

HUMPHREY INSTITUTE OF PUBLIC AFFAIRS,
UNIVERSITY OF MINNESOTA

**MNPASS EVALUATION
ATTITUDINAL PANEL SURVEY
WAVE 3**

Final Report

August 2006



NuStats

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1. EXECUTIVE SUMMARY

This report documents the methods and results of the third and final wave of data collection for the I-394 MnPASS Evaluation Attitudinal Panel Survey (hereafter referred to as the Attitudinal Panel Survey). The Wave 3 Survey, conducted during May and June 2006, occurred six months after the second wave and about one year after the implementation of the I-394 MnPASS Express Lane project. NuStats conducted 1,228 interviews, of which 343 were with panel members (i.e., interviewed in the Baseline, Wave 2, and Wave 3). These data were collected to evaluate the attitudinal and behavioral impacts of allowing solo drivers to pay to use carpool lanes. NuStats conducted the survey under subcontract to the State and Local Policy Program at the Humphrey Institute of Public Affairs at the University of Minnesota for the Minnesota Department of Transportation.

1.1 PURPOSE OF THE ATTITUDINAL PANEL SURVEY

The I-394 MnPASS Express Lane project created Minnesota's first High Occupancy Toll (HOT) lanes. This project began allowing solo drivers to pay a fee to use an 11-mile stretch of carpool lanes between downtown Minneapolis and the western suburbs in May 2005. While solo drivers pay to use the MnPASS lanes, carpoolers, bus riders, and motorcyclists may use the lanes free of charge. Dynamic pricing ensures continued free flow in the lanes at about 50 to 55 miles per hour by adjusting the toll up or down depending upon the amount of traffic in the lanes. The per-trip fee depends on where users enter and exit the MnPASS Express Lanes. The variable, per-trip fee is always charged for single-occupancy vehicle (SOV) use in the reversible section, while fees are only charged in the peak direction during rush hours in the diamond lane section. The fee is posted on changeable message signs, which can be adjusted as often as every three minutes, located just before entrances to MnPASS lanes. The tolls range from 25 cents to \$8 and average \$1 to \$4 during rush hour. Solo drivers who subscribe to the MnPASS program (identified in this report as subscribers or transponder owners) are issued windshield-mounted transponders for automatic vehicle identification. Each time subscribers use the lanes; their accounts are automatically debited the per-trip fee. MnPASS subscribers also pay a \$1.50 monthly fee for leasing the MnPASS transponder.

MnPASS is a new and significant change in highway management in Minnesota. To evaluate public acceptance and use, the Minnesota Department of Transportation (MnDOT) commissioned the University of Minnesota's Humphrey Institute of Public Affairs to conduct before-and-after project implementation surveys. The Attitudinal Panel Survey used a longitudinal panel design to collect opinion, travel behavior, and willingness to pay information from users and potential users of the MnPASS Express Lanes.

1.2 ATTITUDINAL PANEL SURVEY METHODS

Survey panels are comprised of individuals who are pre-recruited to participate on a more or less predictable basis in surveys over a period of time. The MnPASS Attitudinal Panel Survey respondents were interviewed in fall 2004, fall 2005, and spring 2006. The first wave (i.e., Baseline) of the Attitudinal Panel Survey was conducted prior to I-394 MnPASS Express Lane implementation in November/December 2004. In it, 1,000 respondents were sampled through a probability-based approach and completed a 20-minute telephone survey. Of these respondents, 980 agreed to continue as panel members. The second panel survey wave was conducted in November/December 2005, about six months after MnPASS implementation. Of the 980 baseline respondents who had agreed to be interviewed in Wave 2, 549 panel members were actually located, contacted, and interviewed. In addition, the Wave 2 sample included 400 choice-based respondents (i.e., 151 MnPASS subscribers and 250 transit users who were sampled from lists). All Wave 2 respondents recorded information about their travel in a travel log and also completed a modified version of the Baseline telephone survey.

The third wave of the Attitudinal Panel Survey was conducted in May / June 2006. A total of 1,228 respondents completed Wave 3 interviews. Of these, 343 were interviews with panel members (i.e., interviewed in the Baseline and Wave 2 Surveys). Additionally 106 were with MnPASS subscribers and 178 were with transit users who were interviewed in Wave 2. In addition to these participants in the previous survey waves, a new probability-based sample was introduced in Wave 3. These were 601 randomly sampled residents of the I-394 or I-35W travel sheds. The Wave 3 Survey used slightly modified versions of the Wave 2 materials including a pre-notification letter, travel log, and a telephone survey instrument.

1.3 KEY FINDINGS

- 1) Support for the idea of allowing single drivers to use carpool lanes by paying a fee remained high one year after MnPASS implementation (65% “good idea” versus 22% “bad idea”).
 - a) Support was consistent across all three waves of data collection: (Wave 1) 60% “good idea”, (Wave 2) 58% “good idea”, and (Wave 3) 65% “good idea.”
 - b) Approval was consistent across all income groups – 71% higher income, 61% middle income, and 64% lower income.
 - c) Support remained strong among carpoolers (60% “good idea”) and stable among transit users (49% “good idea”).
 - d) Opposition diminished across the three waves of data collection: (Wave 1) 30% “bad idea”, (Wave 2) 29% “bad idea”, and (Wave 3) 22% “bad idea.”
 - e) Opposition to the 24-hour operation of the toll lane program decreased between fall 2005 and spring 2006: (Wave 2) 61% “bad idea” and (Wave 3) 54% “bad idea”; conversely support increased nine percentage points from 23% (Wave 2) to 32% (Wave 3).
- 2) Beneficiaries of the MnPASS Express Lane project include a diverse population – across all income, age, race/ethnicity, employment, and mode usage groups.
 - a) By spring 2006, penetration in the transponder market for the I-394 travel shed has reached 6%.
 - b) All MnPASS lane users include those who pay to use the lanes as well as those who do not -- 84% have used the MnPASS lanes as a carpooler, 9% as a single driver, and 2% as a bus rider.
 - c) MnPASS usage was reported across all income levels – 79% higher income, 70% middle income, and 55% lower income.
- 3) Satisfaction with toll operations is strong, with minimal levels of dissatisfaction voiced by all MnPASS lane users.
 - a) The highest measures of satisfaction were with the all electric operation (93% satisfied) and speed of traffic flow in the MnPASS lane (88% satisfied).
 - b) Satisfaction with operations related to “safety” has increased relative to Wave 2 for ease of identifying the MnPASS entry points (83% satisfied) and safety of merging into the MnPASS lanes (72% satisfied).
- 4) Traveling experiences of I-394 users have improved since fall 2004 – 71% reported no congestion delays on their reference trip compared to 62% in Wave 1 and 61% of I-35W respondents.
 - a) Decrease in the percent of respondents reporting a congestion delay held steady at 29% (Wave 2 and Wave 3) compared with 37% in Wave 1.
 - b) Nearly half (49%) of I-394 respondents were 100% satisfied with the quality of travel on that roadway compared with 48% in Wave 2 and 37% in Wave 1.
 - c) 68% described their reference trip travel as “enjoyable” compared with 63% in Wave 2 and 47% in Wave 1.

- d) All MnPASS lane users perceived a significant difference in levels of congestion in the general traffic lanes relative to the MnPASS lane on their reference trip – 48% described the general traffic lanes as “very or extremely congested” compared to 2% for the MnPASS lane.
- 5) The dynamic pricing formula was adjusted in January 2006, and resulted in a higher average price for peak period users. The formula adjustment also resulted in less price fluctuations and more predictability. However, as a result of this policy, there was a slight decrease in the percent of MnPASS subscribers who considered the MnPASS toll a good value – decreased from 71% just right to 61% just right.
 - a) Among MnPASS subscribers, fewer reported satisfaction with toll amounts that vary with traffic levels (65% versus 76% in Wave 2).
 - b) Willingness to pay to use the MnPASS lanes was higher for AM commute than the PM commute trips and for trips of more than 20 miles.
 - c) Positive association between experience with MnPASS and willingness to pay for it. MnPASS subscribers and users show a willingness to pay at least 3 times higher than non-subscribers/non-users.
- 6) The implementation of MnPASS has not had a negative impact on carpooling on I-394, nor on traveling experiences in the corridor. The current mode share of I-394 panelists is comparable to that captured in the Wave 1 survey: 81% drive alone and 19% carpool.

1.4 CONCLUSIONS AND NEXT STEPS

Overall approval and satisfaction with the I-394 MnPASS Express Lane project remained strong and broad one year after project implementation. Six-to-seven out of ten believed that allowing single drivers to use carpool lanes by paying a toll was a good idea. Support remained strong among lower-income households and carpoolers, as well as stable among transit users. Users of the MnPASS lane perceive it as having a positive impact on their traveling experiences on I-394 and are highly satisfied with its operations. The price increase in January 2006 did have a mitigating effect on users perception of the MnPASS toll as a good value, and in tandem to this, satisfaction with toll amounts that vary with traffic levels experienced a slight decrease from fall 2005.

Next steps for the I-394 MnPASS Express Lane project are to continue evaluating its behavior impacts and monitoring public acceptance. New customers will be marketed, along with the continuation of proactive public outreach and education. Study of I-394 MnPASS Phase 2 options, funded by a Value Pricing Grant of the Federal Highway Administration, began in the Summer of 2006 and will continue throughout 2007.



