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GUIDELINES FOR CONDUCTING SURVEYS CONCERNING TRANSPORTATION

RESEARCH PROJECT

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SEPTEMBER 1975

PREPARED FOR
WASHINGTON STATE HIGHWAY COMMISSION
IN COOPERATION WITH
U.S. DEPARTMENT OF TRANSPORTATION
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16. Abstract

The purpose of this study is to produce guidelines that provide specific, operational and action oriented assistance to those responsible for planning and implementing transportation surveys as a community involvement tool.

A considerable amount of recent transportation survey experience along with the provision of technical information from private urban opinion survey organizations was researched and analyzed for inclusion in these guidelines. By discussing and comparing the relative merits of different survey techniques, the sampling process, questionnaire design, and examples of past surveys, these guidelines cover the theoretical as well as the practical side of the surveying process. The presentation of this information is in such a form that it can be used by field staff to insure that this vital element of a community involvement program can be performed in an efficient and effective manner.

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The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of Washington, Department of Highways, and/or U. S. Department of Transportation, Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

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These guidelines were prepared by the Social and Economic Planning Section of the Washington State Department of Highways, which gratefully acknowledges the assistance of Mr. Donald J. Morgan, Director, GMA Research Corporation, for providing technical information.

The purpose of this report is to provide some specific guidelines for the development and administration of surveys which seek to obtain attitudinal and various types of factual information for the planning and design of transportation projects.

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INTRODUCTION

This report represents a compendium of guidelines for designing and conducting transportation surveys. These guidelines are to be distributed throughout the State (in each district) for use by district engineers in planning and implementing transportation surveys where dictated by project scope.

The guidelines provide a basic framework for establishing an information needs assessment and the research design to fulfill those needs. Conversely, the guidelines demonstrate the means whereby analysis of survey findings may be instrumental in community decision-making and transportation planning, an integration that too often is never accomplished.

The Highway Action Plan includes the use of transportation opinion surveys as one important method of community involvement:

> ...Various methods to involve the community may be used to achieve program objectives such as: advisory committees, informal public meetings, workshops, hearings, exhibits at drop-in centers, surveys, information publications, personal contacts and news releases and reports through the media.
>
> Action Plan pp. 5-6

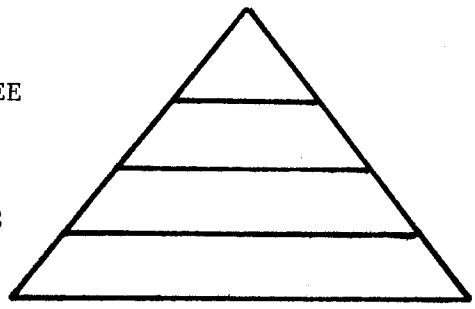
Surveys of the population on transportation problems, needs, attitudes and behavior can and do involve more persons in the community than other means mentioned above. Through transportation surveys each member of the community has a statistical opportunity to participate in the decision-making process. As the pyramid below signifies, the survey provides the largest degree of input from the widest community base compared to other involvement mechanisms.

CITIZEN ADVISORY COMMITTEE

PUBLIC HEARINGS/MEETINGS

INFORMAL DIALOGUE/LETTERS

TRANSPORTATION SURVEYS



"INVOLVEMENT PYRAMID"

PURPOSE

The overall purpose of this report is to provide specific, operational and action-oriented guidelines for conducting transportation surveys. Further, it is to inform, educate and improve the awareness among those who may be able to utilize transportation survey research as a community involvement tool.

The purpose for conducting transportation surveys is to obtain information from citizens concerning the following factors:

(1) State, regional and community values.

(2) Social, economic, and environmental impacts as well as engineering concepts and details.

(3) Provide for improved communication among citizens, decisionmakers and professional personnel.

(4) Detect and anticipate problems.

(5) Provide a vehicle for solutions of problems.

*What the transportation opinion survey can do.

- Surveys are effective in obtaining certain kinds of information from a target population; however, it is necessary before conducting a survey to answer a key criticism: can we assume knowledge, opinions and attitudes of the citizens are based on real or contrived environments? In other words, do the people to be contacted have sufficient understanding and knowledge to give realistic answers and useful information.

- Surveys can profile the behavior of a community through sampling only the opinions of a few. Statistics provide the sample sizes necessary to establish the number of interviews to complete, for a given set of acceptable error limits. Thus surveys can project the community patterns in an area without a 100% documentation from each resident.

- Surveys afford the public in general an opportunity to participate in the planning process - an opportunity not realized but by only a selected, pointed few in other citizen participation methods.

- Data derived from transportation surveys can be used to project the status of an area at some future point in time. Historically, surveys taken over time can be used to track trends and changes within a population's behavior and attitude.

* What the transportation opinion survey cannot do.

- Surveys deal with cognitive information, that is conscious human motivation and opinion. Therefore, surveys tend to be more quantitative than qualitative. To understand the deeply held beliefs of a population regarding transportation, sophisticated, clinical psychological inquiry techniques are required. The survey does not compete with this kind of in-depth probing into the public psyche.

- Surveys cannot be 100% accurate in what they tell the transportation planner about a community. Sampling automatically presents an error range for resultant data. It is necessary, at the outset to conducting a survey, to decide what is or is not an acceptable error limit for the survey results.

- Survey results are temporal. They represent the current thinking of the population and therefore are, like the U.S. Census, somewhat out of date the day after the interviews are complete. However, as this must be taken into consideration when planning a survey, the scope and nature of questions asked should take this into account. Further, once the survey is complete, the planner/researcher must review what, if any, events have taken place in the environment which may have a dominating factor to bias the survey results.

Establishing the Transportation Survey Objectives

The characteristics, behavior patterns, attitudes, beliefs and opinions of the population are significant considerations in planning the development of a transportation system whether it be a new or improved facility. Therefore, any actions or events which may affect this population should take into consideration (i.e., community involvement/participation) these parameters to the extent of making them an incumbent part of the decision framework.

The overall guiding objective for the transportation survey is:

TO MEASURE, THROUGH CONTEMPORARY SCIENTIFIC RESEARCH METHODOLOGIES, THE OPINIONS, VALUES, BEHAVIOR PATTERNS, ASPIRATIONS AND GENERAL CHARACTERISTICS OF THE TARGET POPULATION WHICH IS TO BE EITHER DIRECTLY OR INDIRECTLY AFFECTED BY THE TRANSPORTATION SYSTEM.

Specifically, the functional objectives should be:

1. To measure the values and desires of community residents regarding development of transportation systems in the area and any potential changes to that system.
2. To measure opinions of community residents regarding the future development of the area in which they live.
3. To measure the opinions of community residents regarding the factors which may directly or indirectly influence the planning, design and implementation of transportation systems in the area.
4. To measure the perceived social, economic and environmental impacts of transportation system developments and alternatives in the area.

5. To measure the perceived goals and objectives for transportation by community residents within the area.
6. To detect any perceived transportation problems or transportation related problems by the community residents.
7. To integrate the results from these measurements into the overall transportation planning and decision-making process.

Flexibility

It is mandatory that flexibility be maintained when setting objectives of each transportation survey due to the idiosyncrasies of individual area needs and the lifestyles of different communities in each district.

Guideline No. 01

Process of Transportation Survey Research

Phase	Description
Hypothesizing	Deciding what is to be investigated within the general area of transportation.
Designing	Establishing the procedures and methods to be employed.
Planning	Itemizing the procedures against time, resources, manpower and materials.
Resource Allocation	Arranging for the expenditure of resources, manpower and materials.
Sampling	Determining who is to be interviewed and developing the sample selection plan.
Questionnaire	Deciding on topics to be used in framing questions. Planning the mechanics and format for the questionnaire. Pretesting the questionnaire on a representative selection of respondents to determine if the mechanics elicit the necessary data.
Orientation and Training	Briefing interviewers or staff on objectives and procedures to be employed, training and simulation in technique application.
Field Work	Securing the data from respondents (in the case of a mail survey this is still the field state where questionnaires have been sent out and a proportion returned).

Phase	Description
Monitoring and Controlling	Keeping records of the field work to insure standards are being maintained, procedures followed, problems solved as they arise and work completed on schedule.
Verifying	Determining the collected information is accurate and free of defects from process or interviewer bias.
Coding	Preparing the Completed questionnaires for processing. This is a multi-faceted process involving skilled personnel who should be briefed and trained for this work.
Processing	The electronic, machine, or hand tabulation and manipulation of the collected data from questionnaires. Involves key punching, verification and computer processing using a variety of survey research tabulation programs.
Analyses and Interpretation	The manipulation and molding of resultant data from the processing phase into meaningful information including observations, interpretation, statistical analysis, conclusions and recommendations.
Reporting Results	Providing the end product to others through written, printed reports, oral presentation and group discussions.

