

Taxi Driver Survey on Motor Vehicle Safety and Workplace Violence

Request for Office of Management and Budget Review and
Approval for Federally Sponsored Data Collection

Section A

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April 10, 2014

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A. Justification

1. Circumstances Making the Collection of Information Necessary

Background

This is a new Information Collection Request (ICR) requesting a 24-month approval from the Office of Management and Budget (OMB). Under the Public Law 91-596 (Section 20[a][1]), the National Institute for Occupational Safety and Health (NIOSH) is tasked with conducting research relating to occupational safety and health (Appendix A). In order to achieve these goals, NIOSH created a virtual Center for Motor Vehicle Safety and has been conducting research in prevention of workplace violence in the taxi industry.

In 2008 there were approximately 275,000 taxicab drivers in the US. In 1998-2002, workers in the “Taxi Services” industry had the highest rate of nonfatal motor vehicle-related injuries treated in emergency departments (86 per 10,000 FTEs), and workers in “Taxicab driver and chauffeur” occupations had the second highest rate (55 per 10,000 FTEs)¹. Further, 134 of the 423 (32%) fatalities that occurred from 2003 through 2010 in the “Taxi and limousine services” industry resulted from a motor vehicle crash.

Worker’s who operate light motor vehicles as their primary job including of taxi drivers, are an inadequately studied population. There are no reports describing the population of workers driving light motor vehicles, their driving patterns, or their driving behaviors. The road safety component of the proposed study would provide new scientific knowledge of a well-defined occupation whose primary job is to operate a taxi cab at any time of day under numerous road and traffic conditions. Using the strong collaboration with the municipal regulatory agencies as a conduit, the resulting findings will be used to guide intervention efforts aimed at reducing motor vehicle crashes. Municipal members of the International Association of Transportation Regulators (IATR) look to DSR to provide guidance by establishing an evidence base of research which can serve as the basis for IATR policies. Motor vehicle safety findings from this survey may be incorporated by the IATR and disseminated globally to municipal transportation regulators through an established network.

After a decade of decline, workplace violence continues to contribute substantially to the public health burden of both nonfatal and fatal injury outcomes. Since the nascence of national occupational health surveillance systems, homicides have been a leading cause of work-related fatal injuries. A widely cited special issue of *Violence in the Workplace* (2003) found taxicab drivers had the highest workplace homicide rates for both industry and occupation. *In 2010 alone, the Bureau of Labor Statistics reported almost 60% (n=26) of the 42 taxicab driver fatalities resulted from homicide.* In 2009, at the request of the IATR, DSR signed a Letter of Agreement that focused on evaluating the effectiveness of two major types of safety equipment installed in cabs. One study that is nearing completion (led by the PI of the proposed study), an ecological analysis of 26 major cities in the U.S., revealed that cities with cameras installed in taxicabs experience a 4-fold reduction in taxicab driver homicides compared with cities where taxicabs do not have cameras or partitions, and a 2-fold reduction in taxicab driver homicides compared with cities with taxicabs that have partitions installed (preliminary analysis). Another study nearing completion, a laboratory-based evaluation, is testing key features of taxicab cameras to determine what specifications to recommend when regulators advise taxicab companies on what features optimize the performance of the cameras and, therefore, the perpetrator conviction rate. The proposed study has a workplace violence section in the survey

¹ Chen GX, Nonfatal work-related motor vehicle injuries treated in emergency departments in the United States, 1998-2002. *American Journal of Industrial Medicine* 2009;52(9):698-706.

that would allow for the evaluation of the major types of safety equipment on rates of workplace violence incidents and events at the individual level (taxicab drivers). *The findings of this component of the survey would complement the findings of the ecological analysis and strengthen the guidance NIOSH would provide as these results would speak to the individual risk of taxicab drivers rather than at a city level.*

Current research in motor vehicle safety focuses on heavy vehicles such as trucks. This study would represent a pioneering effort in a much needed shift to studying driver attitudes, behaviors, and the working environment in an occupation that uses light vehicles with high incidence and risk of fatal and nonfatal motor vehicle-related injuries. A new survey will be developed specifically for taxi drivers that will provide new, descriptive data not found elsewhere that is crucial for introducing safe work practices industry-wide. The workplace violence aspect would challenge the current workplace practice paradigm that cameras and partitions are both 'equally' effective in reducing workplace violence among taxicab drivers. The survey developed for the proposed study would allow for comparisons to be made in violent incidents (assaults, aggression, robberies) with respect to camera-installed cabs versus partition-installed cabs. If the findings among nonfatal workplace violence events are consistent with the findings suggested by near completed work on homicides, then this will change the way industry regulators and safety directors think about safety equipment while providing requested scientific evidence that will guide recommendations as to whether or not cameras should be recommended safety equipment for taxicabs.