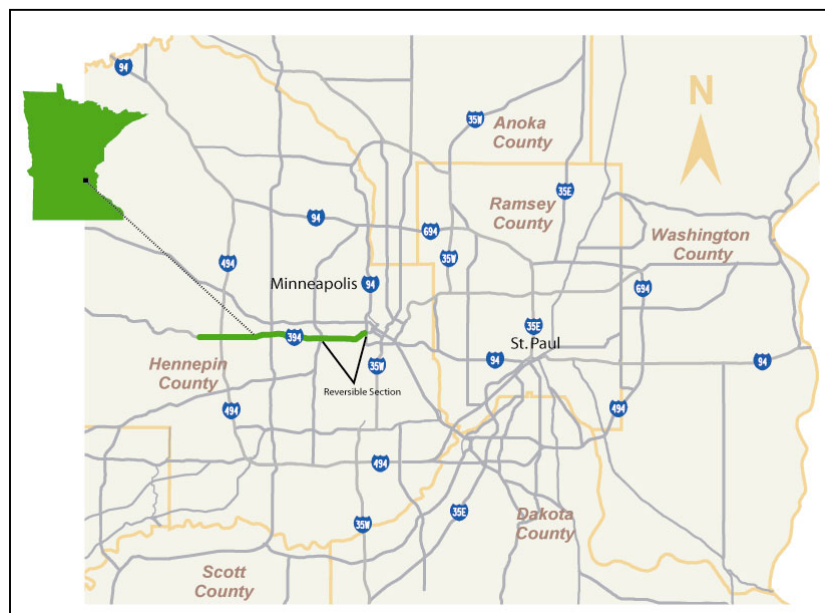
2. SURVEY METHODS

This chapter begins with a brief description of the MnPASS project, including its significance and goals. It then goes on to review the objectives and outcomes of the baseline and Wave 2 survey, followed by a more detailed description of the Wave 3 survey, including objectives, methods, outcomes and panel attrition.

2.1 MNPASS ATTITUDINAL PANEL EVALUATION: SIGNIFICANCE, DESCRIPTION AND GOALS

The I-394 MnPASS Express Lane project created Minnesota's first High Occupancy Toll (HOT) lanes. This project began allowing solo drivers to pay a fee to use an 11-mile stretch of carpool lanes between downtown Minneapolis and the western suburbs in May 2005 (see Figure 2.1). While solo drivers pay to use the MnPASS lanes, carpoolers, bus riders, and motorcyclists may use the lanes free of charge.

FIGURE 2.1: MAP OF STUDY AREA AND I-394 CORRIDOR



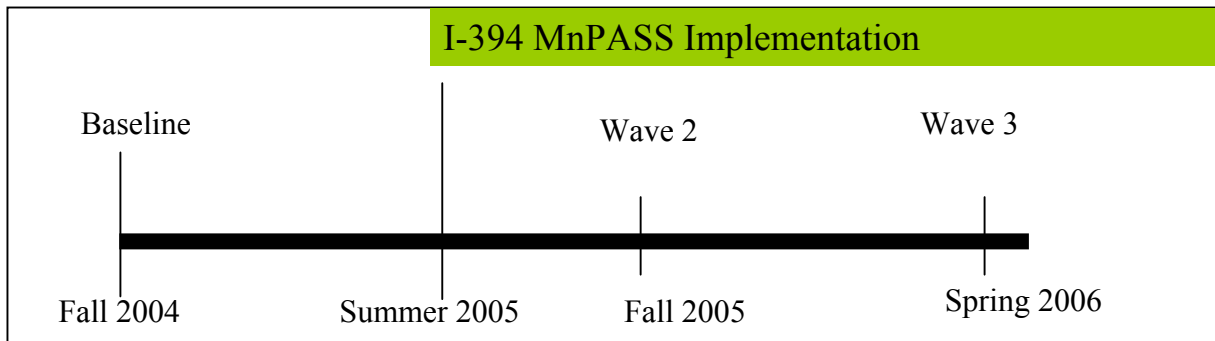
The I-394 MnPASS Express Lanes are divided into two segments for operations and pricing: (1) a barrier-separated, reversible section east of Highway 100 to downtown Minneapolis and (2) a “diamond lane” from west of Highway 100 to Highway 101, where two solid lines white lines separate the MnPASS lanes. Dynamic pricing ensures continued free flow in the lanes at about 50 to 55 miles per hour by adjusting the toll up or down depending upon the amount of traffic in the lanes. The variable, per-trip fee is always charged for single-occupancy vehicle (SOV) use in the reversible section, while fees are only charged in the peak direction during rush hours in the diamond lane section. The per-trip fee depends on where users enter and exit the MnPASS Express Lanes. Separate tolls are charged for use of each section. The fee is posted on changeable message signs, which can be adjusted as often as every three minutes, located just before entrances to MnPASS lanes. The tolls range from 25 cents to \$8 and average \$1 to \$4 during rush hour.

Solo drivers who subscribe to the MnPASS program are issued windshield-mounted transponders for automatic vehicle identification. Each time subscribers use the lanes; their accounts are automatically debited the per-trip fee. MnPASS subscribers also pay a \$1.50 monthly fee for leasing the MnPASS transponder. The transponders are read by antennae stationed at the access points in the lanes.

Enforcement is carried out by local law enforcement that patrols the MnPASS lane. Readers in their vehicles can determine whether a vehicle has a “working” transponder or not. This technology, plus visual determination of vehicle occupancy, is used for enforcement.

The Attitudinal Panel Survey measured the attitudes, perceptions, and reported travel behaviors of a scientific sample of residents of the study area. It covered issues of acceptance, equity, effectiveness in congestion management, toll system performance, as well as changes in travel behavior, mode choice, route choice and willingness to pay for the priced lane before-and-after the project implementation. As depicted in Figure 2.2, the survey waves took place in fall 2004, fall 2005, and spring 2006.

FIGURE 2.2: ATTITUDINAL PANEL SURVEY TIMELINE



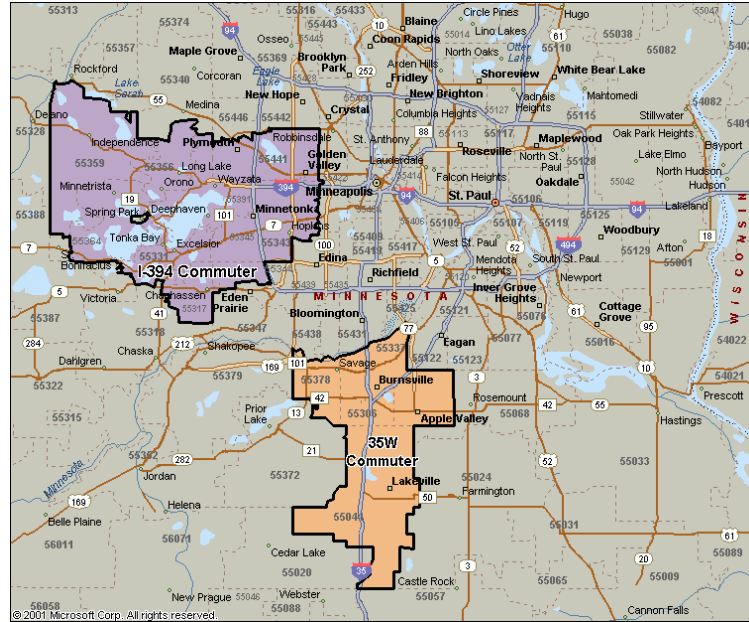
2.2 BASELINE (WAVE 1) SURVEY 2004

The Baseline Attitudinal Panel Survey established a foundation for the conduct of future waves of data collection. Full documentation of its methods and results can be found in a separate report, *I-394 MnPASS Project Evaluation Attitudinal Panel Survey, Final Report, March 2005*. Methods and outcomes are summarized here. Data collection for the Baseline Survey was completed in November / December 2004, prior to the opening of the I-394 MnPASS Express Lane. The design included the use of a treatment sample and control sample. The treatment sample consisted of households selected from the I-394 corridor, and the control sample consisted of households in the I-35W corridor. I-35W was selected as the control because it was the only other facility with carpool lanes in the study area (see Figure 2.3). Segments of each corridor were designated as follows:

- I-394 Travel Shed: Between Hwy 101 (West) and I-94 (East); alternate segment within this stratum was Minnesota Highway 55.
- I-35W Travel Shed: Between Hwy 62 (North) and Hwy 13 (South); alternate segment within this stratum was Minnesota Highway 77.

The population of inference (or population under study) consisted of those individuals 18 years of age or older, residing within the target travel sheds, that had traveled the target segments of I-394, Hwy 55, I-35W, or Hwy 77 between 6am and 9pm at least once in the five weekdays prior to the day of interview. To efficiently sample this population, specific areas within the I-394 and I-35W travel sheds were pre-identified as being the likely residential locations for I-394 or I-35W users based on origin and destination data from the Household Travel Diary Survey, conducted as one element of the Twin Cities Metropolitan Area Travel Behavior Inventory (TBI). These data were used to identify the areas that generated the highest proportions of target trips. Random digit dial (RDD) sample was then proportionally allocated to those areas.

