INSTITUTIONAL REVIEW BOARD
University of California, Davis

PROTECTION OF HUMAN SUBJECTS – DECLARATION / ASSURANCE OF IRB APPROVAL

Principal Investigator	Protocol No.	Approval Date	Expiration Date	Risk Level
Kenneth Kurani	201018202-1	06/29/10	06/28/11	Minimal Risk
PI Department	**Sponsor Name**	**Level of Review**	**Expedited Category**	**Status**
INST OF TRANSPORTATION STUDIES	Dept Of Energy	Expedited	7	New

The following research study has been reviewed by the IRB in accordance with the Common Rule and any other governing regulations:
The Effects of Simple Fuel Economy Information Display on Automotive Drivers' Real-World Fuel Economy

The above referenced activity has been determined to meet the definition of human subjects research as defined by Federal Regulations and UC Davis IRB Policy. As principal investigator for a study involving human subjects, you assume certain responsibilities, specifically:

1. You will conduct the study according to the protocol approved by the IRB. As the PI you will be accountable for your own research and the protection of human subjects. You will ensure, at all times, that you have the appropriate resources and facilities to conduct this study. You will ensure that all research personnel involved in the conduct of the study have been appropriately trained on the protection of human subjects, in addition to the study procedures.
2. Any unanticipated problems involving risks to participants or others will be reported to the IRB in accordance with IRB policy. Changes in approved research initiated without IRB approval to eliminate apparent immediate hazards to the participant, are to be reported to the IRB in accordance with the policy "Reporting of Unanticipated Problems Involving Risks to Participants or Others."
3. Any changes in your research plan must be submitted to the IRB for review and approval prior to implementation of the change. Proposed changes in approved research cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants.
4. Your protocol must be renewed prior to expiration of the study. Although a courtesy renewal notice will be issued to you three months prior to expiration, should you fail to receive this notice it is your responsibility to contact the IRB Administration for a duplicate copy. Failure to submit renewal documents to the IRB Administration by the Administrative Due Date may result in termination of the study by the IRB.
5. Advertisements for the recruitment of subjects must be approved by the IRB prior to implementation.
6. If you plan to collect protected health information, you are required to comply with HIPAA requirements.
7. Studies conducted at the CCRC must be reviewed and approved by the VA Research & Development Committee prior to initiation of the study. Contact the VA R&D Committee for submission requirements.
8. Should your study involve the use of investigational drugs, you are required to provide a complete copy of the approved protocol to the Investigational Drug Service Pharmacy.

If this is a Clinical Study, the Hospital Health System requires that:

- A complete copy of the IRB approved Description of Study and signed Consent Form be placed in the patient's medical record. Ensure that you have swiped the patient's name plate card or printed the patient's name at the top of page 1 of the consent document. Medical procedures should be documented in the patient's medical record.
- All investigational drugs be distributed through the UCDMC Pharmacy. A copy of the signed consent form must be submitted to the Pharmacy if investigational drugs are dispensed through the Outpatient Pharmacy.
- If the study involves radiation use, a copy of the IRB approved consent form be sent to: RUC, Health Physics, 2500 FSSB.

Name and Address of Institution:	**Signature : The IRB Chair/Designee signing below certifies that the information provided above is correct and that, as required, future reviews will be performed until study closure and certification will be provided.**
University of California, Davis IRB Administration 2921 Stockton Blvd., Suite 1400, Rm. 1429 Sacramento, CA 95817	Louise Lanoue
Institutional Administrator: Eric C. Mah, MHS Director, Institutional Review Board Administration ecmah@ucdavis.edu	**Name:** Louise Lanoue PhD
Phone No.(916) 703-9151	**Title:** Chair
Fax No. (916) 703-9160	**Date:** 06/30/2010

This Assurance, on file with the Department of Health and Human Services, covers this activity:

FWA No: 00004557 Expiration Date: April 14, 2013 IORG: 0000251

DESCRIPTION OF STUDY

Principal Investigator: Kenneth S. Kurani, PhD

Title of the Study: The Effects of Simple Fuel Economy Information Display on Automotive Drivers' Real-World Fuel Economy

PURPOSE AND PROCEDURES:

1. Describe the study format and whether it is single or multi-center; industry-sponsored or investigator initiated; and the funding source.

