsored the creation of and hosts the CMV Driving Tips site. A part of this site includes information specific to the dangers posed by distracted driving. However, in the years since the original creation of the site material, several important studies have been published with new information or perspectives on distracted driving for CMV drivers. The primary goal of this project was to perform a literature review and update the site text with new information relevant to CMV drivers. As part of this literature review, six studies dealing with distractions common to CMV operations were identified and integrated into the text.

The readability of text influences how likely it is to be comprehended by the audience. The second goal for this project was to simplify the site text (i.e., increase the readability) in the interest of making the site more useful for CMV drivers. Although CMV drivers have a wide range of educational backgrounds,⁽³⁾ providing information at a level requiring no greater than a high school education is a way to ensure that the message will be understood by the majority of drivers.

A third goal of the project was to provide an anti-distraction tip sheet that CMV drivers could print and carry with them, or that safety managers could provide to CMV drivers. The information from the revised site text was condensed into six succinct points and links to further information at the FMCSA and Distraction.gov sites. This information was prepared in a manner that can easily fit onto a single page in order to serve as a flyer or handout.

The final goal of the project was to provide all site materials in the Spanish language. This is important as new agreements have allowed for increases in the amount of Mexico–United States CMV traffic.⁽⁴⁾ A Spanish-language translation was performed on both the revised site text as well as the anti-distraction tip sheet. Following this initial translation, the text was reviewed by several native Spanish speakers from different countries in order to minimize the effects of regional variations on the translation.

The goal of this project was to make the information in the distraction section of the CMV Driving Tips site more easily understood by the target audience, more accessible to a wider audience, and more relevant with up-to-date information. While this is an important step, it is critical that the dangers of distracted driving continue to be emphasized within the CMV stakeholder community through outreach and education. Further efforts at shaping outreach and education materials for the CMV community are likely to yield benefits in terms of increased awareness and reduced incidents of distracted driving.

APPENDIX A. REVISED TEXT

This appendix provides the updated site text. Works referenced within this appendix are provided in the References section of this report. Screen captures of the videos used in the site are provided in the same location as they would occur in the text.

DRIVER DISTRACTION

Driver distraction is the diversion of attention from activities critical for safe driving to a competing activity. Driver distraction increases your risk of getting into a crash.

Distractions can come from both inside and outside of your truck cab. Distractions inside of your cab can include dialing cell phones, texting, using dispatching devices, eating, reading, or adjusting the radio. Distractions outside of your cab can include looking at a passing building, billboard, or person. One way to think about distraction is to ask yourself if something is drawing your attention and taking your eyes away from the road ahead of you. If the answer is “yes,” it is probably a distraction.

A 2009 study found that 71 percent of large-truck crashes occurred when the truck driver was doing something besides driving the truck.⁽²⁾ Staying focused on driving can help keep you, and other road users, safe on the road!

Below are some tips that will help you stay focused on the road ahead and can help make you a safer driver.

TIP #1: DO NOT LET OBJECTS OUTSIDE OF YOUR TRUCK DISTRACT YOU

When driving, stay focused on the job of driving your truck. You should avoid focusing on things outside of your truck that aren't related to driving. This includes things like billboards, buildings, and people. Remember, anything taking your eyes away from driving is a distraction and can be dangerous. Paying attention only to things that are related to driving will help keep you aware of the road and cars around you, and will help make sure you are ready to react to anything unexpected.

Did You Know? A 2006 study found that driver inattention was the leading factor in crashes and near-crashes. The study found that nearly 80 percent of crashes involved some form of driver inattention in the 3 seconds before the crash or near-crash.⁽¹²⁾

Did You Know? A three-year data collection effort by the Federal Motor Carrier Safety Administration and the National Highway Traffic Safety Administration found that an estimated 11,000 truck crashes nationwide involved distractions external to the truck cab.⁽¹³⁾

Did You Know? Billboards and other advertisements near the road are meant to get your attention. However, anything that takes your eyes off the road ahead can be a distraction. Aim to minimize the amount of time you spend looking at these objects. An example of a driver distracted by something outside of the truck is shown in the video clip below. Training exercise questions follow the video clip.



Figure 2. Screenshot. External object distraction.

Video description: The truck driver is in the right lane of a two-lane highway on wet pavement during the day. The driver becomes distracted with something out his right window. Traffic begins to slow ahead of him. The driver returns his attention to the forward roadway and has to brake quickly and move into the left lane.

