Department of Transportation
Office of the Chief Information Officer

SUPPORTING STATEMENT

This Supporting Statement is developed to request the Office of Management and Budget's (OMB) review and approval of a new information collection request (ICR) entitled, *"The Impact of Driver Compensation on Commercial Motor Vehicle Safety"*

Section A. Justification:

1. Circumstances that make collection of information necessary.

The primary mission of the Federal Motor Carrier Safety Administration (FMCSA) is to reduce crashes, injuries, and fatalities involving large trucks and buses. Toward that end, FMCSA must understand the nature of carrier business models and processes that impact roadway safety. Commercial driver behavior has the most impact on safety, Understanding their cultural and behavioral influences is necessary to understand their contribution and impact on safety. It is understood that commercial drivers are compensated in a variety of methods but there is no known research that identifies a potential relationship of driver behavior to compensation method. Understanding this relationship will enable the commercial motor carrier to make more informed decisions regarding safe operations as it relates to driver compensation.

The primary purpose of the study will be to analyze the possible safety consequences of the various methods in which CMV drivers in the sample are compensated. Additionally, a number of other potential intervening variables will be assessed. These variables include the following:

- Type of commercial motor vehicle operation (long-haul, short-haul, or line-haul) by size of carrier (very small, small, medium, or large)
- Whether for-hire, private, or owner operated and whether the carrier can be characterized as a truckload, less-than-truckload, regional, tanker, or other type of carrier
- Number of power units
- Average length of haul
- Primary commodities carried
- Number of regular, full-time drivers the carrier employes
- Average driving experience, in years, of drivers working for the companies included in the sample

This data will be used to correlate individual variables as well as to conduct multiple regression analysis to determine if the variables may contribute to safety consequences. Safety consequences include driver out-of-service rates, vehicle out-of-service rates, and crash rates. For purposes of this study, "commercial motor vehicle (CMV)" will refer only to trucks and not include passenger vehicles such as buses.

The study will investigate whether there is a relationship between the way CMV drivers are compensated and incidences of unsafe driving behavior or consequence. In particular, the research team will determine if there is a greater correlation between the pay-per-mile method of paying drivers and safety issues than other compensation methods. Other characteristics will be

assessed to take into account the influence that possible intervening variables may have on safety.
Street Legal Industries, as the research team, will administer surveys to motor carriers that are subject to the Federal Motor Carrier Safety Regulations (FMCSRs) to collect information regarding compensation methods and related variables to determine if there are potential influences on safe driver performance. This information collection supports the DOT's Strategic Goal of Safety because it contributes to efforts to improve CMV driver safety on our nation's highways.

The statutory authority to conduct studies pertaining to commercial motor vehicle safety and to require motor carriers to maintain accident records, driver files, and hours of service is derived from 49 U.S.C. §§ 504 (Attachment A), 31133 (Attachment B), 31136 (Attachment C), 31502 (Attachment D), and 49 CFR § 1.87 (Attachment E).

2. How, by whom, how frequently, and for what purpose, the information is used.

The review of existing literature and prior studies reveals that considerable research has been done to identify and characterize immediate causes of crashes involving CMV drivers, including unsafe driver behaviors that have resulted in crashes and reportable safety violations. This study will go beyond previous efforts and will use data yielded from a survey of CMV carriers to determine if a correlation of compensation practices and safety exists.

The data collected in the ICR will provide a better understanding of the variety and depth of the methods that drivers are being compensated across the motor carrier industry and the implications that these methods have on motor carrier operations and driver safety and performance. Using the results of this study, they will be able to assess their current practice and make any adjustments to driver compensation methods that would benefit their operations and serve to improve their safety performance.

