

**ODOT BROOKINGS-HIGHWAY 101
TRANSPORTATION SOLUTIONS
PROJECT SURVEY
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SURVEY METHODOLOGY**

SURVEY INSTRUMENT DEVELOPMENT, SAMPLING,
DATA COLLECTION, DATA PROCESSING, QUALITY
CONTROL, DATA REDUCTION



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INTRODUCTION

This report summarizes the University of Oregon Survey Research Laboratory's (OSRL's) survey methodology for Oregon Department of Transportation (ODOT) Brookings-Highway 101 Transportation Solutions Project Survey. Working closely with ODOT project director Richard Malone, OSRL planned, pre-tested, and implemented a telephone survey of 365 randomly selected residents in Brookings area.

BACKGROUND

ODOT intends to obtain public's opinions about the highway 101 transportation solutions project in downtown Brookings. ODOT and OSRL have developed four broad groups of survey questions:

1. basic questions in regards to the location and duration of residence, familiarity to the project, and demographic information,
2. attitude questions towards traffic congestion and safety issues in downtown Brookings,
3. questions regarding the ways the public was exposed to the project, and
4. questions regarding the public's preference of different alternative plans.

SURVEY METHODOLOGY

This section describes OSRL's procedures for developing and implementing the telephone survey instrument and sample to conduct this representative study.

SURVEY INSTRUMENT DEVELOPMENT

In fall of 2004, ODOT and OSRL staff collaborated in meetings and discussions to construct a framework of the instrument. The team endeavored to operationalize survey questions that are appropriate to the project's purposes and as valid and reliable as possible.

The ODOT Borrkings Survey included the following topics:

1. **Duration and location of residency in Brookings area;**
2. **Opinions about traffic congestion and traffic safety issues in downtown Brookings;**
3. **Knowledge about the transportation project;**
4. **Ways in which they obtained information about the project;**
5. **Preferred alternative plan; and**
6. **Evaluation about the opportunity for input regarding the project.**

All survey questions underwent OSRL's standard pretest procedure. Individual questions were pretested for clarity, accuracy, validity, and variability of response. The entire instrument was pretested for flow, comprehensiveness, length, and factors which affect respondents' cooperation and attention.

SAMPLING

OSRL employed random digit dialing (RDD) to select the sample for this survey. Census 2004 reported Brookings' official population as 6,050 residents. Project Director Juyeon Son randomly generated a total of 2,000 telephone numbers for the Brookings community, using Genesys Sampling Systems software, and loaded it into WinCATI. The report binder contains a complete sample report and telephone call disposition report.

To ensure that all survey respondents resided within the city limit of Brookings, the following question directly followed the survey introduction:

“Do you live within the Brookings city limit??”

Of all 2,000 telephone numbers loaded into WinCATI, 938 (46.9%) of the randomly generated telephone numbers were ineligible because they were non-working, non-residential, disconnected, or fax/modem lines. The status of 31.4% could not be confirmed due to repeated busy signals, no answers, and answering machines.

The sample coverage rate was 84.1%. We note that households without telephones were necessarily excluded from this study's sample and poor persons most often lack home telephones.

Sampling error for a study of this size is moderate to small. The survey sampling error statistic assists users of these data in assessing how much confidence to place in a particular survey result. Moderately large random samples, as in this study, reduce sampling error. Survey results with low variability also produce less sampling error; e.g., a variable with a 5/95 proportional split has narrower confidence intervals than a variable with a 50/50 proportional split.

For this study, the confidence interval is ± 4.8 percentage points on variables with a 50/50 proportional split (at the 95% confidence level). This means analysts can be 95% sure that the

true population figure lies between 45.2% and 54.8% (i.e., 50% \pm 4.8 percentage points). For variables with a 5/95 proportional split, the confidence interval is \pm 2.1, which means analysts can be 95% sure that the true population figure lies between 92.9% and 97.1% (i.e., 95% \pm 2.1 percentage points). For details, see OSRL's "Sampler" at <http://osrl.uoregon.edu/papers/sampler/>.