Training exercise: After viewing the video, try to answer the following questions:

- Was the driver aware of the road in front of him and the traffic around him?
- What was the result of the driver's inattention?
- Would the driver know if there were any vehicles in the adjacent left lane?
- What could the driver have done differently?

TIP #2: DO NOT TEXT WHILE DRIVING

Texting while driving is illegal for CMV drivers.⁽¹⁾ Texting is an easy way to keep in touch with people. Yet, texting can also be one of the most dangerous distractions in your truck. Texting takes your eyes, hands, and mind off the job of driving. In order to read or send a text message, you must look at the phone. This takes your eyes off the road. You must use the buttons on the phone to open or write a message, which takes at least one hand off the steering wheel. You must read or think about what you are going to write, which takes your mind off the road.

Did You Know? A 2009 study of real-world driving found that text messaging while driving increased a driver's chances of being involved in a safety-critical event by 23 times. This study found that, in the moments before a safety-critical event, drivers who were texting while driving spent nearly 5 seconds looking at their phone.⁽²⁾

Did You Know? Based largely on a 2009 landmark study of driver distraction in trucking, FMCSA banned texting while driving for commercial drivers.^(1, 2) This study was so compelling that President Obama issued Executive Order 13513, banning all federal employees from texting while driving on government business.

Did You Know? If you are driving at 55 mph and take your eyes off the road for 5 seconds to write a text message, you have traveled the length of a football field (end zones included) without looking at the road.

An example of a driver distracted by sending a text message is shown in the video clip below. Training exercise questions follow the video clip.



Figure 3. Screenshot. Texting while driving.

Video description: The CMV driver is traveling on a two-lane highway during the day. The roadway curves to the left. The driver is distracted by his phone and fails to notice the car turning across his lane. He looks up from his phone at the last moment, and manages to avoid a head-on collision with the car by driving onto the shoulder.

Training exercise: After viewing the video, try to answer the following questions:

- What shows that the driver was distracted by the cell phone?
- How far did the driver travel without looking at the road?
- How long were the driver's eyes on the phone versus on the road?
- Would having his eyes on the forward roadway have allowed him to handle the situation differently?

TIP #3: DO NOT USE A DISPATCHING DEVICE WHILE DRIVING

Dispatching devices let you and your dispatchers communicate, can help you navigate, and can help keep your logs. These devices are sometimes called mobile or portable data terminals and can help make your job easier. Although a message on the dispatching device might seem urgent, using a dispatching device while driving can be dangerous. This is because the dispatching device can take your eyes, hands, and mind away from driving safely. Since using a dispatching device while driving raises your risk of a crash, many companies have policies in place or lock out features when the truck is moving. Using a dispatching device is “texting for truckers.”

Did You Know? A 2009 study of real-world driving found that using a dispatching device while driving increased a driver's chances of being involved in a safety-critical event by 9 times.⁽²⁾

Did You Know? Companies are working on building better dispatching devices. Some dispatching devices are easier to use, allowing you to respond to messages without looking at the screen, and read messages aloud. This can help keep your eyes on the road.

TIP #4: DO NOT DIAL A HANDHELD PHONE WHILE DRIVING

Handheld cell phones involve multiple types of distractions and using them while driving is illegal for CMV drivers.⁽¹⁾ Handheld phones can take your eyes and hands away from driving. Dialing a handheld cell phone requires you to take your eyes off the road and your hands off the wheel.⁽¹⁴⁾ If you have to make a call while driving, find a safe place to stop and keep your call short.⁽¹⁵⁾ Or, consider a voice-activated hands-free phone or phone app. Phones that do not require you to hold them while dialing a number or talking can help keep your eyes on the road and your hands on the wheel. Most smartphones either have this hands-free ability or have apps available to provide it.

Did You Know? A 2010 study of real-world driving found that dialing a handheld cell phone while driving increased the risk of a crash or near-crash by 3 times.⁽⁵⁾

A 2011 study found that drivers who were dialing a handheld cell phone made more frequent and larger steering corrections than drivers who were only talking on the phone.⁽⁵⁾ An example of a driver distracted by a cell phone is shown in the video clip below. Training exercise questions follow the video clip.



Figure 4. Screenshot. Driver rolls vehicle.

Video description: The CMV driver is traveling in the far right lane of a multi-lane highway during the day. The roadway curves to the left. The driver is distracted by his cell phone and his tire catches the road edge. He tries to correct with steering, but slides the truck and narrowly misses colliding with an oncoming car. His truck flips.

Training exercise: After viewing the video, try to answer the following questions:

- What shows that the driver was distracted by the cell phone?

