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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

SPEED LIMITING DEVICES
DRAFT ENVIRONMENTAL ASSESSMENT

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List of Acronyms and Abbreviations

μg/m^3 – microgram per cubic meter

ATA – American Trucking Association

CAA – Clean Air Act

CEQ – Council on Environmental Quality

CO – carbon monoxide

CO_2 – carbon dioxide

CO_2e – carbon dioxide equivalent

DOT – U.S. Department of Transportation

EA – environmental assessment

ECU – electronic engine control unit

EPA – U.S. Environmental Protection Agency

ESA – Endangered Species Act

EU – The European Union

FARS – Fatality Analysis Reporting System

FMCSA – Federal Motor Carrier Safety Administration

FMCSR – Federal Motor Carrier Safety Regulation

FMVSS – Federal Motor Vehicle Safety Standard

GES – General Estimates System

GHG – greenhouse gas

GPS – Global Positioning System

GVWR – gross vehicle weight rating

HDDVs – heavy-duty diesel vehicles

HM – hazardous materials

MAIS – Maximum Abbreviated Injury Scale

mg/m^3 – milligram per cubic meter

MOVES2014a – Motor Vehicle Emission Simulator, version 2014a

mph – miles per hour

NAAQS – National Ambient Air Quality Standards

NEPA – National Environmental Policy Act

NHTSA – National Highway Traffic Safety Administration

NO_2 – nitrogen dioxide

NOx – nitrogen oxides

NPRM – Notice of Proposed Rulemaking

PDO – property damage only

PM – particulate matter

$PM_{2.5}$ – particulate matter measuring 2.5 microns in diameter

PM_{10} – particulate matter measuring 10 microns in diameter

ppb – parts per billion

ppm – parts per million

PRIA – Preliminary Regulatory Impact Analysis

SCC – social cost of carbon

SIP – State Implementation Plan

SO_2 – sulfur dioxide

VOC – volatile organic compounds

Glossary of Selected Terms

Clean Air Act: Enacted in 1970 and subjected to major revisions in 1977 and 1990; requires EPA to establish national ambient air quality standards for certain common and widespread pollutants based on the latest science.

Code of Federal Regulations: The codification of the general and permanent rules published in the Federal Register by the departments and agencies of the Federal Government.

Council on Environmental Quality: Coordinates Federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives. CEQ was established within the Executive Office of the President by Congress as part of the National Environmental Policy Act of 1969, with additional responsibilities provided by the Environmental Quality Improvement Act of 1970.

Environmental Assessment: A concise environmental analysis prepared pursuant to the National Environmental Policy Act to determine whether a Federal action would significantly affect the quality of the human environment and thus require a more detailed environmental impact statement.

Fatality Analysis Reporting System: A nationwide census providing NHTSA, Congress, and the American public yearly data regarding fatal injuries suffered in motor vehicle traffic crashes.

Federal Motor Carrier Safety Administration: An agency within the U.S. Department of Transportation whose primary mission is to reduce crashes, injuries, and fatalities involving large trucks and buses.

General Estimates System: One of two systems comprising NHTSA's National Automotive Sampling System, which provides NHTSA an efficient and reusable resource with which to conduct data collection representing a broad spectrum of American society. Data for GES come from a nationally representative sample of police reported motor vehicle crashes of all types, from minor to fatal. The system began operation in 1988, and was created to identify traffic safety problem areas, provide a basis for regulatory and consumer initiatives, and form the basis for cost and benefit analyses of traffic safety initiatives. The information is used to estimate how many motor vehicle crashes of different kinds take place and what happens when they occur.

Global Positioning System: A space-based satellite navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth, where there is an unobstructed line of sight to four or more GPS satellites.

Gross Vehicle Weight Rating: The value specified by the manufacturer as the maximum design loaded weight of a single vehicle.

Heavy Vehicle or Commercial Motor Vehicle: A multipurpose passenger vehicle, truck, or bus with a gross vehicle weight rating of more than 11,793.4 kilograms (26,000 pounds).

Motor Vehicle Emission Simulator: Emission modeling system that estimates emissions for mobile sources covering a broad range of pollutants and allows multiple scale analysis.

National Ambient Air Quality Standards: Limits promulgated by EPA under the CAA for six criteria pollutants (sulfur dioxide, particulate matter, nitrogen dioxide, carbon monoxide, ozone, and lead) that are considered harmful to public health and the environment.

National Center for Statistics and Analysis: An office of the National Highway Traffic Safety Administration; responsible for providing a wide range of analytical and statistical support to NHTSA and the highway safety community at large.

National Environmental Policy Act: Requires Federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.

National Highway Traffic Safety Administration: An agency within the U.S. Department of Transportation whose primary mission is to promote safer vehicles and safer driving practices to reduce deaths, injuries, medical costs, and other economic losses resulting from motor vehicle crashes.

Notice of Proposed Rulemaking: Published in the Federal Register to announce the intent of a Federal agency to promulgate a particular rule and to allow for public comments on the proposed rulemaking.

Office of Transportation and Air Quality: An office within the U.S. Environmental Protection Agency that protects public health and the environment by regulating air pollution from motor vehicles, engines, and the fuels used to operate them, and by encouraging travel choices that minimize emissions. These "mobile sources" include cars and light trucks, heavy trucks and buses, non-road engines, equipment, and vehicles.

Preliminary Regulatory Impact Analysis: Informs agency decisions in advance of regulatory actions and ensures that regulatory choices are made after appropriate consideration of the likely consequences.

Social Cost of Carbon: An estimate of the monetized damages associated with an incremental increase in annual carbon dioxide emissions.

United States Code: The codification by subject matter of the general and permanent laws of the United States. It is prepared by the Office of the Law Revision Counsel of the U.S. House of Representatives.

U.S. Department of Transportation: An agency of the U.S. government whose mission is to serve the United States by ensuring a fast, safe, efficient, accessible, and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future.

U.S. Environmental Protection Agency: An agency of the U.S. government whose mission is to protect human health and the environment.

Vehicle Miles Traveled: A measurement of miles traveled by vehicles in a specified region for a specified time period.

Volatile Organic Compounds: Any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, that participates in atmospheric photochemical reactions, except those designated by EPA as having negligible photochemical reactivity.

1. EXECUTIVE SUMMARY

1.1 Introduction

The National Highway Traffic Safety Administration (NHTSA) and the Federal Motor Carrier Safety Administration (FMCSA) have prepared this Draft Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality's (CEQ) regulations implementing NEPA, U.S. Department of Transportation (DOT) Order 5610.1C, FMCSA's Environmental Procedures Order 5610.1, and NHTSA's NEPA implementing regulations to analyze the potential environmental impacts of the agencies' rulemaking. NHTSA proposes to establish a new safety standard requiring that each multipurpose passenger vehicle, truck, and bus with a gross vehicle weight rating of more than 11,793.4 kilograms (26,000 pounds) (hereinafter referred to as "heavy vehicles"), manufactured on or after September 1, 2020, be equipped with a speed limiting device set to no greater than a maximum specified speed. Additionally, FMCSA proposes a complementary action to require motor carriers operating such vehicles in interstate commerce to maintain functional speed limiting devices set to no greater than that same speed for the service life of the vehicle.

In this EA, NHTSA and FMCSA outline the purpose and need for the proposed rulemaking, a reasonable range of alternative actions the agencies could adopt through rulemaking (in particular, the maximum specified speeds under consideration), and the projected environmental impacts of these alternatives.

1.2 Purpose of and Need for Action

The high costs of fatalities, injuries, and property damage resulting from crashes involving heavy vehicles demonstrates the need for this action. In light of that information, the purpose of the proposed action is to reduce the severity of crashes involving heavy vehicles, thereby resulting in reduced injuries, fatalities, and property damage. Based on the original petitions for rulemaking, subsequent public comments, and research conducted and analyzed by the agencies, NHTSA and FMCSA believe that requiring the installation and maintenance of vehicle speed limiting devices is a reasonable way to reduce the speed at which heavy vehicles travel, and will result in the reduction of the severity of crashes.

1.3 Description of Alternatives

FMCSA and NHTSA analyzed four alternatives in this EA. Alternative 1 is the No Action Alternative, under which NHTSA would not require the installation of speed limiters in heavy vehicles, and FMCSA would not require that motor carriers operating in interstate commerce maintain them set to a speed no greater than the maximum factory setting required by NHTSA. In the three action alternatives, NHTSA would require each heavy vehicle manufactured on or after September 1, 2020, to be equipped with a speed limiting device. For these action alternatives, FMCSA would require motor carriers operating such vehicles in interstate commerce to maintain the speed limiters at or below the factory setting required by NHTSA. The three action alternatives differ only in the factory-set speed that NHTSA would require (and, therefore, the maximum speed setting at which FMCSA would allow motor carriers operating in interstate commerce to maintain such speed limiters). Alternatives 2, 3, and 4 would require the speed limiters to be set and maintained at no greater than 60 mph, 65 mph, and 68 mph, respectively. At this

time, the agencies have not selected a preferred alternative. The agencies seek public comment on the specified maximum speed level to require in the final rule.

1.4 Environmental Consequences

Consistent with CEQ regulations and guidance, this EA discusses impacts in proportion to their potential significance. NHTSA and FMCSA anticipate that the action alternatives would have negligible or no impact on the following resources and impact categories, and therefore have not analyzed them further: topography, geology, soils, water resources (including wetlands and floodplains), biological resources, resources protected under the Endangered Species Act, historical and archeological resources, farmland resources, environmental justice, and Section 4(f) properties.

The effects of the proposed rulemaking that were analyzed further are summarized below.

1.4.1 Air Quality and Greenhouse Gas Emissions

For Alternatives 2, 3, and 4, carbon monoxide (CO), particulate matter less than 10 micrometers in diameter (PM_{10}), particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$), and volatile organic compound (VOC) emissions are projected to increase while nitrogen dioxide (NO_2), nitrogen oxides (NOx), sulfur dioxide (SO_2), and carbon dioxide equivalent (CO_2e) emissions are projected to decrease. Compared to the 2011 U.S. Environmental Protection Agency (EPA) National Emissions Inventory for On-Road Heavy Duty Vehicles, the emissions increases associated with these alternatives are a very small portion of the overall heavy duty on-road emissions at the national level. The environmental benefits projected to result from this proposed action are primarily reductions in CO_2e emissions as a result of reduced fuel consumption. Section 4.3 discusses this information in further detail.

1.4.2 Socioeconomics

The socioeconomic impacts of the proposed rulemaking would be primarily felt by trucking and bus companies of all sizes, as well as truck and bus operators. NHTSA conducted a detailed assessment of the economic costs and benefits of establishing the new rule in its Preliminary Regulatory Impact Analysis (PRIA). The main economic benefits come primarily from fuel savings as well as the reduction in fatalities and injuries. Other socioeconomic factors discussed in the PRIA that would affect these parties include GHG savings, opportunity costs, property damage savings, and inventory costs. Overall, Alternative 2 is anticipated to have societal net benefits of $1.136 to $4.964 billion, Alternative 3 is anticipated to have societal net benefits of $1.039 to $2.757 billion, and Alternative 4 is anticipated to have societal net benefits of $.475 to $1.260 billion. Section 4.4 discusses this information in further detail.

1.4.3 Public Health and Safety

The affected environment for public health and safety includes highways and other driving locations used by all heavy vehicle drivers, other drivers, passengers in heavy vehicles and other motor vehicles, and pedestrians or other individuals who could be injured or killed in crashes involving the vehicles regulated by the proposed action. Under Alternative 2, it is expected that speed limiters set to 60 mph would result each year in 162 to 498 lives saved, 3,356 to 10,306 minor injuries and 179 to 551 major injuries

prevented, and 9,772 to 30,027 property damage only crashes affected. Under Alternative 3, it is expected that speed limiters set to 65 mph would result each year in 63 to 214 lives saved, 1,299 to 4,535 minor injuries and 70 to 236 major injuries prevented, and 3,800 to 12,896 property damage only crashes affected. Finally, under Alternative 4, it is expected that speed limiters set to 68 mph would result each year in 27 to 96 lives saved, 560 to 1,987 minor injuries and 30 to 106 major injuries prevented, and 1,648 to 5,795 property damage only crashes affected. Section 4.5 discusses this information in further detail.

1.4.4 Solid Waste

NHTSA and FMCSA's proposed rulemaking may reduce the quantity of solid waste generated by heavy vehicle crashes in the United States. Under Alternative 2, 4,592 to 14,109 tons of solid waste would be prevented annually due to a reduction in crash severity of non-fatal crashes involving vehicles equipped with speed limiters, and 9,184 to 28,219 tons of solid waste would be prevented annually due to a reduction in crash severity of fatal crashes involving vehicles equipped with speed limiters. This alternative would result in a prevention of 13,776 to 42,328 total tons of solid waste. Under Alternative 3, 1,784 to 6,086 tons of solid waste would be prevented annually from non-fatal crashes and 3,569 to 12,172 tons of solid waste would be prevented annually from fatal crashes, resulting in a prevention of 5,353 to 18,258 total tons of solid waste. Finally, under Alternative 4, 772 to 2,723 tons of solid waste would be prevented annually from non-fatal crashes and 1,546 to 5,445 tons of solid waste would be prevented annually from fatal crashes, resulting in a prevention of 2,318 to 8,168 total tons of solid waste. Section 4.6 discusses this information in further detail.

