Supporting Statement B

NPS Visibility Valuation Survey

OMB Control Number 1024-0255

Collections of Information Employing Statistical Methods

The agency should be prepared to justify its decision not to use statistical methods in any case where such methods might reduce burden or improve accuracy of results. When the question "Does this ICR contain surveys, censuses, or employ statistical methods?" is checked "Yes," the following documentation should be included in Supporting Statement B to the extent that it applies to the methods proposed:

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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 government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.**

   The target population for this collection is individual households in the eight multi-state regions listed below:

   - **Northeast**- Maine, New Hampshire, Vermont, New York, Massachusetts, Rhode Island, Connecticut, New Jersey, Pennsylvania, Ohio, and Indiana
   - **Southeast**- Delaware, Maryland, Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi and Florida
   - **Upper Midwest**- Michigan, Illinois, Wisconsin, Iowa, and Minnesota
   - **Central**- Missouri, Arkansas, Louisiana, Texas, Oklahoma, and Kansas
   - **Four Corners**- Utah, Arizona, New Mexico and Colorado
   - **Northern Plains/Rockies**- North Dakota, South Dakota, Nebraska, Montana, Wyoming, and Idaho
   - **Sierra Nevada**- California and Nevada
   - **Northwest**- Oregon and Washington

Sampling Unit: The sampling unit is all residential mailing addresses in the eight regions.

Sample Frame: The respondents for this collection will be drawn from a random sample of 25,600 residential mailing addresses purchased from Survey Sampling International (SSI). Surveys will be mailed to 3,200 households in each of the eight regions. Based upon the results of the 2012 pilot study, we expect that 35 percent will return completed surveys (n=1,120/region).

Table 1a. Sample Sizes and Expected Response for the Household Survey

Region	Respondent Universe (Households)	Sample Size	Estimated Response Rate	Estimated Number of Completed Responses
Northeast	~28,000,000	3,200	35%	1,120
Southeast	~30,000,000	3,200	35%	1,120
Upper Midwest	~14,000,000	3,200	35%	1,120
Central	~17,000,000	3,200	35%	1,120
Four Corners	~6,000,000	3,200	35%	1,120
Northern Plains/Rockies	~3,000,000	3,200	35%	1,120
Sierra Nevada	~14,000,000	3,200	35%	1,120
Northwest	~4,000,000	3,200	35%	1,120
	TOTAL	25,600		**8,960**

Table 1b. Sample Sizes and Expected Response for the Non-response Survey

Region	Non- Respondent Universe	Sample Size	Estimated Response Rate	Estimated Number of Completed Responses
Northeast	2,080	2,080	17.5%	360
Southeast	2,080	2,080	17.5%	360
Four Corners	2,080	2,080	17.5%	360
Sierra Nevada	2,080	2,080	17.5%	360
	TOTAL	8,320		**1,440**

Based on similar stated-preference studies conducted by the current study team and the results of the 2012 pilot survey, the estimated 1,120 complete responses are expected to be sufficient to estimate choice parameters and determine the influence of key respondent characteristics on estimated values.

A subsample of non-respondents in four of the regions will be sent a short follow-up survey. To enhance cooperation the questionnaire will be sent via Fed-Ex and will include a $5 incentive. The non-response survey will consist of a subset of questions from Section G of the survey.

2. Describe the procedures for the collection of information including:

- **Statistical methodology for stratification and sample selection,**
- **Estimation procedure,**
- **Degree of accuracy needed for the purpose described in the justification,**
- **Unusual problems requiring specialized sampling procedures, and**
- **Any use of periodic (less frequent than annual) data collection cycles to reduce burden.**

To estimate values for visibility improvements, we will use the random utility model (Haab and McConnell, 2002). Under this approach, individual *i*'s utility for a particular visibility program *j*, which is defined by a set of K attributes, can be expressed as:

$$U_{ij} = \beta_y(y_i - C_j) + \sum_{k=1}^{K} \beta_k X_{jk} + \varepsilon_{ij},$$

where y_i is individual *i*'s money income, C_j is the cost of visibility program *j*, and X_{jk} is the level of attribute *k* that is offered in visibility program *j*.