Guideline No. 02

Selecting the Methodology for collecting data

The objectives and needs of the individual project dictate the technique to employ in gathering information from respondents. The majority of the surveys conducted by the Department of Highways have been implemented through the "drop off and pick up" procedure. The realized rate of return ranges from 50 to 80% with representative samples derived in most cases.

The following table summarizes the advantages and disadvantages of alternative techniques for collecting data in transportation opinion surveys.

Technique	Advantages	Disadvantages
Mail	1. Least expensive of all methods. 2. Can contact large number of households in extended areas, rural and urban. 3. Follow-up increases rate of return by mail or telephone, however, increases overall costs.	1. Low rate of return. Mail surveys conducted by Department of Highways have ranged from 6 to 45% of original mailout. 2. Cannot control who completes the questionnaire. 3. Bias from selected types of individuals who respond to mail more than others. 4. Turnaround time longer to develop system

Technique	Advantages	Disadvantages
Personal, Face to Face	1. Can have longer interview, up to one hour or more. 2. Most control of interview. 3. Can use visuals during interview. 4. Can observe reactions and record them.	1. Most expensive of all methods. 2. Time for completion dependent on sample distribution but may be long. 3. Interviewer bias from both voice and appearance possible. 4. Co-op fee (i.e., monetary incentive) is often necessary.
In-Depth or Focus Interviews	1. Qualitative rather than quantitative in nature to dig deeper into attitudes and beliefs than possible with other techniques. 2. May be used to design a questionnaire or for pretesting concepts.	1. Most costly per interview. 2. Restricted sample will not permit projections on the basis of results. 3. Requires highly skilled interviewer capability.

Technique	Advantages	Disadvantages
Drop Off, Pick Up Self Administered	1. May have long questionnaire due to self-administered 2. Less cost than personal interview. 3. Provides more opportunity for personal questions. 4. Rate of return between 50-80%. 5. Can cover large sample without selecting special addresses.	1. Possible field person bias by appearance. 2. Rate of return is less than 100%, thus incorporating potential bias. 3. Lack of control over asking questions and recording responses.
Telephone	1. Less cost than personal interview or drop off. 2. Can reach wide geographic areas from one location. 3. No bias involved from appearance of interviewer. 4. High completion rate.	1. No visuals may be used during interview. 2. Limited interview length, usually 15-20 minutes maximum. 3. Voice inflection of interviewer may have significant influence on respondent.

Guideline No. 03

Drawing the Sample

There are a number of valid scientific methods to design and complete the selection of who is to be interviewed in the transportation survey. These range from a highly precise, theoretically sound, rigidly controlled random sample of households in the target area to a non-random, quota controlled selection. Generally the procedure for any field survey requires compromise on the sample procedure as dictated by circumstances in the area and the availability of sound information about the population to be surveyed.

There are two basic considerations in establishing the sample once it is agreed who is to be interviewed (in transportation surveys, each household is an interviewing unit; that is, only one interview is taken, with the head of the household).

1. Size of sample to achieve the required precision
2. Distribution of the sample over the geographic area proportionate to household and/or population concentration.

Sample Size vs. Precision

Two tables below show the sample size requirements for selected study areas. These tables state the sample sizes needed for particular confidence intervals (95 percent and 99 percent) and when certain degrees of reliability are desired, which are shown as the column headings. Bear in mind also that a randomly selected sample is assumed.

The confidence level is a probability measure by which the sample, based on some variable, reflects the study area as a whole. A 95 percent confidence level means that there is a 95 percent chance that some variable in the sample is indicative of the study area. The degree of reliability measures the amount of discrepancy between the sample and the study area. If the degree of reliability is $\pm$ 1%, then the results of the sample can be generalized to the entire study area to within one percent. The higher the confidence level and the smaller the degree of reliability, the greater the chance that the sample will reflect a true picture of the study area.

Distribution

Several methods for distribution have been employed. In urbanized areas using cluster sampling a number of blocks are randomly selected to represent the area. A 100% distribution is achieved in these blocks during the field work phase.

Another approach is to employ a skip interval on a street basis and thus sample every fourth or "Nth" street within the area. By criss-crossing this selection, the geographic area is covered within the scope of the survey target community.

The researcher must be aware that sampling is at best a customizing process where a compromise is achieved to derive the most valid representative sample of the community characteristics within the limitations of the overall project. Major limitations include time, manpower, financial resources, seasonality, and survey scope.

95 PER CENT CONFIDENCE LEVEL				
No. of Occupied Households In Study Area	Sample Size for Reliabilities of			
	1%	2%	3%	4%
1,000	*	*	473	244
2,000	*	*	619	278
3,000	*	1,206	690	291
4,000	*	1,341	732	299
5,000	*	1,437	760	303
10,000	4,465	1,678	832	313
20,000	5,749	1,832	858	318
50,000	6,946	1,939	881	321
100,000	7,465	1,977	888	321
500,000	7,939	2,009	895	322

99 PER CENT CONFIDENCE LEVEL				
No. of Occupied Households In Study Area	Sample Size for Reliabilities of			
	1%	2%	3%	4%
1,000	*	*	*	360
2,000	*	*	873	436
3,000	*	*	1,021	470
4,000	*	1,862	1,116	489
5,000	*	2,053	1,182	502
10,000	*	2,584	1,341	527
20,000	8,213	2,967	1,437	542
50,000	10,898	3,257	1,502	551
100,000	12,231	3,367	1,525	554
500,000	13,557	3,460	1,544	557

*In these cases more than 50 percent of the occupied households in the study area are required in the sample.

Source: Herbert Arkin and Raymond R. Colton, Tables for Statisticians (New York: Barnes & Noble, Inc. 1963), pp. 151-52.

Rate of Return - Completion Allowance

It is necessary to keep in mind that sample size is determined by the number of interviews actually completed rather than the number originally attempted. As with mail surveys which often result in a 20% rate of return, should the requirement call for a sample of 200 completions, the original mail-out must be about 1,000. With personal interviewing or drop -off surveys, the rate of completion is higher, and therefore the original contact number may be less in proportion to the number of expected returns. However, as each area is unique, the researcher is wise to allow for a margin of error in estimating the completion allowance based on past projects.

Validate Your Sample Base

Always confirm with local authorities of the area, the validity of your information being employed to derive the sample. As in the case of using 1970 U. S. Census data of household distribution, this may have changed significantly in any particular area from the time of the census. In addition to local government, other sources include the U. S. Postal Service, local utilities, and major real estate concerns.

Examples of Sampling Methodologies Employed in Past Surveys by Washington State Highways

I. Stratified Cluster Sample:

The first step in implementing this method is to determine the total number of occupied households, including renters and owners, in the study area. This information is available in the 1970 Census of Housing Block Statistics for either Seattle-Everett, Spokane, Tacoma, or selected areas. By utilizing

the census tract maps, one can determine the census tracts which lie within the area to be sampled. Once known, the owner and renter occupied totals for each census tract are added to determine the total number of occupied households in the study area. When this figure is arrived at, the next step is to decide what confidence level and range of error is desired. This can be determined by using the tables on page 13 for either a 95 or 99 percent confidence level. Keep in mind that the type of survey utilized will determine the number of questionnaires that must be distributed to achieve the desired confidence level and range of error.

Once the size of the sample is determined, the next step is to calculate what proportion of the total occupied units are within each census tract. This figure is arrived at by dividing the total number of occupied households in each census tract by the total number of occupied households in the study area. The proportion for each census tract, which is of course less than one, is then multiplied by the desired sample size, yielding the number of households to be sampled in each census tract. As an example: suppose census tract A contains .61 of the total occupied units; census tract B contains .18; and census tract C contains .21; and that a sample size of 200 is desired. Mutliplying 200 times the proportion of the total households contained in each tract yields 122 households to be sampled in tract A, 36 in tract B, and 42 in tract C.

Once it is determined how many households are to be sampled in each tract, the blocks are enumerated in each tract. Using a table of random numbers, three-digit numbers are selected. Where the numbers chosen from the random table match up with an enumerated block number, then that block is selected. The number of occupied units in the block is noted and a running total is kept of

the number of units in the blocks chosen; when this total is approximately what the desired number of units for that tract is, then that tract is finished and the process is repeated for the remaining tracts until all have been done.

