

KkkSUPPORTING STATEMENT
Drivers' Awareness of and Response to Significant Weather Events and the Correlation of
Weather to Road Impacts
OMB CONTROL NO. 0648-xxxx

A. JUSTIFICATION

1. Explain the circumstances that make the collection of information necessary.

Over the past several decades, Utah has experienced rapid population growth, including nearly a 24% increase between 2000 and 2008 alone. This has resulted in increased demand on Utah's existing interstate and arterial infrastructure. Recurring traffic congestion (i.e., AM/PM peak commute times) and non-recurring congestion (e.g., weather-related) result in an average annual cost of \$250 million dollars in Utah alone (source: Utah Department of Transportation (UDOT)). Recent studies (UDOT 2007 Congestion Report) have confirmed that inclement weather plays a significant role in non-recurring congestion and associated negative impacts with respect to delays, mobility, productivity, and safety.

In accordance with [Executive Order 12862](#), the [National Performance Review](#), and good management practices, NOAA offices seek to be able to continue to gather customer feedback on services and/or products, which can be used in planning for service and/or product modification and prioritization. Information will be gathered from adults who have recently driven during storms in South Davis, Salt Lake or Summit Counties, on how they access and respond to weather reports about driving conditions.

This request is for a new information collection.

2. 1Explain how, by whom, how frequently, and for what purpose the information will be used. 1If the information collected will be disseminated to the public or used to support information that will be disseminated to the public, then explain how the collection complies with all applicable Information Quality Guidelines.

Through the administration of a targeted survey, important details will be gathered regarding: (a) the information that drivers possessed prior to and during a storm, including knowledge of observed and forecast weather conditions; (b) sources of weather and road information; (c) any modification of travel and/or commute plans, based on event information; (d) anticipation and perception of storm impacts and severity; and (e) perception and behavioral response to messages conveyed by the National Oceanic and Atmospheric Administration's (NOAA's) National Weather Service (NWS) and UDOT, along with their satisfaction with information provided. Analyses of the information gathered will focus on driver knowledge, perceptions, and decision-making.

The information gathered from this project will be used by NWS, UDOT, and NorthWest Weathernet (NWN) to plan for improved services during winter storm events.

Ultimately, the results of this survey will provide insight on how the Weather Enterprise may more effectively communicate hazard information to the public, in a manner which leads to

improved response (*i.e.*, change travel times, modes, *etc.*). With a sufficient level of behavior change, it should be possible to improve safety and reduce the costs associated with weather-related congestion and associated delays. Additionally, the project will shed light upon the interrelationship between meteorological phenomena, road conditions, and their combined impact on travel.

Specific planned uses of the information, and how the questions in the survey will map to them, are:

UDOT/NWN

More effective messaging in 511 Travel Info program (Questions 9, 9a, 10g, 10g1, 11, 13, 14, 15, and 16)

More effective text wording and graphical displays in CommuterLink program (Questions 9, 9a, 10i, 10i1, 10i1a, 11, 13, 14, 15, and 16)

Precise, effective messaging on Variable Message Signs (Questions, 9, 9a, 11,13, 14, 15, and 16)
Potential new service delivery options (Question 16)

Ideas for mitigating traffic congestion (Questions 1, 2, 7, 8, 10, 11, 13, 14, 15, and 16)

Opportunities for enhanced collaboration with NWS, specifically with respect to anticipated road conditions (The data analysis, and actions based on the survey results as a whole, will increase collaboration).

NWS

More effective messaging for impact-based statements and precautionary and/or preparedness actions wording in watches, warnings, and advisories (Questions 9, 9a, 10e, 10e1, 10i, 10i2, 11, 13, 14, 15, and 16)

Potential new service delivery options, such as social media (Questions 10h and 16)

Improved collaboration with UDOT/NWN and media interests (The data analysis, and actions based on the survey results as a whole, will increase collaboration).

As explained in the preceding paragraphs, the information gathered has utility. NOAA will retain control over the information and safeguard it from improper access, modification, and destruction, consistent with NOAA standards for confidentiality, privacy, and electronic information. See response to Question 10 of this Supporting Statement for more information on confidentiality and privacy. The information collection is designed to yield data that meet all applicable information quality guidelines. To ensure consistency with NOAA Information Quality Guidelines, the information collected will be coded and analyzed by Pegus Research and representatives of the University of Utah, ensuring rigorous quantitative and qualitative research methods are met. Knowledge gained from this effort will be used to complement performance verification metrics, currently used by the NWS, including Probability of Detection (POD), False Alarm Rate (FAR), and Lead Time (LT), in relation to weather events. Prior to dissemination, the information will be subjected to quality control measures and a pre-dissemination review pursuant to [Section 515 of Public Law 106-554](#).