The β_k's are the marginal utilities for each of the *K* visibility attributes and β_y is the marginal utility of money income. Under the RUM (random utility maximization) specification, and given individuals' stated responses to binary choice questions comparing program *j* to no program, these parameters can be estimated using the conditional logit model. Once parameter estimates are available, the marginal value of any particular attribute *k* can be estimated as:

$$WTP_k = -\frac{\widehat{\beta_k}}{\widehat{\beta_y}}$$

An important feature of the pilot study, for modeling and estimation purposes, is that the visibility attributes will be defined two different ways. This will allow for a great deal of flexibility in ultimately identifying values for different visibility programs. The first approach is to define full visibility programs, which we will designate as θ's. These θ's are defined by the percentages of days that will occur in a year at each of the five visibility photos, A, B, C, D, and E. Every unique set of percentages defined in the survey will be represented by a different program dummy variable θ. This allows for direct estimation of the marginal values for each of these programs. A key result of this research will be the estimation of values for specific θ's that are on the projected visibility improvement paths. The paths are defined (in accordance with the provisions of the Regional Haze Rule) as a linear improvement in the mean of the 20 percent worst visibility days in a year from current to natural conditions by 2064. To demonstrate, improvement paths for the Southeast Region (Great Smokies photographs) and Four Corners Region (Canyonlands photographs) are shown in Tables 2 and 3.

Table 2. Southeast Visibility Paths (Great Smokies Photographs) - Percent of Days in Year Allocated to Each Photograph

Year	Percent	Photo A	Photo B	Photo C	Photo D	Photo E
2007	0.05	0.19	0.24	0.21	0.22	0.14
2019	0.25	0.33	0.3	0.19	0.14	0.04
2024	0.33	0.43	0.3	0.16	0.09	0.02
2034	0.5	0.64	0.25	0.08	0.03	0
2044	0.67	0.84	0.14	0.02	0	0
2049	0.75	0.91	0.08	0.01	0	0
2061	0.95	0.99	0.01	0	0	0
2064	1	1	0	0	0	0

Table 3. Four Corners Visibility Paths (Canyonlands Photographs) - Percent of Days in Year Allocated to Each Photograph

Year	Percent	Photo A	Photo B	Photo C	Photo D	Photo E
2007	0.05	0.16	0.19	0.2	0.27	0.17
2019	0.25	0.23	0.23	0.21	0.23	0.1
2024	0.33	0.28	0.24	0.21	0.2	0.07
2034	0.5	0.37	0.26	0.19	0.15	0.04
2044	0.67	0.48	0.26	0.15	0.09	0.02
2049	0.75	0.54	0.25	0.13	0.07	0.01
2061	0.95	0.68	0.21	0.08	0.03	0
2064	1	0.72	0.19	0.07	0.02	0

The following attributes are included in this first model:

θ	dummy variable for program, as defined by Photos A, B, C, D, E
health	dummy variable for health benefits
ecol	dummy variable for ecological benefits
time	time for program to take effect
cost	cost of the program

The second approach to defining visibility attributes is based on the individual photos. We can re-define the θ's as additive functions of the set of five visibility photos, A, B, C, D, and E:

$$\theta_j = \gamma_A photoA_j + \gamma_B photoB_j + \gamma_C photoC_j + \gamma_D photoD_j + \gamma_E photoE_j$$

where the variables $photoA_j$ through $photoE_j$ are defined as the percentages of days realized at the visibility levels defined by those photos under program *j*.

The following attributes are included in the second model:

photo_A	the percent of days in a year at the visibility level defined by Photo A
photo_E	the percent of days in a year at the visibility level defined by Photo E
health	dummy variable for health benefits
ecol	dummy variable for ecological benefits
time	time for program to take effect
cost	cost of the program

To be able to estimate both of these models, an experimental design must be developed that is flexible enough to identify all parameters in both models. This requires sufficient variation in each of the attribute levels defined above; specifically, variation is needed across visibility programs (the θ's) and across individual photo levels A through E, as well as across the other attributes in the survey.

The Experimental Design

The experimental design challenge is to define a series of binary choice sets that will allow for the identification of all sets of parameters defined in the previous section. In the preliminary survey, all choice sets will be binary choices offering a visibility program that can be provided at a cost compared to no program at no cost. This means that each binary choice set is fully defined by specifying the levels of the attributes that are being offered, as well as the cost. Attribute levels vary both within and across respondents.