FIGURE 2.3: MAP OF I-394 (PURPLE) AND I-35W (ORANGE) TRAVEL SHEDS



The survey materials consisted of an advance letter and a computer-assisted telephone interview (CATI) questionnaire. The questionnaire was developed based upon the objectives and research questions identified by a team that included MnDOT and other representatives from the I-394 MnPASS team. In addition, the Baseline Survey questionnaire drew from instruments used to evaluate predecessor projects, SR91 and I-15 in California. The Baseline Survey questionnaire contained six sections: (1) eligibility screening, (2) attitude/ opinion, (3) information about travel during the assigned travel week, (4) reference trip information, (5) stated preference questions, and (6) demographics. The questionnaire also contained a script to recruit respondents into the panel. Approval from the Institutional Review Board (IRB) of the University of Minnesota was obtained prior to administering these materials.

A total of 750 users of the I-394 corridor and 250 users of the control corridor (I-35W) were interviewed. An overall response rate of 66% was achieved. Nearly all of the 1,000 respondents (980) agreed to participate in future waves, thus forming the base panel sample for Wave 2 of the Attitudinal Panel Survey. In March 2005, postcards were sent to these persons reminding them of their prior consent to be interviewed in the Wave 2 Survey.

2.3 WAVE 2 SURVEY

Full documentation of its methods and results can be found in a separate report, *MnPASS Evaluation Attitudinal Panel Survey Wave 2, Final Report, March 2006*. Methods and outcomes are summarized here. In addition to the 980 Baseline Survey respondents who agreed to participate in the panel, NuStats targeted two supplementary sample types for inclusion in the Wave 2 Survey – transit users and MnPASS subscribers (e.g., transponder owners). Both of these sub-groups were targeted to ensure a sufficient sample size for analytical purposes. Transit users were sampled from a list of individuals known to use the local public transportation system supplied by Metro Transit in Minneapolis. The list contained name, address and contact information for 8,600 regional transit users. NuStats randomly selected 1,076 individuals from this list for inclusion in the survey. MnPASS subscribers were sampled from a list of 650 transponder owners supplied by MnDOT. The list contained name, address, contact information and date of account opening.

The survey materials included an advance packet that contained a letter and travel log. The travel log was used by respondents to record general travel information for an assigned travel week as well as information about a specific reference trip. The reference trip characteristics were pulled from the Baseline data and attached to the Travel Log via a mail-merge label. The CATI instrument was a slightly modified version of the Baseline questionnaire.

Data collection for the Wave 2 Survey was completed between November 2005 and January 2006. The data collection period was longer than the Baseline because of the level of effort required to re-contact Baseline Survey (i.e., panel) respondents. Wave 2 data collection was originally scheduled to take place in September / October 2005. However, it was re-scheduled to begin in November as a result of construction taking place on I-394 during the early Fall time period. In order to keep panel members abreast of the situation, another postcard was sent to panel members in early Fall reminding them of their consent to be interviewed, as well as providing them with the new schedule established for Wave 2 data collection. Of the 980 postcards sent, 70 (7%) were returned for failed delivery.

A total of 950 respondents completed the Wave 2 Survey. Of these, 549 were panel members (interviewed in both the Baseline and Wave 2), 151 were MnPASS subscribers, and 250 were transit users. The overall response rate was 65%.¹ Table 2.1 provides additional detail on the panel sample. We were able to contact and complete interviews with 56% of the Baseline respondents. No differences were observed in the completion rates between the treatment (I-394) and control (I-35W) panel samples.

TABLE 2.1: COMPLETION RATES BY SAMPLE TYPE – WAVE 2

SAMPLE TYPE	SAMPLE	COMPLETED INTERVIEWS	COMPLETION RATE
I-394 Baseline	736	413	56%
I-35W Baseline	244	136	56%
MnPASS Subscribers	583	151	26%
Transit Users	1,001	250	25%
Total	2,564	950	37%

The Wave 2 Survey experienced an attrition rate of 44% of the Baseline respondents. While this rate of attrition was higher than expected, it is comparable to that experienced in other recent transportation panels.² Reasons for the attrition in Wave 2 included: unable to locate or contact target person, target person no longer willing to participate, or target person no longer using corridor. Because of the panel attrition, an analysis was conducted in which the demographic characteristics of respondents completing both Waves 1 and 2 were compared to respondents who only completed the Baseline Survey. The analysis revealed that persons “lost” to the panel tended to be persons who rented rather than owned their residences and who were age 34 or younger. This outcome was not surprising given the fact that such persons tend to be more mobile. They would be more likely to change residences, jobs or their travel patterns making them difficult to locate and /or otherwise non-qualified to participate in the Wave 2 survey. For other demographic characteristics measured, no significant differences were found.³ The attrition did reduce the effective sample size for longitudinal analysis – particularly those analyses of specific sub-samples, such as those used in the Stated Preference (SP) analysis. Eighty-nine percent of the total 950 Wave 2 respondents (or 847 persons) agreed to be re-contacted in the Wave 3 Survey. Of the 549 panel members, 88% (or 482 persons) agreed to be re-contacted in the Wave 3 Survey.

¹ Response rate takes into consideration eligibility criteria such as disconnected phone numbers and use of the target corridor so that it is higher than the completion rate presented in Table 1.

² Panel attrition was about 33% per six-month wave in the I-15 panel survey. The German Mobility Panel experienced a 43% attrition rate in the second wave (i.e., 1-year interval). The London Panel Survey had an attrition rate of 38% per year.

³ Other demographic variables were: household size, household vehicles, education, employment status, licensed driver, household income, and gender.

2.4 WAVE 3 SURVEY 2006

This report serves as the documentation of methods for Wave 3 of the Attitudinal Panel Survey. For this reason, it contains greater details on survey design and implementation than that provided for the Baseline and Wave 2.

Objectives

The objectives of the Wave 3 Attitudinal Panel Survey focused on the following:

- Trends in attitudes toward MnPASS,
- Characteristics of MnPASS customers (transponder owners), including willingness to pay, changes in willingness to pay since the Baseline, and demand,
- Equity issues including MnPASS acceptance, usage, and satisfaction,
- Impacts on travel behavior as a result of MnPASS, and
- Mode choice.

The Wave 3 Attitudinal Panel Survey was the final wave in the Attitudinal Evaluation.

Sampling Approach

Wave 3 of the MnPASS Attitudinal Panel Survey had four (4) unique sample types: (1) Panel, (2) subscribers, (3) transit users, and (4) a new random cross-sectional sample.

- The panel sample consisted of the 549 respondents who participated in both the Baseline and Wave 2 Surveys. Of these 549 respondents, 413 reported using I-394/Hwy 55, while the remaining 136 reported trips taken on I-35W/Hwy 77.
- The subscriber sample consisted of the 151 MnPASS subscribers selected from the MnPASS database who participated in Wave 2.
- The transit sample consisted of the 250 transit users sampled from a list provided by Metro Transit who participated in Wave 2.
- The new random cross-sectional sample consisted of households residing within targeted census tracts within the I-394/Hwy 55 and I-35W/Hwy 77 corridors.

The CATI instrument was programmed with quotas in order to complete a minimum of 450 interviews in the I-394/Hwy 55 corridor⁴ and 150 interviews in the I-35W/Hwy 77 corridor, for a total of 600 completed surveys from the new random cross sectional sample. To maximize dialing efficiency, the entire sample was processed by partitioning it into 34 replicates, or subsamples, which on average included 240 sample records.

Survey Materials

The Wave 3 survey materials included a pre-notification packet and a telephone survey instrument (see samples in Appendices A - C). The pre-notification packet included a letter prepared on letterhead of the Hubert Humphrey Institute of Public Affairs. The purpose of this letter was to inform respondents of the survey purpose, benefits, sponsors, and the obligations entailed in survey participation. The voluntary nature of participation was fully explained, and contact information was provided in the event that more information was desired or needed.

⁴ A total of 101 interviews were completed in tracts within the I-394 corridor (West of Interstate 494) not sampled during Waves 1 and 2, and the remaining 350 interviews were completed in tracts that were sampled in previous Waves.

The packet also included a Travel Log to be used by respondents to record travel information during the assigned travel week (Monday through Friday) as well as information about a specific reference trip. The reference trip characteristics were pulled from the Baseline data and attached to the Travel Log via a mail-merge label.⁵

The telephone instrument was a slightly modified version of the Wave 2 telephone instrument. It contained the same six sections as the Baseline questionnaire: (1) eligibility screening, (2) attitude / opinion, (3) information about travel during the assigned travel week, (4) reference trip information, (5) stated preference questions, and (6) demographics.⁶ The Wave 3 instrument differed from the Baseline instrument in the following aspects:

- Relaxation of reference trip requirements. During Wave 2 each panel respondent was asked to report on a trip that was identical to their Wave 1 reference trip in the following characteristics: travel corridor, time of day, trip purpose, day of week, time of day and direction of travel. Due to the specificity of the requirements, 137 respondents were not able to provide reference trip details. For this reason, during Wave 3, the reference trip requirements were relaxed to include only travel corridor and trip purpose.
- Transition from “assigned week” for reference trip to “most recent trip” that satisfied reference trip requirements. During Wave 2 respondents were assigned a specific trip week during which they were asked to record information about a trip that matched the trip they reported during Wave 1. However, due to this level of specificity, 137 respondents were not able to provide reference trip details. For this reason, during Wave 3, respondents were asked to report on the most recent trip they took that matched the assigned reference trip details.
- Addition of a follow-up question on asking for transponder cost for those respondents who commented that they did not purchase a transponder because it was too expensive. This question was added to assess whether the perceived cost of a transponder was a barrier to acquisition.
- Addition of a question to identify the most significant factor in terms of mode choice. This question was added to identify why respondents chose the specific reference trip mode they reported for their Wave 3 reference trip.
- Deletion of qualifying questions (*Do you plan on moving anytime next year? Do you plan on moving outside of the Twin Cities? Do you plan on changing jobs next year?*). These questions were originally included to disqualify respondents from being included in the panel and interviewed in future waves. As Wave 3 was the final wave of the Attitudinal Panel Survey, these questions were no longer needed.