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological techniques or other forms of information technology.

Random digit dialing (home phones and cell phones) by live interviewers, who control the dialing, will be utilized to conduct a survey in the days following winter storm events.

Due to the flow, and desired content, of the interview, electronic submission of the information was not considered, so no form is involved. The information collected, in aggregated form, will be available over the Internet.

4. Describe efforts to identify duplication.

A review of various scientific journals and conference proceedings, and discussion with federal colleagues at a variety of conferences, does not indicate any duplication of effort. Also, we checked with Paul Pisano, Team Leader, Road Weather Management, in the Federal Highway Administration, U.S. Department of Transportation (DOT) about possible similar DOT surveys. Mr. Pisano stated in an e-mail message that “to the best of my knowledge there have been no surveys conducted of this nature. The only recent survey we conducted pertains to information to and from a vehicle, but this is much different than the work you're pursuing.”

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

This information collection applies only to individuals.

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

If the data collection is not conducted, a valuable opportunity to more effectively communicate hazardous weather information to NOAA's customers and partners, and the general public, will be compromised. We will select different kinds of storms (morning, evening, etc.) having different potential impacts on the commute. If the survey is conducted less frequently, the opportunity to improve the service delivery of NOAA products will be compromised.

7. Explain any special circumstances that require the collection to be conducted in a manner inconsistent with OMB guidelines.

All information collection will be conducted in a manner that is consistent with OMB guidelines.

8. Provide information on the PRA Federal Register Notice that solicited public comments on the information collection prior to this submission. Summarize the public comments received in response to that notice and describe the actions taken by the agency in response to those comments. Describe the efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

A Federal Register Notice published on July 22, 2010 (75 FR 42681) solicited public comment. No comments were received.

9. Explain any decisions to provide payments or gifts to respondents, other than remuneration of contractors or grantees.

No payments or gifts will be given.

10. Describe any assurance of confidentiality provided to respondents and the basis for assurance in statute, regulation, or agency policy.

The following statement, approved by the University of Utah's Institutional Review Board, will be read to each potential survey respondent.

I would like to ask you 10 to 15 questions which will take less than 10 minutes. Your participation is voluntary, and you are free to skip any questions you choose not to answer. There are no immediate benefits to you for participating, but your answers will help us improve weather reporting in the state.

Your answers are completely anonymous. We are not recording your name or telephone number; we use only code numbers in our data file. This interview might be audio-recorded for quality control and to check your answers to open-ended questions. The tapes will be destroyed once we are certain we have accurately typed up your responses.

You can call the researcher, Carol Werner at 801 581 8938 or you can contact the Institutional Review Board if you have questions regarding your rights as a research participant. Also, contact the Review Board if you have questions, complaints or concerns which you do not feel you can discuss with the interviewer. The University of Utah's Institutional Review Board may be reached by phone at (801) 581-3655 or by e-mail at irb@hsc.utah.edu.

Are you willing to participate in this survey? We would appreciate your help.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private.

No questions of a sensitive nature will be asked.

12. Provide an estimate in hours of the burden of the collection of information.

The number of respondents will be 1,200. Each respondent will be asked to provide just one response during the survey period, so 1,200 responses are expected. The average response time is expected to be 6 minutes, based on tests by the survey planners and colleagues. Total estimated hours would be 120. The annualized labor cost for each respondent, based on an average hourly wage of \$20 per hour, is \$2, totaling \$2,400.

13. Provide an estimate of the total annual cost burden to the respondents or record-keepers resulting from the collection (excluding the value of the burden hours in Question 12 above).

Respondents will incur no costs beyond the time spent on the survey.

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

This effort will require 200 NWS employee hours. The NWS will incur no additional costs, as resources allocated for this project are consistent with duties outlined in staff performance plans. The majority of the employee hours will be devoted to the collection and analysis of meteorological data sets, and the correlation of this data to road impacts and information gleaned from the survey.

A breakdown of the costs associated with the work provided by PEGUS Research is below.

<i>Description</i>	<i>Costs</i>
	\$
Programming	645.75
	\$
Programming	369.00
	\$
Data Download	276.75
	\$
Data Collection	6,862.20
	\$
Training	315.00
	\$
Monitoring	460.80
	\$
Supervision	1,478.40
	\$
Collection	4,608.00

	\$
Operations	3,620.45
	\$
Sample	3,240.00
	\$
Telephone expenses	0.20
	\$
Project management	380.25
	\$
Project Total	11,128.40
	\$
Cost per complete	9.27

15. Explain the reasons for any program changes or adjustments.

This is a new program.

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

Information will be collected during the winter of 2010–2011. Analysis of data collected will occur in 2011.