   This study is a single-center, investigator initiated research project being conducted by the Institute of Transportation Studies at the University of California, Davis. It is funded by the United States Department of Energy.

2. Briefly describe the specific aims of the study, research methods and procedures.

   Study Overview

   Wide ranging claims are made for the effects of driver behavior on real-world fuel economy under a variety of information and education conditions. These claims tend not to be backed by accepted standards of research design—due in part to the difficulty and expense of measuring real-world driving behaviors of any kind. In general, claims to the efficacy of driver prompts and training have not been based on comparison to control groups or carefully constructed without/with research designs. These claims are often based on the results of simulators in which the effects of learning the simulator are not separated from any effects due to without/with conditions.

   The purpose of the proposed research is to overcome as many of these difficulties as possible in a straightforward test of the existence of real-world effects of fuel economy information feedback to drivers. The research questions are as follows:

   1. What is the distribution of real-world fuel economy increases that can be expected over the long term from in-vehicle fuel economy displays? And if possible,
      a. Do the distributions differ by vehicle type?
      b. City/region?

   2. How many people know driving style matters to fuel economy?
      a. What do they think the range of effects is?
      b. What do they think other consequences are?

   3. If the desired effect of in-vehicle fuel economy displays is something that could be called "eco-driving," then what proportion of the population are already eco-driving?
      - What is the effect of in-vehicle devices on eco-drivers?
      - What is the effect of in-vehicle devices on non-eco-drivers?

   The research questions require a multi-method approach. First, a standardized display device will measure the effects of fuel economy information on real-world fuel economy as well as record fuel economy data from the vehicle. Second, questionnaires and interviews will be utilized to ascertain data on driver predisposition, experience, or learning regarding the research process, The basic research process then is to engage households in a driving experiment in which a baseline of fuel economy is established, driver feedback is provided and fuel economy measured again, and finally, the household is interviewed regarding the experiment.

To answer these questions a two-phase research program is proposed. A pilot study and a full study are linked through their effort to address the research questions above. The total sample size for the study is expected to be 150 with nine study participants in the pilot study and 141 participants in the full study. There are significant unknowns about the practical implementation of a study to measure real-world driving behaviors. The pilot study serves to addresses many of these unknowns to control the cost and duration of the full study, and to insure that the full study does not suffer from the design shortcomings of prior work.

PHASE 1: PILOT STUDY

The pilot study will implement this basic design in nine (9) households in Davis, CA for a period of two months each. The purpose of the pilot is to ascertain, formulate responses to, and test those responses to logistical, technical, perceptual, and behavioral barriers to the research. An example of potential problems to be addressed include the fact that despite the display/recording devices to be deployed in the research plug into the ODB port accessible in the passenger compartment in all passenger cars and light-duty trucks sold in the U.S. since 1996, "access" is not uniformly implemented across vehicles. Additionally, the pilot study will help identify measurable changes in driving behavior as well as to determine the minimum amount of placement time required on order to observe those measurable behavioral changes. The findings from the pilot study will guide the final design of Phase 2 of this study.

PHASE 2: FULL STUDY

The full study design will be refined based on results of the pilot study. The refined scope of work for the full-study will include a list of cities in northern California and Nevada in which to recruit volunteer participants, a final sample size goal, an estimate of the minimum population difference in fuel economy that can be reliably estimated with such a sample size, etc. The expected sample size for the full study is 141.

The study will consist of the tasks listed below.

- Display Instrumentation Device

  UC Davis will purchase and configure 30 display devices capable of displaying and recording fuel-economy related driving data and GPS signals.

  - Equipment Description: The interface used in this experiment, the "DashDAQ" (here and after referred to as "the display") is a commercially available vehicle information display sold by a U.S. company, Drew Technologies. The display consists of a touch-screen display approximately 5 inches wide by four inches high by three-quarter inches thick, a Global Positioning System (GPS) receiver which is approximately one inch square by one-quarter inch thick, data storage and processing modules, and the cables that connect the GPS receiver to the display, and the display to the vehicle's On Board Diagnostics (OBD) port. The GPS receiver must be mounted to the vehicle dashboard or windshield near the base of the windshield in order to receive satellite signals. The display will be mounted within view of the driver and according to all applicable state and federal laws that regulate in-vehicle information displays. In reference both to said regulations and the experimental objectives, the display will be mounted either by suction-cup to the far lower left corner of the windshield, or by adhesive tape to the dashboard.