- What happened when the driver was dialing his phone?
- When were the driver's eyes off the road?
- What does this tell you about the driver's attention while driving?

TIP #5: DO NOT READ, WRITE, OR USE PAPER MAPS WHILE DRIVING

Printed directions, notes to yourself, and maps are a normal part of your job. However, reading or writing while you are driving is a much bigger risk than you might think. Reading a map while driving increases your risk of being in a crash. This is because both reading and writing take your eyes off the road ahead of you. If you need to read something or write yourself a note, the safest thing to do is pull over. Never read, even a map, or write while you are driving!

Did You Know? A 2009 study of real-world driving found that writing while driving increased a driver's chance of being involved in a safety-critical event by 8 times. The study also found that reading a map while driving increased the chances of being in a safety-critical event by 7 times.⁽²⁾

Did You Know? GPS units are much safer to use while driving as compared to maps, as long as you are not trying to enter information into the unit while driving. However, studies have shown that using these kinds of systems can still take your eyes off the road.⁽⁵⁾ Therefore, never try to enter information into a GPS unit while driving!

Did You Know? Many newer GPS units allow you to enter an address with your voice only. These voice-activated units help you keep your eyes on the road while still allowing you to get route information.

TIP #6: AVOID EATING AND DRINKING WHILE DRIVING

Sometimes you may feel like driving is the only time you have to eat or drink. But you may not realize that eating while driving can be dangerous.⁽¹⁶⁾ Eating while driving can take your eyes off the road. It always takes at least one of your hands off the wheel. Always try to eat or drink before getting behind the wheel or leave time to pull over and eat.

Did You Know? A survey of all types of drivers found that 49 percent of drivers believed eating or drinking while driving could be a distraction.⁽¹⁷⁾

Did You Know? A recent study found that eating while driving was riskier than talking on a cell phone.⁽¹⁸⁾

Did You Know? On May 23, 2008, a 51-year-old CMV driver crashed into the back of a stopped school bus, which was letting children out, on Highway 50 in western Kenosha County, Wisconsin. The CMV driver was distracted by drinking a soda and did not see the school bus, which was stopped with its lights flashing and its stop-arm extended. After the crash, 14 children had to be taken to area hospitals, 4 of them with serious injuries. The CMV driver was transported to a hospital in critical condition.^(19, 20) This crash may have been prevented if the

CMV driver was not distracted by drinking the soda and was paying full attention to the road ahead.

APPENDIX B. REVISED TEXT: SPANISH LANGUAGE TRANSLATION

This appendix provides the Spanish translation of the updated site text. Works referenced within this appendix are provided in the References section of this report. Screen captures of the videos used in the site are provided in the same location as they would occur in the text.

DISTRACCIÓN DEL CONDUCTOR

La distracción del conductor es el desvío de la atención de actividades esenciales para una conducción segura hacia otra actividad. La distracción del conductor aumenta el riesgo de tener un choque o siniestro.

Las distracciones pueden provenir del interior o del exterior de la cabina del camión. Distracciones que ocurren dentro de la cabina incluyen marcar un número en el teléfono celular, enviar mensajes de texto, usar radios o sistemas de despacho o comunicación de camiones (dispatching devices), comer, leer o sintonizar una estación de radio. Distracciones que ocurren fuera de la cabina incluyen mirar edificios, carteles de publicidad, o personas. Una manera de pensar acerca de la distracción es preguntarse si algo está llamando su atención y le hace apartar la mirada de la carretera que tiene adelante. Si su respuesta es “sí,” se trata probablemente de una distracción.

Un estudio realizado en el 2009 encontró que el 71 por ciento de los choques de camiones pasaron cuando el conductor del camión estaba haciendo otra cosa además de conducir.⁽²⁾
¡Permanecer atento mientras conduce puede ayudarle a usted y a otros usuarios de la carretera a mantenerse seguros!

A continuación se presentan algunos consejos que le ayudarán a mantenerse atento a la carretera y a ser un conductor más seguro.

CONSEJO #1: NO DEJE QUE OBJETOS FUERA DE SU CAMIÓN LO DISTRAIGAN

Al manejar, manténgase concentrado en la tarea de conducir su camión. Evite prestar atención a lo que sucede fuera del camión que no esté relacionado con el manejo del vehículo. Esto incluye cosas como carteles o avisos de publicidad, edificios, y personas. Recuerde, cualquier cosa que le haga desviar la mirada de la carretera es una distracción y puede ser peligroso. Prestar atención sólo a las cosas que están relacionadas con el manejo del vehículo le ayudará a mantenerse al tanto de la carretera y los vehículos a su alrededor, y le ayudará a asegurarse de que está listo para reaccionar ante cualquier imprevisto.

