

COLLABORATION AGREEMENT

(Fuel Economy Instrumentation Study)

THIS COLLABORATION AGREEMENT is by and between THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a California Constitutional corporation (University), acting on behalf of its Davis campus Institute of Transportation Studies (ITS) and CALIFORNIA STATE AUTOMOBILE ASSOCIATION, which is in the process of changing its name to: AAA NORTHERN CALIFORNIA, NEVADA & UTAH, a California mutual benefit corporation (AAA NCNU).

1. Basis of Agreement.

1.1. ITS Research. ITS is conducting research to determine the real world effects of fuel economy information feedback to drivers (Research). A detailed description of the Research is set forth in that certain document entitled: *Fuel Economy Instrumentation Study Phase 1 and Phase 2*, attached to this agreement and made a part hereof by this reference as "Attachment A".

1.2. AAA NCNU Product Development. AAA NCNU desires to assess consumer demand for automotive fuel monitors (Fuel Monitor(s)) and to assess the long term potential of Fuel Monitor technology, including its contribution to several social and environmental goals.

1.3. Collaboration. The parties desire to collaborate in accordance with the terms and conditions of this agreement because through such collaboration, ITS has access to a pool of vehicle owners that can be accessed in accordance with the Research criteria, and AAA NCNU will gain knowledge concerning the emerging vehicle technology of fuel monitoring, knowledge that may prove useful in AAA NCNU's decisions about its own fleet of vehicles. In addition, such knowledge will prove useful for AAA NCNU's affiliated insurers in tailoring products for their insureds.

2. Term. The term of this agreement shall be from May 1, 2010 through December 31, 2011.

3. ITS Obligations. ITS shall:

3.1. Provide AAA NCNU with Participant Criteria. Provide to AAA NCNU a listing of criteria it desires AAA NCNU to use in selecting the persons to which AAA NCNU will send notifications regarding participation in the Research. ITS criteria may include, but not necessarily be limited to, vehicle ownership, driving record, accident history, insurance coverages and limits, and zip codes from Northern California and Nevada.

3.2. Draw Research participants from AAA NCNU Insureds. Draw its Research participants (Participants) solely from among those AAA NCNU insureds that AAA NCNU has notified of the Research and who have contacted ITS through ITS' Website (*see*, subsection 3.3.). The parties shall confer from time-to-time in order to coordinate their efforts to the end that a suitable number of appropriate AAA NCNU insureds are provided the opportunity to be Participants.

3.3. Maintain Research Program Web Site. Create and maintain, at ITS' sole expense, a web site for the purpose of providing interested AAA NCNU insureds with information concerning the Research (Website). The Website shall include information explaining the processes by which an interested person may become a Participant. Access to the Website will require the interested person to use his or her AAA NCNU membership number as a password.

3.4. Administer Application Process and Research. Administer all aspects of the Research beyond those activities specifically allocated to AAA NCNU by this agreement, including, but not limited to, vetting, selecting, and processing applicants into the Research; delivering and retrieving Fuel Monitors; and conducting interviews of Participants. The University shall enter into a Driver Agreement with each Participant (on behalf of himself or herself, or on behalf of his or her immediate family) setting forth the terms of the the Participant's participation in the Research.

3.5. Place Fuel Monitors. ITS intends to start placing Fuel Monitors with Participants in mid-2010. A Fuel Monitor shall be placed with each Participant at no cost for a period of up to twelve

(12) weeks, together with complete instructions for its installation, operation, Research use, and return to ITS. (Twelve weeks is the maximum time that ITS estimates will allow for sufficient Participant adaptation and learning.) Participants will be instructed to use their vehicles for the same purposes and in the same manner as they normally do. At the end of a Participant's participation, ITS will retrieve (at no cost to Participant), reset, and service the Fuel Monitor, and reassign it to another Participant.

3.6. Conduct Research Interviews. Timely conduct all interviews and data-collecting activities that is required by the Research, including interviewing Participants at least once but no more than twice by telephone or in-person and having Participants complete two (2) on-line questionnaires. For those Participants to whom ITS delivers, and from whom ITS picks up, the Fuel Monitors in person, such in-person contact will provide the opportunity to conduct what would otherwise be telephone interviews.

3.7. Pay 'Appreciation' Payment. Offer, and pay to all Participants who accept the offer, an 'appreciation' payment of twenty-five dollars (\$25.00) in the form of a debit gift card. The sole eligibility requirement for this payment is Participant's completion of all aspects of the study.