Privacy Impact Assessment

Overview of Data collection System

Data will be collected on no more than 550 taxicab drivers in Houston and Los Angeles during the 2015 fiscal year, for a total of 1100 taxicab drivers surveyed across both cities. Houston and Los Angeles were selected from a larger pool of cities included in an earlier study of the same topic, previously published (Menéndez et al, AJPM, 2013;45(1):1-8) because they provide an adequate number of taxicab drivers to participate in the study, they represent large cities with the types of safety equipment needed to meet study objectives, and from a design stand-point, it is much cleaner to use cities that were included in the seminal study rather than select a new city that was not a part of the initial research study. This study was designed to be a continuation of the original work yet answer more specific research questions. Priority for city selection followed the Workplace Violence component of the study and was based on being able to make comparisons of workplace violence experienced by taxicab drivers with cameras vs. taxicab drivers without cameras; 4 possible cities for both drivers with and without cameras were Houston, Dallas, Austin, and Orlando. Comparisons of workplace violence events of taxicab drivers with partitions vs taxicab drivers with cameras was an additional objective, with 2 possible cities: Los Angeles and Chicago. The final cities were selected because we received the strongest support from these regulators, which would help ensure the study's success. Data collection will occur in the following manner:

1. Trained interviewers will go to the major international airport in Houston where every licensed taxicab driver visits each day for opportunities for the highest fares. At the airport taxicab drivers are required to wait in a special lot while waiting to be called to a terminal for pickup, which is generally a 2-3 hour wait. If surveyors go to the waiting lot and the wait time for taxis, though rare, is less than 45 minutes, then the surveyors will return at a time when the wait is longer and there is a larger pool of taxicab drivers.

2. On average, taxicab drivers wait at least 2-3 hours at the waiting lots, however, there may be instances where time of day may impact the number of cabs as well as their wait time in the lots. We have factored this into our sampling method and surveyors will work to approach taxicab drivers at the 1-hour designation for line length and begin working backward with every third cab being approached by an interviewer and the taxicab driver invited to participate if eligible. In this way we will ensure drivers have sufficient time to complete the survey once they've started it because only completed surveys are compensated a \$25 gift card.
3. If the taxicab driver is willing to participate then two screening questions to determine eligibility will be asked: 1) has the driver been a licensed taxicab driver in that city for at least 1 year and 2) does the driver typically work at least 30 hours per week?
4. Drivers will be approached and screened until 500 taxicab drivers have completed the survey. The survey (Appendix C, Taxicab Driver Survey) is expected to take approximately 30-40 minutes. This estimate is based on evidence from previous similar studies done. It is anticipated some drivers will refuse and others will not choose to complete the survey. The surveyor will then move on to the next driver.
5. Taxicab drivers will be compensated with a \$25 gift card for their time.
6. The entire process will be repeated in Los Angeles at the LAX airport.

These cities were selected from a larger pool of cities included in an earlier study of the same topic that the project officer published on. These cities provide an adequate number of taxicab drivers to participate in the study, and it is 'cleaner' from a design standpoint to use cities already included in the seminal study rather than select a new city not represented in the initial research study. This study was designed to be a continuation of the original work yet answer more specific research questions. Priority for city selection followed the Workplace Violence component of the study and was based on being able to make comparisons of workplace violence experienced by taxicab drivers with cameras vs taxicab drivers without cameras (4 possible cities: Houston, Dallas, Austin, and Orlando) and comparisons of workplace violence events of taxicab drivers with partitions vs taxicab drivers with cameras (2 possible cities: Los Angeles and Chicago). The final cities were selected because we received the strongest support from these regulators, which would help ensure the study's success.

Items of Information to be Collected

Only one survey, the Taxi Driver Survey, will be administered to taxicab drivers and is described below:

Taxi Driver Survey: Data to be collected will be demographics of the taxicab driver (age, education level, marital status, country of origin, race, sex, ethnicity and tenure), ownership of taxicab, work hours as taxi driver, role overload, motor vehicle crashes, workplace violence outcomes, safety equipment installed in taxicabs, use of safety equipment installed in taxicabs, safety training, occupational driving behavior constructs (aggressiveness, rule breaking, distracted driving), safety climate, knowledge of safety practices. Personal identifiers (name, social security number etc.) will not be collected on cab drivers or any other employees.

