6.0 Test Plan for Focus Groups and Surveys

6.0 Test Plan for Focus Groups and Surveys

The primary research for this study consists of two market research tasks. As part of the qualitative market research, a set of two "with" and two "without" focus groups will be conducted to provide:

- Insights into ramp metering issues as viewed by individual travelers,
- Input to the "with" and "without" survey design process, and
- Measures of effectiveness and ways to reach non-technical audiences.

As part of the quantitative market research, a "with" and "without" set of surveys will be conducted of travelers in the Minneapolis/St. Paul metropolitan area. These surveys will include a random sample of travelers in the seven-county study area and surveys of travelers along the four area corridors for which traffic and travel time data will be collected. The survey data will be analyzed to identify:

- Changes in travel behavior and ramp usage "with" and "without" the ramp metering shutdown, and
- Changes in travelers' attitudes towards ramp meters "with" and "without" the ramp metering experiment.

6.1 Qualitative Research – Focus Groups

Travelers' perceptions of ramp meter shutdowns will be assessed though a series of focus group sessions among travelers in the Minneapolis/St. Paul metropolitan area. The objective of the qualitative research is to elicit travelers' overall reactions to the operation of ramp meters in the Twin City roadway system and the expected impact of shutting down the ramp meters on travelers' general travel patterns.

This will help to provide a better understanding of travelers' attitudes toward the operation of ramp meters in the region's freeway system including travelers' opinions about ramp meters in general, the types of benefits ramp meters may or may not provide, and how the existence of ramp meters affects route, mode, and departure time choices.

A screener questionnaire will be developed to select focus group participants. The criteria for recruiting participants in the focus groups include the following:

- Travelers who travel either during the morning peak period (6:00 to 9:00 a.m.) and/or during the afternoon peak periods (3:00 p.m. to 6:00 p.m.);
- Travelers who use one or more of the four study area corridors that will be analyzed in greater detail;
- Travelers are split into two groups depending on their freeway ramp usage patterns:
  - Heavy users: Six or more one-way trips per week, or
  - Light users: Less than six one-way trips per week.

Other criteria include the recruitment of respondents who are 18 years or older, travelers with and without a convenient alternate route, respondents living in urban and suburban communities, and a mix of male and female respondents across different age and income categories.

During each focus group session, the moderator will introduce topics, probe comments, and elicit reactions from all of the participants. The moderator will maintain a non-directive style of interviewing to avoid biasing any discussions. Participants will be encouraged to speak freely, interact, and offer disagreeing opinions whenever possible on each of the issues. The sessions will be conducted in a modern focus group facility with a one-way mirror to permit the observation of participants by members of the Technical and Advisory committees and Mn/DOT staff. An attempt will be made to over-recruit participants to ensure that eight to 10 individuals will actually arrive at each focus group.

The discussion topic guide that will be developed will include the following general topics for discussion during each focus group:

- Introduction by the moderator of the purpose of the discussion and the ground rules for participation in the discussion;
- General perceptions toward ramp meters;
- Evaluation of ramp meter performance and measures of effectiveness;
- Expectations for ramp meter shutdown; and
- Information needs for the ramp meter shutdown.

Tasks and deliverables in this effort include:

1. Development of a telephone screener questionnaire to select participants in the "with" focus groups.
2. Preparation of discussion topic guides to guide the discussion during the "with" and "without" focus group sessions.
3. Solicitation of input and approval from the Advisory and Technical committees and Mn/DOT for both the "with" and "without" focus groups.

4. Recruitment of a representative sample of travelers to participate in the "with" and "without" focus groups.

5. Moderation of two "with" and two "without" focus groups split among high-frequency ramp meter users (travel through ramp meters at least six times per week) and low-/ medium-frequency users.

6. A technical memorandum summarizing the results of the focus group sessions along with audio and video tapes of the group sessions will be produced following the completion of the focus groups.

6.2 Quantitative Research – Traveler Surveys

Travelers' perceptions of the ramp meter shutdown will be quantified though a set of "with" and "without" surveys among travelers in the Minneapolis/St. Paul metropolitan area. Travelers may perceive the effects of the ramp meter shutdown differently than the field data collected in other tasks would indicate. Therefore, an important element in the evaluation of the ramp meter shutdown experiment will be the measurement of travelers' attitudes both with operational ramp meters and with unrestricted ramp traffic.

The traveler surveys that are planned include a random sample of travelers in the seven-county study area and surveys of travelers along the four area corridors for which traffic and travel time data will be collected. The "with/without" analysis of traveler perceptions will help to interpret the findings of the traffic engineering measures and travel time data along each study corridor and for the study area population as a whole. The survey data will be analyzed to identify:

- Changes in travel behavior and ramp usage "with" and "without" the ramp metering shutdown, and

- Changes in travelers' attitudes towards ramp meters "with" and "without" the ramp metering experiment.

The total sample size planned for the "with ramp metering survey" is 750 observations. The "with" survey sample will be split by corridor and for the entire study area as follows:

- Random digit-dial sample for the seven-county metropolitan area (N = 250) and

- Random samples for each of the four corridors under study (N = 125 observations per corridor with N = 500 across the four corridors).

A sample size of 750 observations is also expected for the "without" survey. The distribution of the 750 observations across the random digit dial sample and the four corridor-specific random samples will be similar to the "with" survey.

