DEPARTMENT OF TRANSPORTATION

1INFORMATION COLLECTION
SUPPORTING STATEMENT

Title: Recruitment and Debriefing of Human Subjects for Field Test of Vehicle Occupant Protection Technologies

Part A. Justification

1. Explain the circumstances that make the collection of information necessary. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.

The National Highway Traffic Safety Administration's (NHTSA) mission is to save lives, prevent injuries, and reduce economic losses resulting from motor vehicle crashes. Increasing seat belt use is one of the agency's highest priorities.

Seat belt use has shown an increasing trend since 1995, accompanied by a steady decline in the percentage of unrestrained passenger vehicle occupant fatalities during daytime. In 2013, the nationwide seat belt use reached 87 percent for drivers and front seat passengers.[a] Despite gains in seat belt usage, data from the 2011 Fatality Analysis Reporting System (FARS) indicates that 52 percent of all passenger vehicle crash fatalities[b] were unbelted occupants.[c] The age group 21 to 24 had the highest percentage of unrestrained occupants killed: 2,172 fatalities, of which 1,385 (64%) were unrestrained. The second highest percentage of unrestrained passenger vehicle occupant fatalities was 63 percent among 25- to 34-year-olds.[c] Use of lap/shoulder seat belts reduce the risk of fatal injury to front-seat passenger car occupants by 45 percent and the risk of moderate-to-critical injury by 50 percent. In 2011 alone, seat belts saved an estimated 11,949 lives.[c]

The proposed field study will examine seat belt use and consumer acceptance for a subset of emerging occupant protection technologies designed to increase seat belt use. The information collection involves eligibility, demographic, and debriefing questionnaires. The information will be used to recruit participants for a field study on occupant protection technologies and to get information from study participants about their experience with such systems. The study focuses on occupant protection technologies that restrict some vehicle functionality, permanently or temporarily, when they detect that a vehicle occupant is not wearing a seat belt.

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[a] Pickrell, T. M., & Liu, C. (2014, January). *Seat Belt Use in 2013 – Overall Results.* (Traffic Safety Facts Research Note. Report No. DOT HS 811 875). Washington, DC: National Highway Traffic Safety Administration.

[b] The 2012 and 2013 data on the percent of unrestrained passenger vehicle occupant fatalities during daytime is not yet available.

[c] NHTSA. (2013, June) *Occupant Protection* (Traffic Safety Facts 2011 Data. Report No.DOT HS 811 729). Washington, DC: National Highway Traffic Safety Administration.
http://www-nrd.nhtsa.dot.gov/Pubs/811729.pdf

Further, 49 U.S.C. 30181, 30182, and 30183[d] authorize the Secretary of Transportation to conduct research, development, and testing programs, including activities related to new and emerging technologies that impact or may impact motor vehicle safety. This authority has been delegated to NHTSA.[e]

2. **Indicate how, by whom, and for what purpose the information is to be used. Indicate the actual use the agency has made of the information received from the current collection.**

The University of Michigan Transportation Research Institute (UMTRI), in collaboration with the Virginia Tech Transportation Institute (VTTI), and Montana State University, Western Transportation Institute (WTI), will conduct this study under a contract with NHTSA.

The information to be collected would be used to:

(a) Obtain self-reported driving history information for recruitment purposes.
(b) Confirm self-reported driving history information for recruitment purposes
(c) Obtain basic demographic information to ensure that the study includes participants from various groups (e.g., seat belt usage; gender; and age).
(d) Get information about drivers' beliefs and attitude towards occupant protection technologies tested, and to identify potential problems associated with each system.
(e) Assess perceived usability of the technologies in terms of acceptance and satisfaction, as well as willingness to have this technology in their vehicle.

Individuals must meet the criteria listed below to be eligible to participate in the study:

- Have a valid Michigan driver license
- 18 years or older at the time of the study
- Have driven for at least two years and currently driving at least five days per week
- Capable of driving a car equipped with an automatic transmission without assistive devices or special equipment
- Part-time user or non-seatbelt user

Individuals interested in participating in the study will be asked to provide information about their driving history. People who have been convicted of felony motor convictions will be excluded. Individuals who pass the initial screening will be asked to provide their driver license number and consent to review their driving records to confirm self-reported driving history information. Drivers' consent and driving license numbers will be used to obtain official driving records from the state of Michigan. Individuals will be excluded from participating in the study if they refuse to grant UMTRI permission to review their public

[d] 49 USC Subtitle VI, Part A, Chapter 301, Subchapter V: Motor Vehicle Safety Research and Development
http://uscodebeta.house.gov

[e]

driving records or if they have been convicted of felony motor convictions in the last 2 years. This verification procedure is needed to reduce the liability and potential crashes of the research vehicles.

