<u>**The 2016 Supporting Statement Part B for OMB 0710-XXXX**</u>
U.S. Army Corps of Engineers (USACE or COE))
Recreation Use and Expenditure Surveys

B. <u>COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL</u>
<u>**METHODS**</u>

   1. <u>Description of the Activity</u>

      The Recreation Use and Expenditure Surveys estimate the number and type of recreation visits to COE lands and related expenditures. The data collected will be used to identify, quantify and evaluate recreation use and expenditures for planning, feasibility studies, environmental assessments, environmental impact statements, development of visitation models, and estimates of economic impacts for both existing water resources projects and proposed water resource development. Another purpose of the visitor surveys is to obtain statistics that can be applied to monthly vehicle traffic meter tallies to produce estimates of visitor use levels. The objective is to obtain a probability sample of all vehicles leaving a recreation area during the summer season (the universe of interest) from which load-factor statistics applicable to that universe can obtained and applied to the aggregate vehicle tally (a single number) of the same universe obtained by an automatic vehicle counting device (i.e., traffic meter).

      In practice, it is not possible to identify, enumerate, and select a probability sample of the vehicles that will be leaving the recreation area during the summer season. So instead, the season is divided into all possible sampling periods of some duration (ours is about 1.75 hrs. long) that account for nearly all vehicles exiting from the recreation area. This produces a universe of possible sampling periods that can then be selected via a probability sample.

      For reasons of safety and security, surveys will take place only during daylight hours, potentially missing vehicle exits that occur during the night. Some surveyed recreation areas will employ measures (regulations, access gates, etc.) that limit vehicle access to the daylight hours. Other recreation areas will remain open after dark. A very high percentage of vehicle exits is expected to occur during daylight hours, so the potential impact of excluding nighttime hours from the universe is expected to be quite small.

      The survey design can be viewed as a stratified cluster sample, with a primary sampling unit (psu) consisting of the fixed length survey period, and a secondary psu consisting of a vehicle exiting during the survey period. In practice, information is obtained from all vehicles (less non-respondents) leaving during a surveyed sampling period, hence a cluster sample.

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The proposed survey design and level of sampling effort at each surveyed recreation area is consistent with the methodology implemented in 2012-2013. The survey design employs 16 sampling strata intended to ensure that all times of times occur in the sample. A fixed sample size of n=2 sampling periods per stratum (n=32 total) produces a sample allocation of 50% on weekdays and 50% on weekend days, The weekday vs weekend allocation matches the typical expected distribution of recreation visits, producing as near as possible an optimal allocation of survey effort. The strata identities and associated sampling effort are provided in the table at the end of this section.

Strata Identity and Associated Sampling Effort For Proposed Corps Of Engineer Visitor Surveys of Individual Recreation Areas.			
Strata		No. of Possible Sampling Periods (Universe)	Strata Sample Size
TimePeriod*	DaysofWeek		
1	Weekday	60	2
2	Weekday	60	2
3	Weekday	60	2
4	Weekday	60	2
5	Weekday	60	2
6	Weekday	60	2
7	Weekday	60	2
8	Weekday	60	2
1	Weekend	24	2
2	Weekend	24	2
3	Weekend	24	2
4	Weekend	24	2
5	Weekend	24	2
6	Weekend	24	2
7	Weekend	24	2
8	Weekend	24	2
Total		672	32
* Time periods of approximately 1.75 hrs duration cover daylight hours of the day, beginning near sunrise (TimePeriod 1) and ending near sunset (TimePeriod 8).			

While the intent is to obtain data from all vehicles exiting during the survey period, the survey is voluntary and some will decline to participate. In the previous surveys, the percentage of vehicles for which no response was obtained ranged from 2% to 48%, averaging about 18%. It has been determined that the non-response percentages in the higher end of this range can be attributed to interviewer technique and periods of high exits where visitors are unwilling to wait.

2. Procedures for the Collection of Information

a. Statistical methodologies for stratification and sample selection;

The universe described above will be divided into 8 x 2 = 16 strata, corresponding to 8 different equal length time periods during the daylight hours and 2 day-of-week strata consisting of weekday (M,Tu,W,Th,F) and weekend (Sat,Sun) days. This will result in primary sampling units (psu's) for each time-of-day stratum numbering 60 weekdays and 24 weekend days over a 12 week summer sampling period that corresponds to summer recreation season. n=2 survey periods will be independently selected at random and without replacement from the available psu's for each of the 16 strata, yielding a total planned sample size of 32 sampling periods, each approximately 1.75 hrs. duration during summer surveys. For each sample period, each vehicles leaving the recreation area will be classified NonRec, ReturningRec, or Rec Vehicles, with the occupants of Rec Vehicles interviewed to obtain recreation use information. During shoulders seasons, the strata is compressed in half (4 time periods per day) yielding 30 weekday and 12 weekend stratum where sampling is randomized over a 7 week sampling period. This compression is due to reduced visitation levels requiring longer stratum to allow for desired exit rates and more conducive environmental factors for interview based sampling.