DATA COLLECTION, DATA PROCESSING, AND QUALITY CONTROL

OSRL timed the survey to the second week of January, 2005 which was four weeks after the release to public of the Environmental Draft of the Project.

OSRL conducted interviewer training on Thursday, January 13, 2005. Interviewing commenced on Friday, January 14, and continued until Saturday, January 22 when the target sample size was achieved, n=365. Interviewers called between 9 a.m. and 9 p.m. all days of the week, with the exception of Sunday morning. Interviews averaged 7.18 minutes. On average, about 8.65 telephone dial attempts were required for each completed interview, but up to 25 calls were made. All interviews were conducted in English.

Altogether, OSRL interviewers made 3,147 telephone calls to complete 365 interviews. OSRL routinely reports a CASRO-type response rate, according to the highest industry standards (source: Robert M. Groves, *Survey Errors and Survey Costs*, 1989). The formula for calculating this response rate requires that each telephone dial attempt be assigned a call disposition code. At the completion of the survey project, the final disposition code for each telephone number is used for response rate calculation. The overall survey response rate was 57.69%, and the refusal rate was 5.69¹. The sample report provides the study's complete sample, call disposition, and response rate report.

The survey was conducted using OSRL's WinCATI system, in which sampling, interviewing, and entry of data is accomplished interactively and seamlessly. Interviews are pre-programmed and appear automatically at each workstation. The programmed survey instrument contains all survey questions, interviewer probes for consistency, and pre-coded answer categories. Skip logic is programmed into the system, preventing inappropriate or incorrect questions from being asked. The WinCATI system eliminates out-of-range responses and wild codes by validating each response interactively and disallowing the entry of inappropriate responses.

In administering the survey instrument, trained interviewers use telephone headsets in sound-reduced carrels at computer workstations connected by a Windows XP network. Randomly distributed telephone numbers appear automatically at each workstation and are mated to the survey instrument. Interviewers place telephone calls with a computer keystroke, preventing dialing errors. As respondents answer questions, interviewers enter the data into the WinCATI data file. Telephone numbers and names are automatically stripped from the interview records to ensure confidentiality. Thus, the WinCATI system eliminates many

¹ Response rate was calculated in following manner: Completed interview / (Eligible sample + ((Eligible sample / (Eligible sample + Ineligible sample)) * Sample with unknown status))

routine and error-prone coding and entry of data tasks and enables OSRL to maintain the highest standards of quality.

Interviewer training is a key aspect of quality control at OSRL. We employ highly trained, skilled and motivated interviewers. General interviewer training begins with an extensive program of general interviewing skills, neutral probing, bias-free responses, telephone etiquette, practice interviews, role-playing and testing by supervisors. We also completely train and test interviewers in WinCATI so that interviewers and the data collection system work together flawlessly. General training is followed by several hours of project-specific training for each survey. Project-specific training includes an overview of the project goals and sample, unusual features of the study, respondents' commonly-asked questions revealed in pretesting and interviewers' scripted responses, as well as role-playing using both paper and WinCATI versions of the survey. Finally, at the beginning of each interviewing shift, OSRL's Interviewer Supervisors hold a 5-10 minute mini-training to review and refresh interviewing techniques and to address any new developments in the survey process.

Project management and supervision is another key element to OSRL's quality control. OSRL Supervisors continuously monitor the interface between respondents, interviewers, and the computer systems that record respondents' answers. Interviewers are routinely evaluated, tested and provided with constructive criticism. Interviewers are provided pre-scripted answers to respondents' common objections or questions as part of their training, but supervisors also are always available to help should the need arise. Finally, OSRL's laboratory setting has created a valuable sense of teamwork among interviewers, which in turn provides peer monitoring and mutual helpfulness dedicated to quality.

DATA REDUCTION

After the collection of data, a Project Director transfers the raw data from WinCATI into SPSS and Excel with appropriate variable and value labels, and makes corrections (if necessary).

This instrument included several open-ended survey questions. OSRL interviewers record open-ended responses exactly as spoken by respondents, word for word.