II. Cluster Sample with Fixed Proportions

In this method, as in Method I, the U.S. Census Block Statistics and maps are utilized to determine which census tracts lie in the area which is to be sampled. An average number of households to be sampled on each block is predetermined. Usually this is 8. This number is divided by the desired sample size. For instance, suppose a sample of 5 percent of the total occupied residences in the study area is desired. By dividing 8 by .05, giving you 160, the spacing interval is determined. The next step is to set down a running total of the number of occupied residential units on each block in the area to be sampled. To start the selection process, some three-digit number from a table of random numbers is chosen. The spacing interval then is added to this number over and over again and a running total is kept. When the running total exceeds the number of residential units for the sample area, stop. At the points where the running total of the spacing interval is less than or equal to the running total of residential units, then the block which corresponds to that number of units is chosen. This process is repeated until the running total of the spacing interval has exceeded the number of residential units.

After the blocks have been selected, the next step is to look up in a street directory the addresses of the residences on the selected blocks. These addresses should all be written down for each block. To determine how many residences are picked from each block, divide the number of residences found in the street directory for that block by the number of residences found in the census

statistics for that block and then multiply this figure by 8. When rounded to a whole number, this figure tells how many residences in that block are to be sampled. To determine which addresses are to be selected, enumerate the addresses for each individual block. Then, using a table of random numbers, select three-digit numbers. Where the numbers chosen from the random table correspond to an enumerated address, that address is selected. This process is repeated until the limit for that block is reached. When all the blocks to be sampled have been treated this way, the sampling process is complete.

Guideline No. 04

Questionnaire Design and Samples of Past Surveys

The questionnaire is the nucleus. Around this nucleus revolve the sample, the administration, the data processing and interpretation. However, without an accurate questionnaire with objective probes into the opinion layers of the community, the entire transportation survey project is not of much value. It is imperative, therefore, that extra effort be placed on design and development during the questionnaire process.

Steps in questionnaire design:

1) Planning session to outline various types of information to be included in the pre-test questionnaire

2) Drafting specific questions for the questionnaire

3) Review of draft by appropriate policy and/or advisory groups

4) Pre-test draft questionnaire on "typical" respondents; avoid "in house" pre-tests where possible, due to bias

5) Modify questionnaire based on pre-test

6) Second pre-test if necessary

7) Pre-coding question responses where possible:

example of pre-coding

(0) 18 - 24 years	(2) 35 - 54 years
(1) 25 - 34 years	(3) 55 and over

8) Finalization of questionnaire and printing

Questionnaire Outline

In past transportation surveys, the organization of the questionnaire has followed this topical outline:

1. General introduction to the questionnaire explaining purpose of the survey and instructions for completion.

2. Identification of transportation problems as perceived by community residents.

3. Evaluation and prioritizing of transportation planning factors in terms of importance.

4. Opinions on future development of the community and surrounding area and the types of development considered desirable or undesirable.

5. Proposed solutions to transportation problems and the effects these solutions would have on the area, as perceived by the respondents.

6. Characteristics of respondents and households.

7. Other behavior-oriented questions/probes.

8. Closing instructions.

The researcher must be aware the general outline provides for flexibility in customizing the nature and scope of the questions to the particular project scope and the unique characteristics of the community involved. Thus it is important to establish a reviewing body of lay and professional persons to act

as a communication sounding board for the questionnaire as it is being developed. Without this control, the researcher is designing a questionnaire in a vacuum - a very risky procedure.

The above outline does not totally cover the research objectives for gathering information in a transportation survey. Only the "shell" is provided, within which the individual study must contribute a great deal in completing the questionnaire design. Several samples of questionnaires employed in past "drop off" surveys are included here for use by districts during the planning phase.

Pre-testing

Once the researcher is satisfied with the first draft questionnaire, this instrument should be duplicated and "pre-tested" among about 25 to 30 persons both inside and outside the Department of Highways. The objective for pre-testing is to determine if the mechanics, the content, and the demands of the questionnaire are valid among the target population. Generally, one pre-test is sufficient to accomplish a review of the draft questionnaire.

Size of Print

Insure the size of print used in the questionnaire is sufficient to deter the frustration of older citizens who have optical limitations. Using larger print sizes may help to increase the validity and rate of completed interviews.

Terminology and Jargon

Terminology and professional jargon are inbred with transportation planners. Unfortunately, the average citizen does not have the same working knowledge and therefore must be communicated with in simple terms, the simpler the better. Using words and phrases like transportation facility, relative importance,

displacement, disruption aesthetics, relative desirability, bus transit facilities, and limited access facility may deter some respondents from a valid response or guessing at an answer because they do not want to be perceived as ignorant.

Cover Letters

Cover letters help to motivate people to complete self-administered questionnaires or to introduce the interviewer to the respondent in a personal interview situation. Further, it is possible to build into the questionnaire language which motivates the respondent to complete the interview. Too often an individual may start the questionnaire but never finish because of the perceived futility in organization. Language can help to overcome this problem.

Respondent Selection

It should be clear to the person receiving the self-administered questionnaire who in the household is qualified to complete the interview.

Questionnaire Length

Generally, a questionnaire which takes more than 20 minutes to complete will not be as productive as those which take less. (This assumes a drop-off, self-administered questionnaire is employed.)

In-home personal interviews may last as much as one hour and still maintain valid information gathering standards.

Telephone interviews generally should not last longer than 20 minutes.

Categories of Questions

There are four basic categories of questions:

One: Opinion Orientation

These questions solicit the opinions and, in a deeper sense, the attitudes of respondents toward or about selected subjects. In some topics, such as air pollution, the respondent may be very opinionated and be able to come up quickly with a response. In others, the topic may be removed from the sphere of activity for the respondent and therefore an opinion may not be so readily achieved. The differentiation between opinion and attitude is one of depth: attitudes are deeply held beliefs subject to little incremental variation compared to opinions, which may change quickly depending on external influences.

Two: Information Orientation

Questions of this type solicit information and cognition about various subjects. Questions here deal with awareness of selected actions, situations, or activities which may have taken place or are about to take place, and sources of information. A key element here is the awareness of respondents regarding proposed changes in the transportation system.

Three: Psychological - Perception Orientation

This category of questions deals with the respondent's perception of his or her behavior in relation to others. For example, a person may be able to compare his transportation needs with those of others when discussing the subject of carpooling. How he perceives the needs of others is influenced by opinion and attitude.

Four: Classification Orientation

These questions deal with facts about the respondent and the household. Features here include demographics, psychographics (life style measures), and transportation habits, etc. The researcher should be familiar with the classifications used by the U.S. Census as an aid in designing questionnaires.

Examples of several different types of questionnaires used by the Department of Highways are included in Appendix A of this document.

Guideline No. 05

Implementing and Coordinating the Survey

These apply only to field surveys (personal or drop-off).

1. Generally, two-person teams are most productive in the field.

2. The amount of time required to complete field work is a function of manpower and the characteristics of the area (i.e., urban vs. rural). Cluster sampling, that is contacting more than one household within a target sample point - block or street, is the most efficient use of manpower compared to skip pattern or strict random sampling.

3. Interviewer Kits should be pre-assembled and allow for overages of questionnaires, hand out information, writing instruments, and other materials. Avoid down time due to not having given the field worker sufficient materials.

4. A training and orientation session for each field worker is mandatory. Even though you may be dealing with experienced people, a re-orientation on the objectives of the transportation survey and the exact procedures used is absolutely necessary to satisfactory end results.

5. All forms to be used in the field for control and monitoring should be pre-tested for mechanics and clarity.

6. Local authorities, police, etc. should be contacted at least one week in advance of the field date and informed as to the area, the time and the type of work which is to be accomplished.

7. Simulation during the briefing and training session is helpful to acquaint field personnel with the possible situations which may occur during the project.

8. Interviewers must be completely familiar with the questions on the questionnaire in order to more fully understand what is expected of the respondents.

9. The field workers attitude should be neutral, impartial, casual, friendly, and efficient.

10. The field worker should be responsible for keeping separate notes about the field work as it progresses and turn in these notes at the end of the project to improve on future efforts.

11. A trouble number should be established at the outset of the field work where a worker may contact the project supervisor to have questions answered and modifications in procedure, where warranted, approved.

EXAMPLE

Field Procedures

Tacoma Loop Spur Survey - Urbanized Area

TACOMA LOOP CITIZENS SURVEY

PROCEDURE:

Drop Off (First Call)

1. Maps are furnished showing each block to be surveyed.

2. Every dwelling unit in each block will be contacted.

3. Leave a questionnaire at all dwelling units where someone is home.

4. Record the necessary information on the Interviewer's Log. Use a separate Log for each block.

   The questionnaires are pre-coded to correspond to the block number. Be sure to use the proper questionnaires.