Identification of Website(s) and Website Content Directed at Children Under 13 Years of Age

The information collection does not involve web-based data collections and will not refer to respondents websites. There will be no content directed at children 13 years of age or younger.

2. Purpose and Use of Information Collection

In order to maximize knowledge gained and public health impact with one field experience per city, the focus of the study is on two of the leading causes of taxicab driver fatalities: motor vehicle events and workplace violence. The proposed study goals are to: (1) describe the occurrence of motor vehicle events among taxicab drivers, (2) describe the risk factors of motor vehicle events among taxicab drivers, and (3) evaluate events of workplace violence among taxicab drivers. In order to accomplish the study goals, the corresponding study objectives are: (a) to enumerate the occurrence of motor vehicle crashes among taxicab drivers, (b) identify and describe the risk factors and protective factors associated with road safety among taxicab drivers, and (c) compare workplace violence events over a 12-month period among taxicab drivers by type of safety equipment installed in taxicab. The need for this information collection is described in this section.

Findings from the study may be used to develop future prevention initiatives for reducing work-related motor vehicle crashes. These prevention initiatives, such as reducing driver fatigue through shift work limitations, may take the form of municipal ordinances promulgated by the city regulators or company-wide (such as Yellow Cab) directives designed to impact road safety by a city taxi fleet. Another use of data collected for this study would be to serve as a baseline measure for a future evaluation of safety initiatives implemented at the municipal level. Specifically, Houston is in the process of rolling out a multi-year multi-pronged safety initiative that will target driver training, safety equipment updates, payment transactions and other aspects of the taxicab work environment designed to reduce injuries among taxicab drivers. Data collected during the current study would be used as a baseline measure to evaluate the effectiveness of the safety initiative at a later date. Finally, contextual data on motor vehicle crashes is not *completely* captured by current surveillance methods (such as NEISS-Work and SOII, two national surveillance databases). Such a survey would provide insight into the occurrence of crashes involving taxicabs. Furthermore, data on driving behaviors (errors, ordinary and aggressive violations, speeding, inattention, rule violation and tiredness) in the context of safety climate and role overload can only be obtained directly from taxicab drivers and will provide the perspective needed for designing effective safety interventions. In the US, motor vehicle crashes remain the leading cause of occupational fatalities and continue to be a leading cause of occupational nonfatal injuries. The prevention of occupational motor vehicle crashes has been designated as a component of the CDC Winnable Battle for the prevention of motor-vehicle injuries. The ubiquitous taxicab is an example of a light motor vehicle, whose operator usually drives the vehicle as their primary job.

The purpose of the information collected is to be used for research purposes only by the Division of Safety Research within the National Institute for Occupational Safety and Health of the Centers for Disease Control and Prevention. The information will be collected only once. The data will be used to evaluate road safety behaviors of taxicab drivers in two large metropolitan areas (Houston and Los Angeles) to serve as a foundation for future interventions designed to increase road safety behaviors among a workforce that drives for a living. The data on workplace violence outcomes and safety equipment installed in taxicab drivers will be used to determine if drivers with certain types of safety equipment experience fewer workplace violence outcomes compared to drivers with other types of safety equipment.

NIOSH will contract with an agency specializing in data collection and will train them using the study protocol. The data will be used for: 1) preparation of papers for publication and reports to document the impact of the success of the ordinance programs, 2) dissemination of reports and

recommendations to transportation regulators, city mayors, police departments, community leaders, and the taxi industry for consideration of ordinances and compliance program development, and 3) to disseminate research results to the public health community conducting workplace violence prevention research.

The *positive* need for this information is to provide further insight to an ecological study involving 26 of the largest cities in the United States over a 15-year time period that suggests cities with cameras installed in taxicabs experience 4-times lower taxicab driver homicide rates than cities with partitions or no cameras installed in taxicabs. Currently, there is no scientific evidence available at the individual level that allows injury researchers to determine if one type of safety equipment plays a role in preventing workplace violence compared to other types of safety equipment. If the research is completed and the specific aims are answered regarding both workplace violence outcomes and motor vehicle safety, an important body of evidence is gathered that, until now, has been completely lacking. The *positive* benefit will be added knowledge to support current legislative approaches, thus adding an additional *positive* benefit of likely reducing the number of homicides and assaults to taxicab drivers nationwide. Another *positive* benefit will be understanding the motor vehicle safety behaviors of an occupational population whose work is exclusively driving, thus providing a framework for motor vehicle safety interventions that can be implemented internationally.