3.8. Protect Participants from Loss. Protect all Participants from loss arising from the use of a Fuel Monitor in accordance with the following:

a. Damage or Loss to Fuel Monitor. Nonwilful damage to or loss of a Fuel Monitor shall not be charged to Participants. The cost to repair any Fuel Monitor will be paid for by ITS so long as the repair is made through ITS or otherwise with ITS' written consent.

b. Damage to Vehicle. Reimburse any participant for damage sustained to their vehicle as a result of either the installation or operation of a Fuel Monitor when the Fuel Monitor is installed and operated in accordance with ITS instructions.

3.9. Indemnify AAA NCNU. Defend, indemnify, and hold harmless AAA NCNU, its directors, officers, employees, and agents from and against any and all liability, loss, expense, attorneys' fees, or claims for injury or damages arising from the Research, but only in proportion to and to the extent such liability, loss, expense, attorneys' fees, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of University, its directors, officers, employees, and agents. AAA NCNU shall promptly notify University of any claim, demand, action, or proceeding for which indemnification will be sought. The parties shall cooperate with each other and provide each other with access to all relevant books and records in their possession.

3.10. Insurance.

a. General Liability. At all times during the term of this agreement maintain comprehensive or commercial form general liability insurance (or self insurance) (including contractual liability coverages):

i. per occurrence	\$1,000,000
ii. products/completed operations aggregate	\$1,000,000
iii. personal and advertising injury	\$1,000,000
iv. general aggregate, bodily injury and property damage (not applicable to comprehensive form)	\$2,000,000

b. Business Automobile Liability. Maintain business auto liability insurance for owned, non-owned, scheduled, or hired automobiles with a combined single limit of not less than: \$1,000,000

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c. Workers' Compensation. Maintain workers' compensation and employers' liability insurance as required by California law.

3.11. Share Information with AAA NCNU. Share with AAA NCNU all analyses and syntheses of data collected from the Research (but only to the extent that all individually identifying data has been deleted) plus all publicly released reports generated from the Research.

3.12. Acknowledge AAA NCNU Contributions. Acknowledge in publicized reports AAA NCNU's contribution to the Research.

4. AAA NCNU Obligations. AAA NCNU shall:

4.1. Generate Names. Generate lists of names of its insureds that meet the criteria provided to it pursuant to subsection 3.1. The parties will collaborate to determine an appropriate number of names for AAA NCNU to draw in order to assure a response reasonable for the purposes of the Research.

4.2. Participant Recruitment. Contact, by means and in a manner within its sole discretion, those people whose names it drew pursuant to subsection 4.1. The purpose of this initial contact is for AAA NCNU to briefly inform the selected individuals of the Research and direct interested persons to the Website. AAA NCNU shall provide the URL to the Website only to those persons contacted by it pursuant to this subsection.

4.3. Participant Selection. Allow the final selection of Participants to be at the sole discretion of ITS.

4.4. Indemnify University. Defend, indemnify, and hold harmless University, its directors, officers, employees, and agents from and against any and all liability, loss, expense, attorneys' fees, or claims for injury or damages arising from the Research, but only in proportion to and to the extent such liability, loss, expense, attorneys' fees, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of AAA NCNU, its directors, officers, employees, and agents. University shall promptly notify AAA NCNU of any claim, demand, action, or proceeding for which indemnification will be sought. The parties shall cooperate with each other and provide each other with access to all relevant books and records in their possession.

4.5. Insurance. At all times during the term of this agreement, provide the following insurance:

a. General Liability. Comprehensive or commercial form general liability insurance (including contractual liability coverages) as follows:

i. per occurrence	\$1,000,000
ii. products/completed operations aggregate	\$1,000,000
iii. personal and advertising injury	\$1,000,000
iv. general aggregate, bodily injury and property damage (not applicable to comprehensive form)	\$2,000,000

b. AAA NCNU Insured-Participant Automobile Liability. Provide for AAA NCNU insureds who are Participants (including the household members and permissive users of AAA NCNU insured Participants), automobile liability insurance for personal use of owned, non-owned, scheduled, or hired automobiles with limits of not less than \$100,000 per accident, \$300,000 per occurrence, and \$50,000 property damage. Such insurance shall not exclude experimental, research, and/or modified vehicles; and

c. Workers' Compensation. Maintain workers' compensation and employers' liability insurance as required by California law.