   If no one is home, do not leave a questionnaire - these households will be contacted again during the pick up phase; however, enter the appropriate information in the Interviewer's Log.

   If the respondent refuses to take the questionnaire, still enter the address on the Log and use the questionnaire for the next household (no serial number entries for refusals).

Pick Up (Second Call)

1. One week* after the drop off, on the day indicated on the first call cover letter, return to the sample households and pick up the questionnaires.

*This interval may be shortened to two days as time and manpower permit.

2. If the questionnaire has not been completed or no one is home, leave a stamped, self-addressed envelope to mail in the questionnaire. A form letter will be supplied to explain the procedure and request cooperation.

3. For those houses that couldn't be contacted on the first call because no one was home, attempt to make contact. If home, give questionnaire and stamped, self-addressed envelope to respondent. If not home, leave the questionnaire, stamped, self-addressed envelope, and explanatory note. Should the interviewer be denied access to an apartment complex, attempts should be made to mail the residents the questionnaire. Replacement of selected residences with other units should be avoided if possible to help maintain the integrity of the sample.

PREPARATION OF THE INTERVIEWERS' PACKETS:

First Call

Each packet for each block will contain the following:

1. Four copies of Interviewer's Log

2. Numbered questionnaires with attached first call letter for the anticipated number of households.

3. Two copies of block map

In a separate folder each interviewer will carry 50 un-numbered questionnaires with cover letter and four extra log sheets. These will be used with the number hand coded, in those cases where the actual number of households exceeds those precoded.

Second Call

Each packet for each block will be revised from the first call to contain the following:

1. The log sheets and maps from the first call

2. All numbered questionnaires not distributed on the first call with second call letters and stamped, self-addressed envelope and doorhanger attached

3. Self-addressed, stamped envelopes equal in number to the number of questionnaires distributed on the first call with doorhanger attached

4. Ten extra questionnaires with second letter

Packets for each block will be kept separately in the Project Engineer's office and will be distributed to the interview teams each night for preparation.

CONDUCT AND TECHNIQUES

Conduct:

1. Always identify yourself by name and as an employee of the Washington State Department of Highways.

2. Wear your nametag at all times in the field. Keep it displayed prominently.

3. Dress neatly - to those being interviewed, you are the Highway Department.

4. Always be courteous and polite - do not argue. If a person becomes abusive, excuse yourself and immediately leave.

5. Know the general purposes of the survey - you will be asked. If pressed for details, advise them to call the number on the cover letter. Do not attempt to provide details or personal opinions.

6. Do not enter household.

7. In case of emergency of any sort, call predetermined number. A supervisor will be on duty to assist.

8. Drive and park your vehicle safely.

9. Never walk on someone's lawn!

Techniques:

1. Start at the same compass point in each block. For example, always park your vehicle at or near the NW corner of the block.

2. In starting to survey a block, drive around it once to get a general impression of the area. Check the street names against your map - new streets may have been added or old ones vacated.

3. The interview team splits the packet for the block; one proceeds clockwise and one counter-clockwise, meeting somewhere near the middle. This has proven to be the fastest method. Duplicate the procedure for the pickup call.

4. Believe "Beware of Dog" signs.

5. In apartment houses, always contact the manager first and explain what you are doing. Frequently, you will not be permitted to canvas each tenant; record the name and address of the apartment building and the name and telephone number of the manager. Should you be refused entry, give this information to the coordinator at the end of the evening so he can take care of the situation.

6. Keep your rain gear handy, and you may want something to snack on - it gets hungry out in the field.

Guideline No. 06

Setting Up the Analysis Framework

Once the transportation survey is complete and the questionnaires are collected, the question is "what to do with them?"

Actually this question was answered in the very beginning planning phase where selected information objectives were established. These objectives were either in the form of hypotheses or information needs. The completed questionnaires contain the information to test the hypotheses and satisfy the information needs. However, an analytical framework beginning with the coding plan is necessary to get from completed questionnaires to completed report.

The Coding Plan

The data resulting from completed questionnaires is generally not usable unless it has been preclassified into groupings or categories. For those open-ended questions where the respondent has an opportunity to comment somewhat verbatim, it is necessary to develop coding categories after the completion of the survey. This is done using sub-samples of the completed number. Generally about 50 questionnaires are reviewed. After reviewing the kinds of responses, a list of general, homogeneous categories can be derived and used to further prepare the questionnaire for data processing.

There are situations where the process of developing limited categories from open-end responses is not effective in preserving the substantive flavor of responses by the residents. Therefore, it is necessary to list completely the actual, verbatim responses to the questions and provide this as a separate compendium to the report.

The overall coding plan is developed during the process of recognizing the use of pre-coded answers to questions and the need for establishing other coding schemes using open-end or free response questions. A code book is developed from this process and employed by those who will be working with the completed questionnaires editing, coding, and preparing them for keypunching and eventual machine processing.

The coding plan may vary from one questionnaire to another, from one survey to another depending on the required analysis and the computer processing system. In surveys conducted by the Department of Highways, computer processing has been employed to tabulate the results from transportation surveys and assist in the statistical analysis of data.

The Tabulation Plan

There are two sections of the tabulation plan: machine tabulations completed by computer and hand tabulations which involve open-end or free response question answers.

Machine Tabulations:

Outline

Total straight counts and percentages by each question asked.

Sub total straight counts and percentages by selected categories within a question. For example, responses to all questions broken out by the age groups for the head of household may yield five separate sub totals (see following example).

Questions	18 - 24	25 - 34	35 - 54	55 - 64	65 and over
1-01	45.5%				
02	54.5%				
2-01	62.3%		etc.		
02	37.7%				
3-01	91.0%				
02	1.0%				

Cross Tabulations which represent two questions or variables in a one by one matrix:

Age Groups - Head of Household

	18 - 24	25 - 34	45 - 54	55 - 64	65+
Residence in 1970	XX.XX	XX.XX	XX.XX	XX.XX	XX.XX
Same Location	SS.SS	SS.SS	SS.SS	SS.SS	SS.SS
Different Location Within County	CC.CC	CC.CC	CC.CC	CC.CC	CC.CC
Different Location Outside County	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN

During the planning phase of the survey, the researcher should have an outline of the tabulation plan prepared. Once the questionnaires are ready for processing, this tabulation plan represents the specific requests for machine tabulated data to be provided as a means of analysis.

Analyzing Data

When responses have been tabulated, data must still be analyzed and interpreted to achieve usable meaning. Statistical truths are rarely self-evident, and figures in tables mean little or nothing by themselves. Relationships need to be established among the different figures and the situation or problem which gave rise to the survey in the first place.

The essence of analysis is comparison -- a matter of determining "larger" and "smaller," or "same" and "different." The element of judgment enters in deciding how much larger is enough to be important and how much difference really matters.

A few general considerations can help in making these decisions. As a basic approach to analyzing data, it is best to concentrate on the highlights. Opinion polls can produce a plethora of numbers, all of which possess validity and many of which may be interesting. It is easy to become overwhelmed by the mass of statistics or to lose sight of the total picture in examining intriguing details. Consequently, it is better not to try to look at everything at the outset, but instead think back to the basic objectives which the survey was intended to achieve.

After the answers to the questions have been tabulated by numbers and percent of respondents, more in-depth analyses should be undertaken. For example, the responses of persons living in different geographic areas will vary. For any transportation system it is well to analyze community-wide and neighborhood attitudes and opinions separately. Likewise, the responses of different socio-economic groups and those of home-owners in contrast to renters are significant.

The data can be analyzed in great detail, but in any situation the basic purpose for conducting the survey will be important in determining how detailed the analysis should be.

It is important to remember that statistics represent people. Even when the balance of opinion inclines strongly in a particular direction, the potential power of a non-negligible minority may be an important factor in decision-making. With sample data, sample percentages can be applied to the total for the universe to obtain estimates of the number of people holding different opinions. These numbers make it possible to see just how large a group the minority is.

Another important consideration to keep in mind is that statistics mean more collectively than in isolation. The results of a single question do not tell all there is to know about the issue. If other questions in the survey touch on similar or related matters, it is wise to consider the results together to obtain a general picture, highlighted from the different angles of the specific questions.

Certain cautions need to be observed in handling data. Where sampling has been used, results will be subject to normal sampling variation: that is, percentages derived from the survey are only estimates rather than exact figures for the percentage distribution in the universe as a whole. Consequently, small differences between sample percentages may not be significant of actual differences in the universe. For this reason, it is necessary to be cautious about drawing conclusions based on small differences between sample percentages. Usually, however, sampling variation does not represent major problems in interpreting

survey data, because for the most part major differences are meaningful in decision-making.