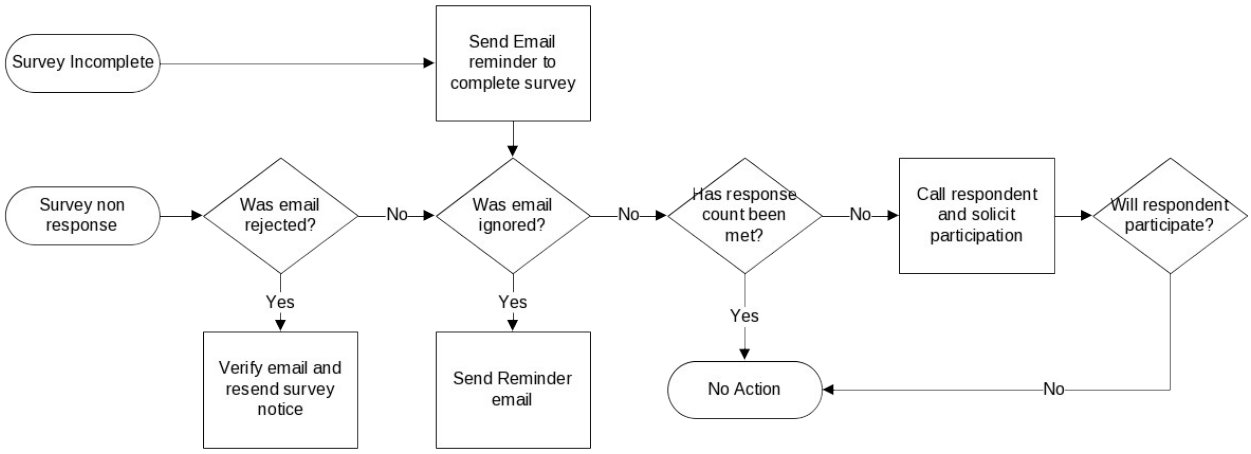
In addition, the FMCSA will use the data to provide guidance and inform the motor carrier industry of how various characteristics and factors impact their safety performance. The study may provide insights that could influence public policy at the federal level, particularly related to the Fair Labor Standards Act and how drivers can be compensated, should such a correlation to compensation methods and safety be shown to exist. This is a new data collection and the FMCSA has not previously collected this type of information.

3. Extent of automated information collection.

To reduce the burden to the respondent and increase the response rate, study questionnaires will be available on-line. The responses will be submitted electronically. The on-line questionnaires will be available to respondents from a secure (password protected) website. Each questionnaire will have a unique web link provided to the participant in the survey introduction letter and by email distribution as illustrated in Attachment K. Only the research team and participants from this study will have access to the passwords. The electronic version will help reduce cost and time for the respondent, agency, and researcher. In addition, the web questionnaire is easier and

faster to fill out for participants (e.g., easy to change answers, built-in error prevention, opportunity for save and return to complete, etc.). The on-line questionnaires will also reduce the burden to the respondents by removing the need to locate a mail drop facility, stamping, and entry corrections. To further increase the response rate potential, participants will be prompted to complete the survey by reminder emails following initial notification. An automated monitoring and prompting logic, as illustrated in figure 1, will be built into the web form to increase response rate potential.

Figure 1: Web-based questionnaire monitoring logic flow



Data will be collected upon entry using a secure server employing MySQL. This practice will reduce data translation error caused by manual interpretation and loading. All data will be encrypted upon transmission and storage to enhance security. Local data security will be applied to ensure the data during collection, storage, and analysis.

4. Efforts to identify duplication.

The research team conducted a review of related FMCSA studies and related studies, surveys, and reports of Federal and non-Federal sources to minimize duplication of efforts, identify best practices of completed projects, identify statistical information and survey questionnaire items that can be repurposed for the current study, and minimize costs to the government and taxpayers as described in the Contract Management Plan (Attachment I).

One of these studies , is the 2007 FMCSA technical report “Driver Issues: Commercial Motor Vehicle Safety Literature Review” by Howarth, Alton, Arnopolskay, Barr and Di Domenico. While the review found several studies detailing a relationship between pay and safety, most focused on amount of pay or other wage incentives rather than method of compensating CMV drivers (for example, an article by Daniel Rodriguez, Felipe Targa, and Michael Belzer (2006) titled “Pay Incentives and Truck Driver Safety: A Case Study”). However, the review yielded two notable studies that do offer some insight into the correlation between how drivers are compensated and accident rates. Both of the articles are by Kristen Monaco and Emily

Williams. In "Accidents and Hours-of-Service Violations Among Over-the-Road Drivers" (2001), the authors found that "Drivers paid by the hour are roughly half as likely as those paid by the mile to doze or fall asleep at the wheel. Hours of sleep is also negatively related to the likelihood of falling asleep at the wheel. Sleeping an additional hour makes a driver 0.85 times as likely to fall asleep at the wheel." In the second article authored by Monaco and Williams, "Assessing the Determinants of Safety in the Trucking Industry," they reported that "Drivers paid by percentage of revenue reported a higher percentage of accidents, moving violations, and logbook violations (18%, 38%, and 63%, respectively) than those paid by the mile (13%, 27%, and 55%, respectively)." While this is counter to the previous study, the authors go on to point out "This is not surprising because a driver who is paid by the mile typically gets paid the same amount per mile regardless of the revenue generated by the load (exceptions being premiums paid for hazardous materials, etc.). Drivers who are paid a percentage of revenue, primarily owner-operators, tend to drive more miles and run more loads in order to compensate for any empty or low-revenue loads."