The *negative* consequences of not having the information is that a high number of robbery-related assaults and homicides will continue to occur among taxicab drivers (the highest of any occupation) because NIOSH in accordance with its mandate did not move to disseminate successful best practice program results to communities.

2.1 Privacy Impact Assessment Information

The information is being collected to evaluate motor vehicle safety behaviors among taxicab drivers and evaluate city ordinances mandating specific types of equipment installed in taxicabs at the individual driver level and to reduce robbery, homicides and assaults to taxicab drivers. The information is being collected to disseminate to Houston and Los Angeles for taxicab driver safety professional, industry representatives and transportation regulators to move forward with ordinances mandating cameras be installed in taxicabs if they are associated with positive impact, and to design effective motor vehicle safety training to disseminate to other cities to consider in their ordinance program development to reduce workplace violence and motor vehicle crashes among taxicab drivers.

The intended use of the information is for research purposes and to: 1) publish the findings in a peer-reviewed scientific journal, 2) publish the information in industry and police trade association journals, 3) disseminate the information to police departments and mayors offices, especially for cities with substantial taxicab industry, and 4) to disseminate the information to the public health and scientific community currently active in research to reduce motor vehicle crashes and workplace violence in the taxicab industry.

Personal identifiers will not be collected on any individual. This has already been approved by the NIOSH HSRB as the use of personal identifiers is likely to be a strong deterrent for participation by members of an occupation difficult to study because they do not like to be tracked or documented. Being a taxicab driver is considered one of the few remaining occupations where independence, autonomy and privacy can be preserved.

No IIF is being collected. The impact of the proposed information collection on the privacy of individuals is minimal because there is no IIF data or sensitive data being collected on the individual.

3. Use of Improved Information Technology and Burden Reduction

No automated, electronic, mechanical or other technological collection technique will be used for the information collection. All data for this study will be collected by administration of a questionnaire by personal interviews. The survey methodology for this specific worker population was reviewed by the municipal transportation regulators and taxicab drivers. The personal interview methodology was employed because mail surveys and telephone interviews of this population is expected to provide poor response. Many taxicab drivers will not participate by mail or phone. The questionnaire and methodology was pilot tested among 9 taxicab drivers to ensure that the survey methodology was feasible, the survey questions were not overly sensitive and could be answered by the taxicab drivers, and that the length of the questionnaire was acceptable to the taxicab drivers. Please see Appendix G for a summary of the pilot test.

4. Efforts to Identify Duplication and Use of Similar Information

There are no surveys of taxicab drivers which evaluate the potential effect of different types of safety equipment to provide the data needed and there are no studies examining recently developed and tested constructs (e.g., safety climate, role overload, aggression, rule adherence, distracted driving) found to be relevant for occupational motor vehicle safety among taxicab drivers. Additionally, the first epidemiologic study evaluating safety equipment in taxicab drivers was conducted at a city-wide level. It is important a similar study interviewing individual taxicab drivers be conducted to contribute to the scientific credibility of the first study. This has been ascertained by literature review of research on taxicab drivers, discussions with international transportation regulators, and discussions with researchers in workplace violence.

5. Impact on Small Businesses or Other Small Entities

Taxicab drivers, though technically labeled independent contractors, can be treated as working for small businesses for the purpose of this document. There are thousands of drivers licensed in Houston alone, representing over 75 companies, it is not feasible to reach out to each company to find a contact to assist in the study so for study planning purposes the regulators, rather than the numerous and loosely organized network of taxicab companies, are consulted for the proposed research study. Regulators are the common denominator among taxicab companies as they are all required to have permits and go through the city regulations. Regulators are also in a position to know the distribution of various types of safety equipment among taxicabs licensed in the city, and know the most opportune location to encounter a sizeable population of taxicab drivers adequate for sampling. Communication with regulators is limited to a few brief emails and phone calls in any given year while the project officer has been conducting multiple research endeavors with this population. An example of a letter of support from a city regulator is included in Appendix H.

6. Consequences of Collecting the Information Less Frequently

The information request is for a one-time collection only. If the data collection is not conducted, NIOSH will be unable to provide more conclusive scientific evidence on the impact of safety equipment in reducing workplace violence, information that industry regulators are relying on.

Furthermore, information collected on road safety behaviors, job demands and safety climate have never before been collected in this population and are needed to inform effective safety promotion efforts.