Multi-Variate Analysis

It is not a truism to say that no single factor can explain population behavior and that there are a multiplicity of causes that must be analyzed. Multi-variate analysis refers to the use of statistical methods of analysis for the purpose of investigating multiple causation.

The basic logic underlying multi-variate analysis is employed whenever sample survey findings are analyzed by such background characteristics as sex, age, and income jointly. By means of such an analysis it is possible to determine whether a particular aspect of public attitude varies, for example by income and sex, and to what extent it varies by income independently of sex and vice versa. To the extent that this is the case, statistically speaking, we can say that variations in this aspect of attitude or opinion are explained by income or sex.

In transportation surveys, multi-variate analyses, used in conjunction with appropriate computer programs,can be effective analytical tools.

Guideline No. 07

Computer Tabulation, an Overview

Computer tabulation is the process of taking the transportation survey questionnaires and tabulating the results by a set of computer programs specifically designed to handle survey research data. There are a number of programs available to do this processing. Depending on the nature of the survey and the complexity of the questionnaire, a program should be selected that maximizes the return of dollars spent on computer processing vis-a-vis the desired type of output.

The Department of Highways has available the Statistical Package for the Social Sciences (SPSS) to handle tabulation and statistical analysis of survey data. Districts wishing to utilize this system should consult the Olympia office for information on usage parameters.

Computer tabulation is a two-stage process:

1. Preparing the input questionnaires
2. Tabulation

Preparing the input requires editing the return questionnaires,determining the data classifications to be employed in tabulation (often referred to as the "Tab Plan") and coding the responses on each questionnaire.

The tabulation stage involves taking the coded input and by card punch or other means of input processing the data into a useable, readable report. During

tabulation very simple straight counts and percentages of responses to questions are provided, as well as highly statistical calculations to determine the inter-relationships between sets of responses.

Regardless of the types of analyses to be undertaken, special significance must be placed on the first stage: preparing the input questionnaires.

Suggested Report Outlines

There are two report outlines presented here. One is a summary report which provides an overview of the survey results. This report is primarily used in public communications and for other external needs.

The second outline is comprehensive. It is the completed project report which provides the total accumulated results,including analysis of survey findings and recommendations to the design team or other planning groups.

Summary Report:

- Statement of Purpose
- Introduction
- Methodology in Overview
- Summary of Results
- Conclusions

Comprehensive Report:

- Statement of Purpose and Significance
- Objectives: Guiding and Functional
- Methodology and Procedures
- Summary of Results
- Analysis of Findings
- Table Data with Observations
- Hand-tabulated Data with Observations

- Conclusions
- Recommendations
- Appendix

  Questionnaire

  Critique on limitations and and shortcomings

FOLLOW-UP

This report is not the end of the transportation survey. It is the linkage between one phase of information processing and the next. The report should be viewed as an action-oriented volume which fits into the dynamics of decision making. The report also represents only the tip of the iceberg of information available from conducting the survey. The researcher must, therefore, follow up on the report to assist in its integration with other components of the transportation planning process. Each user element should be sought out and briefed on the adequacy of information provided at present from the survey as well as the storage of data available to assist in further decisions and planning.

Too often reports and their incumbent producers are viewed as static end products. Every effort should be made to insure the information contained in the report is understood, utilized, and perceived as an input to the entire planning process.

Reflected in the tables and analyses of the report are the values, opinions, behaviors and characteristics of a population. It is necessary to view the data from the human perspective of which it was spawned in order to bring back the three dimensionality to the survey results. In this light the results will be most useful.

APPENDIX A

Examples of Questionnaires

Tacoma Loop Spur Survey Questionnaire

1. THE FOLLOWING QUESTIONS SEEK TO IDENTIFY TRANSPORTATION PROBLEMS ENCOUNTERED BY CITIZENS IN YOUR AREA. DO ANY OF THE FOLLOWING FACTORS PRESENT A PERSONAL PROBLEM TO YOU OR THE MEMBERS OF YOUR HOUSEHOLD? (PLEASE CHECK ONE COLUMN FOR EACH ITEM.)

	SERIOUS PROBLEM (4)	IMPORTANT BUT NOT SERIOUS (3)	MINOR PROBLEM (2)	NOT A PROBLEM (1)	
TRAFFIC					
Congestion	_____	_____	_____	_____	11
Safety	_____	_____	_____	_____	12
TRAVEL					
To and from work	_____	_____	_____	_____	13
To port industrial area	_____	_____	_____	_____	14
To airports	_____	_____	_____	_____	15
To downtown areas	_____	_____	_____	_____	16
To recreational areas	_____	_____	_____	_____	17
Travel time	_____	_____	_____	_____	18
Travel costs	_____	_____	_____	_____	19
Travel comfort	_____	_____	_____	_____	20
PARKING					
In downtown areas	_____	_____	_____	_____	21
In other commercial areas	_____	_____	_____	_____	22
BUSES					
Schedules difficult to understand	_____	_____	_____	_____	23
Routes not known	_____	_____	_____	_____	24
Time between buses too long	_____	_____	_____	_____	25
Too crowded on buses	_____	_____	_____	_____	26
No bus service in my area	_____	_____	_____	_____	27
Takes too long on bus to get there	_____	_____	_____	_____	28
Total bus service inadequate	_____	_____	_____	_____	29
TRANSFERING					
From car to bus	_____	_____	_____	_____	30
From car to train	_____	_____	_____	_____	31
BICYCLES					
Bicycle lanes needed	_____	_____	_____	_____	32
SIDEWALKS					
Sidewalks needed	_____	_____	_____	_____	33
TAXIS					
Problems using taxis	_____	_____	_____	_____	34

COMMENTS: _____ 35

2. THERE ARE MANY FACTORS WHICH ARE INVOLVED IN DECIDING THE LOCATION AND DESIGN OF TRANSPORTATION FACILITIES (streets, highways, bus lanes, bicycle paths, etc.). EVEN THOUGH ALL OF THESE FACTORS ARE IMPORTANT, THEY MAY NOT BE OF EQUAL IMPORTANCE TO EACH PERSON LIVING IN THIS AREA. PLEASE CHECK THE ANSWER BELOW WHICH COMES CLOSEST TO REPRESENTING THE RELATIVE IMPORTANCE OF EACH FACTOR TO YOU.

	EXTREMELY IMPORTANT (4)	IMPORTANT (3)	RELATIVELY UNIMPORTANT (2)	NOT IMPORTANT (1)	
POLLUTION					
Noise					36
Air					37
Water					38
FUEL CONSUMPTION					39
OPPORTUNITIES FOR BUSINESS DEVELOPMENT					40
REMOVAL OF					
Park and recreation facilities					41
Residential housing					42
Commercial areas					43
Industrial areas					44
Wildlife & natural terrain					45
DISRUPTION OF					
Services provided by government: schools, health care, police, and others					46
Church territories and other religious organizations					47
Fraternal clubs territories					48
AESTHETICS					
Eye appeal					49
Fits with surroundings					50
ACCESSIBILITY					
Ease and convenience of using the new facility					51
Travel time					52
SAFETY					53

COMMENTS: _____

_____ ☐ 54

3. THE LOCATION AND DESIGN OF TRANSPORTATION FACILITIES (streets, highways, bus lanes, bicycle paths, etc.) ARE DETERMINED TO A LARGE PART BY THE WAY AN AREA GROWS AND DEVELOPS OVER A LONG PERIOD OF TIME. PLEASE CHECK THE ANSWER BELOW WHICH COMES CLOSEST TO REPRESENTING HOW DESIRABLE OR UNDESIRABLE YOU FEEL EACH OF THE ITEMS WOULD BE TO THE TACOMA AREA IF THEY WERE DEVELOPED IN THE YEARS AHEAD. (Please check ONE column for each item).