During the month prior to the ramp meter shutdown, residents will be asked to provide information on travel behavior, freeway and ramp system usage, attitudes toward the effectiveness of the ramp meters, and demographic data. A similar wave of "without" surveys will be administered after the meters have been turned off for several weeks. The "without" survey design will be similar to the "with" survey, but will also include questions designed to evaluate the no-meter operational concept.

The random sample will be developed by means of random digit dialing and will include all travelers (potentially including transit riders) who travel during the peak periods. The corridor-specific samples will be based on license plate data collected at strategic locations along each of the test corridors. The sample will therefore be limited to automobile drivers and passengers in the designated corridors.

It is intended that a sufficient number of license plates will be collected once at the outset of the "with ramp metering" data collection effort to create a sample size sufficient to support both the "with ramp metering" and "without ramp metering" survey waves. If necessary, a second round of collection will occur during the "without ramp metering" phase. The target goal is to collect 72,000 license plates which, after discounting for duplicates, plates which cannot be converted into individual's telephone numbers (due to leased vehicles, etc.), and survey participation rates, should provide for a sufficient sample size. Mn/DOT will secure the assistance of the Department of Public Safety (DPS) to provide the support required to rapidly convert plates into contact information.

During discussions with the Technical and Advisory Committees, the issue of targeting some aspect of the primary research (either the qualitative or quantitative) to specific market subgroups such as commercial vehicle operators or transit riders was discussed. While it was recognized that such groups have unique concerns and issues, it was decided not to dilute the general random sample, or to disperse the overall level of effort, by specifically targeting such groups. The rationale for this decision was the fact that all vehicles and passengers will experience similar traffic conditions (since no vehicles operate on exclusive rights-of-way in the region with the exception of the HOV meter bypasses and highway diamond lanes), and therefore the conclusions which emerge from the general random samples can be applied to all travelers. In the case of the HOV lanes, traffic data will be collected on these facilities as part of the overall traffic data collection plan, and questions will be included in the random samples which address issues related to the operation of the HOV facilities. In addition, Metro Transit will be able to supplement the project's data collection plan with its own data regarding any operational impacts which its bus fleet may experience as a result of the meter shutdown.

The proposed structure for the "with" telephone survey includes the following groups of questions:

1. A set of screener questions will allocate peak-period users to each of the four corridors of interest. These questions include the identification of travel in corridor of interest; the direction of travel in the corridor; and the time of day that this trip is taking place. Respondents traveling in the peak direction between 6:00 and 9:00 a.m. and/or between 3:00 and 6:00 p.m. will be selected for the interview. Interviews with respondents working for Mn/DOT, planning agencies, media outlets, and city/county public works departments will be discontinued.

2. Characteristics of last peak-period trip on the freeway corridor. Information that will be collected includes:

   – Trip purpose and place of trip origin,
   – Date and time of trip,
   – Origin and destination (at town/suburb level and in detail),
   – Entry and exit points to the freeway of interest,
   – Total travel time,
   – Percentage of time traveled on freeway,
   – Rating of freeway congestion,
   – Vehicle occupancy and by-pass lane usage, and
   – Wait time at entrance meter and at other freeway-freeway meter(s).

3. Experience with "typical" freeway trip including the frequency of using the freeway, the percentage of time the respondents experience longer wait times at ramps and the corresponding longer total travel time.

4. A battery of attitudinal statements regarding the respondent's travel experiences in general and ramp meters in particular. Ramp-related questions will include travelers' attitudes toward ramp wait times, safety considerations, predictability of travel, and the usefulness of ramp by-pass lanes.

5. Demographic information to control for differences among respondents.

The analysis of the random sample survey and the four corridor-specific surveys will focus on "with/without" comparisons of travelers' attitudes toward travel in the Minneapolis/St. Paul metro area and their attitudes toward ramp meters in particular. The statistical analysis will aim to identify important differences by focusing on differences that are statistically significant at a 95 percent confidence level. To enhance the validity of these "with/without" comparisons the analysis will also take into account other factors that may have an impact on travelers' attitudes, such as:

- Frequency of travel during a typical week,
- Respondents' familiarity with different ramps in the area,
- The characteristics of the four freeway corridors under study,
- Differences in respondents' travel patterns, and
- Demographic characteristics of each respondent.

Tasks and deliverables in this effort include:

1. Design of the "with" and "without" survey instruments for a random sample traveler survey and for four surveys of respondents using each of the four study corridors.

2. Solicitation of input and approval from the Advisory and Technical committees and Mn/DOT for the "with" and "without" telephone survey design and the approach to survey sampling.

3. Collection of license plate numbers from automobiles along each of the four study corridors, translation to registration data, and development of user telephone number lists for each study corridor.

4. Revision of the survey content following each wave of focus groups.

5. Programming of the "with" and "without" random surveys and the four corridor-specific surveys into a computer aided telephone interview program.

6. Pre-testing of the "with" and "without" surveys.

7. Administration of the "with" and "without" telephone surveys for the random sample and the four random samples of corridor auto users.

8. Independent analyses of the "with" and the "without" surveys with two books of cross-tabulations (a total of 32 banner points) after the completion of the "with" and the "without" survey respectively.

9. A comparative statistical analysis of traveler perceptions and travel behavior between the "with" and "without" surveys and across various traveler market segments.

10. A technical memorandum summarizing each set of the survey findings and the comparative analysis highlighting changes in travelers' perceptions and travel behavior attributable to the ramp meter shutdown.