The collection of data occurs via two survey tools. For the Recreation Use Survey, interviewers are stationed at the exit of a recreation area based on the schedule produced from the above stratification. This survey is used to develop factors that are subsequently applied to a vehicle meter reading, so all traffic that crosses the meter during the designated strata timeframe must be documented. Vehicles exiting the recreation area (park) are documented by stopping to take the survey (they still have the option to refuse the survey) or are noted as a "drive by" (some vehicles refuse to stop, limited observations are made as the vehicle drives past the survey station). The interviewer reads survey questions to the respondent from a computer screen and records responses on the computer; the respondent does not see or interact with the computer screen. The survey tool utilizes logic to minimize the respondent burden and only ask questions relevant to the respondent's park visit. Near the end of the survey, respondents

are asked if they would be willing to participate in a follow-up survey and if so are asked to provide their e-mail address.

The follow-up Expenditure Survey is sent to respondents of the on-site Recreation Use Survey that voluntarily provide an e-mail address. The respondent is sent an e-mail that contains a link to a web based survey. Each potential respondent is sent a unique link and a limited amount of data related to the on-site visit (date, location, party size) is provided to enhance recollection of the park visit they should provide information on. The data collected from this survey, in conjunction with some of the activity participation information from the on-site Recreation Use Survey is used to model the economic impact of recreational visitors. USACE uses survey data with an IMPLAN model to estimate economic impact, an approach consistent with the other Federal Land Management Agencies (Federal Interagency Council on Outdoor Recreation; Outdoor Recreation: Jobs and Income, 2013 fact sheet).

b. Estimation procedures;

For each surveyed recreation area, meter calibration variables, related visitor statistics, and their sample variances will be estimated using statistical software. These analyses will incorporate the survey design, including identification of strata, primary sampling unit (psu), and weights that reflect both sample selection probabilities and the percentage of non-response vehicles associated with each psu.

c. Degree of accuracy needed for the Purpose discussed in the justification;

Data collected in 2012-2013 has produced estimates of the most important meter calibration variables and related visitor statistics used for visitation estimation, with Coefficients of Variation averaging 5.6% for the Pct. Rec Veh. load-factor and 8.9% for the Day-use Visitors Per Recreation Vehicle load-factor. These are judged adequate to produce visitation estimates of acceptable precision at a majority of the recreation areas surveyed.

d. Unusual problems requiring specialized sampling procedures;

Sampling will employ finite population survey methodology, including a well-defined sampling frame in which the units that make up the frame are selected via stratified random sampling. The only anticipated deviation from standard stratified random sample selection will involve the use of randomization restrictions intended to increase the number of different recreation areas that can be sampled by a single survey team and to guarantee certain survey-free days needed by the data collection personnel.

e. Use of periodic or cyclical data collections to reduce respondent burden.

The load-factor statistics produced from these surveys will increase the pool of available load-factors for various categories of recreation areas, from which subsequent analyses of sources of load-factor variability will be used to develop predicted load-factors that can then be applied to traffic meter tallies at non-surveyed areas that have the appropriate set of recreation and site characteristics. This is expected to greatly reduce the overall number of surveyed recreation areas needed overall to produce Corps-wide visitation estimates.

3. Maximization of Response Rates, Non-response, and Reliability

Applicability of Universe: As indicated in item 1 above, the sample universe will exclude the nighttime hours during which vehicle exits may occur at some recreation areas. However, visitor use patterns at COE recreation areas indicate this will potentially exclude only a very small percentage of vehicle exits. Otherwise, the survey period fairly closely matches (more than 90% overlap) the recreation season for which resulted are intended to apply and for which total vehicle traffic is to be obtained from the automatic vehicle counting devices are monitoring vehicle traffic volume.

NonResponse: As indicated in item 1 above, enhanced training of interviewers will be introduced in an effort to bring down the highest levels of non-response. In addition, we plan to continue use of experimental survey protocols for the visual classification of vehicles by interviewers as well as the use of an abbreviated set of vehicle set of classification questions to be administered to people expressing reluctance to undergo the complete interview, but willingness to answer a few questions. These data will be used to explore opportunities to identify and potentially address non-response issues involving certain key statistics.

4. Tests of Procedures

In 2011, this survey was tested by the usability board at Michigan State University with a pool of 9 participants. Feedback was incorporated into the survey used during the Fall of 2011, and FY 2012-2013. Differences in question response patterns observed for previous surveys conducted were used to identify refinements to the survey instrument and to survey execution protocols that together are expected to reduce data entry errors and thereby improve the overall accuracy and reliability of the survey data. In addition, ongoing review during the survey season of recently acquired data was used to identify corrections and adjustments to ensure consistent application of survey procedures by the different survey teams.

5. Statistical Consultation and Information Analysis

a. Provide names and telephone number of individual(s) consulted on statistical aspects of the design.

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b. Provide name and organization of person(s) who will actually collect and analyze the collected information.

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