To derive these choice sets, a 24-row, orthogonal, main-effects design matrix was drawn from a well-regarded, on-line catalog of orthogonal matrices by Warren Kuhfeld. The size of this design matrix allows for orthogonal placement of our three two-level attributes (a health benefit dummy variable, an ecological benefits dummy variable, and time, which will be 10 or 20 years), one four-level attribute (program cost, which will take values of $15, $35, $65, and $115), and one six-level attribute (the programs, θ, more detail below).

As described above, the goal of this analysis is to estimate the utility model in two separate ways: one that allows us to estimate marginal values for the visibility improvement programs that are predicted to occur over time (the θ's), and one that estimates marginal values for the occurrence of specific levels of visibility improvements, as defined by Photos A through Photo E. This challenge is addressed by making sure that both approaches to measuring visibility -- the photo percentages and the definitions of the θ's -- vary sufficiently across and within choice sets. To do this, we first pull three visibility programs for each region directly from the visibility improvement paths in Tables 2 and 3. The programs pulled are at the 5 percent, 50 percent and 100 percent points along those paths. Second, to get sufficient variation in the photo percentages, we create four additional programs by "perturbing" the 50 percent program in the following four ways: we increase and decrease the percentage occurrence of Photo A, and we increase and decrease the percentage occurrence of Photo E. In all cases, the amount of increases and/or decreases are added and/or subtracted from Photo C. This process results in a total of seven visibility programs.[1,2]

To demonstrate, the experimental designs for the Southeast and Four Corners regions are presented in Tables 4 and 5.[3] Following these tables are graphs that show the range of values for Photos A and

[1] Because two programs turned out to be very close for the Southeast region, only six programs are used in the final experimental design for that region.
[2] Since the design matrix only accommodates a six-level attribute, variation over the seven programs is manufactured by mixing information from two additional two-level columns from the design matrix into the perturbation routine.
[3] A price adjustment was made on a small number of choice sets to decrease the probability of having complete dominance -- choice sets where all respondents choose the same alternative. When generated choice sets resulted in a high visibility (100 percent point on visibility path) and low cost ($15) program, or vice versa, low

Photos E.[4] The design has 24 choice sets, which are assumed to be randomly assigned to four different survey versions with six questions per survey.

Table 4. Four Corners Design -- 4 survey versions with 6 questions each

	version	health	ecol	time	photoa	photob	photoc	photod	photoe	cost
1.	1	0	1	20	30	26	27	15	3	15
2.	1	0	0	10	16	19	20	27	17	35
3.	1	0	0	20	30	26	27	15	3	65
4.	1	0	0	10	72	19	7	2	0	115
5.	1	1	0	10	49	26	3	15	8	65
6.	1	1	0	20	49	26	3	15	8	115
7.	2	1	1	20	30	26	22	15	8	15
8.	2	1	1	20	16	19	20	27	17	15
9.	2	0	1	20	49	26	3	15	8	35
10.	2	0	1	10	37	26	19	15	4	35
11.	2	1	1	10	49	26	8	15	3	35
12.	2	1	1	10	37	26	19	15	4	65
13.	3	0	1	20	16	19	20	27	17	65
14.	3	0	0	20	37	26	19	15	4	115
15.	3	1	0	10	30	26	27	15	3	115
16.	3	1	0	20	30	26	22	15	8	35
17.	3	1	1	10	49	26	3	15	8	15
18.	3	0	0	10	49	26	8	15	3	65
19.	4	1	0	10	16	19	20	27	17	15
20.	4	1	0	20	72	19	7	2	0	35
21.	4	0	0	20	49	26	8	15	3	15
22.	4	0	1	10	49	26	8	15	3	115
23.	4	0	1	10	72	19	7	2	0	115
24.	4	1	1	20	72	19	7	2	0	65

visibility (5 percent) at a high cost $115, then the costs were replaced with the more consistent value -- $115 for the high visibility program and$15 for the low visibility program.

[4] Photos A and E are the primary focus of the visibility analysis, so variation in these levels is most important.