Stated Preference Questions

Stated preference (SP) questions were developed to measure willingness to pay for use of the HOT lane. The same SP measurement design was used in all three waves of data collection, in order to be able to compare SP results across the waves of data collection. SP tradeoff questions were asked of all respondents who reported making a reference trip as a solo driver on the I-394. A quota was designed based on the questionnaire items about the reference trip, to ensure a distribution of 75% peak period and 25% non-peak period trips.

The tradeoff questions were introduced with the following wording:

⁵ During wave 3, the reference trip requirements were relaxed to include only corridor (I-394 / HWY55 or I-35W / HWY77), time of day (peak/non-peak) and trip purpose (commute/non-commute).

⁶ Demographic items were asked of the new random panel sample only. Panel respondents were asked if there had been any changes in the following demographic variables since their last interview: household size, household vehicles, household workers and household income. If so, they were once again asked these specific questions. If not, they were not asked the demographic module of the survey.

Now assume you're making the same trip in the future that you just told me about. It's a trip on the same day of the week, at the same time of day, for the same purpose, and you're under the same time pressures. You enter the freeway, I-394, and find out that you can make this trip using a toll lane and paying via electronic toll collection if you want to.

To avoid bias due to ordering effects, the questions were asked in two different ways. Versions 1 and 2 below differ only in the order in which the toll and non-toll options are described to the respondent. Each respondent was assigned one of the two orderings at random, and that same ordering was used for all of the SP scenarios presented to that respondent:

VERSION 1: If you were to use the general traffic lanes on I-394, your trip would take [reported travel time without congestion + Y minutes] and be free. If you were to use the toll lane you would pay \$X and your trip would take [reported travel time without congestion] saving Y minutes. Now under these conditions, which would you choose to do?

- *Use the toll lane, pay \$X and save Y minutes*
- *Use the general lane for free.*

VERSION 2: If you were to use the toll lane on I-394, you would pay \$X and your trip would take [reported travel time without congestion]. If you were to use the general lanes, your trip would take [reported travel time without congestion + Y minutes], Y minutes longer than the toll lane, but it would be free. Now under these conditions, which would you choose to do?

- *Use the general lane for free.*
- *Use the toll lane, pay \$X and save Y minutes*

The SP experimental design included two different methods for setting the toll and time savings levels (X and Y above). The reasons for the two methods were: (1) to add confirmatory credibility to the SP results, assuming similar estimates of demand resulted, and (2) to include a method that could provide individual-level estimates of willingness to pay, to facilitate a wider variety of analyses.

In Method A, each person received four different HOT lane scenarios, each with a different amount of time saving (Y = 5, 10, 15 or 20 minutes) and toll (X = 50 cents, \$1, \$2, \$3, \$4, \$5, \$6 or \$7). The time for the MnPASS lane was set to be the travel time with no congestion, based on a response to a prior question about a specific reference trip that each respondent had recently made. Nine different sets of four scenarios were used across the sample, with each respondent assigned one of the nine sets at random. So, in total, 36 (9 x 4) different scenarios were used, each identifying a different time savings/toll level tradeoff point, with the identified values of time ranging from \$1.50/hour (50 cents for 20 minutes saved) up to \$84/hour (\$7 for 5 minutes saved).

In Method B, the same type of scenario was presented again, but this time using the “price meter” adaptive approach to set the time and toll levels. Each respondent was assigned a level of time savings (S = 5, 10 or 15 minutes) at random. Then a random toll price point was chosen (P = 50 cents, \$1, \$2, \$3, \$4, \$5, \$6 or \$7) and the same question wording as in Method A was used to present the choice options. If the person said that he/ she would pay the toll, a higher price point was chosen at random, and if he/she said they would not pay the toll, a lower price point was chosen at random, and the question was asked again at the new toll level. This procedure was continued until the “switching point” was identified – e.g. the respondent would be willing to pay a toll of \$2, but not \$3 – or if the respondent would not pay even the lowest toll level, or would pay even the highest toll level. In this way, the price meter approach provides an individual-level estimate of the willingness to pay (monetary value of time savings) for each respondent. Note that the transition from the Method A design questions to the Method B design question was designed to be transparent to the respondent, since the same question wording was used for both.

Fieldwork Process

Wave 3 data collection took place between May 5, 2005 and June 22, 2006. In order to remind panel members of their agreement to be interviewed, a postcard was sent to panel members in early April. Of the 950 postcards sent, 13 (1%) were returned for failed delivery. If a new address was provided by the postal service, the information was updated and the pre-notification packet was sent to the correct address. If a new address was not provided, the respondent was contacted as a “cold call.”

Prior to starting the interviewing for the Wave 3 Survey, an interviewer training session was conducted in which the goals and objectives of the survey were outlined for the interviewers. Interviewer supervisors and survey coordinators presented different aspect of the program to all interviewers, until they felt comfortable with the program, including terms, concepts and definitions within the program, as well as the skip logic and progression of data collection tasks. The training session culminated with the conduct of mock interviews, during which time the interviewers were encouraged to ask questions regarding any aspect of the program that was unclear to them.

A total of 22 interviewers participated in data collection, many of whom also participated in the Baseline and Wave 2 Attitudinal Panel Surveys; dialing times ran from 4 pm – 9 pm during weekdays and 11 am – 7 pm on Saturdays and Sundays. No interviews were conducted on May 7 and May 21. The interviewing process was organized to ensure that respondents would receive the pre-notification packet a few days prior to receiving their phone call. In cases where respondents reported not recalling a recent trip that matched their assigned trip characteristics, they were asked if they ever take trips that matched these characteristics. If so, a call back was scheduled 10 to 14 days in the future, in hopes of capturing an eligible trip. If not, NuStats flagged the respondent as ineligible.

Data Collection Outcomes

A total of 1,228 respondents completed Wave 3 interviews. Of these, 343 were panel members (interviewed in the Baseline, Wave 2 and Wave 3), 106 were MnPASS subscribers, 178 were transit users and 601 were new cross-sectional sample. Table 2.2 suggests that Wave 3 completion rates were significantly higher among respondents, who had also participated in Wave 2. The completion rates of the new cross-sectional sample are much lower than previously interviewed respondents because the rates do not control for “eligibility” criteria. If one were to restrict the completion rate calculation for the new cross-sectional sample to only eligible respondents, it would be much higher. The completion rate among new cross-sectional sample was 10%, and the overall completion rate for Wave 3 was 17%.

TABLE 2.2: COMPLETION RATES BY SAMPLE TYPE– WAVE 3

SAMPLE TYPE	DIALED SAMPLE PIECES	COMPLETED INTERVIEWS	WAVE 3 COMPLETION RATE
I-394 Panel	413	266	64%
I-35W Panel	136	77	57%
MnPASS Subscribers	151	106	70%
Transit Users	250	178	71%
New Cross-sectional Sample	6,108	601	10%
Total	7,058	1,228	17%

In total, two-thirds (66%) of Wave 2 participants were re-surveyed in Wave 3. About one-third of the original panel members were successfully interviewed in all three waves of the Attitudinal Panel Survey (see Table 2.3).

TABLE 2.3: PANEL ATTRITION OVERVIEW

PANEL TYPE	BASELINE		WAVE 2		WAVE 3
	Interviewed	Continued (Panel)	Interviewed	Continued (Panel)	Interviewed
I-394	750	736	413	364	266
I-35W	250	244	136	118	77
	1000	980	549	482	343

A slight difference was observed in the completion rates between the treatment (I-394) and control (I-35W) Wave 3 panel samples, with more I-394 Wave 3 panel members completing the survey (see Table 2.4). So 38% of the Wave 2 panel respondents were not interviewed in Wave 3. This 38% breaks down as follows. Seven percent of the I-394 panel and 10% of the I-35W panel refused to be interviewed in Wave 3. Two-tenths (20%) were no longer qualified to be interviewed (i.e., original panel member was no longer available, indicated they no longer used their assigned corridor or could not recall making any trips on their assigned corridor). Six percent (6%) were “call backs” for which the follow-up contact was never achieved. For about 4%, the sampled telephone numbers were no longer working residential numbers.