POSSIBLE DEVELOPMENT AREAS	HIGHLY DESIRABLE (4)	DESIRABLE (3)	RELATIVELY UNDESIRABLE (2)	UNDESIRABLE (1)	
HOUSING					
Single family housing.....	_____	_____	_____	_____	55
Multi-family housing (duplexes & apartments).....	_____	_____	_____	_____	56
Mobile home parks.....	_____	_____	_____	_____	57
No new housing developments...	_____	_____	_____	_____	58
COMMERCIAL					
Develop new commercial centers	_____	_____	_____	_____	59
Improve or expand existing commercial centers.....	_____	_____	_____	_____	60
No new commercial center developments.....	_____	_____	_____	_____	61
INDUSTRIAL					
Develop new industrial centers	_____	_____	_____	_____	62
Improve or expand existing industrial centers.....	_____	_____	_____	_____	63
No new industrial center developments	_____	_____	_____	_____	64
PRESERVE FARMLAND.....	_____	_____	_____	_____	65
PARKS, RECREATIONS, WILDLIFE					
Develop more parks.....	_____	_____	_____	_____	66
Develop more indoor recreation facilities	_____	_____	_____	_____	67
Develop more outdoor recreation facilities.....	_____	_____	_____	_____	68
No new indoor recreation facilities.....	_____	_____	_____	_____	69
No new outdoor recreation facilities.....	_____	_____	_____	_____	70
Preserve places for wildlife protection.....	_____	_____	_____	_____	71
PUBLIC FACILITIES					
Develop additional colleges...	_____	_____	_____	_____	72
Develop additional vocational schools.....	_____	_____	_____	_____	73
Develop additional health care facilities, like hospitals and clinics.....	_____	_____	_____	_____	74
No new colleges.....	_____	_____	_____	_____	75
No new vocational schools.....	_____	_____	_____	_____	76

2

1 2-10

4. THINKING ABOUT THE FUTURE FOR THIS TACOMA AREA, WHAT POPULATION CHANGE WOULD YOU LIKE TO SEE? 11

Sizable Increase? _____ (5)

Minor Increase? _____ (4)

No Change? _____ (3)

Minor Decrease? _____ (2)

Sizable Decrease? _____ (1)

5. IF YOU WANT AN INCREASE OR DECREASE IN POPULATION, WHAT PERCENT OF INCREASE OR DECREASE WOULD YOU LIKE TO SEE IN THE NEXT DECADE? _____% 12-14

6. THERE HAS BEEN SOME DISCUSSION TO POSSIBLY IMPROVE BUS SERVICE IN THE TACOMA AREA. LISTED BELOW ARE POSSIBLE WAYS TO IMPROVE THE SERVICE. PLEASE CHECK THE ANSWER WHICH BEST DESCRIBES HOW IMPORTANT OR UNIMPORTANT YOU FEEL EACH IS AS A POSSIBLE IMPROVEMENT IDEA.

	EXTREMELY IMPORTANT (4)	IMPORTANT (3)	RELATIVELY UNIMPORTANT (2)	NOT IMPORTANT (1)	
Provide more frequent service.	_____	_____	_____	_____	15
Extend bus routes to provide better coverage.....	_____	_____	_____	_____	16
Establish new bus routes.....	_____	_____	_____	_____	17
Maintain low bus fares.....	_____	_____	_____	_____	18
Provide fare-free bus service with a tax-supported bus system.....	_____	_____	_____	_____	19
Provide special services to and from major employment centers.....	_____	_____	_____	_____	20
Ban cars from the most congested downtown streets.....	_____	_____	_____	_____	21
Free bus service within downtown area.....	_____	_____	_____	_____	22
Designate one or more lanes of major streets for exclusive use of buses during peak demand periods.....	_____	_____	_____	_____	23
Reduce travel time.....	_____	_____	_____	_____	24
Provide greater comfort and convenience.....	_____	_____	_____	_____	25
Provide service to handicapped.....	_____	_____	_____	_____	26

7. PLEASE INDICATE THE NUMBER OF PEOPLE LIVING IN YOUR HOUSEHOLD WHO NORMALLY TRAVEL TO WORK IN THE FOLLOWING AREAS BY THE FOLLOWING METHODS:

	DRIVE ALONE	MEMBER OF CARPOOL	TRANSIT PASSENGER	BICYCLE	OTHER (Specify)
Downtown Tacoma.....	_____ (27)	_____ (28)	_____ (29)	_____ (30)	_____ (31)
Tacoma Industrial Area...	_____ (32)	_____ (33)	_____ (34)	_____ (35)	_____ (36)
Fort Lewis.....	_____ (37)	_____ (38)	_____ (39)	_____ (40)	_____ (41)
Northeast Tacoma.....	_____ (42)	_____ (43)	_____ (44)	_____ (45)	_____ (46)
Southwest Tacoma.....	_____ (47)	_____ (48)	_____ (49)	_____ (50)	_____ (51)
Federal Way.....	_____ (52)	_____ (53)	_____ (54)	_____ (55)	_____ (56)
Renton.....	_____ (57)	_____ (58)	_____ (59)	_____ (60)	_____ (61)
Other Areas in King County	_____ (62)	_____ (63)	_____ (64)	_____ (65)	_____ (66)
Olympia.....	_____ (67)	_____ (68)	_____ (69)	_____ (70)	_____ (71)
Other (Please specify)...	_____ (72)	_____ (73)	_____ (74)	_____ (75)	_____ (76)

3

1 2-10

8. LISTED BELOW ARE POSSIBLE COURSES OF ACTION WHICH COULD BE TAKEN CONCERNING TRANSPORTATION PROBLEMS IN THE TACOMA AREA. PLEASE READ EACH ONE AND THEN CHECK THE ANSWER WHETHER YOU ARE IN FAVOR, OPPOSED, OR UNSURE ABOUT THAT COURSE OF ACTION.

		FAVOR	OPPOSED	UNSURE	
(A)	Provide a means to reduce congestion on Pacific Avenue between I-5 and downtown Tacoma.....	_____ (3)	_____ (2)	_____ (1)	11
(B)	Provide a more direct route from the Pacific Avenue Interchange on I-5 to downtown Tacoma.....	_____ (3)	_____ (2)	_____ (1)	12
(C)	Provide for easier movement of traffic from downtown Tacoma to the Port Industrial Area. (Existing movement is provided by the 11th and 15th Street bridges).....	_____ (3)	_____ (2)	_____ (1)	13
(D)	Provide for easier movement of traffic from McKinley Hill - D Street area to the Port Industrial Area.....	_____ (3)	_____ (2)	_____ (1)	14
(E)	Provide for easier movement of traffic from Northern Tacoma to the Port Industrial Area.....	_____ (3)	_____ (2)	_____ (1)	15
(F)	Retain present access facilities to downtown Tacoma and the Port Industrial Area with some changes to improve safety and traffic flow. (Example: Remove parking from downtown streets, reserve bus lanes, etc.).....	_____ (3)	_____ (2)	_____ (1)	16
(G)	Make no improvements to existing system except maintenance as required.....	_____ (3)	_____ (2)	_____ (1)	17
(H)	Improve existing routes from the north end of Tacoma to the Port Industrial Area...	_____ (3)	_____ (2)	_____ (1)	18
(I)	Develop a new limited access facility to move traffic from the Port Industrial Area to a connection with I-5 for northbound traffic.....	_____ (3)	_____ (2)	_____ (1)	19

YOUR ANSWERS TO THE FOLLOWING QUESTIONS WILL BE MOST HELPFUL IN ANALYZING THE RESULTS FROM THIS SURVEY. OF COURSE, ALL YOUR ANSWERS AND THOSE OF EVERYONE WHO COMPLETES THIS QUESTIONNAIRE WILL BE KEPT STRICTLY CONFIDENTIAL.

9. ABOUT HOW LONG HAVE YOU LIVED IN THE TACOMA AREA? 20

_____ Less than six months (1)

_____ Six months but less than one year (2)

_____ One to three years (3)

_____ More than three years (4)

10. HOW MANY MEMBERS OF YOUR HOUSEHOLD ARE IN THE FOLLOWING AGE GROUPS?

_____ 21 17 years or less

_____ 22 18-24 years

_____ 23 25-44 years

_____ 24 45-64 years

_____ 25 65 and over

11. HOW MANY MEMBERS OF YOUR HOUSEHOLD ARE IN THE FOLLOWING OCCUPATIONS? (Please indicate primary occupation.)

_____ 26 Professional and Technical (doctors, teachers, engineers, etc.)

_____ 27 Managerial and Administrative (owners and managers of businesses, governmental administrators, etc.)

_____ 28 Clerical (office workers, secretaries, bookkeepers, etc.)

_____ 29 Craftsmen (carpenters, mechanics, upholsterers, machinists, etc.)

_____ 30 Equipment Operators (truck drivers, sewing machine operators, etc.)

_____ 31 Laborers (window washers, hod carriers, track laborers, etc.)

_____ 32 Sales Workers (salesmen, checkers, clerks, etc.)

_____ 33 Service Workers (firemen, policemen, beauticians, practical nurses,etc)

_____ 34 Homemaker

_____ 35 Student

_____ 36 Retired

_____ 37 Other

Fill in only if not employed in another category greater than 50% of the time.

