

**Attachment D
 Question-by-Question Justification**

As described in A.2. of the Supporting Statement, this study will evaluate the effectiveness of a monitoring device used by individuals who volunteer to participate. More specifically, the study will address the following objectives.

1. Identify an in-vehicle speed monitoring device that can be used as a preventative measure.
2. Determine how often targeted events may occur during the pre-treatment, treatment and post-treatment conditions and whether these identified events are justifiable (e.g., speeding to escape or merge with traffic, or system errors).
3. Determine the time course of behavioral changes (Is the 8-week study period long enough to observe changes? Is the baseline period too long?)
4. Identify behavior aimed to defeat or minimize the impact of the system.
5. Identify any problems associated with the study methods and/or study instruments

Table 1 shows the Project Objectives to which the questions in the debriefing are targeted.

Table 1: Project Objectives by Debriefing Questions

Question #	Project Objectives				
	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5
Q1	x				
Q2	x				x
Q3	x			x	x
Q4	x				
Q5	x				
Q6	x				
Q7	x			x	x
Q8	x		x		
Q9	x		x		
Q10	x				x
Q11	x				
Q12	x				
Q13	x				
Q14	x				x
Q15					x
Q16	x				
Q17	x				x
Q18	x		x	x	x
Q19					x

As you can see in Table 1, most of the questions in the debriefing are focused on Objective 1 and Objective 5. They focus on participant experiences with and acceptance of the use of the device and any problems they may have experienced with the device or with study protocol. Information for Objectives 2, 3, and 4 are to be drawn primarily from data generated by the device being used and the computer monitoring system interfacing with the device installed on participants' vehicles.

Objective 2 will be addressed through event speeding recorded by the device. The research team will know when these occurred and if the warning system driver feedback was activated at that time. Speeding events will be examined and compared to the GPS locations to see if there may be circumstances, such as merging on to high speed roadways or software errors, which may explain the speeding occurrence.

Objective 3 will be addressed by outcomes from the study, i.e. did this reduce the speeding behavior of participants as measured by the device. Questions 8 and 9 also address this per self-reported changes in speeding and tickets received during the study. Open-ended Q18 may also produce some information on this objective.

Regarding Objective 4 per any efforts to beat the system, Q3, Q7, and Q18 each have an open ended response with participants elaborating on problems with the device, negative effects of having the device, or other comments participants may like to offer on the study, respectively. These may elicit some information on efforts to beat the system; however, this objective will be primarily addressed through feedback from the actual device.

Below is a more detailed question-by-question justification for the 19 questions included in the debriefing that will take place when the device is being removed from the participant's vehicle.

Q1-Q2 Participant's Assessment of their Experience with the Device

This pilot study has dual goals: to determine the feasibility of the voluntary use of speed monitoring/warning systems, and whether the presence of these devices in a vehicle will decrease speeding. There is an inherent trade-off between the effectiveness of the operational device in affecting driver behavior and the willingness of drivers to install and continue to use the device. Given that the one purpose of this pilot study is to assess the likelihood of individuals voluntarily using a speed warning system, the question of user experience and acceptance is of great interest.

Q3 Problems with the Device

The objective of this project is not to design new products but to evaluate driver response to the most suitable examples of the current generation of products. While this speed warning device may prove effective at changing a participant's driving behavior, it may suffer from limitations that may be much more serious with a larger scale volunteer population. These limitations might include: false alarms and misses; errors and confusing feedback where roadways are adjacent (e.g., freeway and service road) or where roadways cross; equipment unreliability; difficulty of

installing; and frequently becoming dislodged from the mount. This question is aimed at identifying any of these limitations.