4.6. Participant Contact. AAA NCNU may, in its initial contact with prospective Participants, inform the prospective Participants that the prospective Participants may initiate communication with AAA NCNU concerning their experience as Participants.

5. Additional Insurance Requirements for Both Parties. All coverage limits described shall be minimum limits. The commercial general liability and auto liability policies which contain such coverages (or the self-insured equivalents of such) shall include the other party as an additional insured but only in proportion to and to the extent of the negligent acts or omissions of the named insured party and any person or persons under the named insured party's direct supervision and control. Any insurance written on a claims-made form, shall continue for no less than five (5) years following the termination of this agreement. All insurance shall have a retroactive date of placement prior to or coinciding with the effective date of this agreement. Coverage provided is primary and noncontributory with any insurance or self insurance maintained by either party. All insurance must provide thirty (30) days advance written notice to the other party of any material modification to, or cancellation of, any coverage. Acceptance of evidence of insurance that does not comply with the requirements of this section shall not constitute a waiver of the insurance requirements described. Each party shall send the other party certificate(s) of insurance setting forth their insurance obligations.

6. Limitation of Liability. In no event shall either party be liable for any indirect, special, consequential, incidental or punitive damages, including without limitation for lost business, business income or profits, or for damage to the personal property of either party.

7. Termination. This agreement may be terminated at any time, for any or no reason, by written notice given by one party to the other in accordance with subsection 8.10.

8. General Terms.

8.1. Amendment. The agreement represented by this document may not be amended, altered, or changed in any respect, except by a prior written document executed by both parties.

8.2. Assignment. Neither party shall assign this agreement, any interest in this agreement, or any duty created by this agreement, without the other party's prior, written, sole discretion, consent except:

a. Reorganization or Merger. An assignment made to a successor or affiliated entity pursuant to a reorganization or merger;

b. Bound by Obligations. The assignee is fully subject to and bound by the assignor's obligations under this agreement; and

c. Notice. Prompt written notice of the reorganization or merger is provided to the other party.

8.3. Attorney's Fees. In any litigation, arbitration, or other proceeding by which one party either seeks to enforce its rights under this agreement or seeks a declaration of any rights or obligations under this agreement, the prevailing party shall be awarded its reasonable attorney fees together with costs and expenses incurred.

8.4. Confidentiality. The parties acknowledge that during the term, either may receive confidential, proprietary information with respect to the other's products, improvements, designs, styles, services, customers, marketing methods, procedures, plans, proposals, employees, curriculum, policies, or methods. The receiving party shall not, without the prior written consent of the disclosing party, disclose any such information to a third party except (a) on a need to know basis in order to perform services that further the purpose of this agreement, and then only pursuant to a written obligation of confidentiality, or (b) as may be required by law or legal process. Confidential, proprietary information that a disclosing party desires to remain confidential shall be prominently legended as the confidential information of the discloser, or if disclosed orally, then itemized and identified as confidential in a writing given to the receiving party coincidental with disclosure.

8.5. Drafting Ambiguities. This document resulted from the negotiation and drafting efforts of both parties and, as such, represents the parties' joint effort to embody their agreement in writing. In the event of a dispute over its meaning, application, interpretation, or construction, the parties desire that it be construed so that no ambiguities are resolved presumptively against a party as a matter of law.

8.6. Good Faith Collaboration. The parties shall collaborate in good faith to achieve the purposes of the Research;

8.7. Independent Contractor Relationship. While acting in performance of this agreement, the parties, their agents, and their employees shall act independently of one another and not as officers, employees, or agents of the other. It is not intended that this agreement create a partnership, joint venture, or similar relationship between the parties. It is not intended that either party's employees be covered by the other party's workers' compensation or unemployment insurance, be eligible to participate in the other party's retirement programs, or be entitled to any other benefit, or bind the other party to any obligation. The parties shall enter into all agreements related to the Research solely on their own behalf. Any provision of this agreement construed by a competent authority to establish an employee relationship contrary to the foregoing shall immediately be revised to conform with the intention of the parties as set forth in this section.

8.8. Integration. This contract entered into between the parties embodies the entire understanding of the parties with regard to its subject matter.