7. **Special Circumstances Relating to the Guidelines of 5 CFR 1320.5**

There are no special circumstances connected with the information collection. This request fully complies with the regulation 5 CFR 1320.5.

8. **Comments in Response to the Federal Register Notice and Efforts to Consult Outside the Agency**

- A. A 60-day Federal Register Notice was published in the Federal Register on September 13, 2013, vol. 78, No. 178, pp. 56707-56708 (Appendix B). There were no public comments. A copy of the Federal Register notice of the 60-day public comment period is in Appendix B.
- B. The following bullets list the consultants with expertise in the study population, study design, or study instrument used in preparation of this study. All consultations were conducted summer of 2013. There were no unresolvable issues/problems provided by the consultants.

Industry stakeholders:

- The study protocol was reviewed by the Scientific Review Committee of the International Association of Transportation Regulators, with whom the principal investigator has had a long-term partnership in conducting research useful to them as stakeholders.
- Craig Leisy, Manager of Consumer Affairs for the City of Seattle (Craig.Leisy@Seattle.gov; Ph: 206-684-8484) has been responsible for the regulation of taxicabs in Seattle for over 20 years and reviewed the study protocol and survey.
- Charles Rathbone, taxicab driver activist and developer of the Taxicab Driver Homicide Memoriam (www.taxi-library.org; Charles@taxi-library.org; Ph: 415-309-0651) and assists in managing a fleet of 200 cabs also reviewed the protocol and survey.

Academic researchers:

- LuAnn Aday, PhD, (Lu.A.Aday@uth.tmc.edu; Ph: 713-500-9177), Professor Emeritus of University of Texas School of Public Health and member of the Institute of Medicine, has expertise in the design and conduct of health surveys and provided a critical review of both the protocol and survey.
- Celeste Monforton, Dr.PH, (cmonfort@gwu.edu; Ph: 512-938-3312) is Professor at George Washington University School of Public Health and has over 25 years' experience in conducting occupational injury studies. Dr. Monforton also provided a critical review of the study protocol and survey.

City of Houston regulators:

- Two industry regulators for the Houston Administration and Regulatory Affairs Department provided invaluable insight into the business aspect of driving a taxicab that was necessary for several questions in the questionnaire and the approach to sampling. Specifically, Tina Paez (tina.paez@houstontx.gov; Ph: 832-393-8500) is Director of the City of Houston Administration and Regulatory Affairs Department.

Nikki Cooper-Soto (nikki.cooper@houstontx.gov; Ph:832-394-9433) is the Administration Manager of the City of Houston Administration and Regulatory Affairs Department.

City of Los Angeles regulator:

- One industry regulator for the Los Angeles Department of Transportation provided invaluable insight into maximizing responses of taxicab drivers: Tom Drischler, Los Angeles Taxicab Administrator (tom.drischler@lacity.org; Ph: 213-972-8431).

9. Explanation of Any Payment or Gift to Respondents

It will take a taxicab driver an average of 30 minutes to complete the survey. That time would ordinarily be spent by a taxicab driver on pickups or other tasks to improve their business. We plan to offer each taxicab driver that completes the survey a \$25 VISA check card as a token of appreciation for their time. We have obtained IRB approval of the proposed payment through the National Institute for Occupational Safety and Health (NIOSH) Human Subjects Review Board (HSRB).

Because the survey is 20 to 30 minutes long and covers two important and involved topics, motor vehicle safety and workplace violence, and taxicab drivers are a historically difficult population to study, we need 500 drivers to participate in each city to get the statistical power necessary to meet study objectives. The \$25 VISA check card is considered appropriate and necessary to reach the response rate needed for the study by (1) another researcher experienced in administering taxicab driver surveys (data unpublished) and (2) taxi industry regulators (see list of consultants). Furthermore, during the pilot study taxicab drivers were asked if they would respond to the survey for free. Most drivers directly indicated they were likely not to respond.

10. Assurance of Confidentiality Provided to Respondents

IRB Approval

This study was approved by the NIOSH Institutional Review Board (IRB) on November 15, 2013. The NIOSH HSRB approval letter is shown in Appendix E

10.1 Privacy Impact Assessment Information

A. This submission has been reviewed by the Information Collection Review Office (ICRO) who determined that the Privacy Act does not apply. Risks to participants are low, since no information in identifiable form (IIF) will be collected.

B. Study participants will be informed that providing the information is voluntary. This is stated in the script distributed to the participant when obtaining verbal consent as part of the protocol approved by the NIOSH HSRB. The NIOSH HSRB waived written consent and approved oral consent on the condition that every participant is provided a hard copy of the consent form.