Table 5. Southeast Design -- 4 survey versions with 6 questions each

	version	health	ecol	time	photoa	photob	photoc	photod	photoe	cost
1.	1	0	0	10	49	25	23	3	0	65
2.	1	0	0	20	100	0	0	0	0	115
3.	1	1	0	10	49	25	18	3	5	65
4.	1	0	0	20	64	25	3	3	5	65
5.	1	1	0	20	100	0	0	0	0	115
6.	1	0	0	20	64	25	3	3	5	115
7.	2	1	0	20	19	24	21	22	14	35
8.	2	1	1	10	100	0	0	0	0	65
9.	2	0	0	10	19	24	21	22	14	15
10.	2	0	1	20	49	25	18	3	5	15
11.	2	0	1	10	49	25	23	3	0	115
12.	2	0	1	20	64	25	8	3	0	65
13.	3	1	1	20	64	25	8	3	0	115
14.	3	0	1	10	100	0	0	0	0	35
15.	3	1	0	10	64	25	8	3	0	15
16.	3	0	0	10	64	25	8	3	0	35
17.	3	1	1	20	49	25	23	3	0	15
18.	3	1	1	20	19	24	21	22	14	65
19.	4	0	1	10	19	24	21	22	14	15
20.	4	0	1	20	49	25	18	3	5	35
21.	4	1	1	10	64	25	3	3	5	35
22.	4	1	1	10	64	25	3	3	5	15
23.	4	1	0	10	49	25	18	3	5	115
24.	4	1	0	20	49	25	23	3	0	35

Testing the Experimental Design

To verify that the experimental design will identify all parameters, a simulation was run on the Four Corners experimental design with 1,000 replications. Each replication assumed a sample size of 400: 100 responses to each of the four survey versions. With each survey version having six questions, the total sample size for each replication was 2,400.

The simulation assumed the following specification for utility:

$$U = .04*PhotoA - .05*PhotoE + .7*Health + 1.15*Ecol - .03*Time - .025*Cost + \varepsilon$$

Simulation results for both types of models to be estimated are provided in Table 6.[5] All parameters appear to be well estimated, given the sample size.

[5] These results simply provide a "check" on the design levels. The hypothetical utility parameters were derived from basic analyses of data from earlier focus groups.

Table 6. Four Corners Simulation Results

Mean estimation — Number of obs = 1000

	Mean	Std. Err.	[95% Conf. Interval]	
Health Attribute	.6526956	.0025738	.6476449	.6577464
Ecological Attribute	1.151795	.0023456	1.147192	1.156398
Time Attribute	-.0386896	.0001654	-.0390141	-.038365
Cost	-.0258266	.0000354	-.0258961	-.0257572
Program 2	1.048048	.0046263	1.038969	1.057126
Program 3	1.257548	.0044654	1.248785	1.266311
Program 4	1.44215	.0045162	1.433288	1.451012
Program 5	1.783491	.0040151	1.775612	1.791369
Program 6	1.979975	.0038199	1.972479	1.987471
Program 7	3.073499	.0047036	3.064269	3.082729

Mean estimation — Number of obs = 1000

	Mean	Std. Err.	[95% Conf. Interval]	
Health Attribute	.7048772	.0024329	.700103	.7096515
Ecological Attribute	1.155364	.0022502	1.150949	1.15978
Time Attribute	-.0300786	.0001951	-.0304615	-.0296958
Cost	-.0250515	.0000352	-.0251206	-.0249823
Photo A	.0400566	.0000779	.0399038	.0402094
Photo E	-.0505181	.0002356	-.0509805	-.0500557

Analysis of Collected Data

As described above, choice data will be analyzed using standard discrete choice models in the RUM framework and values for various visibility improvement scenarios will be calculated. In addition, standard errors and confidence intervals will be calculated using the Krinsky and Robb (1986) simulation method. We will then perform several tests to evaluate the sensitivity of results to alternative model specifications within each region.

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

A number of methods will be used to maximize survey response rates, as summarized below:

- **Use of USPS Delivery Sequence File as Sample Frame**- By drawing the sample from a comprehensive list of residential mailing addresses, we avoid the potential for incomplete coverage of the target population potentially associated with other sampling frames. Within sampled households we ask that the survey be completed by the male or female head of the household.