Following the analysis, results of this survey may be presented at workshops and conferences, and submitted to various scientific journals for publication. Presentations and publications may be posted on NOAA/National Weather Service Web pages.

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

Not applicable.

18. Explain each exception to the certification statement.

Not applicable.

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

(If your collection does not employ statistical methods, just say that and delete the following five questions from the format.)

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g. establishments, State and local governmental units, households, or persons) in the universe and the corresponding sample are to be provided in tabular form. The tabulation

must also include expected response rates for the collection as a whole. If the collection has been conducted before, provide the actual response rate achieved.

Random digit dialing (home phones and cell phones) will be utilized to gather 1,200 responses from licensed drivers, 400 following each of three winter storm events. The survey domain is South Davis County, Salt Lake County, and Summit County, in Utah.

Pegus, the survey firm, was asked to draw a simple random sample from all exchanges in the target area, and to conduct the interview in English. Pegus will provide 75% RDD sample (nonautomated dialing system) and 25% cell phone sample (purchased cell phone numbers, participants drawn randomly from the list of numbers).

There are several criteria for inclusion which will affect the population to which the data can be generalized. The respondent (1) must be 18 years of age, (2) must not be driving at the time of the interview (targeted for callback), (3) must have a current driver's license for driving in Utah, (4) reside in one of the target counties (south Davis, Salt Lake, or Summit), and (5) travel regularly in the Salt Lake Valley (the area of interest to UDOT and NOAA). To increase validity of responses, respondents who cannot remember if they did or did not travel in the Valley on the day of the storm will be excluded.

The expected response rate, defined as the percentage of calls answered by qualified participants which result in completion of the survey, will be between 20% and 25%. This is consistent with RDD surveys of a similar length, conducted within the target area by PEGUS Research, during the past few years. A large enough sample to result in 400 responses per storm will be purchased, taking into account an expected 25 numbers dialed to result in each live contact, and at least four live contacts made to result in one completed survey.

2. Describe the procedures for the collection, including: the statistical methodology for stratification and sample selection; the estimation procedure; the degree of accuracy needed for the purpose described in the justification; any unusual problems requiring specialized sampling procedures; and any use of periodic (less frequent than annual) data collection cycles to reduce burden.

More than 90% of Utah residents speak English. It is understood that there will be an underestimation of responses from Spanish speaking drivers (drivers' license exams are offered only in English and Spanish). Using larger samples and fewer storms for greater precision with our estimates was considered, but it was decided that a sample size of 400 for each survey would be adequate for both point estimates and hypothesis testing (range within +/-5%), and that obtaining information about 3 different storm events will offset the reduced precision.

3. Describe the methods used to maximize response rates and to deal with nonresponse. The accuracy and reliability of the information collected must be shown to be adequate for the intended uses. For collections based on sampling, a special justification must be provided if they will not yield "reliable" data that can be generalized to the universe studied.

It is understood that the quality of the sample is greatly influenced by the response rate. The selected survey firm provides professional training, with an emphasis on interpersonal

communication, one factor in promoting a higher response rate. The interviewers will be asked to call at different times during a 3-day period following the storm, so as to increase chances of reaching the targeted respondents. There will be 5 call-backs, prior to excluding a telephone number. One difficulty of this process is the short period of time in which to reach eligible respondents. It was decided to contact people within 3 days, and no longer, to increase the accuracy of their recollections, even though this limit has the potential to reduce the number of surveys completed.

The relatively low response rate and lack of information about nonrespondents will not allow us to make any claims that the responses will be representative of adult drivers in the three counties targeted. We will compare the demographic information in the responses to known county demographics; however, that will address only one aspect of nonresponse bias. However, we believe that the information gathered will still be of use in our planning.

In any presentations or publications, we will stress that we cannot claim that the sample of those who completed the survey is representative of the target population.

4. Describe any tests of procedures or methods to be undertaken. Tests are encouraged as effective means to refine collections, but if ten or more test respondents are involved OMB must give prior approval.

The survey was designed in a collaborative effort between NWS, UDOT, NWN, and the University of Utah's Department of Psychology. The final survey was developed using a series of revisions based on interviews with colleagues. PEGUS Research, the survey firm, conducts in-house tests of the computerized version, so it is not anticipated that these participants will be contacted prior to the actual administration of the survey.

5. Provide the name and telephone number of individuals consulted on the statistical aspects of the design, and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

The individuals listed below are the consultants for the statistical aspects of the design. As indicated, Dawn Straatsma, PEGUS Research, will coordinate data collection, and Carol Werner, University of Utah, will lead the analysis. The descriptive responses (weighted to represent the population) will be provided by PEGUS Research. The actual analyses will be supervised by Carol Werner, who will be examining relationships among variables, rather than a simple item by item description.

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