3. **Describe whether the collection of information involves the use of technological collection techniques or other forms of information technology.**

Recruitment flyers will be circulated on public sites such as college campuses, coffee shops, restaurants/fast food establishments, and sports venues. UMTRI may also put ads online and in the newspaper and/or contact potential subjects from the subject pool from previous UMTRI field studies. Eligibility questionnaires will be completed primarily via telephone. Eligible individuals will be asked for their permission to allow UMTRI to review their publicly available driving record to confirm their self-reported driver history information, along with their driver license number, so that UMTRI can obtain their driving record. UMTRI serves as the repository for the Michigan Secretary of State's driving history records and has secured authorization by the state to examine any individual's record that has provided consent, as part of their research efforts. The demographic and post study questionnaire do not involve technological collection techniques or other forms of information technology.

4. **Describe efforts to identify duplication. Show specifically why any similar information cannot be used.**

This is a one-time collection and is only applicable to the field study described above. The information collected during recruitment, demographic, and post study questionnaires is specific to the particular individuals that will be participating in this field study. Similar information collected from other individuals is not applicable. The agency is also not aware of any other sources of this information.

5. **If the collection of information involves small businesses or other small entities, describe the methods used to minimize burden.**

This collection of information involves individuals and does not involve small businesses.

6. **Describe the consequences to Federal program or policy activities if the collection is not conducted or is conducted less frequently.**

If it were not possible to ask questions to confirm that respondents meet the eligibility criteria then the researchers would not be able to reduce potential between-subjects variance in the study. If the exclusion criterion is not verified then it will not be possible to reduce liability and potential crashes of the research vehicles. The demographic questionnaire allows collecting information about factors that are relevant to seat belt use and that can help in describing participant behavior when interacting with the systems. Obtaining respondents' self-opinion regarding the technologies is also one of the main focus of the study.

7. **Explain any special circumstances that require the collection to be conducted in a manner inconsistent with the guidelines set forth in 5 CFR 1320.6.**

The information collection is consistent with the guidelines set forth in 5 CFR 1320.6.

8. **Provide a copy of the Federal Register document soliciting comments on extending the collection of information, a summary of public comments responding to the notice, and a description of the agency's actions in response to the comments. Describe efforts to consult with persons outside the agency to obtain their views.**

A Federal Register Notice published on March 13, 2014 (Vol. 79, No. 49 / Thursday, March 13, 2014) (pp.14335-14337)) solicited public comments for 60 days. An electronic version of this notice is attached. The comments period closed on May 12, 2014. NHTSA received one public submission from the Insurance Institute for Highway Safety (IIHS).

The IIHS supports NHTSA's effort to research occupant protection technologies and provided comments on two main areas: selection of technologies to study and study design. The commenter suggested several factors to consider in the selectionof the technologies to be examined. For example, it indicated that …" the technology should motivate part-time users and non-seat belt users to buckle up and not interfere with the operation of the vehicle for occupants who always use their seat belt." It explained that its telephone survey suggests that. .."a technology that limits functionality after the vehicle is moving will affect many of the target population of part-time users and non-seat belt users and inconvenience only a small proportion of full-time users." IIHS also indicated that…"it is important to consider the reasons why part-time users and non-seat belt users do not use seat belts, as they may influence the effectiveness and acceptance of a technology." It mentioned that... "A technology that prevents the vehicle from being shifted out of park until the driver is belted likely will help forgetful part-time users form better buckling habits, but it may not be acceptable to part-time users who may not believe in using a belt in certain situations like short trips or when traveling at low speeds." "…a

technology that applies counterforce to the accelerator pedal may help forgetful part-time users form better buckling habits and, by allowing situational part-time users to operate the vehicle in certain situations, albeit with restricted functionality, it also may be more acceptable (e.g., Van Houten, Reagan, & Hilton, 2014)."

IIHS also encouraged the agency to include an enhanced seat belt reminder meeting Euro NCAP's design requirements in its study. IIHS also encouraged the agency to consider modifications to the study design to reduce potential confounding effects of learned reinforcement contingencies that may be maintained over consecutive study phases. IIHS acknowledged that changes to the experimental design would require a larger sample size and/or an extension to the study duration.

Response: The research team originally approached several OEM and suppliers to identify potential industry partners to collaborate on this project. Only two OEMs have responded with positive feedback that they have seat belt interlock prototype ready to be tested in this project. The two seat belt interlock systems are transmission interlock and speed limiter interlock which have been reported as useful in increasing seat belt use rates of both part-time and non-seatbelt users (Kidd, McCartt, & Oesch, 2014). Due to the limitation of seat belt interlock system availability, the seat belt reminder systems of the test vehicles that will be used in this project cannot all meet the European New Car Assessment Programme's (Euro NCAP) design requirements. However, this will not impact the purpose of this study which is on the effectiveness of the seat belt interlock systems. However, we would like to note that the test vehicles in this study do include seat belt reminders. Our current understanding is that these systems provide visual and/or auditory signals beyond the minimum requirement in FMVSS 208 and therefore are considered to be enhanced seat belt reminders. Study participants may experience these reminders during the baseline condition. The activation of interlock systems in the test vehicles will be directly controlled in the test, allowing for baseline measures of non-interlock seat belt use to be compared to seat belt use when the interlock system is active.

Response: NHTSA intends to change the experimental design, subject to funding availability, from a within-subjects design (32 participants, 3-week) to a between-subject design (48 participants, 3 weeks). This new design holds reasonable statistical analysis power and clears out the concern of the behavior carry-on. It is estimated that the cost associated with this chance will increase the total study cost (research contract) due to increased number of subjects and engineering support.