- **Careful Survey Design and Focus Group Pre-Testing**- The survey was developed and rigorously tested in 20 two-hour focus group sessions (four groups in each of five different states). The questions are worded in a manner that is easy to understand and organized in a logical order. In addition, we have consulted a graphic design expert to assist with survey graphics, layout and presentation.

- **Administration by a University Survey Research Center**- Surveys that are Government/ University sponsored tend to receive higher response (Heberlein and Baumgartner, 1978). Our survey will be administered by a university survey research center.

- **Best-Practice Implementation Sequence**- Following Dillman (2000), households selected to participate in the survey will receive:

    - A pre-survey notification (initial contact) letter on NPS letterhead and signed by the Director of the Air Resources Division explaining the purpose and significance of the survey.
    - One week later respondents will be sent a copy of the survey with cover letter (including a toll-free number for respondents to call with any questions) and an incentive in the form of a $2 bill. The use of modest monetary incentives has been shown to significantly increase survey response rates (Rathbun and Baumgartner, 1996 and Warriner et al., 1996).
    - Within five days of the initial survey mailing a reminder postcard will be sent.

- Within three weeks of the initial survey mailing a second copy of the survey will be sent. Incoming responses will be tracked and the second mailing may be sent earlier if returns are tapering significantly.
- Three weeks after the second survey mailing the data collection period will conclude and the nonresponse surveys will be implemented.

Identifying Possible Nonresponse Bias

Nonresponse bias refers to the expected difference between an estimate from respondents in the sample and an estimate from the target population and may arise from both unit (household does not return survey) and item (returned survey is incomplete) nonresponse. Of particular concern in this context is whether nonresponse results in biased measures of WTP for visibility improvements.

We propose three specific procedures for investigating potential nonresponse bias in our collected survey data:

1) **Benchmarking**- Responses to demographic questions (e.g., age, income, gender, race, education) from respondents will be compared to data from the 2010 Census. In addition, the survey includes several questions regarding opinions on environmental issues and government programs from the National Opinion Research Center General Social Survey (collectively these are questions 26 to 36 as described in Part A). These responses will also be compared within survey region.
2) **Late Responders**- We will compare survey responses, respondent characteristics and estimated WTP values across individuals who returned their surveys at different times during the data collection period. For example, we can compare individuals who returned their surveys after the first mailing versus after the second mailing. Although all of these people are responders, those who respond later may share important characteristics with non-responders.
3) **Non-respondent Follow-Up Survey**- In four of the eight regions, nonrespondents will be re-contacted via Fed-Ex to complete a short follow-up survey consisting of a subset of five of the questions from the main survey. Sampled nonrespondents will receive one Fed-Ex package, which will include a $5 incentive. Up to two reminder postcards will be sent subsequently to encourage response.

Statistically-significant differences in the means and/or distributions of variables described in (1), (2) and/or (3) above would provide evidence of likely nonresponse bias.

Adjusting for Nonresponse Bias

In making adjustments for potential nonresponse bias we are concerned with factors that are related to response rates and individual's WTP for visibility improvements. The most common approach for testing and correcting for sample selection is the Heckman two-stage model (Heckman, 1979). The first stage entails modeling the likelihood of responding as a function of individual characteristics. We will rely upon the data collected in the nonrespondent phone surveys regarding demographic characteristics and responses to attitudinal questions. The estimated parameters from the first stage are used to calculate the inverse Mills ratio, which is included in the second stage to correct for selection under certain assumptions. In our case the second stage are the models explaining responses to the valuation questions.

Finally, we will test for significant differences in WTP estimates from the standard and selection models.

4. **Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of tests may be submitted for approval separately or in combination with the main collection of information.**

Survey materials were developed and tested extensively through a series of focus groups and a pilot survey, and were informed by an exhaustive review of past visibility valuation literature. Focus groups were conducted in five states in 2008 and 2009. Four groups were held in each state (two groups per evening on consecutive evenings) at professional focus group facilities. Respondents were randomly recruited from samples of local telephone numbers.

Atlanta, GA: The first set of groups focused on investigating respondents' understanding of "National Parks and Wilderness Areas"; evaluating the degree to which respondents focus on visibility improvements versus any health and/or ecological benefits resulting from reduced haze; evaluating the degree to which respondents believe that visibility improvements will only occur within a designated "visibility improvement region;" investigating respondents' reactions to images selected to depict five levels of visibility due to differing levels of haze; determining the best approach for presenting numerical and graphical information about the distribution of visibility levels throughout the year; and exploring respondents' reactions to different payment vehicles for eliciting willingness to pay for visibility improvements.