  - Participant Interaction: The display will be installed for the two-month duration of the experiment. For the first month of the research, the display will be used only for recording, and will not show any information. Participants will be asked to turn on the display, select their name, and then choose "start logging" to begin the data recording function at the start of each trip. For the second month of the research, the display will be reconfigured to display live information and/or play audible signals to the participant. Participants will be asked to follow the same three steps at the start of each trip. When the vehicle is in motion, a dial meter similar to an analog speedometer and a digital display with a large font will show a live fuel economy metric (miles-per-gallon or a related metric).

- Participant Recruitment Protocol

  The Institute of Transportation Studies at the University of California, Davis has an existing partnership with AAA Northern California, Nevada and Utah (CSAA) on a current research study and expects to extend this partnership to recruit participants for this proposed study (attachment 1). CSAA will send a letter to a subset of their policyholders (residing in the study area and meeting certain automotive insurance requirements) inviting them to participate in the study by visiting a UCD website where they can volunteer for the study by answering a few questions to help establish their eligibility (Attachment 2). The UC Davis website and questionnaire for screening and selecting recruiting participants are essentially the same as those used in a recent study granted an exemption by the IRB (Protocol number: 200816421). The purpose of this on-line screening questionnaire is to insure that participants meet the study criteria. When UC Davis contacts a volunteer who has completed this on-line screener, UC Davis is the sole point of communication with the participant. A total sample size of 150 participants will be recruited for this study.

- Study Protocol

  - Installation and Removal of Interface Display:
    1. At the start of the research, ITS will ship the display to the research participant. The display will come with complete installation, operation, and removal instructions for the vehicle. The participant will install the display into the vehicle upon receipt. A prepaid shipping label will be provided for use in returning the display to ITS; or
    2. At the start of the research, a research representative from ITS will travel to the participant's home to deliver the display. The participant will be given the display together will the instructions for its installation into the vehicle. While the research representative observes, the participant will install the display. At the end of the research, a research representative will travel to the participant's home and retrieve the display. The participant will remove the display while the research representative observes.

  - Prior to enrolling participants into the study, researchers will explain the research objectives and procedures and answer any questions from the prospective participants. At this time, prospective participants will be presented with the *Experimental Subject's Bill of Rights*, the *Social and Behavioral Science Studies Model Consent Form* (Attachment 3), and the *Driver Agreement* (Attachment 4, Attachment 5). The driver agreement form discusses allowable vehicle uses and details responsibilities for insurance and liability. The *Driver Agreement* was written by the UC Davis Business Contracts Department with assistance from the UC Davis Risk Management Department, the University of California Office of General Counsel, and the project's principal investigator. All the research participants are volunteers and each will be informed that they are not obligated to provide information. They will also be reminded of their option to withdraw from the study at any time.

  - Each volunteer will participate for two months. For the first month of the study, the display will be used only for recording participant vehicle's fuel economy and will not show any information on the display screen. Participants will be asked to turn on the display, select their name, and then select "start logging" to begin the data recording function at the start of each trip. For the second month of the study, the display will be activated to display live fuel economy information. Participants will be asked to follow the same three steps at the start of each trip following this activation. When the vehicle is in motion, a dial meter similar to an analog speedometer and large font digital display will show live fuel economy measurements in miles-per-gallon.

  - The experiment will proceed in geographically and seasonally paired cohort waves

of approximately fifteen volunteers at one-month intervals. The cohort pairs will be chosen to provide comparisons between seasons in the same region, and between regions during periods of similar weather. Each 5 weeks, a new cohort will begin the experiment, resulting in a total data collection period of 50 weeks.

- Participants with be asked to complete an electronic on-line survey (Attachment 6) two times during the course of the study in order to track changes in their attitudes and knowledge about fuel economy. The on-line survey takes about 10 minutes to complete each time.

- Researchers will conduct semi-structured interviews of each participant both at the beginning and at the end of the placement (Attachment 7), requiring approximately 1 hour each. These interviews will provide insight into the participants understanding, interest, and interpretations of the new fuel economy information.