TABLE 2.4: DETAILED PANEL SAMPLE OUTCOMES – WAVE 2 TO WAVE 3

DISPOSITION	PANEL			
	I-394		I-35W	
	Interviewed			
Complete	266	64%	77	57%
Subtotal	266	64%	77	57%
	Not Interviewed			
Refuse	28	7%	14	10%
Not Qualified	79	19%	31	23%
Contact made – no interview ⁷	24	6%	7	5%
Disconnect / Business / Fax ⁸	16	4%	7	5%
Subtotal	147	36%	59	43%
Total	413	100%	136	100%

Because of the panel attrition, an analysis was conducted in which the demographic characteristics of respondents participating in all three waves of the Attitudinal panel survey were compared to respondents who agreed to participate in all three waves, but did not do so. These comparative tables are included as Appendix D to this report. An analysis of the attrition revealed no systematic bias was introduced into the Wave 3 sample. However, the attrition did reduce the effective sample size for longitudinal analysis – particularly those analyses of specific sub-samples, such as those used in the SP analysis.

⁷ These were call-backs for which the follow-up contact was not achieved.

⁸ These sample numbers were called multiple times to verify outcome.

According to Table 2.5 below panel members were contacted an average of five times before an interview was completed, whereas a non-panel member was contacted an average of two times. If one excludes sample records that resulted in a completed interview for this analysis, the number of attempts per record increases to 10 for panel records.

TABLE 2.5: MAJOR FIELDWORK INDICATORS

SAMPLE TYPE	AVERAGE INTERVIEW LENGTH	AVERAGE ATTEMPTS PER COMPLETE
I-394 Returning Random Panel	15.6	4.5
I-35W Returning Random Panel	13.2	5.8
MnPASS Subscriber Panel	16.8	6.8
Transit User Panel	13.7	5.2
New Random Panel	17.0	2.0

Table 2.6 presents the final sample dispositions for all 7,058 pieces of sample (i.e., panel, MnPASS subscribers, transit lists and new random panel) dialed for the Wave 3 Survey. Survey outcome rates were calculated using the percentage of respondents who completed interviews relative to the total numbers dialed in which an eligible respondent was contacted. This method also takes into account households of unknown eligibility by estimating what percentage of these may have been eligible for participation. Based on this calculation, the overall response rate was 45%.

TABLE 2.6: FINAL SAMPLE DISPOSITIONS

SAMPLE DISPOSITION	TOTAL	
	COUNT	PERCENT
Ineligible	1,813	26%
Not Qualified (no trips, moving, does not use corridor, language barrier)	896	13%
Disconnected Phone	795	11%
Business/ Fax/ Modem	122	2%
Unknown Eligibility, Non-Interview	3,988	56%
Answering Machine / Caller ID	2,017	29%
Hang Up / Refused (prior to screening)	993	14%
Ask for Callback (prior to screening)	401	5%
No Answer / Busy	577	8%
Eligible	1,257	18%
Complete	1,228	17%
Partial Complete	29	1%
Total Sample	7,058	100%



3. PANEL TRENDS: ATTITUDES ABOUT MNPASS

This section examines trends in attitudes about MnPASS by comparing responses to attitude, opinion, and knowledge questions among the 343 panel members who answered these questions in fall 2004 (Wave 1), fall 2005 (Wave 2) and spring 2006 (Wave 3). It should be noted that opinions expressed by panel members might be different from those expressed by non-panel members, because panel members are more familiar with the interview process.

3.1 MNPASS ACCEPTANCE

Acceptance of the MnPASS concept among panel members reached a high during Wave 3, when two-thirds (65%) commented that allowing SOVs to use the carpool lane was a good idea (relative to 60% in Wave 1 and 58% in Wave 2). Of those panel members who thought it was good idea, most thought so because it eases congestion (representing 29% of responses).⁹ Other frequently mentioned reasons included better use of carpool lanes (19% of responses), only users pay not everyone (15% of responses), time is money (11% of responses), saves time for busy people (9% of responses), adds capacity to roadway (7% of responses) and creates revenue (4% of responses). See Table 3.1 for further detail.

Of those respondents that thought it was a bad idea, most thought so because it only benefits the rich (representing 16% of responses). Other frequently mentioned reasons included carpools are not encouraged (12% of responses) carpool lanes should be free for all (11% of responses), roads are already paid for (10% of responses), it's unfair (9% of responses), carpool lanes should only be used for carpools (6% of responses), gives too much money to the road agency (5% of responses), and it's inefficient (5% of responses).

The data in Table 3.1 suggests some shifting of opinions within the panel that is most easily observed from Wave 2 to Wave 3. During this time, there was an increase of 7 percentage points in the percentage of panel respondents who changed their opinion from bad idea to good idea, while there was no change between Waves 2 and 3 regarding panel respondents who had no opinion. Since Wave 1, there has been a net increase (5%) in the percentage of respondents that perceive allowing SOVs to use the carpool lane by paying a toll is a good idea.

TABLE 3.1: PERCEPTION OF ALLOWING SOV TO USE CARPOOL LANES BY PAYING TOLL

What do you think of allowing single drivers to use the carpool lanes by paying a toll?

	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
Good Idea	205	60%	200	58%	224	65%
Bad Idea	104	30%	100	29%	75	22%
No Opinion	34	10%	43	13%	44	13%
Total	343	100%	343	100%	343	100%

⁹ Survey respondents were asked for the reasons behind their opinions on these MnPASS acceptance questions in an unprompted (or open-ended) manner.

Acceptance of a 24-hour operation of MnPASS declined significantly from Wave 1 to Wave 2 (53% versus 23%, respectively), but then increased from Wave 2 to Wave 3 (from 23% to 32%). From Wave 1 to Wave 3, we see a significant difference in the percentage of panel respondents that thought this was a good idea. The percentage of panel members who thought this was a bad idea increased significantly from 33% in Wave 1 to 61% in Wave 2, but then decreased from Wave 2 to Wave 3 from 61% to 54%. See Table 3.2 for further detail.

From Wave 1 to Wave 3, we see a significant difference in the percentage of respondents that thought this was a bad idea. Of the 180 panel members who thought this would be a good idea in Wave 1, 43% still felt that way in Wave 3, but 45% switched their opinion to bad idea and 12% reported no opinion. See Table 3.2 for further detail.

When the 185 people who thought the 24-hour operation was a bad idea in Wave 3 were asked, “why,” their most frequent response was tolls should only be charged during peak hours (representing 31% of responses). Other frequently mentioned reasons were: it causes congestion (11% of responses), it’s inefficient (10% of responses), and it’s too restrictive (9% of responses). The most frequent reasons provided by respondents who thought it was a good idea were: better use of carpool lanes and adds capacity to roadway (representing 19% of responses), encourages carpooling (11% of responses), only users pay not everyone and provides a good alternative (11% of responses each), generates revenue for the state (6% of responses) and helps users save money and time (5% of responses).

TABLE 3.2: PERCEPTION OF OPERATING MNPASS 24-HOURS PER DAY
When MnPASS opened, the toll lane program on I-394 operated 24-hours per day.
Was this a . . .

	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
Good Idea	180	53%	80	23%	110	32%
Bad Idea	113	33%	208	61%	185	54%
No Opinion	50	14%	55	16%	48	14%
Total	343	100%	343	100%	343	100%

Between Waves 1 and 2, there was a slight increase in the percentage of panel respondents (from 62% to 64%) who thought it was a good idea that there are no tolls outbound from MN100 from 5:30 am to 2:00 pm weekdays and inbound to MN 100 from 1:00 pm to 5:30 am weekdays. This was coupled with a decrease in the percentage of panel respondents (from 15% to 7%) who thought this was a bad idea, and an increase in the percentage of panel respondents (from 23% to 29%) who had no opinion. No changes from Wave 2 to Wave 3 were significant. See Table 3.3 for further detail.

Those 110 people who thought this revised operational plan was a good idea thought so because only peak hours are now tolled (33% of all responses), it eases congestion (25% of responses), it adds capacity to the roadway (8% of responses), it increases efficiency and encourages use of the lane (5% of responses each). Seven percent of panel members who answered “good idea” to the 24-hour operation of MnPASS answered “bad” to the new tolling operational hours, with 50% of those panel members who answered “good idea” to the 24-hour operation of MnPASS saying the new tolling hours were a good idea. Only 8% of panel members answered “bad idea” to both questions.

Those 185 people who thought this revised operational plan was a bad idea felt that it would be too confusing for people (15% of responses) and that tolls are not needed/tolls are not the answer (11% of responses), only peak hours were now tolled, too restrictive, and increased congestion (7% of responses each), lanes could be used better, should have open lanes in both directions, carpool lanes not encouraged and only users pay not everyone (4% of responses each).

More than three fourths (77%) of panel members who answered “bad idea” to the 24-hour operation of MnPASS answered “good idea” to the new tolling operational hours. Of those who answered “good idea” to the 24-hour operation, about 7% thought the new tolling operational hours was a “bad idea.”

TABLE 3.3: PERCEPTION OF PEAK / OFF PEAK TOLL HOURS

Now there are no tolls outbound from MN 100 from 5:30 am to 2 pm weekdays and inbound to MN100 from 1 pm to 5:30 am weekdays. Is this a . . .