1.4.5 Hazardous Materials

The proposed rulemaking may impact the size and number of hazardous material (HM) spills into the environment. The agencies analyzed the potential degree of HM spills prevented due to the reduction of crash severity expected from the rulemaking. Under Alternative 2, release of 2,225 to 6,838 pounds of explosives, 4,766 to 14,645 gallon equivalents of gases, 32,225 to 99,013 gallons of flammable liquids, 739 to 2,272 pounds of flammable solids, 3,894 to 11,965 pounds of oxidizers, 1,264 to 3,885 pounds of toxics, 17 to 52 curies of radioactive material, 1,714 to 5,266 gallons of corrosives, and 4,748 to 14,589 pounds of miscellaneous waste would be prevented annually due to a reduction in crash severity. Under Alternative 3, release of 865 to 2,950 pounds of explosives, 1,852 to 6,317 gallon equivalents of gases, 12,521 to 42,709 gallons of flammable liquids, 287 to 980 pounds of flammable solids, 1,513 to 5,161 pounds of oxidizers, 491 to 1,676 pounds of toxics, 7 to 23 curies of radioactive material, 666 to 2,271 gallons of corrosives, and 1,845 to 6,293 pounds of miscellaneous waste would be prevented annually due to a reduction in crash severity. Finally, under Alternative 4, release of 375 to 1,319 pounds of explosives, 802 to 2,826 gallon equivalents of gases, 5,423 to 19,106 gallons of flammable liquids, 124 to 438 pounds of flammable solids, 655 to 2,309 pounds of oxidizers, 213 to 750 pounds of toxics, 3 to 10 curies of radioactive material, 288 to 1,016 gallons of corrosives, and 799 to 2,815 pounds of miscellaneous waste would be prevented annually due to a reduction in crash severity. Section 4.7 discusses this information in further detail.

1.4.6 Irreversible and Irretrievable Commitment of Resources / Fuel Savings

A commitment of resources is irreversible when its primary or secondary impacts limit the future option for a resource. An irretrievable commitment refers to the use or consumption of resources that is neither renewable nor recoverable for later use by future generations. The agencies are unable to identify any irreversible or irretrievable commitment of resources associated with implementing the proposed rulemaking. As a result of this rulemaking, nonrenewable heavy vehicle fuel would be saved due to increased fuel efficiency of heavy vehicles. Specifically, in the year 2035, 1,006 million diesel gallon equivalents of fuel would be saved under Alternative 2, 371 million diesel gallon equivalents of fuel would be saved under Alternative 3, and 98 million diesel gallon equivalents of fuel would be saved under Alternative 4. These issues are further discussed in Section 4.8.

1.4.7 Cumulative Impacts

The proposed rule would result in additional greenhouse gas emissions reductions (as a result of fuel savings) in the heavy vehicle sector beyond those already projected to occur under NHTSA and EPA's Phase 1 Fuel Efficiency and GHG Emission Program for Heavy Duty Vehicles (model years 2014-18). These emissions reduction benefits could also add to any potential benefits under NHTSA and EPA's Phase 2 heavy-duty fuel efficiency and GHG emissions rulemaking, as well as other emissions reductions rules promulgated by EPA under the Clean Air Act. Further, this rule would provide safety benefits in addition to other vehicle and highway safety rulemakings and activities undertaken by NHTSA and FMCSA. This rulemaking is different in nature from these other activities, but its benefits would add to those already identified in the environmental analyses, rulemaking documents, and other documentation for those activities. For more information, see Section 4.9.

2. PURPOSE OF AND NEED FOR ACTION

2.1 Introduction

The National Highway Traffic Safety Administration (NHTSA) and the Federal Motor Carrier Safety Administration (FMCSA) have prepared this Draft Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality's (CEQ) regulations implementing NEPA, U.S. Department of Transportation (DOT) Order 5610.1C, FMCSA's Environmental Procedures Order 5610.1, and NHTSA's NEPA implementing regulations[1] to analyze the potential environmental impacts of the agencies' rulemaking. NHTSA proposes to establish a new safety standard requiring that each multipurpose passenger vehicle, truck, and bus with a gross vehicle weight rating of more than 11,793.4 kilograms (26,000 pounds) (hereinafter referred to as "heavy vehicles"), manufactured on or after September 1, 2020, be equipped with a speed limiting device set to no greater than a maximum specified speed. Additionally, FMCSA proposes a complementary action to require motor carriers operating such vehicles in interstate commerce to maintain functional speed limiting devices set to a speed no greater than that same speed for the service life of the vehicle.

This Draft EA is being issued together with the Notice of Proposed Rulemaking (NPRM) that describes the requirements proposed by NHTSA and FMCSA and is incorporated by reference here. The NPRM includes a summary of the petitions for rulemaking that the agencies received, a discussion on speed limiting technology, a summary of the research on speed limiting devices, and comparative international regulatory requirements that were used to evaluate alternatives for the Proposed Rule. It also details and analyzes the heavy vehicle speed-related safety problem, proposed requirements, regulatory alternatives, public participation, and other aspects of the rulemaking.

In addition, the agencies have issued a Preliminary Regulatory Impact Analysis (PRIA), prepared by NHTSA's National Center for Statistics and Analysis and incorporated by reference here. The PRIA analyzes data from 2004 to 2013 and finds that crashes involving heavy vehicles traveling above 65 mph are more deadly than crashes involving heavy vehicles traveling at lower speeds. The PRIA then estimates the costs (vehicle costs and time delay) and benefits (in terms of reduction in crash severity, resulting in reduced fatalities, injuries, and/or property damage) of requiring speed limiters on heavy vehicles in the U.S. In addition, it discusses the potential impacts on fuel usage in the sector.

In this EA, NHTSA and FMCSA outline the purpose and need for the proposed rulemaking, a reasonable range of alternative actions the agencies could adopt through rulemaking (in particular, the maximum specified speeds under consideration), and the projected environmental impacts of the alternatives.

[1] NEPA is codified at 42 U.S.C. §§ 4321-4347, and CEQ's implementing regulations are codified at 40 CFR parts 1500–1508. FMCSA's NEPA implementing procedures are found in FMCSA Order 5610.1 (69 FR 9680 (Mar. 1, 2004)). NHTSA's NEPA implementing regulations are codified at 49 CFR part 520.

2.2 Background

2.2.1 Identification of Issues and Studies

In 1991, DOT examined the issue of mandatory speed limitation for heavy vehicles. NHTSA published a report titled "Commercial Motor Vehicle Speed Control Devices,"[2] in response to the Truck and Bus Safety and Regulatory Reform Act of 1988.[3] This report reviewed the problem of heavy vehicles travelling at speeds greater than 65 mph and these vehicles' involvement in "speeding-related" crashes.[4] At that time, the report found that combination trucks tended to travel at just over the posted speed limit. The report was supportive of fleet applications of speed monitoring and speed limiting devices, but concluded that, because of the small target population size, there was not sufficient justification to require the application of speed limiting devices at that time.

In 2006, NHTSA received a petition from the American Trucking Associations (ATA) to initiate a rulemaking to amend the Federal Motor Vehicle Safety Standards (FMVSS) to require vehicle manufacturers to limit the speed of trucks with a gross vehicle weight rating (GVWR) greater than 26,000 pounds to no more than 68 miles per hour (mph). Concurrently, the ATA petitioned FMCSA to amend the Federal Motor Carrier Safety Regulations (FMCSR) to prohibit owners and operators from adjusting the speed limiting devices in affected vehicles above 68 mph. That same year, FMCSA received a petition from Road Safe America to initiate a rulemaking to amend the FMCSRs to require that all trucks manufactured after 1990 with a GVWR greater than 26,000 pounds be equipped with electronic speed limiting devices set at not more than 68 mph.

NHTSA and FMCSA reexamined the 1991 report and determined that several factors had changed since the submission of the report. Among these were updates to NHTSA's data on the target population, changes in the costs and technology of speed limiting devices, and the repeal of the national maximum speed limit law. The new information undermined the conclusions contained in the 1991 report and supported reexamination of the safety issues.

On January 26, 2007, NHTSA and FMCSA responded to these petitions in a joint notice in the Federal Register, seeking public comments on the petitions.[5] This notice included a summary of the ATA and Road Safe America petitions, a review of heavy vehicle crash statistics, a brief summary of the 1991 report, and a request for specific information concerning the appropriateness of a Federal regulation limiting the speed of large trucks to 68 mph. The notice described how NHTSA is responsible for developing and issuing FMVSSs that establish minimum safety requirements for motor vehicles sold in the United States, and that if NHTSA ultimately established requirements to equip trucks with speed limiters as requested, FMCSA would initiate a rulemaking proceeding to amend the FMCSRs as

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[2] National Highway Traffic Safety Administration. (1991, May). *Commercial motor vehicle speed control devices* (Report No. DOT HS 807 725). Washington, DC: Author.
[3] Truck and Bus Safety and Regulatory Reform Act of 1988, Pub. L. No. 100-690, 102 Stat. 4527, Sec. 9108 (Nov. 18, 1988).
[4] For the purposes of the report, a vehicle was considered to be speeding if its estimated travel speed exceeded the posted speed limit.
[5] 72 FR 3904 (Jan. 26, 2007).

necessary to ensure that trucks are equipped and maintained with a speed limiter meeting the requirements specified in the applicable FMVSS.

In response to the notice, the agencies received over 3,000 comments into Docket No. NHTSA-2007-26851. Most of the comments were from private citizens and small businesses. Of these, many comments, including those from trucking fleets and consumer advocacy groups, supported a regulation that would limit the speed of large trucks to 68 mph. Other comments submitted by independent owner-operator truckers, one trucking fleet association, and private citizens were opposed to the rulemaking approach requested in the petitions.

Based on information received in the comments, NHTSA determined that the petitions merited further consideration through the agency's rulemaking process. On January 3, 2011, NHTSA published a notice granting the petitions for rulemaking.[6] NHTSA and FMCSA subsequently determined that they would engage in a joint rulemaking activity because of the overlapping issues raised in the petitions.

In March 2012, FMCSA published a research report on a study intended to identify the safety impacts of implementing speed limiting devices in commercial vehicle fleet operation.[7] The FMCSA study focused on the reduction in truck crashes that could have been avoided or mitigated with an active speed limiting device installed. This was the first study to use actual truck crash data collected directly from truck fleets, representing a wide array of crashes. The findings showed strong positive safety benefits for speed limited trucks; in other words, trucks equipped with speed limiting devices had significantly lower speed-limited-relevant crash rates. Trucks without speed limiting devices had crashes at a rate of 2.9 crashes per 100 trucks/year, compared to the trucks in the speed limited cohort, which had 1.6 crashes per 100 trucks/year.

Other studies examining the relationship between travel speed and crash severity have concluded that the severity of a crash increases with increased travel speed.[8] The agencies have conducted additional studies to look at the role travel speed plays in heavy vehicle crashes using a variety of data sources. These are discussed extensively in the NPRM and PRIA and are incorporated by reference here.

2.2.2 Speed Limiter Technology

Speed limiting devices, also known as speed limiters or speed governors, have been in use since the mid-1990s by many trucking fleets to control the speed of commercial trucks. All vehicles with electronic engine control units (ECUs) are generally electronically speed limited to prevent engine or other damage to the vehicle. This is because the ECU monitors an engine's RPM (from which vehicle speed can be calculated) and controls the supply of fuel to the engine. The information NHTSA has analyzed indicates that ECUs have been installed in most heavy vehicles since 1999, though some manufacturers were still

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[6] 76 FR 78 (Jan. 3, 2011).

[7] Hanowski, R., Bergoffen, G., Hickman, J. S., Guo, F., Murray, D., Bishop, R., & Camden, M. (2012, March). Research on the safety impacts of speed limiter device installations on commercial motor vehicles: Phase II (Report No. FMCSA-RRR-12-006) Washington, DC: Federal Motor Carrier Safety Administration. Available at http://atri-online.org/wp-content/uploads/2014/07/Speed-Limiters.pdf

[8] *See, e.g.*, Johnson, S. L. & Pawar, N. (2005, November). Cost-Benefit Evaluation of Large Truck-Automobile Speed Limits Differentials on Rural Interstate Highways, (Report No. MBTC 2048). Fayetteville, AR: University of Arkansas Mack-Blackwell Rural Transportation Center.

installing mechanical controls through 2003. Research shows that speed limiters are currently being used by 77 percent of trucks on the road in the United States.[9] In addition, setting the speed limiters at speeds between 60 and 70 mph has grown in recent years.[10] Some trucking fleets use ECUs to limit the speed of their trucks in order to reduce fuel consumption, limit equipment wear and tear, and increase safety. Those opposed to speed limiters believe they reduce some competitive advantages of smaller fleets and owner operators, thereby reducing competition within the industry. They also claim that limiting the top speed of trucks will create a dangerous speed differential between them and other light vehicles on the road. They believe this could cause an increase in vehicle congestion and an increase in the likelihood of crashes involving trucks and light vehicles.