¿Sabía usted? Un estudio realizado en el 2006 encontró que la distracción del conductor fue el factor principal en los eventos que terminaron en choques y cuasi choques. El estudio encontró que en casi un 80 por ciento de los choques hubo algún tipo de distracción del conductor durante los 3 segundos previos al choque o cuasi choque.⁽¹²⁾

¿Sabía usted? Una recopilación de datos a nivel nacional realizada por la Administración Federal de Seguridad del Autotransporte (Federal Motor Carrier Safety Administration - FMCSA) y la Administración Nacional de Seguridad del Tránsito en las Carreteras (National Highway Traffic

Safety Administration - NHTSA) encontró que alrededor de 11,000 choques de camiones involucraban una distracción externa a la cabina del camión.⁽¹²⁾

¿Sabía usted? Carteles, avisos, vallas y otros tipos de publicidad son colocados cerca de la carretera para llamar su atención. Sin embargo, cualquier cosa que aparte su mirada de la carretera puede ser una distracción. Trate de minimizar la cantidad de tiempo que pasa mirando este tipo de cosas.

A continuación se muestra en el video un ejemplo de un conductor distraído por algo fuera del camión. Luego del video se presentan una serie de preguntas para ser utilizadas como ejercicio de entrenamiento.



Figura 5. Captura de Pantalla. Distracción externa a la cabina del camión.

Descripción del video: El conductor del camión se encuentra manejando durante el día en el carril derecho de una carretera de dos carriles con el pavimento mojado. El conductor se distrae con algo que pasa en el lado derecho fuera de su ventana. Luego el tránsito delante de su camión comienza a reducir la velocidad. El conductor vuelve a mirar hacia delante, tiene que frenar bruscamente, y moverse al carril izquierdo.

Ejercicio de entrenamiento: Luego de ver el video, intente contestar las preguntas siguientes:

- ¿Estaba el conductor atento a lo que sucedía en la carretera y en el tránsito a su alrededor?
- ¿Cuál fue el resultado de la falta de atención del conductor?
- ¿Podría haber sabido el conductor que había vehículos en el carril izquierdo?
- ¿Qué hubiera podido hacer diferente el conductor?

CONSEJO #2: NO ENVÍE MENSAJES DE TEXTO MIENTRAS CONDUCE

Enviar mensajes de texto mientras se conduce es ilegal para conductores de vehículos comerciales (CMV- Commercial Motor Vehicles por sus siglas en inglés).⁽¹⁾ Enviar mensajes de texto es una manera fácil de mantenerse en contacto con la gente. Sin embargo, enviar mensajes de texto puede ser una de las distracciones más peligrosas en su camión. Los mensajes de texto sacan su mirada, manos y mente de la tarea de conducir. Cuando lee o envía un mensaje de texto, debe mirar el

teléfono. Esto implica apartar la vista de la carretera. Usted debe utilizar las teclas del teléfono para abrir o escribir un mensaje, lo que causa que al menos no tenga una mano en el volante. Usted debe leer o pensar acerca de lo que va a escribir, lo que saca su atención de la carretera.

¿Sabía usted? Un estudio del 2009 hecho durante condiciones normales de trabajo encontró que el enviar mensajes de texto mientras se conduce aumenta 23 veces la probabilidad de tener un evento crítico que impacte su seguridad. Este estudio encontró que, en los momentos previos a un evento crítico, aquellos conductores que estaban escribiendo un mensaje de texto mientras manejaban pasaban casi 5 segundos mirando su teléfono.⁽²⁾

¿Sabía usted? Basándose fundamentalmente en el estudio cumbre sobre distracción de camioneros del 2009, la FMCSA prohibió enviar mensajes de texto mientras se maneja para todos los conductores de vehículos pesados.^(1,2) Este estudio fue tan convincente que el presidente Obama emitió la Orden Ejecutiva 13513 (Executive Order 13513), que prohíbe a todos los empleados de Gobierno Federal mientras cumplen funciones de trabajo, escribir mensajes de texto mientras manejan.

¿Sabía usted? Si usted está manejando a 55 millas por hora y quita la mirada de la carretera durante 5 segundos para escribir un mensaje de texto, es lo mismo que transitar una distancia igual a una cancha de fútbol americano (incluidas las zonas de anotación) sin mirar la carretera.