	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
Good Idea	213	62%	219	64%
Bad Idea	50	15%	23	7%
No Opinion	80	23%	101	29%
Total	343	100%	343	100%

3.2 MnPASS AWARENESS

Virtually all of the panel members (97%) were aware of MnPASS during the Wave 3 interview, suggesting a steady increase from Wave 1, when 73% of panel members had heard of MnPASS. Overall, the increase in the percentage of respondents who were aware of MnPASS from between Wave 1 and Wave 2 and between Wave 1 and Wave 3 are significant. The nine panel members who had not heard of the MnPASS project were almost equally split among those in the I-35W panel sample and those in the I-394 panel sample. See Table 3.4 for further detail.

TABLE 3.4: MnPASS PROJECT AWARENESS

Have you heard of the MnPASS project on I-394?

	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
Yes	249	73%	322	94%	332	97%
No	86	25%	20	6%	9	3%
Unsure	8	2%	1	<1%	2	<1%
Total	343	100%	343	100%	343	100%

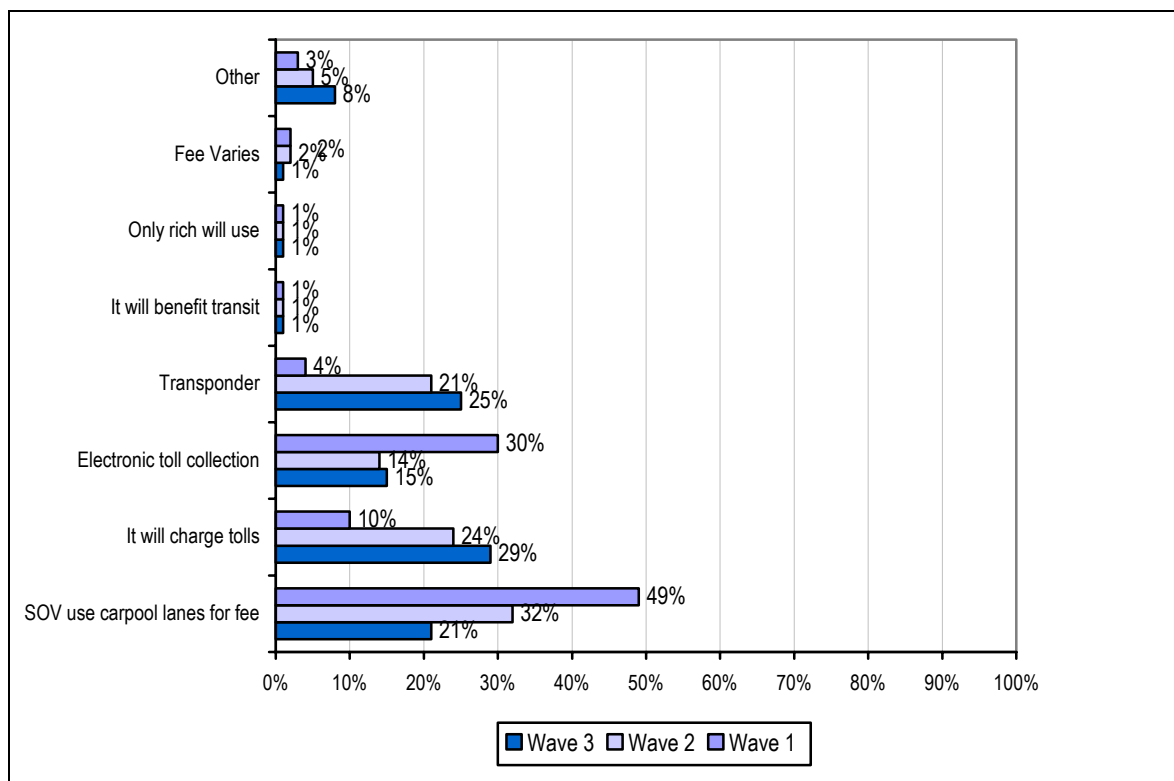
Panel members reported a wider variety of MnPASS knowledge during Wave 3 than in any other Wave, as evidenced in the greater number of responses collected during Wave 3 (616) than in either Wave 1 (341) or Wave 2 (555). In Wave 3, more panel members were aware of a transponder¹⁰ and the fact that tolls would be collected. A much smaller percentage of respondents reported that SOVs would be able to use the carpool lane for a fee. See Figure 3.1 on the following page for further detail.

¹⁰ Respondents that were familiar with transponders during Wave 3, may have, in previous waves, not been familiar and reported only knowledge of electronic toll collection.

FIGURE 3.1: WHAT RESPONDENTS KNEW ABOUT I-394 MNPASS PROJECT [OPEN-ENDED]

(Unprompted Multiple Response Question)

Wave 1 = 341 valid responses, Wave 2 = 555 valid responses, Wave 3 = 616 valid responses



3.3 OPINIONS ABOUT TRAFFIC CONGESTION, SAFETY, AND NOISE

About six of ten respondents (62%) considered traffic congestion a major problem in Wave 1. A similar percentage (59%) expressed that same opinion during Wave 2. This percentage dropped significantly during Wave 3, when 50% of respondents reported that traffic congestion is a major problem in the Twin Cities. Interestingly, the percentage of respondents that viewed traffic congestion as a moderate problem increased from both Waves 1 (35%) and 2 (33%) to Wave 3 (43%) When comparing Wave 1 to Wave 3 responses, 24% of panel respondents reported congestion increased, 9% reported congestion decreased and 67% reported no change in congestion. See Table 3.5 for further detail.

TABLE 3.5: OPINIONS ABOUT TRAFFIC CONGESTION IN THE TWIN CITIES

In general, do you think traffic congestion the Twin Cities is...

	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
Major Problem	214	62%	203	59%	171	50%
Moderate Problem	120	35%	112	33%	147	43%
Minor Problem	7	2%	20	6%	17	5%
No Problem at All	2	1%	6	2%	6	2%
Unsure / Refused	0	0%	2	<1%	2	<1%
Total	343	100%	343	100%	343	100%

During Wave 1, 71% of panel respondents thought MnPASS would have a positive impact on I-394 traffic congestion. This number decreased significantly during Wave 2 to 45%. However, during Wave 3, the percentage rebounded slightly to 51% of panel respondents. The percent of panel respondents who thought MnPASS had a negative effect on I-394 congestion increased from Wave 1 to Wave 2, but remained fairly steady from Wave 2 to Wave 3. In both Wave 1 and Wave 3, approximately 2 of 10 panel respondents thought MnPASS would not impact I-394 congestion (relative to Wave 2 when nearly 3 of 10 felt the same way). See Table 3.6 for further detail.

Of Wave 1 respondents who answered MnPASS would have a “positive impact” on traffic congestion, more than half (60%) responded similarly in Wave 3. Of the remaining, 18% responded “no impact,” 15% “don’t know,” and 7% “negative impact.” The increase in those answering “negative impact” from 6% to 11% was not statistically significant.

TABLE 3.6: OPINIONS ABOUT IMPACT OF MNPASS ON TRAFFIC CONGESTION

What impact do you think MnPASS has on traffic congestion on I-394?

	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
Positive	244	71%	155	45%	175	51%
Negative	18	5%	38	11%	30	9%
No Impact	66	19%	91	27%	75	22%
Don't Know	15	5%	59	17%	63	18%
Total	343	100%	343	100%	343	100%

During Wave 1, 43% of panel respondents thought MnPASS would have a positive impact on I-394 traffic safety. This number decreased significantly during Wave 2 to 27%. During Wave 3, this percentage increased to a third (32%) of panel respondents. This is not a significant difference from either Wave 1 or Wave 2. The percent of panel respondents who thought MnPASS would have a negative effect on I-394 congestion fluctuated from 6% to 14% to 10% from Wave 1 to Wave 3, respectively. The data also suggest a steady decrease in the percentage of respondents that believe MnPASS has no impact on I-394 traffic safety (43% for Wave 1, 40% for Wave 2 and 36% for Wave 3). This is coupled with a steady increase in the percentage of respondents that don’t know if MnPASS has had an impact on I-394 traffic safety (8% for Wave 1, 19% for Wave 2 and 23% for Wave 3). See Table 3.7 for further detail.

TABLE 3.7: OPINIONS ABOUT IMPACT OF MNPASS ON TRAFFIC SAFETY

What impact do you think MnPASS has on traffic safety on I-394?

	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
Positive	148	43%	93	27%	109	32%
Negative	20	6%	47	14%	33	10%
No Impact	146	43%	138	40%	122	36%
Don't Know	29	8%	65	19%	79	23%
Total	343	100%	343	100%	343	100%

Similar to results on the preceding attitudinal item, panel members tended to shift from a specific pre-MnPASS implementation opinion on the impact of MnPASS on noise levels to a “don’t know” response in the post-implementation interviews. There are significant differences between Wave 1 and Wave 2 AND between Wave 1 and Wave 3 in the percentage of respondents that reported “No Impact”, suggesting that respondents have no consensus on this issue yet. This is further supported by the data suggesting a significant difference in the percentage of respondents who reported “don’t know” between Wave 1 and Wave 3 and between Wave 2 and Wave 3. See Table 3.8 for further detail.

TABLE 3.8: OPINIONS ABOUT IMPACT OF MNPASS ON NOISE LEVELS

What impact do you think MnPASS has on noise levels along I-394?