The following is the justification for the NIOSH HSRB:

"We are requesting a waiver of written consent, and rather to obtain oral consent from the taxicab drivers. The waiver is justified under HHS OHRP regulation 45CFR46.117(c)(2)"... (2)That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context".

The justification of how the protocol qualifies for this waiver is because the name of the taxicab driver will not be obtained and thus, no link of the data to the driver will be available. Thus, there is minimal if no risk to the taxicab driver.

We are additionally requesting approval to obtain consent orally rather than in writing for the following reasons: First, there is insufficient time during the survey to obtain a full written consent. A short consent form will be read to expedite the interview which will be while the driver is waiting at the airport lot. Taxicab drivers have little time to offer and the interview will have to be done during wait time. Second, taxicab drivers appear to be very sensitive about having their name connected with the data provided. Disclosure of their name by NIOSH during a FOIA for a litigation case connected with a robbery, assault or any arrest could bring risk or liability to the driver, who is usually an independent contractor. Drivers are reluctant to offer their names linked to the record but will likely participate in the survey. Third, and finally, a written consent form would be the only link to the questionnaire data, and thus, our proposal to not obtain a written consent would prevent any link of the driver's name to the questionnaire data.

C. The information will be secured. The surveys, containing no individually identifiable information, will be transported back to NIOSH by FedEx for editing and keying to an electronic data base. Following completed data entry the hardcopies of surveys will be destroyed.

D. No individually identifiable information is being collected. The Privacy Act does not apply, however intended use of the data and the minimal risk in participation will be explained to them. There will be no effect on taxicab drivers who refuse to participate and do not reply to the information request.

11. Justification for Sensitive Questions

There are questions on the survey instrument which could be considered sensitive by some drivers such as age, country of origin, race, ethnicity, sex, marital status and religious affiliation. Information on country of origin, race, ethnicity, sex, age, marital status and religious affiliation is necessary so that we can evaluate their role in workplace violence prevalence rates. Personal communication with transportation regulators has revealed a belief that some taxicab drivers are targeted due to their religious affiliation, real or perceived. To reduce sensitivity, these questions have been placed at the end of the survey and respondents will be reminded when answering these questions that they are voluntary. Asking participants to recall instances of workplace violence may also be sensitive, depending on the circumstance of the incident. As the survey is voluntary, respondents may refuse to answer any questions. Respondents are informed of their right to refuse participation and their right to refuse to answer individual questions in the introductory script (Appendix D). Additionally, respondents will be informed that their personal identifiers will not be recorded and their information provided will not be linked to them. While these questions may be difficult to answer for some respondents, these answers are needed to allow us to determine important risk factors for motor vehicle safety and workplace violence which may confound the potential impact of safety equipment.

12. Estimates of Annualized Burden Hours and Costs

A. The survey of taxicab drivers will be conducted at various times throughout the day 7 days/week in each city. At an airport waiting lot for the major airport of each city, it is estimated

that 550 taxicab drivers will be approached and invited to participate in the study after being administered 2 screening questions (to ascertain if they were a driver in the city for at least one year and if they drive a taxi at least 30 hours/week). We know to expect that not all taxicab drivers we approach will agree to participate and provide a complete response to the survey. A comprehensive article reviewed participation rates across epidemiological studies (Galea & Tracy, *Ann Epidemiol* 2007;17:643-653) and reported participation rates for national surveys conducted by phone or visits at 87% for the National Health Interview Survey and upwards of 97% for the Current Population Survey. Approximating a 90% participation rate here seemed a conservative compromise that would ensure we get the targeted 500 completed surveys, especially since we are approaching drivers who are in a waiting period and compensating them for their participation. After approximating 90% participation, it is estimated 500 will complete the survey in each city. The Taxi Driver Survey is a one-time survey taking approximately 40 minutes to complete, resulting in an annualized burden estimate of 550 hours, 275 per city. A pilot study of 9 taxicab drivers was done which verified that the survey will likely require no more than 40 minutes of the taxicab drivers' time.

Estimated annualized Burden Hours

Respondents	No. of Respondents	No. of Responses per Respondent	Average Burden per Response (in hrs)	Total Burden (in hrs)
Taxicab drivers in Houston	550	1	40/60	367
Taxicab drivers in Los Angeles	550	1	40/60	367
Total	1100	1	40/60	734

B. An estimate of the annualized burden costs is provided below using Bureau of Labor Statistics (BLS) estimate wages by occupation.