- Data analysis and Report
  - UC Davis will analyze data from the 150 total volunteer drivers and prepare a report with the findings. In particular, the report will address the research questions:
    1. What is the distribution of real-work fuel economy increases that can be expected over the long term from in-vehicle fuel economy displays?
       -Do the distributions differ by vehicle type?
       -Do the distributions differ by city/region?

    2. How many people know driving style matters to fuel economy?
       -What do they think the range of effect is?
       -What do they think other consequences are?

    3. If the desired effect of in-vehicle fuel economy displays is something that could be called "eco-driving," then what proportion of the population are already eco-driving?
       - What is the effect of in-vehicle devices on eco-drivers?
       - What is the effect of in-vehicle devices on non-eco-drivers?

3. Address if therapeutically removed tissue will be collected, what types, and for what purposes.

   No tissue will be collected.

4. Specify the nature, frequency and duration of tests, if any.

5. If blood samples will be collected, identify in what manner and the maximum amount that will be collected over any 6 week period (if subjects are co-enrolled in other research studies, the volume of blood from the other study should also be included):

   ___venipuncture ___venous catheter ___arterial puncture ___arterial catheter ___cutaneous

6. Any additional procedures (noninvasive) involved in this study activity must be described.

7. If the study involves incomplete disclosure, provide the rationale.

8. If this activity will be utilizing existing data, specify the source and how the data will be retrieved, reviewed, coded and stored.

9. Address the location and duration of the study including follow-up period.

   This study will be administered from the University of California, Davis but will involve households throughout California and Nevada.

10. Clarify how you plan to monitor data to ensure subject safety.

    The collection and handling of data with regard to subject safety, anonymity and confidentially is addressed, in detail, in the "Risk" section below.

11. Address whether you have the appropriate resources (study personnel and facilities) to conduct this study.

    The Institute of Transportation studies has appropriate and abundant resources to conduct this study. Members of the research team have been conducting studies of household response to automotive technology for over twenty years.

12. Describe the role of each key member of your study personnel.

    -Dr. Kenneth Kurani is the principal investigator and will be overseeing every step and procedure of this research.
    -Y. Marilyn Kempster is the project manager in charge of the day-to-day activities of the project.
    -Tai Stillwater will perform the display installations/un-installations, data collection, data analysis, and reporting.
    -Nicolette Caperello will be involved in data collection, data analysis, and reporting.

SUBJECT SELECTION:

1. Identify the subject population.

   Participants will comprise of licensed drivers at least 19 years of age living in California and Nevada cities whose automobile insurance is through AAA with coverage levels no less than $100,000 per person, $300,000 per occurrence, and $50,000 property damage.

2. Address how subjects will be recruited: ___direct person to person solicitation, ___by telephone, __X_letter, ___advertisement, ___press release, ___notices, ___other. Provide the text.

   Volunteer participants will be recruited by CSAA using a letter sent to qualifying CSAA insurance policy holders in California and Nevada inviting them to participate in the study by visiting a UC Davis website where they can volunteer for the study by completing a short screening questionnaire (Attachment 2). Criteria for participant eligibility are described in both the online screening questionnaire and Driver Agreement (Attachment 3, Attachment 5). The UC Davis website and questionnaire for screening and selecting recruiting participants are essentially the same as those used in a recent study granted an exemption by the IRB (Protocol number: 200816421). The purpose of this on-line screening questionnaire is to insure that participants meet the following study criteria.
   -Participant vehicles do not currently display fuel-economy information
   -Vehicles are compatible with the study interface display device

   When UC Davis contacts a volunteer who has completed this on-line screener, UC Davis is the sole point of communication with the participant.

3. State from where subjects will be recruited, when and how many.

   A total of approximately 150 households from California and Nevada cities will be recruited to participate in this research study.
   Recruitment is expected to begin in June 2010.

4. Specify the age of the research subjects.

   Participants must be 19 years of age or older.

5. List all criteria for including and excluding subjects.

   Criteria for participant eligibility are:

   A. Subject must be 19 years of age or older.
   B. AAA member with insurance level no less than $100,000 per person, $300,000 per occurrence, and $50,000 property damage.
   C. Possess a valid California/Nevada driver's license.
   D. Owns a vehicle that do not currently display fuel economy information
   E. Owns a vehicle that is compatible with the study interface display device

Participants who do not meet the above mentioned criteria will be excluded from the study.