The European Union (EU) has limited the speed of large trucks and buses under its jurisdiction to 62 mph since 1994. In Australia, large trucks have been limited to 62 mph since 1990 with a 56-mph limit for road trains (a combination truck pulling multiple trailers). The EU and Australia cited economic and safety benefits as the reasons for adopting large truck speed limiter legislation and regulation. After the United Kingdom mandated speed limiting devices in 1992, crashes involving heavy trucks fell by 26 percent the following year. Furthermore, crashes involving heavy trucks in Australia have also dropped over the 10 years since implementing speed limiting devices. However, in Australia and all the EU member countries, none have conducted any research indicating that speed limiting devices are the direct cause of reduced heavy vehicle crashes. Other factors, such as roadway improvement and revised safety standards, could also be responsible for a reduction in heavy vehicle crashes.

More recently, Japan and the Canadian provinces of Ontario and Quebec have also mandated speed limiters. Japan limited large trucks to 56 mph in 2003. Quebec and Ontario limited the speed of large trucks to 65 mph effective January 1, 2009, although they did not begin assessing fines until July 1, 2009. In addition to economic and safety benefits, the two provinces cited environmental benefits as justification for their actions.

2.3 Purpose and Need for Action

Reducing the number and severity of crashes involving large trucks is part of NHTSA's mission to save lives, prevent injuries, and reduce economic costs due to road traffic crashes, through education, research, safety standards, and enforcement activity. In addition, preventing commercial motor vehicle-related fatalities and injuries is the primary mission of FMCSA. The NPRM and PRIA provide information regarding the current safety problem, including the current severity of crashes involving heavy vehicles and the resulting costs of fatalities, injuries, and property damage. The high costs of fatalities, injuries, and property damage resulting from crashes involving heavy vehicles demonstrates the need for this action. In light of that information, the purpose of the proposed action is to reduce the severity of crashes involving heavy vehicles, thereby resulting in reduced injuries, fatalities, and property damage.[11] Based

[9] Ray Barton Associates. (2013, December 10). Trade and competitiveness assessment of mandated speed-limiting devices for heavy trucks operating in Canada (Web page). Ottawa: Transport Canada. Downloaded from the web site at www.tc.gc.ca/eng/motorvehiclesafety/tp-tp14813-menu-365.htm

[10] Of those trucks built in 2010 and 2011, the most common speed setting was 65 mph. Truck and Engine Manufacturers Association (EMA), Vehicle Speed Limiter Settings – Ex Factory 2010 & 2011 (Nov. 2011).

[11] After considering the available research and the difficulty in estimating the effect of speed limiting devices on crash risk (i.e., number of crashes), the agencies have chosen not to include an estimate of crashes avoided and to

on the original petitions for rulemaking, subsequent public comments, and research conducted and analyzed by the agencies, NHTSA and FMCSA believe that requiring the installation and maintenance of vehicle speed limiting devices is a reasonable way to reduce the speed at which heavy vehicles travel, and will result in the reduction of the severity of crashes. In the next chapter, NHTSA and FMCSA set forth a series of reasonable alternatives that the agencies considered in preparing their proposal.

2.4 Incomplete and Unavailable Information

Section 1502.22 of the CEQ regulations requires that when there is incomplete or unavailable information, the agency should include a statement that such information is incomplete or unavailable and a statement of the relevance of the incomplete or unavailable information. Such statements have been included in this EA where appropriate. This EA contains the best available information for each impact by reporting the most conservative information that is consistent in methodology or discount rate across all of the alternatives.

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only estimate the benefits of reducing crash severity. Although this approach is conservative and the agencies believe that speed limiting devices will likely reduce both the severity and risk of crashes, the agencies have greater confidence that the estimated benefits described in the NPRM, PRIA, and this EA will be fully realized because, by focusing on crash severity, the agencies are able to isolate more effectively the effects of speed reduction on safety.

3. DESCRIPTION OF ALTERNATIVES

3.1 Overview of Alternatives

This section provides an overview of the four alternatives FMCSA and NHTSA are analyzing in this EA. Alternative 1 is the No Action Alternative, under which NHTSA would not require the installation of speed limiters in heavy vehicles, and FMCSA would not require the maintenance of speed limiters at or below a specified setting. In the three action alternatives, NHTSA would require each multipurpose passenger vehicle, truck, bus, and school bus that has a gross vehicle weight rating of more than 11,793.4 kilograms (26,000 pounds),[12] and that is manufactured on or after September 1, 2020, to be equipped with a speed limiting device. For these action alternatives, FMCSA would require motor carriers operating such vehicles to maintain the speed limiters at or below the maximum factory setting required by NHTSA. The three action alternatives differ only in the maximum factory-set speed that NHTSA would require. Alternatives 2, 3, and 4 would require the speed limiters to be set at no greater than 60 mph, 65 mph, and 68 mph, respectively. At this time, the agencies have not selected a preferred alternative. The agencies seek public comment on the specified maximum speed level to require in the final rule.

3.2 Alternative 1: No Action

Under the No Action Alternative, NHTSA would not establish a new FMVSS requiring each new heavy vehicle be equipped with a speed limiting device. Absent such a requirement by NHTSA, FMCSA would likewise take no action to establish a new FMCSR regarding maintenance of speed limiters for the service life of the vehicle at no greater than the maximum factory setting allowed by NHTSA. The CEQ regulations require that agencies consider a "no action" alternative in their NEPA analyses in order to compare the effects of not taking action with the effects of the action alternatives. In addition, the No Action Alternative serves as a baseline against which to measure the magnitude of the environmental effects of the various action alternatives. In defining this baseline alternative for the EA, NHTSA and FMCSA must take into account anticipated conditions in the absence of action by the agencies. This is because voluntary action taken by manufacturers and motor carriers to equip vehicles with speed limiters could reduce the costs and benefits of the action alternatives.

Although the agencies' research indicates that most heavy vehicles have an ECU capable of being programmed to limit the maximum vehicle speed, the agencies are unable to predict the exact deployment of speed limiters in future vehicle models and to what speed they would be set. Therefore, although the PRIA assumed that all heavy vehicles are equipped with an ECU capable of being programmed to limit the maximum speed, and some heavy vehicle carriers have already and may continue to adopt speed limiting technologies with or without a requirement to do so, the No Action Alternative assumes that the speed limiters would not be used to set maximum speeds in the absence of this rulemaking beyond the

[12] Throughout this EA, these vehicles are collectively referred to as "heavy vehicles." In this EA, the term "commercial motor vehicles" is used synonymously with "heavy vehicles." However, note that the use of the term "commercial motor vehicle" in this EA in this fashion is not intended to convey the same meaning as the term is used in the FMCSRs at 49 CFR § 390.5. The term as used in section 390.5 captures a larger range of vehicles than this proposal.

degree to which that is currently done. In sum, the No Action Alternative assumes no change to current heavy vehicle speed and speed limiter use resulting from any action taken by NHTSA or FMCSA.

3.3 Alternative 2: Speed Limiting Device Set At or Below 60 mph

Under Alternative 2, NHTSA would establish an FMVSS that would require that heavy vehicles manufactured on or after September 1, 2020 be equipped with a speed limiting device. Additionally, as manufactured and sold, each vehicle would be required to have its device set to a speed at or below 60 mph. Each heavy vehicle would also be required to be equipped with means that would make it possible for the vehicle's current speed setting and the two previous speed settings to be read by a safety inspector through its on-board diagnostic connection. The time and date of the modifications of the two previous settings must also be readable through that means. FMCSA would establish an FMCSR requiring each commercial motor vehicle with a GVWR of more than 11,793.4 kilograms (26,000 pounds) to be equipped with a speed-limiting device meeting the requirements of the proposed FMVSS applicable to the vehicle at the time of manufacture, including the requirement that the device be set to a speed not greater than 60 mph. Motor carriers operating such vehicles in interstate commerce would be required to maintain the speed-limiting devices for the service life of the vehicle.

3.4 Alternative 3: Speed Limiting Device Set At or Below 65 mph

Alternative 3 would be the same as Alternative 2, except that NHTSA would require the speed limiting devices to be set by the manufacturer at or below 65 mph, and FMCSA would require motor carriers operating in interstate commerce to maintain the speed limiters at or below 65 mph.

3.5 Alternative 4: Speed Limiting Device Set At or Below 68 mph

Alternative 4 would be the same as Alternative 2 and Alternative 3, except that NHTSA would require the speed limiting devices to be set by the manufacturer at or below 68 mph, and FMCSA would require motor carriers operating in interstate commerce to maintain the speed limiters at or below 68 mph.

3.6 Development of Alternatives

As described in Section 2.2.1, in 2006, NHTSA and FMCSA were petitioned to require speed limiting devices in vehicles with a GVWR greater than 26,000 pounds. The petitions requested that the speed limiting devices be set at not more than 68 mph and that owners and operators be prohibited from adjusting the speed limiting devices in affected vehicles above 68 mph. NHTSA subsequently granted the petitions for rulemaking, and the agencies determined that they would engage in a joint rulemaking activity because of the overlapping issues raised in the petitions.

NHTSA proposes to require heavy vehicles to be equipped with speed limiting devices initially set to a speed not greater than a specified level, and FMCSA proposes to require motor carriers operating such vehicles in interstate commerce to maintain the speed limiting devices for the service life of the vehicles at a speed not greater than that same level. An agency is required to "study, develop, and describe

appropriate alternatives to recommended courses of action" in an EA.[13] In addition, when a large number of possible reasonable alternatives exist such as here, where the speed need not be specified in whole numbers, the agency may evaluate a reasonable number of examples covering the full spectrum of alternatives.[14] This EA analyzes maximum speed settings of 60 mph, 65 mph, and 68 mph, which the agencies believe represent a full spectrum of reasonable alternatives. 60 mph and 65 mph are common speed limits on U.S. highways, while 68 mph is the level recommended in the petitions for rulemaking. The agencies seek public comment on the specified maximum speed level to require in the final rule.

3.7 Alternatives Considered but Dismissed From Further Analysis

In addition to the alternatives described above, the agencies also considered the feasibility of other technologies that would limit the speed of heavy vehicles to the speed limit of the road, including an integrated Global Positioning System (GPS) based, vision-based, or vehicle-to-infrastructure-based speed limiting device. Under such alternatives, heavy vehicle operators would be able to choose between vehicles equipped with compliant speed limiting devices and vehicles equipped with these alternatives, depending on their needs. For example, a GPS based speed limiting device would locate the truck's position using the GPS and access data on the maximum allowable speed for trucks on that roadway; the speed limiting device's operation would depend on those highway speed limits. A vision based system would use cameras to detect information on roadside speed limit signs and adjust the vehicle's maximum allowable speed accordingly. Finally, a vehicle-to-infrastructure communication based system would allow for direct, localized communication of maximum allowable speed information to heavy trucks on that roadway. These could have the effect of reducing fatalities while limiting the economic effects of the rule on roads that have a posted speed above 65 mph.

The agencies understand that some trucking fleets use similar systems for monitoring purposes, but at this time, the technologies leave too many unanswered questions to consider them as practical alternatives. A series of questions regarding these technologies for which the agencies invite public comments is included in the NPRM. Although these alternatives are attractive because they potentially provide benefits (reduced crash severity) while allowing motor carriers to travel at the maximum legal speed limit, NEPA requires alternatives to be practical or feasible, not merely desirable.[15] At this time, the agencies lack sufficient information to consider these technologies as practical alternatives. While the agencies request comment on GPS based speed limiter systems, vision based systems, or vehicle-to-infrastructure communication based systems in the preamble to the NPRM, they are not further considered in this EA.

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[13] Section 102(2)(E) of NEPA (codified at 42 U.S.C. § 4332(2)(E)). According to the CEQ regulations, "[e]nvironmental assessment[s] … shall include brief discussions … of alternatives as required by section 102(2)(E)…" 40 CFR § 1508.9(b).

[14] CEQ, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, Answer to Question 1b. 46 FR 18026. While this question addresses environmental impact statements, the answer applies equally to environmental assessments.

[15] CEQ, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, Answer to Question 2a. 46 FR 18026. While this question addresses environmental impact statements, the answer applies equally to environmental assessments.

3.8 Summary of Environmental Consequences

Table 1 presents the environmental impacts of the proposal and the alternatives in clear, comparative form.[16] Alternative 1 (No Action) is not included in the table below because it assumes that the agencies take no action, and therefore impacts under that alternative are equivalent to current conditions. Alternative 1 serves as the baseline to which the other alternatives are compared. Thus, the descriptions of the action alternatives in the table below are as compared to Alternative 1.