Un ejemplo de un conductor distraído al enviar un mensaje de texto se muestra a continuación en el video. Luego del video se presentan una serie de preguntas para ser utilizadas como ejercicio de entrenamiento.



Figura 6. Captura de Pantalla. Mandando mensajes de texto mientras conduce.

Descripción del video: El conductor del CMV está viajando en una carretera de dos carriles durante el día. La carretera tiene una curva hacia la izquierda. El conductor se distrae con su teléfono y no se da cuenta de que un automóvil se está metiendo en su carril. El conductor levanta la mirada y logra evitar, a último momento, un choque de frente con el automóvil tirándose hacia el hombro/banquina/arcén.

Ejercicio de entrenamiento: Luego de ver el video, intente contestar las preguntas siguientes:

- ¿Qué demuestra que el conductor se distrajo con el teléfono celular?
- ¿Cuánto tiempo el conductor maneja sin mirar la carretera?
- ¿Cuánto tiempo el conductor estuvo enfocado en el teléfono y no en la carretera?
- ¿Si hubiera tenido la mirada en la carretera, hubiera podido el conductor hacer algo diferente?

CONSEJO #3: NO USE LA RADIO U OTRO SISTEMA DE DESPACHO O COMUNICACIÓN MIENTRAS CONDUCE

Las radios u otros sistemas de despacho o comunicación (dispatching devices), le permiten comunicarse con su lugar de empleo y le pueden ayudar con direcciones para su ruta y a mantener sus planillas (logbook). Estos equipos son a veces llamados terminales de datos móviles o portátiles y pueden ayudarle a hacer su trabajo más fácil. A pesar de que un mensaje en el sistema de despacho puede parecer urgente, utilizarlo mientras se conduce puede ser peligroso. Esto es porque un sistema de despacho puede hacer que desvíe su mirada, manos y mente de la tarea de conducir en forma segura. Debido a que usar estos sistemas mientras se conduce aumenta el riesgo de un choque, muchas empresas cuentan con políticas establecidas o funciones que evitan que sean utilizados cuando el camión se encuentra en movimiento. El uso de un sistema de despacho es lo mismo que “enviar mensajes de texto” para los camioneros.

¿Sabía usted? Un estudio del año 2009 encontró que usar un sistema de despacho o comunicación mientras se conduce aumenta 9 veces el riesgo de tener un evento crítico que afecte su seguridad.⁽²⁾

¿Sabía usted? Hay compañías que están trabajando en diseñar mejores sistemas de despacho o comunicación. Algunos sistemas son más fáciles de usar permitiéndole responder a los mensajes sin mirar la pantalla, y pueden leer los mensajes en voz alta. Esto le puede ayudar a mantener su mirada en la carretera.

CONSEJO #4: NO MARQUE UN NUMERO DE TELÉFONO EN SU TELÉFONO CELULAR MIENTRAS CONDUCE

Los teléfonos celulares involucran varios tipos de distracciones y su uso mientras se maneja es ilegal para los conductores de vehículos comerciales.⁽¹⁾ Los teléfonos celulares le hacen desviar su mirada y sacar sus manos de la tarea de conducir. Llamar por un teléfono celular requiere que usted saque su mirada de la carretera y sus manos del volante.⁽¹⁴⁾ Si usted tiene que hacer una llamada mientras conduce, encuentre un lugar seguro para detenerse, y haga su llamada corta.⁽¹⁵⁾ Considere tener un celular manos libres o una aplicación para su teléfono. Los teléfonos que no requieren tenerlos en la mano para marcar un número o conversar le pueden ayudar a mantener su mirada en la carretera y sus manos al volante. La mayoría de los teléfonos inteligentes tienen la capacidad de actuar como manos libres, o tienen aplicaciones para lograrlo.

¿Sabía usted? Un estudio del 2010 hecho durante condiciones normales de trabajo encontró que marcar un número de teléfono en su celular mientras se conduce aumenta 3 veces la posibilidad de un choque o cuasi choque.⁽⁵⁾

Un estudio del 2011 encontró que cuando los conductores marcan un número de teléfono en su teléfono celular manualmente realizan correcciones con el volante con más frecuencia y más marcadas que un conductor que sólo está hablando por teléfono.⁽⁵⁾

A continuación se muestra en el video un ejemplo de un conductor distraído por su teléfono celular. Luego del video se presentan una serie de preguntas para ser utilizadas como ejercicio de entrenamiento.