6. If women and minorities are excluded, provide rationale for such exclusion.
7. Attach the translated documents for subjects whose primary language is not English.

VERSION DATE: (5/28/2010)

SPECIAL/VULNERABLE POPULATION (if applicable):

Surrogate consent for participation in a research study should be employed only to the extent that it is consistent with the intent of the Common Rule (45 CFR 46, Subpart A) and all other federal and state laws and regulations pertaining to protecting human subjects participating in research. Carefully review the IRB Policy on *Surrogate Consent For Research* for compliance with all applicable laws, regulations, and conditions of this policy. Investigators are reminded that use of surrogate consent shall apply on a case-by-case basis within the protocol.

1. Identify the vulnerable population: ___children, ___mentally handicapped, ___pregnant women, ___fetuses, ___prisoners, ___cognitive impairment, ___life-threatening disease, or ___social or ___economically disadvantaged. Address what additional safeguards you will put into place to protect the rights and welfare of this population.

2. If you are seeking IRB approval for use of surrogate consent, justify the appropriateness of such use and describe your specific plan for the assessment of the decision-making capacity of the subject(s).

RISKS:

1. Address whether there is a possibility of physical, psychological, social or legal injury from participation in this study and assess the likelihood and seriousness of those risks.
   There is no reason to believe there would be any greater risk in participating in this study than driving a car with display systems such as those already on the general market. The data collected from the participants comprises attitudinal, demographic and responses to the use of the interface devices, and does not carry any risk of damaging the respondents' financial standing, employment or reputation nor could it place participants at any risk of criminal or civil liability. In addition, all the research participants are volunteers and each will be informed that they are not obligated to provide information. They will also be reminded of their option to withdraw from the study at any time.

2. If the methods of research create potential risks, describe other methods, if any, that were considered and why they will not be used.

3. Identify your plan for protecting subject privacy and confidentiality.

   Data collected from the display device will be stored on a dedicated department server kept in a secure, locked room. The server will be protected from access by a firewall and accessible with a password only known to the UCD researchers identified in this application. A key to associate a particular vehicle to a particular participant will be stored and locked in a non-electronic format in a physically separate location.

   Participant data, in the form of their questionnaire and interview responses, will be kept separate from the interface data. Participant data will be stored on a password-protected server using a different password than that to access the data from the display device. The display data and the participant data, i.e., questionnaire and interview data, will be keyed in a manner that allows researchers to concatenate datasets for a single participant. The key to allow this concatenation will not be stored electronically, but kept locked in a physically separate location, i.e., separate from both the interface and participant data. Partitioning the data, storing it in separate secure locations, and removing identifiers will ensure that the privacy, confidentiality, and anonymity of the participants is protected, and that participants can only be identified by key UCD research personnel named on this application.

4. Explain your plan for reporting adverse and serious adverse events to the IRB.

   A. A "Report of Unanticipated Problem Involving Risk to Participants or Others" will be submitted, in Table format (e.g., http://research.ucdavis.edu/documentDisplay.cfm?id=409.pdf), to the IRB as soon as possible, but no later than **5 working days** after the Investigator first learns of the event or problem. The report will contain the Investigator's assessment of causality (related or not related to the study) and a description of the actual event; and

B. In the Report, the Investigator will either justify why no changes to the protocol or consent form are needed or attach proposed modifications to the report.

5. If the study involves the use of placebo, justify why this is appropriate.

BENEFITS:

1. Address if there is a benefit to individual subjects or to the particular group or class.

   It is possible that neither individual subjects nor particular groups or classes will benefit directly by participating in this study.

2. Address if there is no direct benefit to the subject.

   The subject may not benefit directly by participating in this study.

RISK-BENEFIT RATIO:

1. Address whether the risks to subjects are reasonable in relation to the benefits (note: do not state that the benefits outweigh the risks. Rather, construct a summary assessment of the relative risks (physical, psychological, economical, and legal) to participants versus the potential benefits to participants and society).

   There is no apparent reason to believe the participants will be exposed to increased risks beyond those normally associated with operating their motor vehicle.