Table 1 Summary of Environmental Consequences

Impact Category	Alternative 2 – 60 mph Speed Limiter Setting	Alternative 3 – 65 mph Speed Limiter Setting	Alternative 4 – 68 mph Speed Limiter Setting
Air Quality and Greenhouse Gas Emissions	CO, PM_{10}, $PM_{2.5}$, and VOC emissions increase while NO_2, NOx, SO_2, and CO_2e emissions decrease	CO, PM_{10}, $PM_{2.5}$, and VOC emissions increase while NO_2, NOx, SO_2, and CO_2e emissions decrease	CO, PM_{10}, $PM_{2.5}$, and VOC emissions increase while NO_2, NOx, SO_2, and CO_2e emissions decrease
Socioeconomics (net benefits in millions) (7% discount rate)	$1,136-$4,964	$1,039-$2,757	$475-$1,260
Public Health and Safety	162-498 lives saved 179-551 major injuries prevented 3,356-10,306 minor injuries prevented 9,772-30,027 property damage only crashes affected	63-214 lives saved 70-236 major injuries prevented 1,299-4,535 minor injuries prevented 3,800-12,896 property damage only crashes affected	27-96 lives saved 30-106 major injuries prevented 560-1,987 minor injuries prevented 1,648-5,795 property damage only crashes affected
Solid Waste	Reduction of 13,776 to 42,328 total tons of solid waste from fatal and non-fatal crashes	Reduction of 5,353 to 18,258 total tons of solid waste from fatal and non-fatal crashes	Reduction of 2,318 to 8,168 total tons of solid waste from fatal and non-fatal crashes
Hazardous Materials	Net benefits due to hazardous material spills prevented	Net benefits due to hazardous material spills prevented	Net benefits due to hazardous material spills prevented
Fuel Savings	1,006 million diesel gallon equivalents of fuel saved in 2035	371 million diesel gallon equivalents of fuel saved in 2035	98 million diesel gallon equivalents of fuel saved in 2035

[16] *See* 40 CFR § 1502.14.

4. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the current and projected conditions of the potentially affected environment as it relates to the proposed alternatives. It describes the direct and indirect impacts on specific resources and impact categories that may result from the alternatives. This chapter also identifies resources and impact categories that NHTSA and FMCSA expect would not be affected by the action alternatives. Finally, the projected cumulative impacts of the action alternatives are discussed.

4.1 Unaffected Resources and Impact Categories

Consistent with CEQ regulations and guidance, this EA discusses impacts in proportion to their potential significance. NHTSA and FMCSA anticipate that the action alternatives would have negligible or no impact on several resources and impact categories discussed below and have therefore not analyzed them further.

- **Topography, Geology, and Soils.** The action alternatives would not require any construction or other ground-disturbing activities that would affect topography, geology, or soils.
- **Water Resources (including Wetlands and Floodplains).** The action alternatives would not require any construction or other ground-disturbing activities or result in any emissions that would affect water resources, wetlands, and floodplains. Further, the agencies are not occupying, modifying, or encroaching on floodplains,[17] nor are they undertaking or providing assistance for new construction located in or affecting wetlands.[18]
- **Biological Resources.** The action alternatives would not require any construction or other ground-disturbing activities or result in any emissions that would affect plant or animal species or their habitat.
- **Endangered Species Act (ESA).** Pursuant to Section 7(a)(2) of the ESA, NHTSA and FMCSA have considered the effects of the action alternatives and have reviewed applicable ESA regulations and guidance to determine what, if any, impact there may be to listed species or designated critical habitat. Based on this assessment, NHTSA and FMSCA have determined that the proposed action, which would result in small overall benefits to air quality and no impacts to biological resources, does not require consultation under Section 7(a)(2) because NHTSA and FMCSA do not believe that any impacts to listed species or designated critical habitat are reasonably certain to occur.
- **Historic and Archeological Resources.** The action alternatives would not require any construction or other ground-disturbing activities that would affect cultural resources.
- **Farmland Resources.** The action alternatives would not require any construction or other ground-disturbing activities that would affect farmland.
- **Environmental Justice.** NHTSA and FMCSA do not expect that the speed limiter requirements under any of the action alternatives would affect Environmental Justice populations any

[17] DOT Order 5650.2.
[18] DOT Order 5660.1A.

differently than the general population. Consequently, consistent with Executive Order 12898 and DOT Order 5610.2(a), NHTSA and FMCSA do not anticipate that the action alternatives would result in disproportionately high and adverse human health or environmental effects on minority or low-income populations.

- **Section 4(f).** Title 49 U.S.C. Section 303 ("Section 4(f)") limits the ability of DOT agencies to approve the use of land from publicly-owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historic sites unless certain conditions apply. Because the action alternatives are not a transportation program or project requiring the use of Section 4(f) properties, a Section 4(f) evaluation has not been prepared.

4.2 Affected Environment and Environmental Consequences Overview

This EA is a joint NHTSA and FMCSA document. As such, it addresses the different ways in which the agencies typically conduct their NEPA analyses. Consistent with both agencies' past practice, this EA reports air quality impacts and impacts on quantities of solid waste and hazardous materials generated as a result of crashes. However, while NHTSA generally reports the public safety and socioeconomic impacts of its rulemakings in its Regulatory Impact Analyses, FMCSA's NEPA implementing procedures and past practice require analysis of public safety and socioeconomic impacts in its NEPA documents. To accommodate these differences, the safety and socioeconomic impacts of the alternatives for the proposed action are summarized in this EA. For the full analysis of the potential safety and socioeconomic impacts of the proposed rule, consult the PRIA (which is hereby incorporated by reference).

The data used to analyze the impacts for this EA are based on the anticipated reduction in crash severity reported in the PRIA, not on a reduction of total crashes. An explanation of this approach is provided in the PRIA and also incorporated by reference. The analysis in the PRIA assumes total compliance by heavy vehicle manufacturers and operators subject to the proposed rule. It uses the best available current data regarding the fleet population, vehicle use, crash information, and VMT. Appropriate adjustments were made in light of other safety rules that have been proposed or issued since 2009. For more information regarding this methodology, consult the PRIA. Estimates of the public safety, solid waste, hazardous materials, and socioeconomic impacts of the proposed rule that are presented in this EA are based on the numbers reported in the PRIA and that methodology.

On the other hand, the air quality analysis in this EA was conducted using EPA's Motor Vehicle Emission Simulator (MOVES2014a) model, and the benefits result primarily from reduced fuel consumption under the action alternatives rather than from changes in crash severity. MOVES2014a assumes that the rule will be fully implemented 30 years after it takes effect, because 30 years is the model's default for complete fleet turnover. Thus, the air quality analysis is conducted for the first, fifteenth and thirtieth year of the rule, assuming 5 percent, 75 percent and 100 percent of the fleet, respectively, is equipped with manufacturer-set speed limiters subject to the rule. See Section 4.3 for more information.

4.3 Air Quality and Greenhouse Gas Emissions

4.3.1 Affected Environment

4.3.1.1 Air Quality and Clean Air Act Requirements

Pursuant to the Clean Air Act (CAA), the EPA has established a set of National Ambient Air Quality Standards (NAAQS) for the following "criteria" pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone, particulate matter (PM) less than 10 micrometers in diameter (PM_{10}), PM less than 2.5 micrometers in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). The NAAQS include "primary" standards and "secondary" standards. Primary standards are intended to protect public health with an adequate margin of safety. Secondary standards are set at levels designed to protect public welfare by accounting for the effects of air pollution on vegetation, soil, materials, visibility, and other aspects of the general welfare. Table 2 below provides information about the NAAQS.

Table 2 NAAQS for Criteria Pollutants

Pollutant	Type of Standard	Standard Value	Averaging Period
Carbon monoxide	Primary	35 ppm (40 mg/m^3)	1-hour average
	Primary	9 ppm (10 mg/m^3)	8-hour average
Lead[a]	Primary and Secondary	0.15 µg/m^3 (2008 standard)	Rolling 3-month average
Nitrogen dioxide	Primary	100 ppb (188 µg/m^3)	1-hour average
	Primary and Secondary	53 ppb (100 µg/m^3)	Annual average
Ozone[b]	Primary and Secondary	0.070 ppm	8-hour average
Particulate matter (PM_{10})	Primary and Secondary	150 µg/m^3	24-hour average
Particulate matter ($PM_{2.5}$)	Primary and Secondary	35 µg/m^3	24-hour average
	Primary	12 µg/m^3	Annual average
	Secondary	15 µg/m^3	Annual average
Sulfur dioxide[c]	Primary	75 ppb (200 µg/m^3)	1-hour average
	Secondary	0.5 ppm (1300 µg/m^3)	3-hour average

[a] The previous lead standards remain in effect in certain areas.

[b] Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) ozone standards remain in effect in some areas. Revocation of the 2008 standards and transitioning to the 2015 standards will be addressed in the implementation rule for the current standards.

[c] The previous standards (24-hour primary standard of 0.14 ppm and annual primary standard of 0.03 ppm) remain in effect in certain areas.

Notes: ppm = parts per million; ppb = parts per billion; mg/m^3 = milligrams per cubic meter; µg/m^3 = micrograms per cubic meter.

The health effects of the six Federal criteria pollutants are briefly summarized below. (This section is adapted from the information at www3.epa.gov/airquality/greenbook/.)

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels. Motor vehicles (primarily automobiles) are the largest source of CO emissions nationally. When it enters the bloodstream, CO reduces the delivery of oxygen to the body's organs and tissues. Health threats are most serious for those who suffer from cardiovascular disease, particularly those with angina or peripheral vascular disease.

Lead exposure can occur through multiple pathways, including inhalation of air and ingestion of lead in food, water, soil, or dust. Excessive lead exposure can cause seizures, mental retardation, and behavioral disorders, and even low doses of lead can lead to central nervous system damage. Because of the prohibition of lead as an additive in motor vehicle fuels, highway transportation sources are no longer a major source of lead pollution.

NO_2 is a brownish, highly reactive gas, caused largely by oxidation of the primary air pollutant nitric oxide (NO). NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Nitrogen oxides (NO_2 and NO) are an important precursor both to ozone and acid rain, and can affect both terrestrial and aquatic ecosystems.

Ozone is a photochemical oxidant and the major component of smog. Ozone is not emitted directly into the air, but is formed through complex chemical reactions between precursor emissions of volatile organic compounds (VOC) and oxides of nitrogen (NOx) in the presence of sunlight. Heavy-duty diesel vehicles (HDDVs), including large trucks and buses, constitute the majority of the heavy vehicles affected by the implementation of speed limiting systems and are a major source of NOx emissions. Ground-level ozone causes health problems by damaging lung tissue, reducing lung function, and sensitizing the lungs to other irritants. Exposure to ozone for several hours at relatively low concentrations has been shown to significantly reduce lung function and induce respiratory inflammation in normal, healthy people during exercise.

PM includes dust, dirt, soot, smoke, and liquid droplets directly emitted into the air, and particles formed in the atmosphere by condensation or transformation of emitted gases such as SO_2 and VOCs. HDDVs are a major source of PM emissions. Exposure to high concentrations of PM can affect breathing and respiratory symptoms, aggravate existing respiratory and cardiovascular disease, alter the body's defense systems against foreign materials, damage lung tissue, and cause cancer and premature death.

SO_2 results largely from stationary sources. High concentrations of SO_2 affect breathing and can aggravate existing respiratory and cardiovascular disease. SO_2 also is a primary contributor to acidic deposition, or acid rain, which causes acidification of lakes and streams and can damage trees, crops, historic buildings, and statues.

For areas that do not meet the NAAQS (these are designated by EPA as nonattainment areas), the CAA establishes levels and timetables for each region to achieve attainment of the NAAQS. The State must prepare a State Implementation Plan (SIP), which documents how the region will reach its attainment levels by the required date. A SIP includes inventories of emissions within the area and establishes emissions budgets that are designed to bring the area into compliance with the NAAQS. In maintenance areas, which are areas that now meet the NAAQS, SIPs document how the State intends to maintain compliance with NAAQS.

Section 176(c) of the CAA, codified at 42 U.S.C. § 7506(c), prohibits Federal entities from taking actions in nonattainment or maintenance areas that do not "conform" to the SIP. The purpose of this conformity requirement is to ensure that Federal activities: (1) do not interfere with the budgets in the SIPs; (2) do not cause or contribute to new violations of the NAAQS; and (3) do not impede the ability to attain or maintain the NAAQS. To implement CAA Section 176(c), EPA issued the General Conformity Rule (40 CFR part 51, subpart W and part 93, subpart B), which applies to all Federal actions except highway and

transit actions.[19] The General Conformity Rule established emissions thresholds, or *de minimis* levels, for use in evaluating the conformity of an agency action. If the net direct and indirect emissions increases due to the project are less than these thresholds, the project is presumed to conform and no further conformity evaluation is required. If the Federal action would result in total direct and indirect emissions increases of a criteria pollutant or precursor originating in nonattainment or maintenance areas equaling or exceeding any of these thresholds, a conformity determination is generally required. The conformity determination can entail air quality modeling studies, consultation with EPA and state air quality agencies, and commitments to revise the SIP or to implement measures to mitigate air quality impacts. NHTSA and FMCSA's evaluation of this proposal in light of the General Conformity Rule is set forth in Section 4.3.4 below.