8.9. Intellectual Property. Each party is and shall be, during and after the term, the sole and exclusive owner of all intellectual property it develops for and uses in connection with the Research. For AAA NCNU such intellectual property includes, but is not limited to, all trademarks and service marks, graphics, data, text, manuals, forms, writings, charts, photographs, drawings, web sites, videotapes, and other materials created by or for AAA NCNU. For University, such intellectual property includes, but is not limited to, all trademarks and service marks, all Research materials, reports, marketing materials, data, text, forms, writings, charts, photographs, drawings, web sites, videotapes, and other materials created by or for University. The permitted use by one party of any such intellectual property by the other pursuant to this or any other agreement shall not create any ownership interest in such property or related rights whatsoever unless expressly stated.

8.10. Notices.

a. Method. Unless applicable law, regulation, or policy specifies otherwise, any written notification required by this agreement (other than programmatic or daily operational notifications) to be given by one party to the other shall be transmitted by at least one of the following methods:

i. Personal Delivery. By personal delivery made by a party (or by a party's agent) with either a signed acknowledgment of receipt or a simultaneously completed proof of delivery;

ii. US Mail. By either certified US mail, return-receipt-requested or next day delivery with proof of delivery;

iii. Common Carrier. By any common carrier that provides sender with a proof of delivery; or

iv. Electronic Mail. By electronic mail with either proof of delivery receipt or proof of sending.

b. Addresses. Absent a written and timely change of address by a party, all notices given pursuant to subsection a. shall be addressed as follows:

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<u>AAA NCNU</u> Deborah J. Wong c/o AAA Northern California, Nevada & Utah 3055 Oak Road, MS W520 Walnut Creek, CA 94597 deborah.wong@goaaacom	<u>University</u> Y. Marilyn Kempster c/o Institute for Transportation Studies University of California One Shields Avenue Davis, California 95616 ymkempster@ucdavis.edu
<u>with a copy to:</u> John Richmond General Counsel c/o AAA Northern California, Nevada & Utah 3055 Oak Road, MS W520 Walnut Creek, CA 94597 john.richmond@goaaa.com	<u>with a copy to:</u> Andrew Wolin c/o Business Contracts & Analysis University of California 202 Cousteau Place, Ste. 205 Davis, California 95618 acwolin@ucdavis.edu

c. Change of Address. The proper address to which notices shall be transmitted shall be promptly updated by written notice by the changing party to the other party.

8.11. Sections and References. All references made in this agreement to sections, subsections, paragraphs, subparagraphs, parts, subparts, or other such locations shall refer to locations within this document, exclusive of incorporated materials, unless otherwise specifically stated and identified in the reference. Titles and paragraph headers are solely for the convenience of the reader and are not to be substantively construed.

8.12. Rights and Remedies not Exclusive. The rights and remedies provided herein shall not be exclusive and are in addition to any other rights and remedies provided by law or other applicable agreement.

8.13. Severability. If any provision(s) of this agreement is judicially held invalid or unenforceable, it is the desire of the parties that the invalid or unenforceable portion(s) be excised to the minimum extent possible and still effectuate the intentions of the parties in the matter or matters involved, and that the remainder of the agreement remain in effect.

8.14. Successors and Assigns. The provisions hereof shall extend to and be binding upon and inure to the benefit of the successors, and to the extent permitted herein, to the assigns of the respective parties hereto.

8.15. Survival. The following rights and obligations shall survive Termination. Termination shall not constitute a waiver by either party of any right accrued or obligation earned by a party prior to the date of termination.

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section/subsection number:	regarding:
3.7.	Protect Participants from Loss
3.8.	University Indemnification
4.4.	AAA NCNU Indemnification
6.	Limitation of Liability
8.3.	Attorney's Fees
8.4.	Confidentiality
8.5.	Drafting Ambiguities
8.8.	Integration
8.9.	Intellectual Property
8.16.	use of party name; marks
so much of the remainder of this agreement as is necessary to give effect to the intentions of the parties given the termination.	---

8.16. Use of Party Names; Marks. No form of the other party's name or any proprietary trade- or service mark shall be used by a party in promotional materials, signs, announcements, or other forms of communication or advertising without the owner's prior, written consent. Notwithstanding the foregoing, either party may use the other's name in its standard listing of clients or service providers, as appropriate, provided however, that either party may revoke this right upon notice to the other party if, in the revoking party's discretion, its reputational interest is at risk; and

8.17. Waiver. A waiver of any default or breach, expressly given or not, by either party to the other shall not operate as a waiver of any subsequent default or breach of the same or any other term, covenant, or condition of this agreement.