COSTS/COMPENSATION TO SUBJECTS:

1. If the study involves the possibility of added expenses to the subject or to a third party, such as an insurer (e.g., longer hospitalization, extra laboratory tests, travel) address the magnitude of those expenses and how this is justified.

   There will be no added expenses to the subject or to a third party.

2. Describe the amount and type of compensation that will be paid to subjects and how that compensation will be staged/pro-rated.

   Subjects will be offered a debit card in the amount of $25 for completing the study. Should the subject withdraw from the study prior to completion of all research activities described above, no compensation will be offered.

VERSION DATE: (5/28/10)

DISCLOSURE OF PERSONAL AND FINANCIAL INTEREST:

1. Disclose any personal and financial interest in the research as well as the extent of personal and financial interest in the sponsor.

   Researchers have no personal or financial interest in this research.

WAIVER OF INFORMED CONSENT (if applicable):

If you are requesting waiver or alteration of informed consent, you are required by federal regulations to justify the following four points, for review by the IRB:

1. The research involves no more than minimal risk to the subjects.

2. The waiver or alteration will not adversely affect the rights and welfare of the subjects.

3. The research could not practicably be carried out without the waiver or alteration.

4. Whenever appropriate, the subjects will be provided with additional pertinent information after participation.

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TOTAL NUMBER OF COPIES REQUIRED FOR SUBMISSION TO THE IRB ADMINISTRATION:

Original plus 1copy

PROTOCOL FOR FINAL HOUSEHOLD INTERVIEW

Interview subjects are all drivers in the household. All questions are open-ended. Total interview time is one-hour.

1. Is increasing your fuel economy an important goal for you, compared to other things you accomplish by driving?
    a. Why?
2. What are the things a driver can do while driving their car to increase their fuel economy?
3. Before we provided you with the fuel economy display, did you do any of these things? How many of these things would you say you do all the time while you are driving? Most of the time? As often as not? Seldom? Never?
    a. For each of these, why do you do them as often or as seldom as you do?
4. After we provided you with the fuel economy display did you do any of these things? How many of these things would you say you do all the time while you are driving? Most of the time? As often as not? Seldom? Never?
    a. For each of these, why do you do them as often or as seldom as you do?
5. Do you feel that your driving time is longer, or about the same when you do these things?
    a. How important is it to you to get around quickly?
    b. On a typical day, are you in a hurry? How does being in a hurry change your driving habits?
6. Would you say that you found the display useful or useless? Informative? Distracting?
7. If we could leave the display with you, would you use it, or would you rather we take it away?
8. Imagine the next car you might buy. Would you want that car to display your fuel economy to you?
    a. Would you want to turn that display off and on?
    b. Why?
    c. When would you turn it on? When would you turn it off?
9. As a passenger in the car, did you feel like you could notice changes in the drivers driving style? If yes, did those changes make you more or less comfortable? Did those changes make you think the driver was accomplishing an important goal?

10. Did you talk with friends, family, co-workers, or anyone else about your participation in this research? If yes, what did you tell people about it? What was their response?

11. During the study period, did you substantially change the places you drive to or your routes?

    a. Why?

Dear AAA Member,

You may already be aware of AAA's long-standing partnership with the Institute of Transportations Studies (ITS) at University of California, Davis, a world leader in alternative fuel and vehicle research. To help build awareness of how drivers can improve their fuel economy, AAA is expanding its relationship with the ITS to support their current research study. This current research study investigates real-world effects of drivers receiving live fuel economy feedback. Because of your geographic location and your AAA Membership, you may qualify to take part in this groundbreaking study.

For this research, drivers will drive their personal vehicle to which a fuel use monitor and display has been installed. This study will help researchers, vehicle manufacturers and government agencies better understand the role of fuel monitors in transportation and help optimize future vehilce design.

I hope you will consider volunteering to be a prospective participant. It's an exciting opportunity for AAA and its Members to help shape the future of the automobile industry and our environment. Read on for specific instructions regarding being considered for this important study.