4.3.1.2 Greenhouse Gas Emissions, Climate Change, and the Social Cost of Carbon

Atmospheric greenhouse gases (GHGs) affect Earth's surface temperature by absorbing solar radiation that would otherwise be reflected back into space. The concentrations of GHGs are increasing in the atmosphere as a result of human activities, according to EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014.*[20] Although there are a variety of GHGs, carbon dioxide (CO_2) is the most significant one resulting from human activity. Motor vehicles emit CO_2 as well as other GHGs, including methane and nitrous oxides.

The impact of an individual GHG on Earth's absorption of radiation is measured as global warming potential. Global warming potential values can be used to express the quantity of a GHG in terms of its CO_2-equivalent (CO_2e). Rather than assessing the individual contribution from each GHG, the agencies considered CO_2e when assessing the effect of the action alternatives on GHG emissions. The total 2014 U.S. GHG emissions from medium- and heavy-duty trucks and buses in terms of CO_2e is made up of 98.62 percent CO_2, 1.13 percent hydrofluorocarbons, 0.23 percent nitrous oxide, and 0.02 percent methane.[21]

Table 3 shows total U.S. CO_2 emissions from fossil fuel consumption and the portion of those emissions that result from transportation sources in 1990 and in more recent years. Transportation sources account for approximately 32–34 percent of the total U.S. CO_2 emissions from fossil fuel combustion. Freight trucks were responsible for 22.5 percent of total transportation GHG emissions in 2014.[22]

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[19] The Transportation Conformity Rule (40 CFR part 51, Subpart T and part 93, Subpart A) does not apply to this rulemaking because it applies only to transportation plans, programs, and projects developed, funded, or approved under Title 23 U.S.C. or Title 49 U.S.C., Chapter 53 (Public Transportation).

[20] U.S. Environmental Protection Agency, (2016, April) *Inventory of U.S. greenhouse gas emissions and sinks: 1990-2014.* Washington, DC: Author. Available at http://epa.gov/climatechange/emissions/usinventoryreport.html (last accessed 5/31/16).

[21] *Id*. Table 2-13. For this table, the *Inventory* defines "medium- and heavy-duty trucks" to include vehicles larger than 8,500 lbs., which differs from the definition of "heavy vehicle" used in this EA. However, the percentages are unlikely to change significantly if vehicles 8,500 – 25,999 lbs. were excluded.

[22] *Id* at 2-27.

Table 3 U.S. Carbon Dioxide Emissions From Fossil Fuel Combustion (in million metric tons CO_2e)

Emission Sources	1990	2005	2010	2011	2012	2013	2014
Transportation Sources	1,496.8	1,891.8	1,732.7	1,711.9	1,700.6	1,717.0	1,741.7
Total Fossil Fuel Combustion	4,740.7	5,747.1	5,358.3	5,227.7	5,024.7	5,157.6	5,208.2
Transportation Sources as Percent of Total Fossil Fuel Combustion	31.6%	32.9%	32.3%	32.7%	33.8%	33.3%	33.4%

Source: U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2014.* Table 2-5. April 2016.

Climate change refers to long-term fluctuations in temperature, precipitation, wind, and other elements of Earth's climate system. Climate change is a result of increased atmospheric concentrations of GHGs, in large part from anthropogenic sources. Long-term impacts of climate change are varied, affecting weather, species, agricultural output, human civilization, and more across the world. NHTSA thoroughly discussed these impacts in Chapter 5 of its Final Environmental Impact Statement for Corporate Average Fuel Economy Standards for model years 2017–2025[23] and Chapter 5 of its Final Environmental Impact Statement for Phase 2 Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles,[24] and those discussions are incorporated by reference here.

For purposes of making a reasoned choice among alternatives by decision-makers, projected GHG emission levels may serve as a proxy for assessing a proposed action's potential climate change impacts. As a result, Section 4.3.2 discusses potential impacts to GHG emissions (expressed as CO_2e). In addition, in the PRIA and in this EA, the agencies discuss the monetized costs and benefits of the proposed action. In order to monetize the impacts of climate change, the agencies rely on the Federal social cost of carbon (SCC), which offers a harmonized, interagency metric that can provide decision-makers and the public with some context for meaningful analysis.[25] Monetized GHG impacts (based on the SCC) are discussed in Section 4.4.

4.3.2 Environmental Consequences

The air quality analysis in this EA was conducted using MOVES2014a, developed by EPA's Office of Transportation and Air Quality. The MOVES2014a model was last updated in November 2015 and is the

[23] NHTSA. (2012, July). Final Environmental Impact Statement, Corporate Average Fuel Economy Standards, Passenger cars and light trucks, model years 2017–2025. Docket No. NHTSA-2011-0056 or www.nhtsa.gov/fuel-economy/

[24] NHTSA. (2016, August). Final Environmental Impact Statement, Phase 2 Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles. Docket No. NHTSA-2014-0074 or www.nhtsa.gov/fuel-economy/

[25] Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (rev. July 2015), available at, www.whitehouse.gov/sites/default/files/omb/inforeg/scc-tsd-final-july-2015.pdf

best publicly-available source for generating an estimate of emissions that would result from implementing the proposed rule. This analysis uses the MOVES2014a model to estimate future emissions and fuel consumption[26] under the No Action Alternative and the three action alternatives at three selected points after the rule would be implemented: 2020 (the calendar year that the rule would go into effect), 2035 (an interim year when approximately 75 percent of the on-road fleet is expected to be equipped with speed limiters complying with the proposed rule), and 2050 (30 years after the rule goes into effect, when the entire on-road fleet of heavy vehicles is expected to be equipped with speed limiters complying with the proposed rule).[27]

NHTSA ran the MOVES2014a model using the national scale domain, which is described in the technical support documents on EPA's website.[28] To model each of the action alternatives, NHTSA modified the Average Speed Distribution input parameter for each alternative based on the speed distribution tables in the PRIA. The model's outputs included emissions and fuel consumption for each of the three analysis years described. For each of those years, the potential impact of each alternative is the difference between the emissions and fuel consumption under each action alternative as compared to the No Action Alternative in the same year.

The MOVES2014a emissions results reported in this EA are based on assumed annual vehicle miles traveled (VMT) estimates that are projected to grow each year in the future. This analytical approach differs from that undertaken in the PRIA, which uses 2013 VMT data in its analysis of potential impacts to fuel usage and the resulting economic effects of the alternatives. The PRIA analysis assumes all current heavy vehicles have installed and set speed limiters in compliance with the alternative analyzed to compare the safety and economic effects of the alternatives to each other and to not implementing the rule. In sum, the MOVES2014a-generated VMT for 2020, 2035, and 2050 are predictions of the future while the VMT used in the PRIA is based on current conditions.

Depending on the alternative, the proposal may indirectly result in increases in the emission of some pollutants and decreases in the emission of other pollutants. This is due to variation of emissions rates of heavy vehicles at various speed settings. For example, CO_2 emission rates decrease at slower highway operating speeds, while CO emission rates increase at slower highway operating speeds.

The emissions inventory presented in Table 4 shows the net increase or decrease in emissions of criteria pollutants and GHGs that are projected to occur under Alternatives 2, 3, and 4 as compared to the No Action Alternative. Data obtained from EPAs National Emissions Inventory from 2011 is also listed in Table 4 to display how the emissions increases or decreases compare at the national level for Heavy Duty On-Road vehicles (Single-Unit Trucks, Combination-Unit Trucks, and Intercity Buses).

[26] Fuel consumption impacts are described in Section 4.8.
[27] 30 years is the default Vehicle Age Distribution in MOVES2014a.
[28] *See* www3.epa.gov/otaq/models/moves/index.htm

Table 4 Emissions Inventory by Alternative and Year Compared to No Action Alternative

Alternative	Year	CO (tons)	NO_2 (tons)	NOx (tons)	SO_2 (tons)	PM_{10} (tons)	$PM_{2.5}$ (tons)	VOC (tons)	CO_2e (metric tons)
Alternative 2 – 60 mph Speed Limiter Setting	2020	255	-157	-392	-8	92	10	30	-835,962
	2035	3,633	-2,530	-6,327	-100	1,154	122	420	-10,848,261
	2050	4,846	-3,468	-8,678	-135	1,530	158	563	-14,639,156
Alternative 3 – 65 mph Speed Limiter Setting	2020	87	-59	-147	-3	32	4	10	-308,850
	2035	1,237	-945	-2,365	-37	400	42	143	-4,000,541
	2050	1,652	-1,294	-3,239	-50	530	54	192	-5,393,086
Alternative 4 – 68 mph Speed Limiter Setting	2020	16	-16	-40	-1	5	0	2	-81,588
	2035	223	-257	-644	-10	66	3	25	-1,052,757
	2050	298	-351	-879	-13	87	3	33	-1,415,980
2011 EPA National Emissions Inventory[29] – On-Road Heavy Duty Vehicle Emissions*		1,627,368	*	2,652,068	3,665	161,952	122,339	253,904	353,779,878

Note: Negative values denote a reduction in emissions compared to the No Action Alternative, while positive values denote an increase in emissions compared to the No Action Alternative.

* Value not reported in the 2011 EPA National Emissions Inventory.

ALTERNATIVE 1: No Action Alternative

Under the No Action Alternative, NHTSA would not require the installation of speed limiting systems by heavy vehicle manufacturers, and FMCSA would not require their maintenance by motor carriers operating in interstate commerce. Because this is the baseline to which the action alternatives are compared, it is considered to result in no impacts to the overall emissions that are already anticipated to occur.

ALTERNATIVE 2: Speed Limiter Set to Not Greater Than 60 mph

For Alternative 2, CO, PM_{10}, $PM_{2.5}$, and VOC emissions are projected to increase while NO_2, NOx, SO_2, and CO_2e emissions are projected to decrease. According to the 2011 EPA National Emissions Inventory for On-Road Heavy Duty Vehicles, the emissions increases associated with this Alternative would be negligible compared to the corresponding annual on-road heavy vehicle emissions at the national level.

ALTERNATIVE 3: Speed Limiter Set to Not Greater Than 65 mph

For Alternative 3, CO, PM_{10}, $PM_{2.5}$, and VOC emissions are projected to increase while NO_2, NOx, SO_2, and CO_2e emissions are projected to decrease. According to the 2011 EPA National Emissions Inventory for On-Road Heavy Duty Vehicles, the emissions increases associated with this Alternative would be negligible compared to the corresponding annual on-road heavy vehicle emissions at the national level.

[29] Available at www.epa.gov/air-emissions-inventories/2011-national-emissions-inventory-nei-data.

ALTERNATIVE 4: Speed Limiter Set to Not Greater Than 68 mph

For Alternative 4, CO, PM_{10}, $PM_{2.5}$, and VOC emissions are projected to increase while NO_2, NOx, SO_2, and CO_2e emissions are projected to decrease. According to the 2011 EPA National Emissions Inventory for On-Road Heavy Duty Vehicles, the emissions increases associated with this Alternative would be negligible compared to the corresponding annual on-road heavy vehicle emissions at the national level.

4.3.3 Cumulative Impacts

The emissions impacts identified in Section 4.3.2 are a result of VMT, reductions in highway traffic speed, and changes in fuel usage anticipated to occur as a result of widespread use of speed limiter technology. However, as discussed in the PRIA, NHTSA's Phase 1 medium- and heavy-duty fuel efficiency rule[30] established regulations for the reduction of fuel use by heavy vehicles.[31] Speed limiter technology is one of the various technologies available for installation by heavy vehicle manufacturers to comply with that rule. Under the medium- and heavy-duty vehicle fuel efficiency program, heavy vehicle drive cycles are evaluated at a maximum speed of 65 mph,[32] and a speed limiting device with a setting at or above 65 mph will show no fuel savings.[33] Thus, any fuel savings associated with speed settings of 65 mph and above were not estimated in the fuel efficiency program rulemaking. However, fuel efficiency evaluation of a heavy vehicle under the program would reflect fuel consumption benefits on a vehicle with a speed limiting device installed with a set speed below 65 mph (as compared to a 65 mph baseline).[34] As a result, the evaluation of impacts in the heavy-duty vehicle fuel efficiency final rule, Regulatory Impact Analysis, and Final Environmental Impact Statement[35] already accounted for the fuel savings resulting from speed limiters set below 65 mph.