Estimates of Annualized Burden Costs

Type of Respondent*	Total Burden Hours	Hourly Wage Rate	Total Respondent Costs
Taxicab drivers in Houston	367	\$10.95	\$4,019
Taxicab drivers in Los Angeles	367	\$12.99	\$4,767
Total			\$6,8,786

* These estimates are calculated using the U.S. Department of Labor's Bureau of Labor Statistics Occupational Employment and Wages, May 2013, By State. (<http://www.bls.gov/oes/current/oes533041.htm#st>). Salaries for taxicab drivers were identified by the BLS code 53-3041.

13. Estimates of Other Total Annual Cost Burden to Respondents or Record Keepers

There are no additional cost burdens for respondents.

14. Annualized Cost to the Government

The annualized cost to the government for this project is estimated to be \$859,048. The table below summarizes a breakdown of the estimated costs.

Item	FY 2013	FY 2014	FY2015	Total
<u>Discretionary costs:</u>				
Equipment and supplies ¹	\$1,000	\$1,000	\$1,000	\$3,000
Contractual	\$25,000	\$25,000	\$0	\$50,000
Travel	\$10,000	\$10,000	\$5,000	\$25,000
Total Discretionary	\$170,940	\$114,120	\$10,400	\$295,460
Total Personnel and benefits	\$160,002	\$184,234	\$141,352	\$485,588
Total cost to Federal Government	\$366,942	\$334,354	\$157,752	\$859,048

15. Explanation for Program Changes or Adjustments

This is a new data collection.

16. Plans for Tabulation and Publication and Project Time Schedule

Clearance is being requested for 2 years, starting in the summer of 2014 and continuing through May, 2016. OMB approval is optimistically anticipated by the summer of 2014 which will afford just enough time to begin surveying taxicab drivers in Houston by August 1, 2014. The taxicab drivers in Los Angeles will be surveyed in FY 2015 (3-9 months after OMB approval).

We plan to publish project results in both peer reviewed scientific journals with a high impact factor and trade journals and the newsletter for the International Association of Transportation Regulators. Additionally, results will be presented at national, scientific conferences with high public visibility to research audiences, and at trade associations such as the International Chiefs of Police, National Associations of Mayors, and International Association of Transportation Regulators to reach both industry and community leaders empowered to promulgate legislative ordinances for taxicab driver safety. Results will also be disseminated to stakeholder groups via presentation and written reports. Stakeholder groups include the International Association of Transportation Regulators, International Association of Chiefs of Police, Mayors, police departments, and large taxicab companies such as Yellow Cab. Our projected timeline for the project is described in the table below.

Activity	Time Schedule
Award survey support contract, if possible	1 month prior to OMB approval
Recruit and train survey interviewers	Immediately after OMB approval
Begin interviewing taxicab drivers, Houston	1 month after OMB approval
Complete taxicab driver interviews, Houston	3 months after OMB approval
Complete data cleaning, develop database, Houston	5 months after OMB approval
Complete statistical analysis, Houston	7 months after OMB approval
Recruit and train survey interviewers, if different	6 months after OMB approval
Begin interviewing taxicab drivers, Los Angeles	7-9 months after OMB approval
Complete taxicab driver interviews, Los Angeles	8-11 months after OMB approval
Complete data cleaning and database development, Los Angeles	10-13 months after OMB approval
Complete papers and reports for publication in peer-	20-36 months after OMB approval

review journals and trade association journals and publications.	
Complete presentations to research audiences and stakeholders	24-36 months after OMB approval

The analysis plan is described as follows:

Statistical analysis plan: The proposed statistical analysis plan addresses each objective of the proposal. They are as follows: (a) to enumerate the occurrence of motor vehicle crashes within the past 12 months among taxicab drivers in two cities, (b) identify and describe the risk factors and protective factors associated with road safety among taxicab drivers using a validated occupational driver behavior questionnaire in two cities, and (c) characterize non-fatal workplace violence events over a twelve-month period among taxicab drivers and compare by type of safety equipment installed in taxicab.

Enumerate the occurrence of motor vehicle crashes within the past 12 months among taxicab drivers in two cities. The responses from Section D, Questions 1a and 1b of the survey (Appendix 2) will be used to create a count of motor vehicle crashes that have occurred in the past 12 months. Likewise, a count of the circumstances, total estimated amount of property damage per crash, number of injuries and number of fatalities will be obtained. Prevalence rates will be defined as the number of crashes per 1000 taxicab drivers. The average number of crashes, property damage, injuries and fatalities per driver will be calculated.