- **Chicago, IL**: Key objectives of the second set of groups included evaluating respondents' understanding of how particles that form haze move to National Parks and National Wilderness Areas; evaluating whether participants were able to understand how the Regional Haze Rule will result in improved air quality in National Parks and National Wilderness Areas; evaluating respondents' reactions to digitally manipulated photographs that depict visibility at five different levels of haze; evaluating respondents' reactions to numerical and graphical presentations of information about the distribution of visibility levels throughout the year, under baseline (current) conditions and improved (reduced haze) conditions; and, evaluating respondents' reactions to the use of electricity bills as the payment vehicle used for eliciting willingness to pay for visibility improvements.
- **Sacramento, CA**: Key objectives of the third set of groups included evaluating respondents' ability to understand bar charts depicting information about the distribution of visibility levels throughout the year under baseline conditions (no implementation of haze-reduction program), natural conditions (all human-caused haze eliminated), and conditions under a haze-reduction program; evaluating respondents' reactions to the introduction of visibility improvement program attributes and levels; and, evaluating respondents' responses to draft attribute-based choice questions.
- **Denver, CO**: The fourth set of groups focused on further refining the description and presentation of choice question attributes and levels. In addition, two variants of the survey were tested- a regional section which only focuses on improvements within the one visibility improvement region closest to where the participants live, and a national section which considers visibility improvements within all seven improvement regions across the United States.

- **Boston, MA**: The fifth and final set of groups focused on final revisions to the choice questions. Specifically, the attribute table was divided into two columns, with-program and without-program, to explicitly define the status quo conditions; the visibility improvement scenario represented by bar charts was moved to the top of the table to encourage respondents to explicitly consider this attribute when answering each choice question; and, two bar chart formats were investigated, one with current and improved conditions on the same chart (as in previous groups) and one with separate charts for each state.

Upon completion of the Boston focus groups the study team was confident that the choice question format with separate charts was superior and that the remainder of the information and questions in the survey was functioning properly. All survey materials were then provided to experts in the field of stated-preference and visibility valuation for peer review (Dr. Vic Adamowicz and Dr. William Schulze). Comments from these experts were incorporated and final materials were developed. Full reports describing the focus group proceedings and the peer review reports are submitted as a supplementary document.

Dr. Vic Adamowicz, Distinguished Professor
Department of Rural Economy,
University of Alberta,

Dr. William Schulze, Professor
Applied Economics and Management,
Cornell University,

The purpose of the pilot study was to determine whether survey, valuation scenario and experimental design parameters functioned properly prior to implementation of the full survey. A mail survey was administered to a random sample of 4,000 households in the southwestern and southeastern U.S. in late summer and early fall of 2012. Response rates for the southwest and southeast surveys were 38.6 and 32.5 percent, respectively. Telephone and mail follow-up surveys of nonrespondents were also conducted. A comparison of “benchmarking” question responses to well-established public opinion survey results, as well as respondent characteristics to Census data, indicated that survey respondents were similar to, but not fully representative of, the general populations of these regions. Analysis of valuation question responses indicated that the magnitude of visibility improvement and the occurrence of related ecological and human health improvements are significant determinants of program choices. Household willingness-to-pay (WTP) for visibility improvements increased with programs that reduce the number of lowest visibility days and increase the number of highest visibility days over the course of a year. Models based on data weighted to reflect general population parameters resulted in WTP estimates that were generally between +/- 10 percent of unweighted estimates. Overall, the pilot study results indicated that the survey instrument functioned well and is appropriate for full implementation. Detailed pilot results are provided in report attached as Appendix A.

5. Provide the names and telephone numbers of individuals consulted on 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.

- Dr. Kevin Boyle, Professor and Department Head, Agricultural and Applied Economics, Virginia Tech University, (540) 231-2907.
- Dr. Richard Carson, Professor, Department of Economics University of California, San Diego, (858) 534-3384.
- Mr. Robert Paterson, Principal, Industrial Economics, Incorporated, (617) 354-0074.

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