Best regards,

Paula Downey
President, AAA Northern California, Nevada & Utah

How to Qualify
If you are interested in volunteering for the study, visit the following website at the UC Davis PHEV Research Center: (*web address to be determined*). If you do not have Internet access, please call UC Davis at (530) 752-5143 for assistance. The website will guide you through a brief questionnaire. Based on answers to those questions, UC Davis will contact prospective participants to explain the project in greater detail. UC Davis and the prospective participants will make a final, joint decision about participation. To protect the scientific integrity of the study, AAA will not be involved in making final determination regarding who is selected. If selected, an ITS representative will travel to your home to assist you in installing a fuel monitor in your vehicle; or ITS will ship a fuel monitor to you with instructions to install the fuel monitor in your vehicle. Upon completion of the study, an ITS representative will either travel to your home to remove the fuel monitor; or you would you return the device via a prepaid shipping package. For about 12 weeks, you would your vehicle in which the fuel monitor is installed for the same purposes and in the same fashion as you normally use such vehicle.

Participation in this study is completely voluntary. If you can't or don't want to participate, please don't pass this offer to a family member or friend—even if they are AAA Members. This offer is only for AAA Members who received this letter.

Learn more about plug-ins and other alternative fuels at the website for our Greenlight Initiative, www.aaa.com/greenlight.

EXPERIMENTAL SUBJECT'S BILL OF RIGHTS
Social and Behavioral Studies

The rights below are the rights of every person who is asked to be in a research study. As an experimental subject, you have the following rights:

1. To be told what area, subject, or issue the study is trying to find out about.

2. To be told what will happen to you and what the procedures are.

3. To be told about the risks or discomforts, if any, of the things that will happen to you for research purposes.

4. To be told if you can expect any benefit from participating and, if so, what the benefit might be.

5. To be allowed to ask any questions concerning the study, both before agreeing to be involved and during the course of the study.

6. To be told what sort of medical treatment is available if any complications or injuries arise.

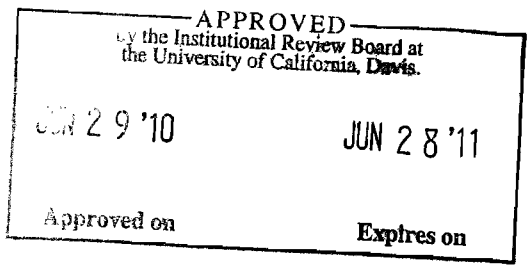
7. To refuse to participate or to change your mind about participating after the study is started.

8. To receive your signed and dated copy of this form and the consent form.

9. To be free of pressure when considering whether you wish to agree to be in the study.

If you have other questions, please ask the researcher or research assistant. In addition, you may contact the Institutional Review Board, which is concerned with protecting volunteers in research projects. You may reach the IRB office by calling (916) 703-9151, from 8:00 a.m. to 5:00 p.m., Monday through Friday, or by writing to the Institutional Review Board, CTSC Bldg., Suite 1400, Rm. 1429, 2921 Stockton Blvd., Sacramento, California 95817.

Signature of Subject or Legal Representative	**Date**



UNIVERSITY OF CALIFORNIA, DAVIS
CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Investigator's Name: Kenneth S. Kurani, PhD
Department/Telephone: Institute of Transportation Studies/ (916) 300-5641

Co-Investigator's Name: Tom Turrentine, PhD
Department/Telephone: Institute of Transportation Studies/ (530)752-1768

Study Title: The Effects of Simple Fuel Economy Information Display on Automobile Drivers' Real-World Fuel Economy

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WHY IS THIS STUDY BEING DONE?

You are being asked to participate in a research study investigating possible effects of in-vehicle fuel economy display on automobile drivers' actual fuel economy. The device used in this study is a commercially available product—the DashDAQ in-vehicle display sold by Drew Technologies. Drew Technologies has no connection to the research. From your participation in this study, we hope to learn whether and how fuel economy information affects the way you drive your car and hence your real-world fuel economy. The study is being funded by the United States Department of Energy as part of its mission to understand and forecast energy use and resource needs.

WHAT WILL HAPPEN IF I TAKE PART IN THIS STUDY AND HOW MANY PEOPLE WILL PARTICIPATE?