Figura 7. Captura de Pantalla. El conductor vuelca el camión.

Descripción del video: El conductor del vehículo está manejando durante el día en el carril de la derecha de una carretera multicarriles. La carretera tiene una curva hacia la izquierda. El conductor está distraído con su teléfono celular y no se da cuenta de que sus neumáticos entran en la zona del hombro/banquina/arcén. El conductor trata de corregir maniobrando la dirección, pero patina y por poco choca con un automóvil en el sentido contrario. Su camión se vuelca.

Ejercicio de entrenamiento: Luego de ver el video, intente contestar las preguntas siguientes:

- ¿Qué muestra que el conductor se distrajo al usar el teléfono celular?
- ¿Qué sucedió cuando el conductor estaba marcando el número de teléfono?
- ¿Cuándo apartó el conductor la mirada de la carretera?
- ¿Qué le dice esto acerca de la atención del conductor mientras maneja?

CONSEJO #5: NO LEA, ESCRIBA, O USE MAPAS IMPRESOS CUANDO CONDUCE

Las instrucciones impresas, notas, y los mapas son una parte normal de su trabajo. Sin embargo, leer o escribir mientras conduce es un riesgo mucho mayor de lo que usted piensa. Leer un mapa mientras se conduce aumenta el riesgo de tener un choque. Esto se debe a que tanto la lectura como la escritura le hacen apartar su vista de la carretera que tiene por delante. Si usted necesita leer algo o escribir algo que tiene que recordar, lo más seguro para usted es parar. ¡Nunca lea, aunque sea un mapa, o escriba mientras conduce!

¿Sabía usted? Un estudio del 2009 hecho durante condiciones normales de trabajo encontró que escribir mientras se conduce aumenta el riesgo de tener un evento crítico que impacte su

seguridad 8 veces. El estudio también encontró que la lectura de un mapa mientras se conduce aumenta la probabilidad de tener un evento crítico que impacte su seguridad 7 veces.⁽²⁾

¿Sabía usted? Las unidades de Sistema de Posicionamiento Global (GPS) o navegadores son mucho más seguros de utilizar que los mapas, mientras se conduce siempre y cuando usted no está tratando de poner información en la unidad. Estudios han demostrado que aún estos sistemas le hacen apartar su mirada de la carretera.⁽⁵⁾ ¡Por lo tanto, nunca trate de introducir información en una unidad de GPS mientras conduce!

¿Sabía usted? Muchas de las nuevas unidades de GPS le permiten usar su voz para poner una dirección. Estas unidades activadas por voz le ayudan a mantener su mirada en la carretera al mismo tiempo que le permiten obtener información de su ruta.

CONSEJO #6: EVITE COMER O TOMAR CUANDO CONDUCE

A veces usted puede sentir que el único momento que tiene para comer o tomar algo es cuando está conduciendo. Pero usted no se da cuenta de que comer mientras se conduce puede ser peligroso.⁽¹⁶⁾ Comer mientras se conduce le hace quitar la mirada de la carretera y siempre le hace sacar por lo menos una mano del volante. Trate siempre de comer o tomar algo antes de empezar a conducir o deje tiempo para detenerse y comer.

¿Sabía usted? Una encuesta realizada a conductores en general reveló que el 49 por ciento de los conductores cree que comer o beber mientras se conduce puede ser una distracción.⁽¹⁷⁾

¿Sabía usted? Un estudio reciente encontró que comer mientras se conduce es más riesgoso que hablar por un teléfono celular.⁽¹⁸⁾

¿Sabía usted? El 23 de mayo de 2008, un conductor de un vehículo comercial de 51 años de edad, se estrelló contra la parte trasera de un autobús escolar detenido, para que los niños bajaran, en la carretera 50 en el oeste del Condado de Kenosha, Wisconsin. El conductor del CMV estaba distraído bebiendo un refresco y no vio el autobús escolar que estaba detenido con sus luces intermitentes prendidas y con la barrera de paro extendida. Después del choque, 14 niños tuvieron que ser trasladados a hospitales de esa área, 4 de ellos con heridas graves. El conductor del CMV fue trasladado a un hospital en estado crítico.^(19, 20) El choque pudo haberse evitado si el conductor del camión no hubiera estado distraído bebiendo su refresco y hubiera estado prestando atención a la carretera que tenía por delante.