12. IN WHAT TYPE OF DWELLING UNIT DO YOU LIVE?

_____ (1) Single family dwelling

_____ (2) Duplex

_____ (3) Apartment

_____ (4) Mobile home

_____ (5) Other (specify)_____ 38

13. PLEASE INDICATE YOUR SEX: _____ (1) Male _____ (2) Female 39

14. PLEASE INDICATE YOUR AGE:

_____ (1) 17 years or less

_____ (2) 18-24 years

_____ (3) 25-44 years

_____ (4) 45-64 years

_____ (5) 65 and over 40

15. HOW MANY PERSONS, INCLUDING YOURSELF, RESIDE IN YOUR HOUSEHOLD? _____ 41

16. DO YOU OWN OR RENT THE DWELLING UNIT IN WHICH YOU LIVE?

_____ Own (1) _____ Rent (2) 42

COMMENTS: _____

_____

_____

_____ ☐ 43

THANK YOU FOR TAKING THE TIME TO PARTICIPATE IN THIS SURVEY. SHOULD YOU WANT A SUMMARY OF THE RESULTS, ONE MAY BE OBTAINED BY CALLING 593-2058 AND PLACING YOUR NAME ON THE MAILING LIST.

AGAIN, THANKS.

STATE DEPARTMENT OF HIGHWAYS

Spokane Transportation Study

Mail Out Questionnaire

SPOKANE REGIONAL PLANNING CONFERENCE
TRANSPORTATION STUDY DIVISION

1 | | | | | | | | | | | | | |
1 2 5 7 13

TRANSPORTATION GOALS AND OBJECTIVES SURVEY

This questionnaire has been prepared to obtain the opinions of Spokane area residents. It contains questions about alternative courses of action in the development of transportation facilities and about community values in general. This is your opportunity to become a part of the planning process concerning the transportation problem in the Spokane metropolitan area. PLEASE ANSWER ALL PARTS OF EVERY QUESTION EVEN THOUGH YOU GENERALLY USE ONLY ONE FORM OF TRANSPORTATION. YOUR ANSWERS WILL REMAIN CONFIDENTIAL.

1. The following questions seek to identify transportation problems encountered in the use of Spokane's existing transportation system. As an individual do any of the following factors present a personal problem to you or the members of your household?
(Please check one column for each item.)

	SERIOUS PROBLEM (4)	IMPORTANT BUT NOT SERIOUS (3)	MINOR PROBLEM (2)	NOT A PROBLEM (1)	
Traffic congestion					14
Traffic safety					15
Travel to work					16
Travel to airport					17
Travel to downtown area					18
Travel between north suburban area and Spokane Valley					19
Travel across town					20
Travel between shopping centers					21
Travel time					22
Travel costs					23
Travel comfort					24
Parking in downtown areas					25
Parking in other commercial areas					26
Bus schedules difficult to understand					27
Bus routes not known					28
Time between buses too long					29
Buses too crowded					30
Lack of bus service					31
Transfer between different types of transportation					32
Bicycle lanes or paths not provided					33
Sidewalks not provided					34
Problems in using taxis					35

2. The location, design and access of transportation facilities are determined to a large extent by the manner in which an area develops over an extended period of time. What is the relative desirability of development of each of the following items for the Spokane metropolitan area in the years ahead? (Please check one column for each item.)

	HIGHLY DESIRABLE (4)	DESIRABLE (3)	RELATIVELY UNDESIRABLE (2)	UNDESIRABLE (1)	
Single family housing on urban size lots					36
Single family housing tracts of one acre or larger					37
Multi-family housing tracts					38
Mobile home parks					39
No new housing developments					40
Develop new commercial centers					41
Improve or expand existing centers					42
No change in commercial centers					43

	HIGHLY DESIRABLE (4)	DESIRABLE (3)	RELATIVELY UNDESIRABLE (2)	UNDESIRABLE (1)	
Develop more parks					44
Develop more indoor recreation facilities					45
Develop more outdoor recreation facilities					46
Preservation of wildlife habitat					47
Preservation of farmland					48
Enlarge colleges and technical schools					49
Develop additional healthcare facilities					50
Develop new industrial facilities					51
Improve or expand existing industrial facilities					52
No change in industrial activity					53

3. **What population change would you like to see in the Spokane metropolitan area?**

Substantial increase _____ (4) Minor increase _____ (3) No change _____ (2) Decrease _____ (1) 54

4. **There are a number of public services provided to the residents of metropolitan Spokane. For each of the following items, identify whether you believe more or less money and effort should be spent:**

2

	MONEY AND EFFORT TO BE SPENT: MUCH MORE (5)	MORE (4)	SAME (3)	LESS (2)	MUCH LESS (1)	
Urban renewal						14
Services for the aged						15
Education						16
Improved air quality						17
Improved water quality						18
Police & fire protection						19
Parks & recreation facilities						20
Roads, streets and highways						21
Public transportation						22
Health & hospital services						23
Social-welfare programs						24
Sewer & solid waste disposal						25

5. **There are many area wide problems encountered in determining the location and design of transportation facilities. Even though all of these factors are important, they are not considered of equal importance by each person. What is the relative importance of each of the following items to you?**

	EXTREMELY IMPORTANT (4)	IMPORTANT (3)	RELATIVELY UNIMPORTANT (2)	NOT IMPORTANT (1)	
Noise control					26
Air pollution control					27
Water pollution control					28
Fuel consumption					29
Opportunities for private development					30
Displacement of parks and recreation facilities					31
Displacement of residential housing					32
Displacement of commercial areas					33
Displacement of industrial areas					34
Displacement of wildlife and natural terrain					35
Disruption of school service areas					36
Disruption of church service areas					37
Cost of improving street or road facilities					38
Cost of providing improved transit service					39
Cost of providing bicycle and pedestrian facilities					40
Cost of preserving or improving the environment					41

What is your opinion of the relative importance of the following proposals for transportation in the Spokane metropolitan area?

A. Arterial Street and Highway System (Please give your opinion for each of the items listed.)

	EXTREMELY IMPORTANT (4)	IMPORTANT (3)	RELATIVELY UNIMPORTANT (2)	NOT IMPORTANT (1)	
Improve existing arterial streets and roads					42
Develop new arterial streets and roads					43
Develop new freeway/expressway facilities					44
Utilize one-way streets to relieve traffic congestion					45
Develop more safety features (pedestrian overpasses, street lighting, etc.)					46
Widen intersections					47
Improve street maintenance					48
Provide additional off-street parking areas in place of on-street parking					49
Eliminate on-street parking downtown					50
Provide free parking by cooperating stores and businesses					51

B. Bus Transit System (Please give your opinion for each of the items listed.)

	EXTREMELY IMPORTANT (4)	IMPORTANT (3)	RELATIVELY UNIMPORTANT (2)	NOT IMPORTANT (1)	
Provide more frequent service					52
Extend bus routes to provide better coverage					53
Maintain low bus fares (not to exceed 25¢)					54
Provide fare-free metropolitan wide bus service					55
Provide special services to and from major employment centers					56
Establish new crosstown bus routes (east-west in City and north-south in Valley)					57
Provide park-and-ride lots with express bus service					58
Provide dial-a-bus service (pickup from your house or nearby corner on call)					59
Ban cars from the most congested downtown streets and provide mini-bus service from fringe parking areas					60
Free bus service within downtown area					61
Designate one or more lanes of major streets for exclusive use by buses					62

C. Other Forms of Transportation (Please give your opinion for each of the items listed.)

	EXTREMELY IMPORTANT (4)	IMPORTANT (3)	RELATIVELY UNIMPORTANT (2)	NOT IMPORTANT (1)	
Develop bicycle lanes or paths					63
Provide more sidewalks along streets and roads					64
Establish commuter rail transit system					65

7. How often do you or members of your household use the existing bus service for each of the following types of trips? 3 1

	FREQUENT (Several times per week) (4)	OCCASIONAL (Several times per month) (3)	SELDOM (Several times per year) (2)	NEVER (1)	
Work					14
Business or shopping					15
School					16
Other					17

8. How significant do you believe the development of a more adequate transit system would be in altering the need to improve or develop new streets and highways in the Spokane metropolitan area?

_____ Very Significant (4) _____ Significant (3) _____ Relatively Insignificant (2) _____ Insignificant (1) 18

9. If it becomes necessary, would you be willing to pay additional taxes to improve the transit system?

_____ Yes (1) _____ No (2) 19

10. Would you be willing to have a portion of gas taxes designated for mass transit, realizing this will divert money that would otherwise be available for street and road improvements?

_____ Yes (1) _____ No (2) 20

11. Would you be willing to have a portion of general taxes, such as sales and property taxes, designated for mass transit, realizing this will divert money that would otherwise be available for other governmental services?