	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
Positive	28	8%	29	8%	23	7%
Negative	25	7%	16	5%	13	4%
No Impact	261	76%	187	55%	200	58%
Don't Know	29	9%	111	32%	107	31%
Total	343	100%	343	100%	343	100%



4. IMPACT OF MNPASS ON TRAVEL BEHAVIOR

The opening of the MnPASS toll lanes altered the congestion patterns on I-394, which in turn influenced travel behavior in the corridor. This chapter examines the impact of MnPASS implementation on the traveling experience and travel behavior of panel members. It also presents information about the traveling experience of MnPASS users specifically on their reference trip.

4.1 TRAVELING EXPERIENCE

The reported traveling experiences of I-394 panelists have improved since Wave 1. The percentage of I-394 panelists reporting a delay was lower in both Wave 2 and Wave 3 (29% each) than in Wave 1 (37%). I-394 respondents who did not use the MnPASS lanes for their reference trip were more likely to experience congestion than those who did use MnPASS for their entire trip (31% versus 22%, respectively). However, the percentages of respondents who reported leaving at a particular time to avoid congestion were similar, with about one-fourth in all three waves using this congestion avoidance tactic. Among I-35W panelists, the percentage reporting a congestion delay steadily increased, beginning with 33% in Wave 1 and increasing to 39% in Wave 3. See Table 4.1 for further detail.

TABLE 4.1: CONGESTION DELAY ON REFERENCE TRIP
(Among All Panel Members)

Were you delayed by congestion on this trip?

I-394	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
Yes	100	37%	62	29%	78	29%
No	164	62%	153	71%	188	71%
Don't Know	2	1%	0	0%	0	0%
Total	266	100%	215	100%	266	100%
I-35W						
Yes	25	33%	23	37%	30	39%
No	52	67%	39	63%	47	61%
Don't Know	0	0%	0	0%	0	0%
Total	77	100%	62	100%	77	100%

Note: Table does not include responses from MnPASS subscriber sample or transit sample.

I-394 panelists reported higher levels of satisfaction as the study progressed with 37%, 48% and 49% of respondents reporting 100% satisfaction in Wave 1, Wave 2 and Wave 3, respectively (see Table 4.2). Satisfaction was highest among panelists who used the MnPASS lanes for their entire reference trip – 57% reported 100% satisfaction, compared with 51% who did not use the MnPASS lanes. Approximately one of ten I-394 panelists reported 30% satisfaction with the overall quality of their trip across all three waves. Across all three waves, no more than one of twenty I-394 panelists reported dissatisfaction. We found virtually no differences in the reported satisfaction levels among I-35W panelists with an average of 45% of respondents in all three waves reporting 100% satisfaction. See Table 4.2 for further detail.

TABLE 4.2: SATISFACTION WITH TRAVEL ON REFERENCE TRIP

(Among All Panel Members)

Based on this trip, how satisfied were you with the overall quality of your travel on this roadway?

I-394	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
100% Satisfied	96	37%	103	48%	130	49%
60% Satisfied	131	49%	86	40%	104	39%
30% Satisfied	25	9%	21	10%	24	9%
Not Satisfied	13	5%	5	2%	7	3%
Don't Know	1	0%	0	0%	1	0%
Total	266	100%	215	100%	266	100%
I-35W						
100% Satisfied	35	45%	28	45%	35	46%
60% Satisfied	29	38%	23	37%	31	40%
30% Satisfied	10	13%	8	13%	10	13%
Not Satisfied	3	4%	3	5%	1	1%
Don't Know	0	0%	0	0%	0	0%
Total	77	100%	62	100%	77	100%

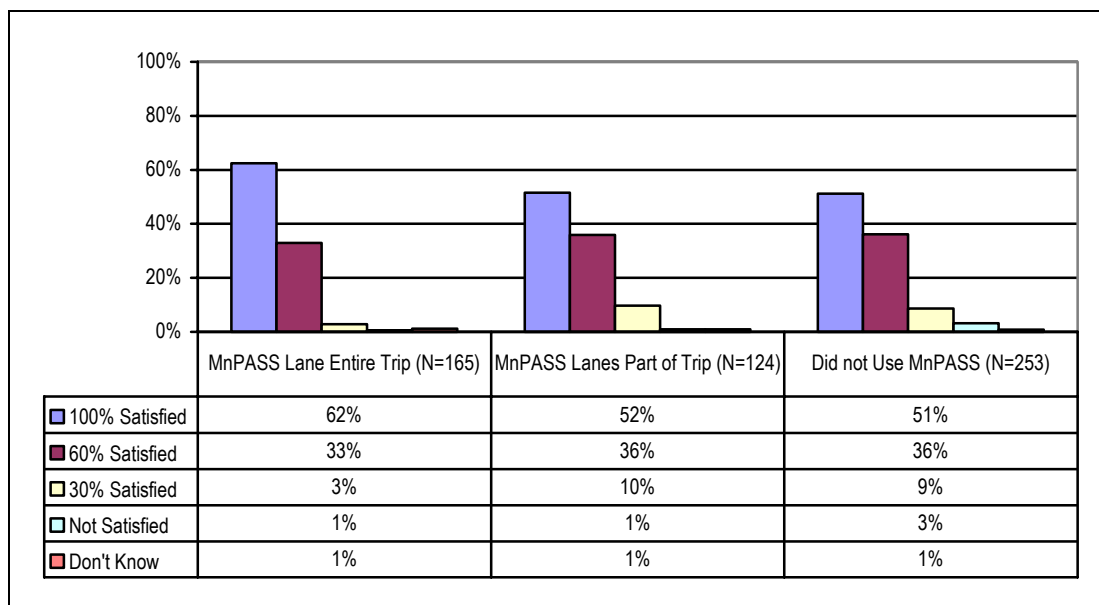
Note: Table does not include responses from MnPASS subscriber sample or transit sample.

Among all I-394 respondents (which provides a larger, more reliable sample), we find that 62% of those who used the MnPASS lanes for their entire trip were 100% satisfied, compared with 52% who used the MnPASS lanes for part of their trip, and 51% of those who did not use the MnPASS lanes at all. See Figure 4.1 for further detail.

FIGURE 4.1: SATISFACTION WITH TRAVEL ON REFERENCE TRIP BY USE OF MNPASS LANES

(Among All I-394 Respondents)

Based on this trip, how satisfied were you with the overall quality of your travel on this roadway?



Throughout Waves 2 and 3, panelists in both corridors (I-394 and I-35W) reported their travel as enjoyable and less stressful – a marked difference from the Wave 1 findings. Sixty-eight percent of the I-394 Wave 3 panelists reported an enjoyable travel experience, compared with 63% of Wave 2 panelists and 47% of Wave 1 panelists. This represents a significant increase (from Wave 1 to Wave 2 and from Wave 1 to Wave 3). Comparatively, 50% of I-394 Wave 1 panelists reported a stressful travel experience, compared to 35% and 29% of Wave 2 and 3 panelists, respectively. This represents a significant decrease (from Wave 1 to Wave 2 and from Wave 1 to Wave 3). See Table 4.3 for further detail.

Among I-35W panelists, 56% reported their travel as enjoyable in Wave 3 compared with 52% of Wave 2 and 47% of Wave 1 respondents. The percentage characterizing their travel as stressful also decreased from Wave 1 to Wave 3, going from 53% to 41%. No significant differences were noted among I-35W responses. See Table 4.3 for further detail.

**TABLE 4.3: TRAVEL EXPERIENCE ON I-394 DURING REFERENCE TRIP
(Among All Panel Members)**

Which of the following descriptors best captures your travel experience on I-394 [I-35W] at that time?

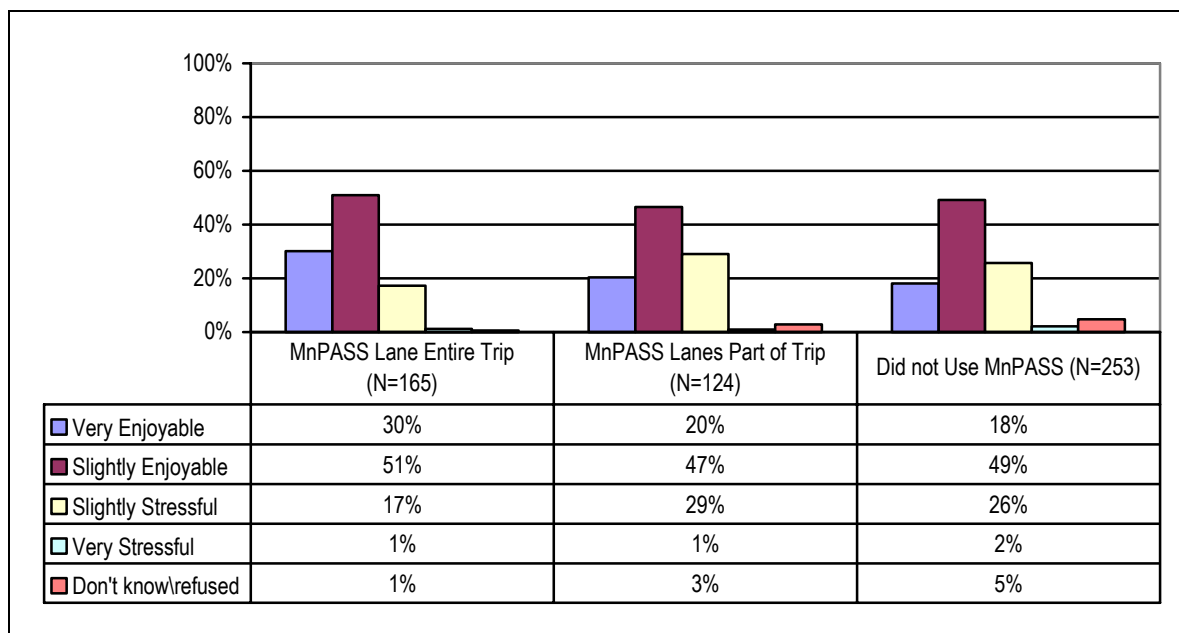
I-394	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
Enjoyable	127	47%	134	63%	181	68%
Very Enjoyable	27	10%	31	15%	42	16%
Slightly Enjoyable	100	37%	103	48%	139	52%
Stressful	132	50%	76	35%	77	29%
Slightly Stressful	114	43%	69	32%	70	26%
Very Stressful	18	7%	7	3%	7	3%
Don't Know	7	3%	5	2%	8	3%
Total	266	100%	215	100%	266	100%
I-35W						
Enjoyable	36	47%	32	52%	43	56%
Very Enjoyable	11	14%	9	15%	7	9%
Slightly Enjoyable	25	33%	23	37%	36	47%
Stressful	41	53%	28	45%	32	41%
Slightly Stressful	37	48%	27	43%	31	40%
Very Stressful	4	5%	1	2%	1	1%
Don't Know	0	0%	2	3%	2	3%
Total	77	100%	62	100%	77	100%