Q4-Q6. Speed Warning/Monitoring Devices Ability to Change Driving Behavior

These three questions examine the effectiveness of the device in changing the participant's behavior. While the quantitative data gathered during data collection will provide objective answers to these questions, it is important to ascertain whether the participant feels that the device had some influence on their driving behavior. It is expected that substantive changes over time in user acceptance may be directly related to whether or not the participant feels that the device is effective in modifying their behavior

Q7 Negative effects of having the device in the vehicle

While a basic assumption of this study is that the presence of a speed warning device will have a beneficial effect on an individual driving behavior, it would be naïve to assume that this system may not have negative effects as well. This question is included in the series to identify any unintended consequences of having the device in the vehicle. For example, a participant might become too reliant on the device to notify them when they are traveling at speeds above the posted speed limit. Therefore, once the alarm is removed, their behavior may go back to that of pre-intervention levels or worse.

Q8-Q9 Objective Measures of the Effectiveness of the Speed Warning Device

Speeding citations and crashes are important outcome measures and will be critical to any large scale study. Given the limited duration of each treatment phase and relatively small number of participants in this pilot, statistically meaningful differences in these measures are unlikely to emerge. However, we should certainly record participant self-report of any citations. In addition, as part of the data analyses researchers will examine the participants driving speed before during and after the device has been activated and removed. We should also inquire as to whether the participant believes that their driving speed generally has been reduced as a result of having this device installed and activated in their vehicle. Both, the number of citations received and the change average speed, would be a measure of the device's effectiveness.

Q10-Q11 Opinions of other Drivers

Many households have vehicles with multiple drivers; that is, parents time-sharing cars with children, or siblings sharing vehicles. These three questions were included to address those times when a driver other than the participant is driving the vehicle. It allows the researcher to assess their opinion of the device and how it functions.

Q12-Q14 Presence of Passengers

These questions ascertain the opinions of passengers who may have been in the vehicle during the course of the study as well as the participant's opinion about using the device while other people were in the vehicle. The presence of this device in the vehicle may have resulted in conflicts with passengers and family. It may also have had an influence on social aspects of driving (passengers, embarrassment). This type of information all contributes to the participant's overall assessment of the device and the likelihood of using it on an ongoing basis.

Q15 Adequacy of the Incentive

Determining the incentive is a critical aspect of recruiting. To the extent possible, the incentives used in this pilot study should reflect the types of incentives that might ultimately be used in real-world voluntary programs. Answers to this question will help to insure that the researchers' concept of effective incentives matches the views of those who ultimately must be the research or program volunteers. It may turn out that the planned incentive was not adequate to retain sufficient participants for this pilot study or for a broader program.

Q16 Likelihood of Using the Device after the Study

This question addresses the willingness of drivers to install and continue to use the device once the monetary incentive has been removed. It is an indirect indication of the value the participant places on the device and its ability to have a positive influence on their driving behavior.

Q17 Willingness to Participate in a large scale study

One of the main objectives of the study is to design a pilot study that could be expanded into a larger scale follow-up study. This question ascertains whether the participant is willing to participate in a similar study that might extend over a longer period of time. This is necessary to determine whether it will be difficult for researchers to recruit participants for a large scale, longer study,

Q18 Any other comments about the device or study

This question is aimed at providing the participant with the opportunity to address some topic or issue that was not touched on during the debriefing session; anything they feel might be valuable to the researcher.

Q19 Attempts to tamper with the device or disengage the system

This question is included to help determine if participants did anything to tamper with or disengage the speed warning device during the time it was in their vehicle, what they did to avoid the warning system feedback, if they did something, and why. This is necessary to determine whether participants attempted to avoid the device feedback and how/ why they may have attempted this. While we will have indicators of this through the device itself, it is important to explore this issue with regard to possible future use of this device in studies and its practical usage as a speeding deterrent.

Q20 Current Mileage of the Vehicle

At the time the device is installed in their vehicles, the mileage on their odometer will be recorded. Obtaining the mileage at the end of the Participant's on-road time with the device provides a measure of how many miles they have driven with the device. Having this

information will provide the opportunity for a quality control check between what is recorded on the odometer and what has been recorded by the speed warning system. Recording the current mileage of the vehicle when the device is installed and removed will also allow the researchers to check the validity of the participant's claims.