Identify and describe the risk factors and protective factors associated with road safety among taxicab drivers using a validated occupational driver behavior questionnaire in two cities A multiple logistic regression model will be constructed where the odds of experiencing a crash will be modeled on the following possible covariates:

Driver tenure:

Length of time as taxicab driver, including in current city (Section A: Q1a, Q1b),
Length of time at current cab company (Section A: Q1c, Q1d),
Ownership status of taxicab and plate/medallion (Section A: Q2-3),
Time spent in a typical day and workweek driving taxicab (Section A: Q4-5),
Number of miles spent in a typical workweek driving taxicab (Section A: Q6),
Fare locations (Section A: Q7).

Psychosocial variables:

Job demand index (role overload) (Section B: Q1-4),
Safety climate scale (Section F: Q3-8),
Occupational driver behavior construct (with 4 sub-dimensions: speeding, inattention, rule violation, driving while tired) from Newman and VonSchuckmann's Occupational Driver Behavior Questionnaire (Safety Science 2012;50:1268-1274). These scales have Cronbach alphas >0.70 which means the questions of the subscales are asking what the sub-dimensions are supposed to be asking (sound reliability). The correlations made sense (unsafe driving behaviors with greater role overload and lower safety climate). This has been found to be a recommended tool for assessing occupational driving behaviors, and the questions were incorporated into this survey (Section F: Q9-29).

Individual factors:

Motor vehicle crashes when not driving taxi (Section G: Q1),

Age, gender, race/ethnicity, nativity, education, marital status, religion (because taxicab drivers may be targeted for workplace violence events due to their religion) (Section G: Q2-10).

As part of the model building process we want the variables that may be significant later to have a chance to enter the model. These will likely be eliminated in the backwards stepwise elimination model building process described below due to the high p-values, but it is important they are considered early on in the process to be thorough. The covariates will be selected after they have gone through a predetermined selection process where they meet the following criteria: a) in univariate analysis with the outcome (reported crash event) they must be statistically significant at $p < 0.25$, b) not be collinear with any other potential covariate at a value greater than 0.60 and at a significance of $p < 0.10$, and c) remain statistically significant during the model building process ($p < 0.05$).

Characterize non-fatal workplace violence events over a twelve-month period among taxicab drivers and compare by type of safety equipment installed in taxicab. The number of workplace violence events will be obtained for each event (Section C: Q1, Q3, Q5, Q7, Q9, Q11) and for a total of workplace violence events (Section C: Q1+Q3+Q5+Q7+Q9+Q11). For each type of safety equipment, a difference in proportions will be calculated to compare the total number of workplace violence events by presence of camera (Section E: Q1), partition use (Section E: Q2), GPS (Section E: Q3), silent alarm (Section E: Q4), cashless payment system (Section E: Q5), and safety training (Section F: Q1). Univariate logistic regression models will evaluate the significance of each type of safety equipment in describing the occurrence of workplace violence events. Multiple logistic regression models will include each statistically significant form of safety equipment from the univariate models altogether in one model. Then the following potential covariates will be evaluated in the model-building process:

Driver tenure:

Length of time as taxicab driver, including in current city (Section A: Q1a, Q1b),
Length of time at current cab company (Section A: Q1c, Q1d),
Ownership status of taxicab and plate/medallion (Section A: Q2-3),
Time spent in a typical day and workweek driving taxicab (Section A: Q4-5),
Number of miles spent in a typical workweek driving taxicab (Section A: Q6),
Fare locations (Section A: Q7).

Psychosocial variables:

Job demand index (role overload) (Section B: Q1-4),
Safety climate scale (Section F: Q3-8),
Occupational driver behavior construct (with 4 subdimensions: speeding, inattention, rule violation, driving while tired) (Section F: Q9-29).

Individual factors:

Motor vehicle crashes when not driving taxi (Section G: Q1),
Age, gender, race/ethnicity, nativity, education, marital status, religion (because taxicab drivers may be targeted for workplace violence events due to their religion) (Section G: Q2-10).

The effectiveness of cameras, in addition to other safety measures, will be evaluated using the Wald test statistic generated in the final logistic model. We will be able to compare unadjusted (univariate models) and adjusted (multivariable models) estimates for each type of safety equipment utilized.

17. Reason(s) Display of OMB Expiration Date is Inappropriate

The OMB expiration date will be displayed on the Taxicab Driver Survey.

18. Exceptions to Certification for Paperwork Reduction Act Submissions

There are no exceptions to the certification.