These studies and others reviewed provide valuable insights to driver compensation and driver performance. However, none of these studies collected detail on the entire driver compensation package nor do they provide an analysis of compensation compared to driver safety.

5. Efforts to minimize burden on small businesses.

For small motor carriers and owner operators, time is a key factor in their operations. It is critical not to impact their daily operations, especially for owner-operators who often drive as a part of their duties. This study is designed to allow the participants to complete the questionnaire when it is convenient. The online questionnaire provides for a minimum response set based on answers and contains a total of 30 questions but reduces to as few as 20 based on responses. This provides consideration to the respondent's time. Direct contact by phone is minimal and only employed to prompt the participant after several unsuccessful email attempts. The research team conducted a pilot study of the survey questionnaire with 5 participants, three of which represented small businesses. All three participants expressed that communication by email and online response was the best method to request participation and complete the questionnaire.

6. Impact of less frequent collection of information.

This is a one-time collection of information. It is, therefore, not feasible to collect this data less frequently than proposed for this study. Failing to collect driver compensation data and compare it to safety performance will negatively impact the FMCSA and its stakeholders to provide informed guidance to recommend regulatory improvements and enables the motor carrier population to continue to manage solely on assumptions instead making informed decisions related to driver and safety management.

7. Special circumstances.

There are no special circumstances related to this information collection.

8. Compliance with 5 CFR 1320.8.

FMCSA published a notice in the Federal Register with a 60-day public comment period to announce this proposed information collection on August 29, 2014 (2014-20639 per 79 FR 51638) (Attachment F). Comment(s) received in response to this notice illustrated below. Forty-seven (47) public comments have been reviewed and grouped by common themes. Note that there are 49 comments indicated for the notice. Two of these comments are duplicate postings. Some comments addressed multiple themes but are grouped here only by their primary theme. These themes and the FMCSA responses are included below. Formal comments were received from the following commercial organizations: the American Trucking Association; Road Safe America; the AFL-CIO Amalgamated Transit Union; the AFL-CIO Transportation Trades Department; and the Owner-Operator Independent Driver Association. The FMCSA has responded to these organizations with formal and direct communication, however, their comments are reflected in the responses below along with the entirety of the public comments.

Theme: Total compensation influences driver safety

FMCSA Response: There could be many factors that influence safe driving performance. Fatigue, as pointed out, is most certainly one of them as past research has shown. Although this research will focus on possible relationships between the various methods of compensating truck drivers and unsafe driving practices, data will be collected on total compensation allowing this variable to be assessed for influence on safe driving performance as well.

Theme: Hourly pay is the best method of compensation to influence safe driving behavior.

FMCSA Response: The proposed study will assess any relationship between all of the collected compensation methods and safe driving behavior. The study will address hourly pay as well as others to determine if a relationship between compensation method and unsafe driver behaviors exists.

Theme: Pay by the mile/load compensation methods lead to unsafe driving behavior.

FMCSA Response: The goal of the proposed study is to evaluate all compensation methods including pay by the mile or load, but the study will not focus on or emphasize one method over another and determine if there is any relationship to safe driving behavior.

Theme: Driver experience, integrity, selection and training are factors in safe driving performance.

FMCSA Response: Driver experience may very well be a relevant factor in safe driving performance. The proposed study will solicit driver total driving experience as a variable; however, the goal will be to assess that factor as it relates to method of compensation. The FMCSA may consider specifically studying driver experience, selection and training in future research efforts.

Theme: Drivers should be compensated for "on-duty not driving time" to reduce fatigue.

FMCSA Response: This study will solicit information on all of the variations in compensation methods for a commercial driver, including for on-duty not driving time such as standing, waiting, loading, and unloading. The goal of this study is to understand all of the elements of compensation and determine if there are any common factors that influence safe

driving performance. Fatigue has been shown to be a factor in driver performance and has been linked to crash causation through other studies conducted in recent years.

Theme: The Federal Hours of Service rules influence driver behavior.

FMCSA Response: Public comments make several points about the Hours of Service rules that suggest they enable drivers to drive while fatigued. Past studies have shown that violations related to hours of services lead to fatigue and have played a factor in crashes. The proposed study does not assess the influence of the Hours of Service regulation with regards to safety but will use recent violations related to safe driving such as speeding as a measure of safe driving behavior.

Theme: Drivers of non-commercial vehicles should be trained on safe interaction with commercial vehicles and should have hours of service regulations imposed on their driving behavior.