APPENDIX C. ANTI-DISTRACTION TIP SHEET (ENGLISH LANGUAGE)

QUICK TIPS FOR AVOIDING DRIVER DISTRACTION

Driver distraction is the diversion of attention from activities critical for safe driving to a competing activity. Driver distraction increases your risk of getting into a crash. Here are six quick tips that can help keep your attention on the road and you in control of your truck.

1: Do not let objects outside of your truck distract you

Stay focused on the job of driving your truck: avoid focusing on things outside that aren't related to driving. This includes billboards, buildings, and people.

2: Do not text while driving

Texting is one of the most dangerous driver distractions and is illegal for truck and other CMV drivers. Never send or read text messages while you are behind the wheel.

3: Do not use a dispatching device while driving

Using a dispatching device while driving can be dangerous since they can take your eyes and hands away from the task of driving. If your dispatching device requires you to read or type, only use it when you are stopped.

4: Do not dial a handheld phone while driving

Using handheld cell phones is illegal for truck and other CMV drivers. Using handheld phones involves taking your eyes and hands away from driving. If you have to make a call while driving, find a safe place to stop or pull off the road, and keep your call short, or consider a voice-activated hands-free phone or phone app.

5: Do not read, write, or use paper maps while driving

Never read (even a map) or write while you are driving! Reading maps or writing while driving takes your eyes off the road ahead of you. If you need to read something or write yourself a note, the safest thing to do is pull over.

6: Avoid eating and drinking while driving

Eating or drinking while driving can be dangerous since it can take your hands and eyes away from your job of driving. Always try to eat or drink before getting behind the wheel or leave time to pull over and eat.

For more information on safe driving for CMV drivers, see:
www.distraction.gov

APPENDIX D. ANTI-DISTRACTION TIP SHEET (SPANISH LANGUAGE)

CONSEJOS RÁPIDOS PARA EVITAR LA DISTRACCIÓN DEL CONDUCTOR

La distracción del conductor es el desvío de la atención de actividades esenciales para una conducción segura hacia otra actividad. La distracción del conductor aumenta el riesgo de tener un choque o siniestro. A continuación se presentan 6 consejos rápidos que le pueden ayudar a mantener su atención en la carretera y el control de su camión.

1: No deje que los objetos del exterior de su camión lo distraigan

Al conducir, manténgase concentrado en la tarea de conducir su camión. Evite prestar atención a lo que sucede afuera que no esté relacionado con la conducción de su vehículo. Esto incluye cosas como carteles de publicidad, edificios y personas.

2: No envíe mensajes de texto mientras conduce

Enviar mensajes de texto es una de las formas más peligrosas de distracción y es ilegal en el caso de camioneros y otros conductores de vehículos comerciales. Nunca envíe un mensaje de texto cuando se encuentre conduciendo.

3: No use sistemas de despacho o comunicación mientras conduce

Usar sistemas de despacho o comunicación mientras se conduce puede ser peligroso porque hacen que aparte su mirada y sus manos de la tarea de conducir. Si su equipo de comunicación requiere que usted lea o escriba, solo úselo cuando se haya detenido.

4: No marque un número de teléfono en su teléfono celular mientras conduce

Usar un teléfono celular mientras está conduciendo es ilegal si es usted un conductor de un vehículo pesado. Usar un teléfono celular implica desviar su mirada y sus manos de la tarea de conducir. Si usted tiene que hacer una llamada mientras conduce, encuentre un lugar seguro para detenerse o salir de la carretera, y haga una llamada corta o considere tener un celular manos libres o una aplicación para su teléfono celular.

5: No lea, escriba, o use mapas impresos cuando conduce

¡Nunca lea (aunque sea un mapa) o escriba mientras conduce! Mirar mapas o escribir cuando conduce aparta su mirada de la carretera por delante. Si usted necesita leer algo o escribir algo que tiene que recordar, lo más seguro es parar.

6: Evite comer o tomar cuando conduce

Comer mientras se conduce puede ser peligroso porque hace que aparte su mirada y sus manos de la tarea de conducir. Siempre trate de comer antes de empezar a conducir o deje tiempo para detenerse y comer.