9. Explain any decision to provide any payment or gift to respondents, other than remuneration of contractors or grantees.

Individuals participating in the field study will receive $90 and two free tanks of gas. The participants will be required to have three visits to the UMTRI facility so it is important to ensure that they return for each portion of the study. From past UMTRI studies involving multiple returns to the UMTRI center, it has been the experience that multiple visits can result in

participant attrition. To mitigate this issue, an offer to compensate their time for all their visits will greatly increase the chance that particpants can complete the whole study. Based on the experiences from previous UMTRI studies, $30 per visit can secure partipants to stay on schedule. Individuals that are not eligible will not participate in the study and will not receive compensation.

10. Describe any assurance of confidentiality provided to respondents.

UMTRI will provide each participant with an informed consent form which explains to participants that the UMTRI, VTTI, WTI, and NHTSA will keep the information private personally identifying data and information collected in connection with this study to the extent provided by law. UMTRI will access to the Michigan online driver record database to verify eligibility and will destroy license number after individuals have been determined as qualified or unqualified to participate in the study. Study data will be stored in secure password-protected computers. Access to the study data will be solely for authorized research purposes. Any data collected during this study that personally identifies particpants could be used to personally identify particpants will be treated with confidentiality. Study data will only be assigned with a subject number and will not be associated with participants' names and contact information.

11. Provide additional justification for any questions on matters that are commonly considered private.

The questionnaires do not contain questions related to matters that are commonly considered sensitive or private. The questions focus on demographic information; drivers' beliefs; perceived usability; and attitude towards the occupant protection technologies tested. However, individuals will be asked for their driver license number and permission to obtain a copy of their driving record. This is needed to confirm self-reported driving history and ensure that individuals in this study have not been convicted of felony motor convictions in the last 2 years. This exclusion criterion and verification procedure is needed to reduce the liability and potential crashes of the research vehicles. UMTRI will provide each participant with an informed consent form.

12. Provide estimates of the hour burden of the collection of information on the respondents.

The study approach consists of a field operation test to collect objective and subjective data. A total of 48 drivers from two age groups will be recruited to participate in the study, 24 non-seatbelt users (12 young drivers; 12 middle-aged drivers), and 24 part-time users (12 young drivers; 12 middle-aged drivers). The research team acknowledges that it may not be possible to recruit non-users given the high seat belt use rate in Michigan (more than 90%). Alternatively, the research team may consider recruiting part-time users with different non-belt use frequencies. The study sample will have equal numbers of male and female drivers from each age group. Table 1 shows the estimated burden hours for respondents, this accounts for the estimated drop-out rate.

Table 1: Estimated Burden Hours

Instrument	Number of Respondents[f]	Frequency of Response	Number of Question	Estimated Individu	Total Estimated Burden	Total Annualize Cost to

		s	s	al Burden	Hours	respondents[g]
Eligibility questionnaire	391	1	17	10 minutes	65.2 hours	$ 1377.6
Demographic questionnaire	60	1	23	5 minutes	5 hours	$ 105.71
Post study questionnaire	50	1	45	30 minutes	25 hours	$ 528.51
				TOTAL	95.2 hours	$ 2011.8

13. Provide estimates of the total annual cost to respondents or record keepers resulting from the collection of information. (Do not include the cost of any hour burden shown in Question 12 or 14).

There are no additional costs to respondents or record keepers.

14. Provide estimates of annualized cost to the Federal government.

The costs of this information collection are included in a contract awarded to the VTTI, UMTRI, and WTI which includes analysis and report preparation. The estimated cost for the contractors (UMTRI) to collect the information is estimated as (95.2 hours) ($42.76[h]/hours) = $4,070.75. The payment to the participants is $2,011.80. The total estimated costs to the Federal government is $6,082.55. There are no other costs to the government.

15. Explain the reasons for any program changes or adjustments reported in Items 13 or 14 of the OMB Form 83-I.

This is a new information collection. It requires a program change due to agency discretion to add the estimated 95.2 hours to develop and implement the Recruitment and Debriefing of Human Subjects for Field Test of Vehicle Occupant Protection Technologies.

16. For collections of information whose results will be published, outline plans for tabulation and publication.

Aggregate data for the number of participants and observations for a given group (age, gender;

[f] The number of respondents in this table includes drop-out rates.

[g] Estimated based on the mean hourly rate for Michigan (all occupations) is $21.14 as reported in the May 2011 Occupational Employment and Wage Estimates, Bureau of Labor Statistics. http://www.bls.gov/oes/oes_dl.htm

[h] Estimated average hourly rate for Assistant Researcher.

seat belt usage group) may be tabulated. Personal information will not be published. An exact publication date has not been established but would occur no sooner than 2016. Findings will not be linked to any individuals.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that the display would be inappropriate.

NHTSA and UMTRI are not seeking such approval.

18. Explain each exception to the certification statement identified in Item 19, "Certification for Paperwork Reduction Act Submission," of OMB Form 83-I.

There are no exceptions.