The agencies assume that, for purposes of complying with the proposed speed limiter rule, vehicle manufacturers would design their speed limiting devices so that they also meet the necessary requirements to be used for compliance with the medium- and heavy-duty vehicle fuel efficiency program.[36] Any fuel savings benefits obtained by setting speed limiters below 65 mph would likely result in corresponding reductions by manufacturers in application of other fuel savings technology for the

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[30] Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles; Final Rule, 76 FR 57106 (September 15, 2011). The fuel efficiency impacts of that rulemaking are incorporated in the default database of the MOVES2014a model.

[31] Recently, NHTSA issued its Phase 2 medium- and heavy-duty fuel efficiency rule for further reductions in fuel use by heavy vehicles. Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2; Final Rule, publication in Federal Register forthcoming. (Available at www.nhtsa.gov/fuel-economy.) Because the final rule was issued in August 2016, the potential impacts of that rule were not incorporated into MOVES2014a (the most recent version of the software available), and a quantitative analysis of that rule has not been conducted for this EA. The agencies will consider how to evaluate the impacts of that rule for its Final EA.

[32] 76 FR 57182; Final Rulemaking to Establish Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles, Regulatory Impact Analysis, Section 4.2.4, EPA-420-R-11-901 (August 2011), available at www.nhtsa.gov/fuel-economy.

[33] 75 FR at 57155.

[34] *Id.*

[35] NHTSA, Final Environmental Impact Statement, Medium- and Heavy-Duty Fuel Efficiency Improvement Program (June 2011). Docket No. NHTSA-2010-0079 or www.nhtsa.gov/fuel-economy/.

[36] 40 CFR § 1037.640.

purpose of complying with the heavy-duty vehicle fuel efficiency program. As a result, the additional fuel savings benefits from Alternative 2 (as compared to Alternative 3) would likely be negated. Further, because the benefits of fuel savings for speed limiters set below 65 mph are already accounted for in the heavy-duty vehicle fuel efficiency rulemaking, considering them here would be improperly "double counting" those impacts.

Section 4.3.2 reports the impacts of Alternative 2 separately from Alternative 3 for the purpose of identifying potential impacts of this rulemaking in isolation. However, CEQ regulations require agencies to consider cumulative impacts of major Federal actions. CEQ regulations define cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."[37] In light of this requirement, we must consider the potential cumulative impacts of the proposed rule in conjunction with the Phase 1 and Phase 2 medium- and heavy-duty fuel efficiency rules.[38]

Under these circumstances, we conclude that the impacts of Alternative 2 on fuel use would be effectively the same as Alternative 3, because the benefits under Alternative 2 would likely be offset by manufacturers making corresponding reductions in application of other fuel savings technology for the purpose of complying with the Phase 1 and Phase 2 fuel efficiency rules. Because fuel use would be equivalent under Alternative 2 and Alternative 3, the resulting emissions would also be effectively equivalent.

4.3.4 Clean Air Act and Conformity

As discussed in Section 4.3.1.1, under the General Conformity Rule of the CAA, EPA requires a conformity determination when a Federal action would result in total direct and indirect emissions of a criteria pollutant or precursor originating in nonattainment or maintenance areas equaling or exceeding the emissions thresholds specified in 40 CFR § 93.153(b)(1) and (2).

The proposed Federal action is the promulgation of regulations that would require the installation and maintenance of vehicle speed limiters set at or below a specified speed setting in heavy vehicles. While overall, the rulemaking would generally result in decreased emissions, the analysis shows possible increases of some air pollutants (due to slower traffic speeds, changes in fuel use, and projected growth in VMT) that may be above the thresholds designated in 40 CFR 93.153(b) in limited areas. However, NHTSA and FMCSA conclude that this proposed action results in neither direct nor indirect emissions as defined at 40 CFR § 93.152.

Direct emissions are "those emissions of a criteria pollutant or its precursors that are caused or initiated by the Federal action and originate in a nonattainment or maintenance area and occur at the same time and place as the action and are reasonably foreseeable." 40 CFR § 93.152. The emissions resulting from operation of heavy trucks with vehicle speed limiters installed will occur at a different time and place than

[37] 40 CFR § 1508.7.
[38] The Phase 2 medium- and heavy-duty fuel efficiency rule was issued too recently to be fully incorporated in the analysis in this Draft EA. The agencies will consider how to evaluate the impacts of that rule for its Final EA.

the promulgation of these regulations. Further, the activities of installing and maintaining vehicle speed limiters in motor vehicles, in isolation, are not expected to result in emission of criteria air pollutants or their precursors in more than *de minimis* quantities. Rather, any increases predicted are due to driving behavior that occurs after installation of the vehicle speed limiter and between periods of vehicle maintenance.

Indirect emissions are "those emissions of a criteria pollutant or its precursors: (1) that are caused or initiated by the Federal action and originate in the same nonattainment or maintenance area but occur at a different time or place as the action; (2) that are reasonably foreseeable; (3) that the agency can practically control; and (4) for which the agency has continuing program responsibility." 40 CFR § 93.152. The increases in emissions that are predicted to occur are due to subsequent driving behavior by commercial operators, which will generally occur in different nonattainment or maintenance areas from where the rules are promulgated (i.e., the Federal action) as well as where the vehicle speed limiters are installed or maintained. NHTSA and FMCSA have identified significant levels of uncertainty[39] with regard to any emissions that may result from this proposed action, and the locations of any increased emissions are impossible to accurately ascertain.[40] Finally, neither agency "practically controls" or maintains "continuing program responsibility" for the emissions described here, as the agencies cannot prohibit U.S. interstate carriers from operating in the United States merely due to criteria air pollutant emissions or directly regulate vehicle exhaust from heavy vehicles operating in the United States.

For the foregoing reasons, the agencies conclude that the anticipated emissions do not meet the definition of either direct or indirect emissions for purposes of the General Conformity Rule. Further, the General Conformity Rule does not require a conformity determination for Federal actions that are "rulemaking and policy development and issuance," such as this action.[41] Therefore, NHTSA and FMCSA have determined they are not required to perform a conformity analysis for this action.

4.4 Socioeconomics

4.4.1 Affected Environment

In the PRIA, the agencies extensively evaluate the monetized costs and benefits of the alternatives for the proposed rule. A summary of the information provided in that document is included here, though the entirety of the discussion is incorporated by reference. The agencies consider the following benefits to the rule: safety, fuel savings, GHG reductions (social cost of carbon), societal economic injury savings, and property damage savings. In addition, the agencies also consider the following costs: equipment costs, lost opportunity costs (driver and time costs), costs to hire new drivers, and inventory costs. Each of these benefits and costs are monetized, totaled, and compared to identify the total net benefits of the proposed rule. For this analysis, the agencies evaluated the impact of the alternatives for the proposed

[39] According to EPA's explanation of indirect emissions, agencies need not resort to "speculation" in order to identify emissions: "The definition [of reasonably foreseeable emissions] does not require the use of worst-case assumptions, unlikely growth scenarios, or analyses where it is impossible to assess local air quality impacts." 58 FR 63214, 63226 (Nov. 30, 1993).
[40] This is further complicated by the fact that in the future, some States could lower their highway speed limits to the maximum speed level the speed limiters may not exceed that the agencies eventually adopt.
[41] 40 CFR § 93.153(c)(2)(iii).

rule on current conditions (i.e., the agencies estimated costs and benefits based on the travel characteristics of the current heavy vehicle fleet). As described in the PRIA, this is different than the methodology used in Section 4.3.

The socioeconomic impacts of the rulemaking would be primarily felt by trucking and bus companies of all sizes, as well as truck and bus operators. However, other populations may be impacted as well. This analysis looks specifically at the societal costs and benefits of the alternatives. Because the potential costs and benefits are varied, the affected environment for each of them is discussed here in turn.

- **Safety Benefit.** Calculations of the safety benefits of the rule in the PRIA are based only on those crashes whose severity was likely influenced by the speed of the heavy vehicle (e.g., crashes in which the heavy vehicle was the striking vehicle) and only crashes in which the heavy vehicle was likely traveling at a high travel speed (e.g., crashes on roads with a posted speed limit of 55 mph or greater; crashes on roads free of snow and ice). The proposed rule is anticipated to reduce the severity of these crashes, with the benefits felt by heavy vehicle operators and other motor vehicle operators, passengers, pedestrians, and bicyclists on the road that would otherwise be killed or injured in these crashes. The economic impacts of fatalities and lost quality of life considerations (nonfatal injuries) are calculated using a Value of Statistical Life multiplier.

- **Fuel Savings.** Reducing maximum vehicle speed to the range under consideration has the additional benefit of improving the fuel efficiency of heavy vehicles. In the PRIA, for roads with posted speed limits of 55 mph or higher, the agencies estimated the current VMT by heavy vehicles, the vehicles' travel speeds, and the vehicles fuel economy at each speed. The agencies then analyzed the effect of limiting heavy vehicle speeds on these roads on fuel economy. For this analysis, the agencies assumed that a decrease in operating speed of 1 mph increases fuel economy by 1.37 percent, consistent with the results of the survey of commercial fleet managers conducted by the Mack-Blackwell Rural Transportation Center. To monetize the fuel savings, the agencies relied upon the 2015 Annual Energy Outlook, published by the U.S. Energy Information Administration, to estimate the cost of diesel fuel.

- **GHG Reductions (Social Cost of Carbon).** The agencies converted gallons of fuel saved to grams of CO_2 emissions reduced using conversion factors consistent with those developed with MOVES2014a. Reductions in GHG emissions would be anticipated to have corresponding reductions on the impacts of climate change.

  In order to monetize reductions in the impacts of climate change (referred to as "GHG Reductions" in Table 5), the agencies rely on the Federal SCC, which offers a harmonized, interagency metric that can provide decision-makers and the public with context for meaningful analysis. The SCC is an estimate of the monetized damages associated with an incremental increase in annual carbon dioxide emissions. The SCC is intended to include (but is not limited to) changes in net agricultural productivity, human health, property damages from increased flood

risk, and the value of ecosystem services. The SCC estimates used in this analysis were developed through an interagency process that included several Federal agencies.[42]

Many serious challenges arise when attempting to assess the incremental economic impacts of GHG emissions. A recent report from the National Academies points out that any assessment will suffer from uncertainty, speculation, and lack of information about: (1) future emissions of GHGs, (2) the effects of past and future emissions on the climate system, (3) the impact of changes in climate on the physical and biological environment, and (4) the translation of these environmental impacts into economic damages.[43] The interagency group that developed the Federal SCC also noted several limitations to the analysis, including the incomplete way in which the integrated assessment models capture catastrophic and non-catastrophic impacts, their incomplete treatment of adaptation and technological change, uncertainty in the extrapolation of damages to high temperatures, and assumptions regarding risk aversion. The limited amount of research linking climate impacts to economic damages makes the interagency modeling exercise even more difficult. Regardless, over time it is expected that researchers and modelers will work to fill these gaps and that the SCC estimates the Federal Government uses for regulatory analysis will continue to evolve with improvements in modeling.

- **Societal Economic Injury Savings.** Reductions in the severity of motor vehicle crashes would be anticipated to have corresponding reductions in costs for medical care, emergency services, insurance administrative costs, workplace costs, and legal costs due to the fatalities and injuries avoided. These benefits are therefore in addition to the "Safety Benefits" identified above.

- **Property Damage Savings.** When the impact speed in a crash is reduced by a speed limiting device, the reduction in crash severity would result in reduced property damage as well. This includes reduced damage to the vehicles and property, as well as reduced travel delay costs. This is especially the case in "property damage only" crashes, where no individuals are injured or killed in the crash, but there may be damage to the heavy vehicle or whatever is impacted by it.

- **Employment Benefits.** Drivers hired by trucking and bus companies would directly benefit from the hiring investment (i.e., the current wage plus fringe benefits) made by those trucking and bus companies. However, the employment benefits would be regarded as "transfer payments," as they are monetary payments from one group to another that do not affect the total resources available to society. As a result, the employment benefits were not included in the benefit estimate.

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[42] For more information about the SCC and the process for developing those estimates, *see* Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (rev. July 2015), available at, www.whitehouse.gov/sites/default/files/omb/inforeg/scc-tsd-final-july-2015.pdf.

[43] National Research Council of the National Academies. (2010). Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use. Washington, DC National Academies Press. *Available at* www.nap.edu/catalog.php?record_id=12794

- **Equipment Costs.** This refers to the cost of a speed limiting device and its installation in newly manufactured heavy vehicles. The agencies note that new heavy vehicles already use ECUs with speed limiting capability.

- **Lost Opportunity Costs (Driver and Time Costs).** Since many trucks drivers are currently paid by miles driven, some drivers would drive longer hours to cover the same distance and avoid a reduction in pay. Driving longer hours to cover the same distance results in lost opportunity costs for the longer hours. The value of opportunity cost can change dramatically depending on how much of it the truck drivers have available and how they use it. The drivers would likely value the delay, such as getting home half an hour later, much more highly if the drivers are very busy or other economic opportunities are lost due to the delay. DOT guidance values personal intercity travel time at 70 percent of total earnings; that value is used in the PRIA and this EA.[44]

- **Inventory Costs.** Because a speed limiting device would limit travel speeds in heavy vehicles, it will take additional time for transported goods to travel the same distance. The longer trip time may result in additional costs relating to transporting those goods.