FMCSA Response: FMCSA acknowledges the influence that the motoring public has on the roadways with regards to integration with commercial motor vehicles. To that end, FMCSA is actively engaged in outreach and education campaigns such as The No-Zone and Ticketing Aggressive Cars and Trucks (TACT) on a national and state level to increase the awareness of the public. Given that FMCSA's authority does not extend to regulation of the general public, the agency cannot regulate their behaviors.

Theme: The FMCSA should focus its efforts on issues directly related to its core mission (to reduce crashes, injuries and fatalities involving large trucks and buses) and not engage its resources with the business relationship between motor carriers and drivers.

FMCSA Response: The FMCSA strives to pursue its mission using a strategic approach that not only includes enhancing and enforcing the Federal Motor Carrier Regulations but also reducing the number and severity of commercial motor vehicle (CMV) crashes and enhancing the efficiency of CMV operations by conducting systematic studies directed toward fuller scientific discovery, knowledge, or understanding (FMCSA Analysis, Research and Technology Mission Statement), "Conducting research to understand the nature of an industry or entity and the means by which it conducts its business and operations is at the heart of any safety-conscious work environment including the motor carrier industry." The proposed study is within the FMCSA's mission and is in the best interests of public safety and the motor carrier industry.

Theme: The proposed study implies the FMCSA has a predisposition to eliminating all forms of pay except hourly.

FMCSA Response: This study is designed to capture information on all methods of pay across the motor carrier industry independent of the type of operation and assess its potential relationship to safe driver behavior. This research is being conducted to determine whether there is a statistical relationship between method of driver compensation and safety.

Theme: The proposed ICR needs to consider additional influential variables related to safety performance.

FMCSA Response: The FMCSA acknowledges that many factors may affect safe driving performance such as driver experience, training, type of operation, as well as geographic location and so on. This study will focus on how compensation of any method or combination

affects driver safety performance. Future research efforts may focus on other areas of carrier operations or driver performance.

Theme: The FMCSA needs to improve the quality of investigative activities to foster safety through compliance

FMCSA Response: The proposed study does not address investigative activities and their relationship to safe driving behavior but may be considered for future research. The FMCSA is continuously improving its approach and quality of field activities through policy and training efforts.

Theme: Passenger carrier companies and drivers and the impact of overtime exemptions should be included in the proposed research.

FMCSA Response: The Motorcoach industry is a unique operating environment with a differing set of variables that may influence the research. The FMCSA recognizes the value of understanding the potential effects that compensation may have on safety as well as many other industry issues. The proposed study is focused on non-passenger commercial operations but will address overtime as a component of compensation packages. Future research efforts may be designed to include passenger carrier operations and their unique operational characteristics.

Theme: The proposed research should include driver's insights on how compensation impacts safety performance. Further, the study should be concerned with truthful reporting and the quality of information from respondents.

FMCSA Response: The proposed study will use current data from the FMCSA safety data systems collected from carrier investigations and roadside activities. This data is driver specific and will be used to compare safety performance to compensation methods. In the case where a motor carrier has only one method of pay, a direct relationship can be considered. However, in the case where multiple methods of pay are used by a single carrier, then the survey questionnaire will expand to solicit individual driver compensation characteristics and safety history. In this way, the research considers drivers and their contribution to the safety. Truthful reporting is always a concern in any research effort. The goal is to remove as much opinion and focus on verifiable, quantitative data. The FMCSA recognizes the need to validate collected information and will use all means available to cross-reference data where possible.

FMCSA published a second notice in the Federal Register on February 4, 2015 (80 FR 6159) with a 30-day public comment period that announced this information would be sent to OMB for approval (see Attachment H).

FMCSA published a notice in the Federal Register on March 25, 2015 (80 FR 15862) with correction on page 6159 of the above 30-day public comment request Federal Register notice to change the "Estimated Time per Response" and "Estimated Total Annual Burden" paragraphs (see Attachment I).

9. Payment or gifts to respondents.

No payments or gifts will be made to respondents.

10. Assurances of Confidentiality.

This collection will be kept private to the extent possible under law. Data will be treated in a secure manner and will not be disclosed, unless the FMCSA is otherwise compelled by law. Respondents' identifying information will not be included on study materials. Participants will be provided a unique passcode to access the online questionnaire. All data will be collected using Secure ASP.NET web forms and transmission will be encrypted using Secure HTTP (HTTPS) to a Private LAN. All data will be stored using Advanced Encryption Standard (AES) Suite B cryptographic algorithms. To further protect the privacy of respondents, this project's data collection and analysis plan is subject to approval by a private Institutional Review Board (IRB). The primary purpose of the IRB is to protect the rights and welfare of the people involved in research. The IRB's approval form has been included as Attachment J.