IN WITNESS WHEREOF, the undersigned execute this Collaboration Agreement with the intention that it be effective as of the date first written above.

AAA NORTHERN CALIFORNIA,
NEVADA & UTAH

THE REGENTS OF THE
UNIVERSITY OF CALIFORNIA

by: Rose A. [Signature]

by: Deborah Fraga-Decker [Signature]

print name: Rose Guilbault

print name: Deborah Fraga-Decker

title: VP Corporate Affairs

title: Associate Director, Contract Services

date: 7/16/2010

date: 6/11/10

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ATTACHMENT A

FUEL ECONOMY INSTRUMENTATION STUDY PHASE 1 AND PHASE 2

PROBLEM STATEMENT

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 no doubt 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. Worse, 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 (IVDs)? 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 IVDs is something that could be called “eco-driving,” then what proportion of the population are already eco-driving?
 - a. What is the effect of IVDs on eco-drivers? On non-eco-drivers?

STATEMENT OF WORK

To answer these questions a two-phase research program is proposed. This document briefly describes both phases. A pilot and full study are linked through their effort to address the research questions above. However, there are significant unknowns about the practical implementation of any study to measure real-world driving behaviors. The first phase pilot study addresses many of these unknowns to control the cost and duration of the second phase full study and to insure that the full study does not suffer from the design shortcomings of prior work. A budget is presented for both the pilot and full studies; the full study budget and final design though are outcomes of the pilot study. The information presented here on the full study is for planning and scoping purposes only.

PHASE 1: PILOT STUDY

The research questions require a multi-method approach. First, measurement of the effects of fuel economy information on real-world fuel economy requires a standardized display and a means to record fuel economy. Second, whether drivers differ in predisposition, experience, or learning regarding the research process can be ascertained in questionnaires and interviews. 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.

The pilot study will implement this basic design in nine households in Davis, CA. 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. Examples of potential problems to be addressed include the fact that despite the display/recording devices to be deployed in the research plug into the OBD 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. The question is, can respondent households be expected to install, operate, and uninstall the device themselves?

Additionally, the period of the without/with fuel economy information display conditions is subject to conflicting pressures. Longer time periods allow for observing more fuel economy data over more conditions and therefore the testing of smaller absolute differences as well as the “averaging out” of more uncontrolled factors in the without/with time periods.^{1/} Conversely, longer without/with periods drive up project cost and increase project timelines.

The pilot study will consist of the tasks listed below.

- Equipment Procurement
 - UC Davis will purchase and configure five (5) interface units capable of displaying and recording fuel-economy related driving data and GPS signals.
- Protocol Development
 - UC Davis will develop a preliminary interface protocol for deployment of the units, mail, phone, or in-person interviews, and an electronic survey that will be scalable for the size of the final study given the assumed time resources of the study staff.
- Sampling Protocol
 - Volunteer participants will be recruited by AAA using a form letter sent to qualifying AAA insurance policy holders in the Davis area as described below. In addition, further screening will insure that participant vehicles match the study criteria:
 - Vehicles do not currently display fuel-economy data
 - Vehicles are compatible with the study interface
- Pilot Research
 - UC Davis will deploy the interfaces in two to three waves to nine (9) total households for a period of up to two months each. The purpose of this research will be to observe measurable changes in driving behavior; to test the experimental protocol, and if necessary modify the protocol between waves; to determine the minimum amount of placement time required to observe measurable changes, with special attention paid to the final goal of the full sample.

^{1/} Longer time periods are not unambiguously better for averaging out uncontrolled factors. Letting a household drive longer may simply give them the opportunity for that long vacation trip or some other difference to occur between the without/with periods. One purpose of the post-interview is to explore for such differences with the households.

- Data analysis and Report
 - UC Davis will analyze the data from the nine pilot participants and prepare a report with the pilot findings and experimental protocol recommendations for the full sample. In particular, the report will specify:
 - Recommended full sample size
 - Recommended experimental protocol for the full sample including minimum placement time
 - Recommendation to use or not use GPS-capable devices
 - Pilot fuel-economy results
 - Full sample study budget estimates

As noted above, the pilot study participants will be located in Davis, CA. UC Davis expects to partner with the insurance company AAA Northern California, Nevada and Utah to secure participants. UC Davis and AAA have previously negotiated agreements in which AAA screens their policy holders and mails invitation to qualified people. AAA's screening is fairly rudimentary, involving minimum insurance coverage and zip code. More refined screening is accomplished through a screening questionnaire hosted by UC Davis. From the point in time when UC Davis contacts a volunteer who has completed this on-line screener, UC Davis is the sole point of communication with the participant.