Si desea obtener más información sobre seguridad en la conducción de CMV consulte:
www.distraction.gov

REFERENCES

1. Federal Motor Carrier Safety Administration. (2007). *The large truck crash causation study* (Report No. FMCSA-RRA-07-017). Washington, DC: Author.
2. Olson, R.L, Hanowski, R.J., Hickman, J.S., & Bocanegra, J. (2009). *Driver distraction in commercial vehicle operations* (Report No. FMCSA-RRR-09-042). Washington, DC: Federal Motor Carrier Safety Administration.
3. Blanco, M., Bocanegra, J.L., Morgan, J.F., Fitch, G.M., Medina, A., Olson, R.L., Hanowski, R.J., Daily, B., & Zimmerman, R.P. (2009). *Assessment of a drowsy driver warning system for heavy-vehicle drivers* (Report No. DOT 811 117). Washington, DC: National Highway Traffic Safety Administration.
4. Appelbaum, B. (2011, July 7). U.S. and Mexico sign trucking deal. *The New York Times*, p. B1.
5. Kincaid, J.P., Fishburne, R.P., Rogers, R.L., & Chissom, B.S. (1975). *Derivation of new readability formulas (Automated Readability Index, Fog Count, and Flesch Reading Ease Formula) for Navy enlisted personnel* (Research Branch Report 8-75). Naval Air Station Memphis: Chief of Naval Technical Training.
6. Lucassen, T., Dijkstra, R., & Schraagen, J.M. (2012). Readability of Wikipedia. *First Monday*, 17(9). Retrieved from <http://www.uic.edu/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/3916/3297>
7. Dale, E. and Tyler, R. (1934). A study of the factors influencing the difficulty of reading materials for adults of limited reading ability. *Library Quarterly*, 4, 384–412.
8. Swanson, C.E. (1948). Readability and readership: A controlled experiment. *Journalism Quarterly*, 25, 339–343.
9. Kincaid, J.P., Fishburne, R.P., Rogers, R.L., & Chissom, B.S. (1975). *Derivation of new readability formulas (Automated Readability Index, Fog Count, and Flesch Reading Ease Formula) for Navy enlisted personnel* (Research Branch Report 8-75). Naval Air Station Memphis: Chief of Naval Technical Training.
10. Fernández-Huerta, J. (1959). Medidas sencillas de lecturabilidad. *Consigna*, 214, 29–32.
11. Morgan, J.F., Trimble, T.E., Bowman, D.S., Baker, S., Pickett, R., & Bergoffen, G. (2011). *Synthesis of literature relating to cellular telephone/personal digital assistant use in commercial truck and bus operations*. Washington, DC: Federal Motor Carrier Safety Administration.
12. Dingus, T.A., Klauer, S.A., Neale, V.L., Petersen, A., Lee, S.E., and Sudweeks, J. (2006). *The 100-car naturalistic driving study: Phase 2 – Results of the 100-car field experiment*

- (Report No. DOT HS 810 593). Washington, DC: National Highway Traffic Safety Administration.
13. National Highway Traffic Safety Administration. (2005). *Analysis of Speeding-Related Fatal Motor Vehicle Traffic Crashes* (Report No. DOT HS 809 839). (p. 1). Washington, DC: Author.
 14. Redelmeier, D.A., and Tibshirani, R.J. (1997). Association between cellular-telephone calls and motor vehicle collisions. *N Engl J Med*, 336, 453–458.
 15. Michigan Department of Motor Vehicles. (2007). *Michigan commercial driver license manual*. (pp. 2–30). Retrieved May 15, 2008, from http://www.michigan.gov/documents/cdlmanul_16090_7.pdf
 16. California Department of Motor Vehicles. (2002). *Driver distractions – Don't be a statistic*. (Are You Eating a Crash Diet? section). Retrieved May 29, 2008, from http://www.dmv.ca.gov/pubs/brochures/fast_facts/ffdl28.htm
 17. U.S. Department of Transportation National Highway Traffic Safety Administration. (2006). *Countermeasures that work: A highway safety countermeasures guide for state highway safety offices* (Report No. DOT HS 809 980). (p. 4-1). Washington, DC: Author. Retrieved May 29, 2008, from <http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/images/Countermeasures.pdf>
 18. Klauer, S.G., Dingus, T.A., Neale, V.L., Sudweeks, J.D., and Ramsey, D.J. (2006). *The impact of driver inattention on near-crash/crash risk: An analysis using the 100-Car naturalistic driving study data*. Washington, DC: National Highway Traffic Safety Administration.
 19. Injury Board.com. (2008). Distracted truck driver rear ends school bus, sending 14 children to area hospitals. Retrieved June 9, 2008, from <http://milwaukee.injuryboard.com/tractor-trailer-accidents/distracted-truck-driver-rear-ends-school-bus-sending-14-children-to-area-hospitals.aspx?googleid=240286>
 20. Garza, J., & Gabler, E. (2008, May 24). Semi hits school bus, injuring 16. *Milwaukee Journal Sentinel*.