If you decide to volunteer, an in-vehicle display will be installed in your car for the duration of your participation of approximately two months. The display consist of a touch-screen display, a small Global Positioning System (GPS) receiver, and cables that connect the device to your vehicle's On Board Diagnostics (OBD) port. The display will be mounted via suction-cup to the left lower corner of the windshield, or by adhesive tape to the dashboard. It will be within view of the driver but not obstructing the view of the driver out of the vehicle. The installation will follow all state and federal laws regulating in-vehicle displays. The GPS receiver will be mounted to the dashboard or windshield near the base of the windshield.

For the first month of the study, the display will be used only for recording your vehicle's fuel economy and will not show any information on the display screen. You will be asked to 1) turn on the display, 2) select your name, and then 3) select "start logging" to begin the data recording function at the start of each trip. For the second month of the study, the display will be activated to display live fuel economy information. You will be asked to follow the same three steps at the start of each trip following this activation. When the vehicle is in motion, a dial meter similar to an analog speedometer and large font digital display will show live fuel economy measurements in miles-per-gallon.

Subject's Initials _____

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One hundred and fifty households are expected to participate in this study.

WHAT RISKS CAN I EXPECT FROM BEING IN THIS STUDY?

There is minimal risk to participating in this study. The device used is commercially available and sold by a U.S. company, Drew Technologies and will be installed according with all applicable state and federal codes. The device will be mounted onto your vehicle in a way that will not obstruct the drivers' vision of the road and will leave no permanent alterations to the car.

ARE THERE BENEFITS TO TAKING PART IN THIS STUDY?

It is possible that you will not benefit directly by participating in this study.

WILL MY INFORMATION BE KEPT PRIVATE?

All data that UC Davis collects from your participation in this research will be anonymous and confidential. Vehicle data collected from the display device, survey data, and interview data will be shared with the U.S. Department of Energy in an aggregate form. Personal and identifying information pertaining to participants will not be shared with the U.S. Department of Energy or any other entity. No one but UC Davis research personnel directly working on study will have access to data which can be linked to an individual participant. Research documents will be kept confidential in accordance with the law and University policies. Absolute confidentiality cannot be guaranteed, since research documents are not protected from subpoena.

Your consent to participate in this research will not preclude your rights to communicate with AAA on any issue, including the research and your experience as a research participant. If you choose to communicate with AAA, that decision in no way releases UC Davis from its obligation to protect your identity and confidentiality.

WILL I BE COMPENSATED FOR BEING IN THIS STUDY?

At the completion of the study you will be offered a $25 debit card in consideration of your time and willingness to participate in this study.

WHAT ARE THE COSTS OF TAKING PART IN THIS STUDY?

There is no cost to you beyond the time and effort required to complete the procedures described above.

WHAT HAPPENS IF I AM INJURED BECAUSE I TOOK PART IN THIS STUDY?

If you are injured as a direct result of research procedures, you will receive reasonably necessary medical treatment at no cost. The University of California does not provide any other form of compensation for injury. In the case of injury resulting from this study, you do not lose any of your legal rights to seek payment by signing this form.

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CAN I STOP BEING IN THIS STUDY?

You may refuse to participate in this study. You may change your mind about being in the study and withdraw at any point. Your participation is completely voluntary.

The research investigator may withdraw you from participating in this research if circumstances arise which warrant doing so even if you would like to continue.

WHO CAN ANSWER MY QUESTIONS ABOUT THIS STUDY?

If you have any questions about this research project please contact Kenneth Kurani who will answer them at (530-752-6500).

If you have any questions regarding your rights and participation as a research subject, please contact the IRB Administration at (916) 703-9151 or write to IRB Administration, CTSC Building, Suite 1400, Rm. 1429, 2921 Stockton Blvd., Sacramento, CA 95817. The IRB Administration has also developed a web site designed to make you familiar with your rights. The web site discusses your basic rights as a research participant, an explanation of the informed consent process, the basic requirement that written consent be in a language understandable to you, and suggested sample questions to ask the research investigator regarding your participation in the study. This web site can be accessed at: www.research.ucdavis.edu/IRBAdmin .

My signature below will indicate that I have decided to participate in this study as a research subject. I have read and understand the information above. I understand that I will be given a signed and dated copy of this consent form and the Bill of Rights.

Signature of Subject or Legal Representative	**Print Name**
Date	**Time**
Signature of Person Obtaining Consent	Print Name of Person Obtaining Consent
Date	Time

Subject's Initials _____

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