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, a specific in-vehicle device, a protocol for delivering, installing, operating, uninstalling and retrieving the in-vehicle devices, etc. A rough outline of the current study design and objectives is presented below.

- Equipment Procurement
 - UC Davis will purchase and configure an additional twenty-five (25) interface units capable of displaying and recording fuel-economy related driving data and GPS signals.
- Sampling Protocol
 - The full study design will include AAA based volunteer participant recruitment in cities in northern California and Nevada. The sample will be refined by vehicle type to insure that none of the study vehicles currently display fuel economy, and that they are all compatible with the selected study interface. Volunteers will be selected in each of the cities for an expected total sample of one hundred and fifty volunteers.
- Experimental Protocol
 - 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.

- Each volunteer will participate for two months. During the first month, the participant will drive with an active logging device, but a deactivated screen in their vehicle. During the second month, the screen will be activated by the researchers, and the driver will be able to view in-vehicle feedback about their fuel economy.
- Each volunteer will complete an electronic survey (see survey protocol below) two times in order to track changes in their attitudes and knowledge about fuel economy.
- Researchers will conduct semi-structured interviews of each participant both at the beginning and at the end of the placement (see interview protocol below). 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 the data and prepare a report with the findings and experimental. In particular, the report will address the research questions:
 - What is the distribution of real-world fuel economy increases that can be expected over the long term from in-vehicle fuel economy displays?
 - Do the distributions differ by vehicle type?
 - City/region?
 - How many people know driving style matters to fuel economy?
 - What do they think the range of effects is?
 - What do they think other consequences are?
 - 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 IVDs on eco-drivers? On non-eco-drivers?

Survey Protocol

University of California, Davis Vehicle Study

This survey includes approximately thirty simple questions and should take less than ten minutes to complete. This survey is intended for you to complete privately by yourself, and each participating household member should complete the survey on their own. Finally, please fill out the survey in the order shown without skipping any questions.

We use the phrase “fuel economy” to mean the miles per gallon you get when driving your car.

Please respond to the statements you read below by indicating your agreement or disagreement with them.

		Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.	Driving fast is fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	Saving gasoline makes me happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	Driving efficiently is unsafe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	Driving is expensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	Using gasoline lets me do what I need to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	I like to know all about my car	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	Saving gasoline is important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	I'm not about to change my driving habits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	I like to master new technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	Saving time is more important than saving gasoline	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.	When driving it is best to "go with the flow"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.	Most people can save gasoline by driving more efficiently	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13.	I don't care if other drivers think I'm slow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.	It is important to drive at or below the posted speed limit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.	I have had bad experiences with other drivers getting mad at me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
16. How I drive can change my car's fuel economy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I know how to drive to get higher fuel economy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I already drive to get the highest fuel economy I can	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. My fuel economy is a result of (too many) things beyond my personal control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. How I drive is determined by roads and traffic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For these next few questions, make your best guess if you aren't sure.

	Wild Guess	Somewhat Confident	Very Confident
21a. I get <input type="text"/> mpg in my primary car			
21b. How confident are you about that number?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22a. I could make an <input type="text"/> % improvement in my my primary car fuel economy by changing my driving style.			
22b. How confident are you about that number?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For these next few questions, respond to the statements you read below by indicating your agreement or disagreement with them.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
23. I'm a perfectionist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. I like to be the person in a group who has the right answer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. I don't care if I win in competitions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. I'll try something a second or third time to get it right	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. I usually leave things at "good enough"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For these final questions, please rank the top three items that are the most important to you when driving, starting with the most important.

	Not at all important	Somewhat important	Very important
28a. When driving, I would most like			

	to	<input type="text"/>			
	How important is this to you?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Secondly,	I	would	most	like
28b.	to	<input type="text"/>			
	How important is this to you?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Thirdly,	I	would	most	like
28c.	to	<input type="text"/>			
	How important is this to you?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Interview Protocol

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?