11. Justification for collection of sensitive information.

This information collection does not involve data of a sensitive nature.

12. Estimates of burden hours for information requested.

The driver compensation survey is composed of two parts (Attachment K). Part one solicits general information and consists of 30 questions but reduces to as few as 20 based on responses as illustrated by Attachment K: Process Logic Flow for Online Questionnaire. Participants that use more than one method of pay to compensate drivers must also complete part two of the questionnaire. Part two consists of 6 questions for each of the respondent's active drivers. This data will be completed by the carrier representative or by data upload. Individual drivers will not be contacted by any resource to obtain this data. This burden is reduced for large carriers with multiple methods of pay by providing the option to download the driver related questions and respond off line. Participants with internal human resource data systems will have the option to export information into the survey template and upload the results to the online questionnaire. Guidance will be provided as needed to assist the carrier by providing sample code and scripts to extract the data into a format compatible for upload. Detailed instructions will be provided to perform this action. The burden to the respondents is based on the results from consultation with a representative sample of less than ten motor carriers. This test is described in Part B section 4 of this submission. Group 1 consists of motor carriers that use only one method of driver compensation. Group 2 consists of motor carriers that use more than one method of driver compensation. Group 1 respondents are expected to be included in the very small and small carrier peer groups while Group 2 respondents are expected to represent the medium and large peer groups. The total number of respondents for Group 1 is 1,164 and Group 2 is 1,020. The total number of respondents per group is based on peer group stratification as described in Part B section 1. It is anticipated that respondents may require additional followup to prompt completion of the survey. Two automated prompts will be made electronically by email to remind or encourage the respondent to participate. A third and final contact will be made by phone to solicit response and offer to complete the survey over the phone. Group 2 respondents may require assistance with data extraction and upload processes. These additional contact events are reflected in the overall burden estimate. The table below illustrates the estimated burden on these two respondent groups:

	Respondent Burden in minutes by Groups	
Action	**Group 1**	**Group 2**
Review Introductory Letter	5	5
Review initial email invitation	1	1
Complete part one of online questionnaire	10	10
Complete part two of online questionnaire 1-5 Drivers (manual input) 6-50 Drivers (manual input) 51-500 Drivers (data import) >500 Drivers (data import)	NA	45
Follow up contact	5	10
	21	71

Total Burden of CMV Driver Survey

Burden hours per respondent group: Group 1 = 0.35 hrs (21 min); Group 2 = 1.18 hrs (71 min)

Estimated Total Annual Hours: 1611 hours (Group 1 is 1164 respondents X .35 hours = 407.4 hours; Group 2 is 1020 respondents X 1.18 hours = 1203.6 hours)

Estimated Annual Number of Respondents: 2,184 carriers

Estimated Annual Number of Responses: 2,184 responses

A Federal Register Notice was published to revise the "Estimated Time per Response" and the "Estimated Total Annual Burden" information in the published 30-day Federal Register Notice for this ICR.

13. Estimates of total annual costs to respondents.

There are no costs to respondents beyond those associated with the annual hourly burden.

14. Estimate of cost to the Federal government.

The total Federal government budget for this information collection is $803,912 and itemized in the table below. The hours and costs noted were based on agreed upon labor hours and rates between US DOT–FMCSA and Street Legal Industries. The period of performance for data collection is 36 months.

COST TO FEDERAL GOVERNMENT

Tasks	Cost to Complete
Research, Design, Develop, Implement, and Analysis	**$776,912**
Other Costs (Travel)	**$27,000**
Total Cost or Study	**$803,912**

15. Explanation of program changes or adjustments.

This is a new information collection.

16. Publication of results of data collection.

The results of the surveys will be analyzed and integrated into the driver compensation study report. Data collection will be completed in 3 months, followed by statistical analysis. Both descriptive and analytical methods will be employed during the data analysis. Statistical methods, such as chi-square, odds ratio, cluster analysis, and regression, will be adopted when appropriate. The results of the study will be documented in a technical report to be delivered to and maintained by FMCSA. This report would be available to the public at the FMCSA web site at www.fmcsa.dot.gov.

Project Start: 10/01/12
Peer Review: 06/10/13
Survey Start: 05/15/15
Survey Close: 07/30/15
Complete Analysis: 09/15/15
Complete Report and Close Project: 01/15/16

17. Approval for not displaying the expiration date of OMB Approval.

FMCSA is not seeking an exemption from displaying the expiration date on the information collection questionnaires.

18. Exceptions to certification statement.

None.

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