- **Costs to Hire New Drivers.** Because a speed limiting device would limit travel speeds in heavy vehicles, commercial vehicle drivers who are currently driving at or near the maximum daily allowable driving hours (49 CFR part 395) in areas with posted speed limits greater than the maximum speed limiter setting would not be able to reach their destination in the same amount of time. In order to compensate for the delay in travel or delivery time, the agencies assume trucking and bus companies would hire additional drivers and use team driving strategies in some cases. For the additional drivers, the agencies assumed that the hourly cost to the companies is equal to the current wage plus fringe benefits. Fringe benefits include paid leave, bonuses and overtime pay, health and other types of insurance, retirement plans, and legally required benefits (Social Security, Medicare, unemployment insurance, and workers compensation insurance). FMCSA estimates that fringe benefits are equal to 55 percent of wages. However, the costs to hire new drivers would be regarded as "transfer payments," as they are monetary payments from one group to another that do not affect the total resources available to society. As a result, these costs were not included in the costs estimate.

4.4.2 Environmental Consequences

Table 5 summarizes the socioeconomic effects (monetized societal costs and benefits) of the action alternatives. Under all alternatives, the economic benefits resulting from improved safety outcomes, fuel savings, GHG reductions, and property damage savings outweighs the additional costs resulting from the extra time necessary to deliver goods. These additional costs are lost opportunity costs and inventory costs, as described above.

[44] U.S. Department of Transportation. (2015). Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis. Washington, DC: Author. *Available at* www.transportation.gov/administrations/office-policy/2015-value-travel-time-guidance.

Trucking companies with a relatively large amount of resources, such as contingent drivers and trucks, could react in several ways in response to the proposed rule. The agencies used two potential scenarios to estimate the costs to hire new drivers associated with the proposed rule. Under one scenario, the agencies assume drivers employed by large trucking companies drive longer hours (but remaining within FMCSA's part 395 rules) to travel the same number of miles. Some companies would need to hire additional drivers to cover those drivers who would be unable to drive the additional hours without violating FMCSA's hours-of-service rules. Under the other scenario, the agencies assume drivers employed by large trucking companies will drive the same number of hours and therefore fewer miles. The trucking companies would hire new drivers to cover the additional time necessary to complete delivery of the goods. However, the results presented below reflect only the societal benefits and costs of the proposed rule and alternatives. Because the costs to hire new drivers are "transfer payments," they are not included in the table, though they are discussed in the PRIA.

The agencies do not expect that small operators and owner-operators will be able to compensate for the effects of this proposed rule by hiring additional drivers. Instead, the agencies assume that small operators and owner-operators will compensate as much as they can by driving additional hours (but remaining within FMCSA's part 395 rules). Ultimately, we believe that some of the deliveries currently made by small operators and owner-operators will need to be delivered by operators who have the capability of hiring additional drivers. The PRIA provides more information regarding the effects of the proposed rule on small businesses.

Table 5 Summary of Societal Benefits and Costs of the Speed Limiter Alternatives Compared to the No Action Alternative (in millions of 2013 dollars at 7% discount)

Benefit or Cost	Alternative 2 – 60 mph Speed Limiter Setting	Alternative 3 – 65 mph Speed Limiter Setting	Alternative 4 – 68 mph Speed Limiter Setting
Safety Benefit	$1,277-$3,920	$495-$1,680	$212-$757
Fuel Savings	$712*	$712	$317
GHG Reductions [Social Cost of Carbon]	$134*	$134	$59
Societal Economic Injury Savings	$434-$1,332	$168-$572	$72-$257
Property Damage Savings	$138-$424	$54-$181	$23-$82
(Equipment Costs)	($0)	($0)	($0)
(Lost Opportunity Costs)	($1,534)	($514)	($206)
(Inventory Costs)	($27)	($9)	($3)
Net Benefit	$1,136-$4,964	$1,039-$2,757	$475-$1,260

* The values for fuel savings and GHG reductions under Alternative 2 reflect the cumulative impacts discussion in Section 4.3.3 of this EA and, as with the other values in this table, are taken directly from the PRIA or the underlying analysis for the PRIA.

4.4.3 Cumulative Impacts

For the benefit analysis in the PRIA, NHTSA and FMCSA used 2004 – 2013 National Automotive Sampling System General Estimates System (GES) and Fatality Analysis Reporting System (FARS) data.

However, the agencies made several adjustments to reflect the regulatory impacts of other safety rules that have been proposed or issued since 2009. This is because those safety rules are reasonably anticipated to have safety impacts that could affect the magnitude of the potential safety benefits of the proposed action. The PRIA explains how these adjustments were made. In addition, as described in Section 4.3.3, the agencies do not anticipate additional fuel savings or GHG savings from Alternative 2 as compared to Alternative 3 because of the Phase 1 and Phase 2 medium- and heavy-duty fuel efficiency rules.

Because this socioeconomics analysis merely summarizes the information presented in the PRIA, the cumulative impacts of other Federal actions are already reflected in Table 5. This ensures that the socioeconomic analysis reflects actions already taken by the agencies and does not double count costs or benefits already reported in other regulatory analyses.

4.5 Public Health and Safety

4.5.1 Affected Environment

The affected environment for public health and safety includes highways and other driving locations used by all heavy vehicle drivers, other drivers, passengers in heavy vehicles and other motor vehicles, and pedestrians or other individuals who could be injured or killed in crashes involving the vehicles regulated by the proposed action. In other words, these are the individuals who would directly benefit from reductions in crash severity.

Table 6 shows adjusted data for heavy vehicles for 2004 through 2013 for fatal crash incidents. The values shown in Table 6 are taken directly from the PRIA. The PRIA provides additional discussion regarding the source of these numbers and how they were adjusted for purposes of the cost/benefit analysis. For example, the numbers have been adjusted to reflect the regulatory impacts of other safety rules that have been proposed or issued since 2009 in order to more accurately estimate future benefits. The PRIA discussion regarding the development of these values is incorporated by reference here.

Table 6 Adjusted Fatal Crashes and Fatalities Based on FARS for Vehicles With a GVWR Greater Than 11,793.4 kg (26,000 lbs.), 10 Years, 2004 - 2013

Posted speed, mph	Combination Truck		Single Unit Truck		Bus	
	Crash Counts	Person Counts	Crash Counts	Person Counts	Crash Counts	Person Counts*
55	2,933	3,115	217	226	75	93
60	719	759	40	41	14	10
65	2,935	2,921	106	115	65	94
70	2,071	2,269	47	53	31	44
75	627	683	7	7	8	11
Total	9,285	9,747	417	442	194	251

* The counts only include vehicle occupants.

4.5.2 Environmental Consequences

In the PRIA, the agencies determined the impacts on public health and safety by estimating the reduction in fatalities and injuries resulting from the decreased crash severity due to the use of speed limiters under the three action alternatives. In addition, the PRIA estimates the number of "property damage only" (PDO) crashes[45] that would have their crash severity reduced. Table 7 summarizes the information in the PRIA on the public health and safety benefits of speed limiter settings of 60 mph, 65 mph, and 68 mph. Major injuries are classified on the Maximum Abbreviated Injury Scale (MAIS) as a 3 (Serious), 4 (Severe), or 5 (Critical), while minor injuries are classified on the MAIS as a 1 (Minor) or 2 (Moderate).

Table 7 Summary of Annual Public Safety Effects of the Alternatives

Factor	Alternative 1 – No Action	Alternative 2 – 60 mph Speed Limiter Setting	Alternative 3 – 65 mph Speed Limiter Setting	Alternative 4 – 68 mph Speed Limiter Setting
Lives Saved	None	162-498	63-214	27-96
Major Injuries Prevented	None	179-551	70-236	30-106
Minor Injuries Prevented	None	3,356-10,306	1,299-4,535	560-1,987
Property Damage Only Crashes Affected	None	9,772-30,027	3,800-12,896	1,648-5,795

ALTERNATIVE 1: No Action Alternative

The No Action Alternative would not implement the rulemaking requiring functioning speed limiters on heavy vehicles. This represents current conditions; therefore the agencies assume there would be no additional lives saved or injuries prevented as no reduction in crash severity would occur.

ALTERNATIVE 2: Speed Limiter Set to Not Greater Than 60 mph

It is projected that requiring speed limiters to be set to 60 mph would result each year in 162 to 498 lives saved, 3,356 to 10,306 minor injuries and 179 to 551 major injuries prevented, and 9,772 to 30,027 property damage only crashes affected.

ALTERNATIVE 3: Speed Limiter Set to Not Greater Than 65 mph

It is projected that requiring speed limiters to be set to 65 mph would result each year in 63 to 214 lives saved, 1,299 to 4,535 minor injuries and 70 to 236 major injuries prevented, and 3,800 to 12,896 property damage only crashes affected.

ALTERNATIVE 4: Speed Limiter Set to Not Greater Than 68 mph

It is projected that requiring speed limiters to be set to 68 mph would result each year in 27 to 96 lives saved, 560 to 1,987 minor injuries and 30 to 106 major injuries prevented, and 1,648 to 5,795 property damage only crashes affected.

[45] PDO crashes are reported to authorities, but have only resulted in property damage; they do not result in any injuries or fatalities.

In addition to the alternative-specific impacts identified above, the agencies note the following with regard to impacts on driver health and safety. This rule's main benefit to driver health would come from the impact of the rulemaking on crashes involving heavy vehicles. Specifically, limiting the speeds at which heavy vehicles travel would reduce the severity of crashes involving these vehicles.[46] Some of the fatalities and injuries avoided could be those of truck drivers. In addition, the use of speed limiters could potentially increase the time that drivers hotel (overnight) in their vehicles due to the additional amount of travel time necessary to cover the same distance. This could produce minor negative impacts to driver health because drivers hotel in areas where air emissions could exceed permissible standards due to the idling of trucks. It is not possible to calculate precisely where and when additional hoteling would occur; thus, the agencies are unable to quantify the degree to which this rulemaking could expose drivers to additional emissions. However, it is expected that this rulemaking would only marginally increase hoteling time compared to the baseline. Thus, it is not expected to be a significant contributor to drivers breathing air of diminished quality. Given that baseline air quality is not expected to be adversely affected to a large degree, and overall there could be air quality improvements due to decreased emissions, driver health impacts are expected to be minimal.

4.6 Solid Waste

4.6.1 Affected Environment

Heavy vehicle crashes can generate solid wastes. The Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901 *et seq.*) and related regulations establish the waste management requirements that apply to truck crash-generated waste. The chassis and engines, as well as associated fluids and components of trucks, buses, and automobiles and the contents of the vehicles can all be deemed waste. The waste can also include damage to the roadway infrastructure, including road surface, barriers, bridges, and signage.

4.6.2 Environmental Consequences

NHTSA and FMCSA's proposed rulemaking is projected to reduce the severity of heavy vehicle crashes, and therefore may reduce the quantity of solid waste generated by heavy vehicle crashes in the United States. Less solid waste translates into cost and environmental savings from reductions in the following areas: (1) transport of waste material, (2) energy required for recycling efforts, and (3) landfill or incinerator fees. Less waste will result in beneficial environmental effects through less GHG emissions used in the transport of it to a landfill, less energy used to recycle the waste, less emissions through the incineration of waste, and less point source pollution at the scene of the crash that would result in increased emissions levels or increased toxins leaking from the crashed vehicles into the surrounding environment. While it is difficult to quantify the change in GHGs, energy, emissions, and point source pollution, this section addresses the amount of solid waste the agencies expect will be kept out of the waste stream from each alternative as a result of this rulemaking. This can provide a proxy measurement for purposes of comparing the alternatives.

[46] In addition, the proposed rule could reduce the number of crashes involving heavy vehicles. However, as noted in the PRIA, the agencies have not calculated this impact. As a result, the agency may be underreporting the safety benefits of the rulemaking in this EA.

The values reported in this section and for Hazardous Materials (Section 4.7) were calculated using an FMCSA calculator that was created for data pertaining to crash avoidance. The crash severity data produced by NHTSA (data on annual injuries reduced, lives saved, and PDO crashes reduced) were converted to be used in the FMCSA impact calculator. FMCSA developed conversion factors[47] based on crash data from previous years that calculate the average number of fatalities per fatal crash and injuries per injury crash. These conversion factors were applied to the crash severity reduction numbers from NHTSA, and then used in the FMCSA environmental impacts calculator. For the purpose of this EA and the impacts calculations, the agencies assume that the severity of the total crashes will be reduced by some fatalities becoming only injuries and some injuries becoming property-damage-only.