_____ Yes (1) _____ No (2) 21

12. If the present transit system were to be expanded or improved, would you ride the bus rather than drive your own car:

	FREQUENT (Several times per week) (4)	OCCASIONAL (Several times per month) (3)	SELDOM (Several times per year) (2)	NEVER (1)	
To work					22
For business or shopping					23
To school					24
For other trip purposes					25

13. Recently a series of events affecting automobile travel, including air quality control and the cost and shortage of gasoline, have occurred. It appears that these events will probably limit the use of automobile travel. What is your opinion regarding each of these suggestions?

A. Individual Action (Please check your opinion toward each of the following actions.)

	STRONGLY AGREE (4)	AGREE (3)	DISAGREE (2)	STRONGLY DISAGREE (1)	
Reduce use of my car for travel to work					26
Reduce use of my car for business and recreational activities					27
Take bus to work					28
Take bus for business and recreational activities					29
Form carpool for travel to work					30
Use air, rail or bus for trips beyond Spokane metropolitan area					31
Walk or use bicycle for transportation					32

B. Local Governmental Action (Please check your opinion toward each of the following actions.)

	STRONGLY AGREE (4)	AGREE (3)	DISAGREE (2)	STRONGLY DISAGREE (1)	
Limit use of cars in downtown area					33
Reduce number of parking spaces in downtown area					34
Provide bus service through downtown from parking lots outside downtown area					35
Require mandatory carpooling or use of transit for work trips to major employment centers					36
Ban cars from certain areas or during certain hours					37
Provide more bicycle and pedestrian facilities					38

	STRONGLY AGREE (4)	AGREE (3)	DISAGREE (2)	STRONGLY DISAGREE (1)	
Provide significantly improved metropolitan transit service	_____	_____	_____	_____	39
Provide free or low cost parking for vehicles carrying three or more persons (carpooling)	_____	_____	_____	_____	40
Increase parking fees in congested areas	_____	_____	_____	_____	41

C. National or State Action (Please check your opinion toward each of the following actions.)

	STRONGLY AGREE (4)	AGREE (3)	DISAGREE (2)	STRONGLY DISAGREE (1)	
Restrict horsepower and/or size of automobiles	_____	_____	_____	_____	42
Ration gasoline	_____	_____	_____	_____	43
Increase price of gasoline	_____	_____	_____	_____	44
Limit number of cars per household	_____	_____	_____	_____	45
Require autos to meet strict pollution control standards	_____	_____	_____	_____	46
Variable automobile fees, based on the number of persons carried, miles driven, number of cars owned, horsepower, etc.	_____	_____	_____	_____	47

The following questions are necessary for statistical analyses of the data obtained from the questionnaire. Would you please provide the following information concerning your household?

14. **How many persons, including yourself, reside in your household (family members and others living with you)?**

_____ (48-49) Number of Male Members _____ (50-51) Number of Female Members

15. **How many household members, including yourself, are in each of the following age groups?**

_____ (52) 0-5 years _____ (54) 18-24 years _____ (56) 45-64 years

_____ (53) 6-17 years _____ (55) 25-44 years _____ (57) 65 & Over

How many adult members of your household are gainfully employed? _____ (58-59)

16. **Total household income per year (before taxes)?**

_____ (1) Under $4,999 _____ (3) $7,000 to $9,999 _____ (5) $15,000 to $20,000

_____ (2) $5,000 to $6,999 _____ (4) $10,000 to $14,999 _____ (6) Over $20,000 60

17. **Do you rent or own the dwelling unit in which you live?** _____ (1) Own _____ (2) Rent _____ (3) Other 61

In what type of dwelling unit do you reside?

_____ (1) Single Family dwelling _____ (3) Duplex _____ (4) Apartment

_____ (2) Mobile Home _____ (5) Other (specify) 62

18. **How many years have you lived in the Spokane metropolitan area?** _____ (63-64)

19. **How many years have you lived in this house or dwelling unit?** _____ (65-66)

20. **Do you like the area in which you live?** _____ (1) Yes _____ (2) No 67

21. **Do you plan to move from the Spokane metropolitan area?**

_____ (1) Yes _____ (2) Uncertain _____ (3) No 68

Please indicate the number of household members, including yourself, employed according to each occupation (by the following census categories):

_____ 69 Professional and technical (doctors, teachers, engineers, lawyers, etc.)

_____ 70 Managerial and administrative (owners & managers of businesses, governmental administrators, etc.)

_____ 71 Clerical (office workers, secretaries, bookkeepers, etc.)

_____ 72 Craftsman (carpenters, mechanics, upholsterers, machinists, etc.)

_____ 73 Equipment operators (truck drivers, sewing machine operators etc.)

_____ 74 Laborers (window washers, hod carriers, track laborers, etc.)

_____ 75 Sales Workers (salesmen, checkers, clerks, etc.)

_____ 76 Service Workers (firemen, policemen, beauticians, practical nurse, etc.)

_____ 77 Homemaker
_____ 78 Student
_____ 79 Retired
_____ 80 Other

} Fill in only if not employed in another category greater than 50% of the time.

23. As a metropolitan Spokane resident, what participation do you desire to have in the planning of transportation improvements?

24. Please complete the following statement. I would use public transportation if

25. Please make any additional comments you would like to make pertaining to transportation in Spokane metropolitan area (use additional pages as needed).

APPENDIX B

Examples of Cover Letters and

Door Hangers

'ASHINGTON STATE
HIGHWAY COMMISSION
EPARTMENT OF HIGHWAYS

ffice of District Engineer
istrict 7
0506 N.E. 4th Street
ellevue, Washington 98004

April, 1975

Dear Resident:

The Department of Highways has agreed to design and construct park & ride lots at a number of locations for Metro Transit and the Municipality of Metropolitan Seattle. The Department has organized an Interdisciplinary Team to assure that the social, economic and environmental considerations and impacts will be addressed.

The attached survey questionnaire was developed to obtain your opinions, values and needs concerning the design and location of a park & ride lot in your community.

We have selected at random certain households in your community to which the questionnaire is being sent. Because of the randomness of the sample design, we can compare the results of the questionnaire to the U. S. Census. In this way, the representativeness of the sample can be verified. Your completion of the questionnaire is needed to ensure the success of this effort.

All information provided by you will be treated confidentially and reported in statistical form. The data will be provided to any concerned resident once it is compiled. Analysis will be made from the grouped data. Your cooperation in the survey will be greatly appreciated.

Additional information concerning this questionnaire can be obtained by calling our project office at 464-7590.

A staff member will return next week on the evening circled below to pick up your completed questionnaire.

Monday Tuesday Wednesday Thursday Friday

Very truly yours,

E. I. Roberts

E. I. ROBERTS
District Engineer

EIR:wjk
Attach.

WASHINGTON STATE
HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS

Office of District Engineer
District 7
10506 N.E. 4th Street
Bellevue, Washington 98004

April, 1975

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All information provided by you will be treated confidentially and reported in statistical form. The data will be provided to any concerned resident once it is compiled. Analysis will be made from the grouped data. Your completing the questionnaire and returning it in the enclosed envelope at your convenience will be greatly appreciated.

Additional information concerning this questionnaire can be obtained by calling our project office at 464-7590.

Very truly yours,

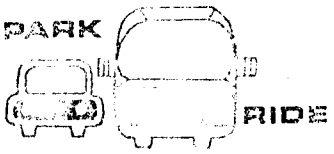
E. I. Roberts

E. I. ROBERTS
District Engineer

EIR:wjk
Attach.

WASHINGTON STATE DEPARTMENT OF HIGHWAYS

INTERDISCIPLINARY TEAM STUDY



Dear Resident:

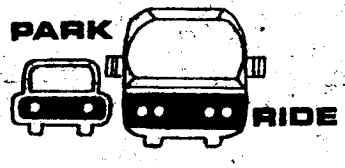
A member of the Department of Highways staff called to pick up the Park & Ride Survey Questionnaire left at your residence last week. We were unable to contact you at that time. In order to insure adequate representation for your area, would you please mail your completed questionnaire in the attached postage-paid envelope at your earliest convenience.

Thank you for your cooperation.

E. I. Roberts, District Engineer

WASHINGTON STATE DEPARTMENT OF HIGHWAYS

INTERDISCIPLINARY TEAM STUDY



Dear Resident:

The Department of Highways has organized an interdisciplinary team to study the design and location of a Metro Park & Ride lot in your area. A member of our staff has called at your home to distribute a survey questionnaire but was unable to contact you. In order to insure adequate representation, would you please complete the attached questionnaire and return it in the attached postage-paid envelope at your earliest convenience.

Thank you for your cooperation.

E. I. Roberts, District Engineer