Using this procedure, the results in this section are expected to be more conservative than if presented in terms of crash avoidance. If a crash results in the release of hazardous materials, or creates solid waste, it must be reported to authorities and recorded as one of the three types of crashes—PDO, injury, or fatal. Though there is a conversion showing the amount of fatalities and injuries per fatal and injury crash, there is no way of telling how many of the PDO crashes (which represent the majority of crashes) would reduce in severity to a level not reported, and would therefore not be included in the impact calculator. Thus, it is likely that there would be less solid waste produced and more hazardous material release prevented because some of the PDO crashes would be reduced to a level not severe enough to report.

Table 8 summarizes the projected reduction in solid waste by alternative from the FMCSA environmental impacts calculator. The 50 percent replacement cost is for PDO and injury crashes while the 100 percent replacement cost represents fatal crashes.

Table 8 Reduction in Solid Waste Generated by Preventing Average[48] Heavy Vehicle Crashes (tons per year)

Alternative	50% Vehicle Replacement (Non-Fatal Crash)	100% Vehicle Replacement (Fatal Crash)
Alternative 1 – No Action	n/a	n/a
Alternative 2 – 60 mph Speed Limiter Setting	4,592 to 14,109	9,184 to 28,219
Alternative 3 – 65 mph Speed Limiter Setting	1,784 to 6,086	3,569 to 12,172
Alternative 4 – 68 mph Speed Limiter Setting	772 to 2,723	1,546 to 5,445

Source: Environmental Costs of Commercial Motor Vehicle Crashes, Volpe National Transportation Center, March 2007.

[47] FMCSA calculated that for fatal crashes, there are 1.13 fatalities per fatal crash. For injuries, there are 1.56 injuries per injury crash.

[48] "Average" means the mid-level congestion scenario as determined in FMCSA's report "Environmental Costs of Commercial Motor Vehicle Crashes**,** Volpe National Transportation Center, March 2007. Severe crashes, which could include a fatality or injury, would produce more congestion on a highway than a slight crash that may result in property damage only. The actual amount depends on the type of crash and the current flow of traffic along the roadway that is blocked and delayed.

ALTERNATIVE 1: No Action Alternative

Under the No Action Alternative, the agencies would not implement the rulemaking requiring functioning speed limiters on heavy vehicles. Thus there is assumed to be no reduction in solid waste because there is assumed to be no reduction in the severity of crashes without implementation of the rule.

ALTERNATIVE 2: Speed Limiter Set to Not Greater Than 60 mph

Under this alternative, 4,592 to 14,109 tons of solid waste would be prevented annually due to a reduction in crash severity of non-fatal crashes involving vehicles equipped with speed limiters set to 60 mph, and 9,184 to 28,219 tons of solid waste would be prevented annually due to a reduction in crash severity of fatal crashes involving vehicles equipped with speed limiters set to 60 mph. This alternative will result in a prevention of 13,776 to 42,328 total tons of solid waste.

ALTERNATIVE 3: Speed Limiter Set to Not Greater Than 65 mph

Under this alternative, 1,784 to 6,086 tons of solid waste would be prevented annually due to a reduction in crash severity of non-fatal crashes involving vehicles equipped with speed limiters set to 65 mph, and 3,569 to 12,172 tons of solid waste would be prevented annually due to a reduction in crash severity of fatal crashes involving vehicles equipped with speed limiters set to 65 mph. This alternative will result in a prevention of 5,353 to 18,258 total tons of solid waste.

ALTERNATIVE 4: Speed Limiter Set to Not Greater Than 68 mph

Under this alternative, 772 to 2,723 tons of solid waste would be prevented annually due to a reduction in crash severity of non-fatal crashes involving vehicles equipped with speed limiters set to 68 mph, and 1,546 to 5,445 tons of solid waste would be prevented annually due to a reduction in crash severity of fatal crashes involving vehicles equipped with speed limiters set to 68 mph. This alternative will result in a prevention of 2,318 to 8,168 total tons of solid waste.

4.7 Hazardous Materials

4.7.1 Affected Environment

Hazardous materials (HM) are substances that may pose a threat to public safety or the environment during transportation because of their physical, chemical, or radioactive properties. The potential for environmental damage or contamination exists when packages of HM are involved in crashes or en route incidents resulting from cargo shifts, valve failures, package failures, or loading, unloading, or handling problems. Accidental releases of HM can result in explosions or fires. Radioactive, toxic, infectious, or corrosive HM can have short- or long-term exposure effects on humans or the environment. Diesel fuel released during truck crashes from a fuel tank rupture, although not classified as a HM under Federal HM transportation law, can also adversely impact the environment.

Heavy vehicle crashes can result in the release of HM into the environment. Crashes occur in varying locations and with varying amounts and types of HM being released from the truck cargo. Environmental impacts are dependent on these variables. In addition, HM from the truck cargo is also released into the environment from non-crash related incidents that occur during in-transit movements, loading, unloading,

and in-transit temporary storage. Similar to truck crashes, the environmental impacts are dependent on the location, quantity, and type of HM being released.

4.7.2 Environmental Consequences

The proposed rulemaking may impact the size and number of HM spills into the environment. The agencies analyzed the potential degree of HM spills prevented due to the reduction of crash severity expected from the rulemaking.

Table 9 summarizes the reduction in the amounts of hazardous materials spilled for the alternatives using FMCSA's environmental impacts calculator (see Section 4.6 for additional explanation). The FMCSA environmental impacts calculator analyzes nine categories of HM. The calculator estimates the average amount of each type of waste released for every crash. By multiplying these factors by the total crashes reduced annually, the agencies calculated the total annual amount of HM reduction.

Table 9 Annual Reduction in Hazardous Materials Generated

Hazardous Material Class	Alternative 1 No Action	Alternative 2 60 mph Speed Limiter Setting	Alternative 3 65 mph Speed Limiter Setting	Alternative 4 68 mph Speed Limiter Setting
1 – Explosives (lbs)	n/a	2,225 to 6,838	865 to 2,950	375 to 1,319
2 – Gases (gal equiv.)	n/a	4,766 to 14,645	1,852 to 6,317	802 to 2,826
3 – Flammable Liquids (gal)	n/a	32,225 to 99,013	12,521 to 42,709	5,423 to 19,106
4 – Flammable Solids (lbs)	n/a	739 to 2,272	287 to 980	124 to 438
5 – Oxidizers (lbs)	n/a	3,894 to 11,965	1,513 to 5,161	655 to 2,309
6 – Toxics (lbs)	n/a	1,264 to 3,885	491 to 1,676	213 to 750
7 – Radioactive Materials (ci)	n/a	17 to 52	7 to 23	3 to 10
8 – Corrosives (gal)	n/a	1,714 to 5,266	666 to 2,271	288 to 1,016
9 – Miscellaneous (lbs)	n/a	4,748 to 14,589	1,845 to 6,293	799 to 2,815

ALTERNATIVE 1: No Action Alternative

Under the No Action Alternative, the agencies would not implement the rulemaking requiring functioning speed limiters on heavy vehicles. For this alternative, there are assumed to be no changes in the severity of crashes and, therefore, no reduction in hazardous materials released.

ALTERNATIVE 2: Speed Limiter Set to Not Greater Than 60 mph

Under this alternative, the agencies project that the release of 2,225 to 6,838 pounds of explosives, 4,766 to 14,645 gallon equivalents of gases, 32,225 to 99,013 gallons of flammable liquids, 739 to 2,272 pounds of flammable solids, 3,894 to 11,965 pounds of oxidizers, 1,264 to 3,885 pounds of toxics, 17 to 52 curies of radioactive material, 1,714 to 5,266 gallons of corrosives, and 4,748 to 14,589 pounds of miscellaneous waste would be prevented annually due to a reduction in crash severity.

ALTERNATIVE 3: Speed Limiter Set to Not Greater Than 65 mph

Under this alternative, the agencies project that the release of 865 to 2,950 pounds of explosives, 1,852 to 6,317 gallon equivalents of gases, 12,521 to 42,709 gallons of flammable liquids, 287 to 980 pounds of flammable solids, 1,513 to 5,161 pounds of oxidizers, 491 to 1,676 pounds of toxics, 7 to 23 curies of radioactive material, 666 to 2,271 gallons of corrosives, and 1,845 to 6,293 pounds of miscellaneous waste would be prevented annually due to a reduction in crash severity.

ALTERNATIVE 4: Speed Limiter Set to Not Greater Than 68 mph

Under this alternative, the agencies project that the release of 375 to 1,319 pounds of explosives, 802 to 2,826 gallon equivalents of gases, 5,423 to 19,106 gallons of flammable liquids, 124 to 438 pounds of flammable solids, 655 to 2,309 pounds of oxidizers, 213 to 750 pounds of toxics, 3 to 10 curies of radioactive material, 288 to 1,016 gallons of corrosives, and 799 to 2,815 pounds of miscellaneous waste would be prevented annually due to a reduction in crash severity.

4.8 Irreversible and Irretrievable Commitment of Resources / Fuel Savings

This section describes the reduction in irreversible and irretrievable commitments of resources associated with implementing the proposed rulemaking.[49]

A commitment of resources is irreversible when its primary or secondary impacts limit the future option for a resource. An irretrievable commitment refers to the use or consumption of resources that is neither renewable nor recoverable for later use by future generations. The commitment of resources refers primarily to the use of nonrenewable resources such as fossil fuels, water, labor, and electricity. Examples include the permanent extraction or alteration of nonrenewable resources, such as minerals and cultural resources, and changes to renewable resources that would then become unavailable for use by future generations.

The agencies are unable to identify any irreversible or irretrievable commitment of resources associated with implementing the proposed rulemaking. In fact, in this case, nonrenewable fossil fuels would be saved due to increased fuel efficiency of heavy vehicles. Table 10 summarizes these annual savings, which were calculated by the MOVES2014a model using the methodology described in Section 4.3.

[49] 42 U.S.C. § 4332(c).

Table 10 Diesel Gallon Equivalents of Fuel Saved Annually

Alternative	Analysis Year	Diesel Gallon Equivalents of Fuel Saved
Alternative 1 – No Action	2020	n/a
	2035	n/a
	2050	n/a
Alternative 2 – 60 mph Speed Limiter Setting	2020	77,480,144
	2035	1,005,530,683
	2050	1,356,943,259
Alternative 3 – 65 mph Speed Limiter Setting	2020	28,619,353
	2035	370,790,914
	2050	499,862,312
Alternative 4 – 68 mph Speed Limiter Setting	2020	7,559,928
	2035	97,530,806
	2050	131,188,444
Total Annual Highway Fuel Consumed (Gasoline, Diesel, and Other Fuels)— 2007-2011 avg., rounded, gallons	170,000,000,000[50]	

As discussed in Section 4.3.3, because of the impact of the Phase 1 and Phase 2 medium- and heavy-duty fuel efficiency programs, the additional benefits of Alternative 2 beyond those projected under Alternative 3 are not anticipated to occur. This is because benefits achieved by installation of compliant speed limiters as a result of this rulemaking will likely result in equivalent reductions in installation of fuel efficiency technology by heavy vehicle manufacturers due to the increased cost of that technology. As a result, the agencies anticipate that the gallons of fuel saved annually under Alternative 2 would be equal to the gallons of fuel saved under Alternative 3. However, the agencies provide the information in Table 10 above for the benefit of decision-makers and the public.

4.9 Cumulative Impacts

In addition to direct and indirect effects, CEQ regulations require agencies to consider cumulative impacts of major Federal actions. CEQ regulations define cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."[51] Throughout this EA, the agencies have identified cumulative impacts when relevant.

We note that the public health, safety, solid waste, and hazardous material benefits identified in this EA were based on calculations described in the PRIA. That methodology required the agency to adjust historical figures to reflect vehicle safety rulemakings that have recently become effective. As a result, many of the calculations in this EA already reflect the incremental impact of this action when added to other past actions.

[50] Data shown for 2007-2011 average. Available from the Federal Highway Administration at http://ops.fhwa.dot.gov/freight/freight_analysis/nat_freight_stats/docs/13factsfigures/table5_07.htm
[51] 40 CFR § 1508.7.

NHTSA, FMCSA, and other parties' past actions that improve the safety of heavy vehicles, as well as future actions taken by the agencies or other parties that improve the safety of heavy vehicles, could further reduce the severity or number of crashes involving heavy vehicles. Any such cumulative improvement in the safety of heavy vehicles would have an additional effect in reducing injuries and fatalities, and could reduce the quantity of solid and hazardous materials generated by crashes.

With regard to criteria air pollutant and GHG emissions, Federal or State actions may result in additional emissions reductions by heavy vehicles in the future. Further, heavy vehicle VMT has declined recently (as well as VMT for all vehicles). This is likely due to a variety of reasons, such as national economic output and the recent trend for carriers to utilize alternative transportation methods (such as railroads) for long-distance hauls. Future VMT estimates have a direct impact on the benefits of this rulemaking. While NHTSA and FMCSA utilize the MOVES2014a model's predictions of future VMT, if actual VMT varies, so would the benefits.

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