Among all I-394 respondents – which provides a larger, more reliable sample – we found 81% of those who used the MnPASS lanes for their entire trip characterized their travel as very or slightly enjoyable, compared with 67% each of those who used the MnPASS lanes for part of their trip or did not use the MnPASS lanes at all (see Figure 4.2 on the following page). See Figure 4.2 for further detail.

FIGURE 4.2: TRAVEL EXPERIENCE ON REFERENCE TRIP BY USE OF MNPASS LANES

(Among All I-394 Respondents)

Which of the following descriptors best captures your travel experience on I-394 at that time?



4.2 TRAVEL MODE

The survey captured information about travel mode in two ways: (1) “usual” mode and (2) “reference trip” mode. While these two measures were identical for all three waves, Wave 2 and Wave 3 respondents used a Travel Log to record their information for an assigned travel week (see Appendix B: Travel Log).

Usual mode was calculated by determining the most commonly used travel mode for all trips taken in the previous Monday-Friday 5-day period. For about four out of five panelists, drive alone (SOV) was the most commonly used travel mode. Carpooling was slightly higher among I-394 panelists (19%) than among I-35W panelists (17%), but the difference was not statistically significant. See Table 4.4.

TABLE 4.4: CURRENT “USUAL” TRAVEL MODE

(Among All Panel Members)

Now consider all trips you made in both directions. On how many of those trips did you:

	FREQUENCY I-394	PERCENT I-394	FREQUENCY I-35W	PERCENT I-35W
Drive alone	215	81%	63	82%
Carpool	50	19%	13	17%
Ride bus	1	0%	1	1%
Total	266	100%	77	100%

The travel mode of the respondents' reference trip was also measured. However, during Wave 2, reference trip was not collected for people who were interviewed as a "short" complete (see Wave 2 Attitudinal Panel Survey Final Report Methods chapter). All panel members interviewed in Wave 3 were asked to report on the same type of trip as they reported in either Wave 1 or Wave 2 (subscribers and transit users who were not sampled until Wave 2 were asked to report on a trip similar to the Wave 2 reference trip). For most panel members (97%), reporting on a similar trip (i.e., same trip type) was possible. Three percent of all panel members provided a reference trip that did not match the details provided in their travel log. The reference trips for those respondents who reported a similar trip were distributed as: subsistence (77%), discretionary (15%) and maintenance (8%)¹¹. The reference trips for those respondents who reported a similar trip and used MnPASS for either all or part of their reference trip were distributed as: subsistence (82%), discretionary (13%) and maintenance (5%). See Table 4.5 for further detail.

TABLE 4.5: COMPARABILITY OF REPORTED WAVE 3 TRIP TO ASSIGNED WAVE 3 TRIP
(Among All Wave 3 Respondents-excluding new random panel members-who reported a Wave 1 or Wave 2 Reference Trip)

	FREQUENCY I-394	PERCENT I-394	FREQUENCY I-35W	PERCENT I-35W
Reported Similar Trip	469	97%	134	92%
Reported Different Trip	13	3%	11	8%
Total	482	100%	145	100%

Very similar travel mode patterns were observed for the reference trip as for "usual" mode – about three-quarters of panelists drove alone, about one-fourth carpooled, and 1% rode the bus. It appears that I-35W panelists were slightly more likely to carpool (26%) than were panelists on I-394 (23%), but the differences are not statistically significant due to the small size of the I-35W sample. See Table 4.6 for further detail.

TABLE 4.6: CURRENT "REFERENCE TRIP" TRAVEL MODE
(Among All Panel Members Reporting Similar Trips)

Now I have questions about the trip you recorded in your travel log. Were you...

	FREQUENCY I-394	PERCENT I-394	FREQUENCY I-35W	PERCENT I-35W
Drive alone	199	76%	53	73%
Carpool	59	23%	19	26%
Ride bus	2	1%	1	1%
Total	260	100%	73	100%

¹¹ Subsistence trips are those that are for commuting to or from work/school or work related. Discretionary trips are those that are for visiting friends or family or recreational or entertainment or something else. Maintenance trips are those for shopping or medical or personal appointments.

Comparing all three I-394 Waves by their usual modes of travel, there is only minimal difference between the 3 waves within the modes of travel. Overall, carpooling share increased from Wave 1 to Wave 2 and then roughly returned to its previous percentage in Wave 3. I-35W respondents showed a steadier pattern throughout all three waves. Respondents driving alone increased from 77% in Wave 1 to 81% in Wave 2 to 82% in Wave 3. Carpooling showed a corresponding decrease in percentages from Wave 1 to Wave 3. See Table 4.7 for further detail.

TABLE 4.7: USUAL TRAVEL MODE

Now consider all trips you made in both directions. On how many of those trips did you:

I-394	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)	FREQUENCY WAVE 3 (2006)	PERCENT WAVE 3 (2006)
Drive alone	212	80%	177	76%	214	81%
Carpool	52	19%	54	23%	50	19%
Ride bus	2	1%	3	1%	1	0%
Total	266	100%	234	100%	265	100%
I-35W						
Drive alone	59	77%	55	81%	62	82%
Carpool	18	23%	13	19%	13	17%
Ride bus	0	0%	0	0%	1	1%
Total	77	100%	68	100%	76	100%

When the responses of individual panelists are explored, less than one-fifth of I-394 panelist reported different usual modes of travel from Wave 1 to Wave 3. A higher percentage of I-35W panelist reported different usual modes of travel from Wave 1 to Wave 3, with 3 in 10 stating the use of different modes. See Table 4.8 for further detail.

**TABLE 4.8: CHANGE IN USUAL MODE OF TRAVEL (WAVE 1 TO WAVE 3)
(Among All Panel Members)**

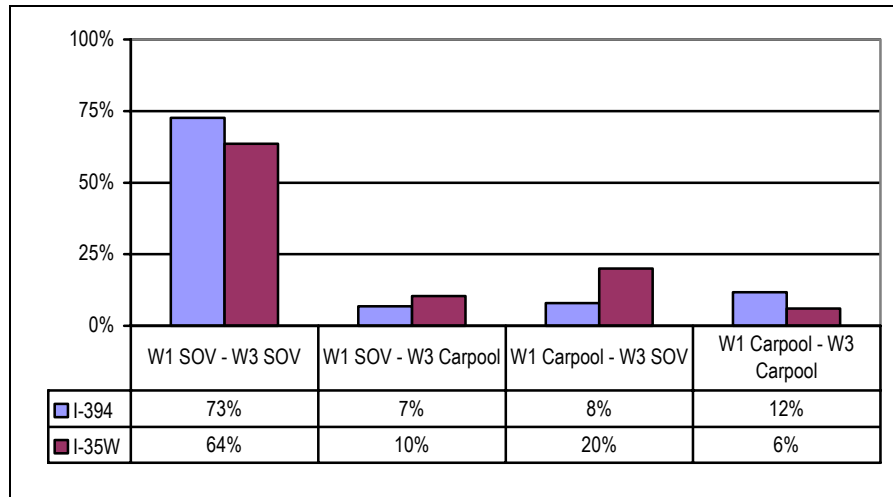
Now consider all trips you made in both directions. On how many of those trips did you:

	FREQUENCY I-394	PERCENT I-394	FREQUENCY I-35W	PERCENT I-35W
Same Mode	225	85%	54	70%
Different Mode	41	15%	23	30%
Total	266	100%	77	100%

Consistent with the information presented in Table 4.8, I-394 panelists were less likely to switch from SOV to carpool than were those in the I-35W control corridor (7% versus 10%), whereas those in the control corridor were more likely to switch from carpool to SOV (8% versus 20%). See Figure 4.3 for further detail.

FIGURE 4.3: MODE SWITCHING BEHAVIOR BY CORRIDOR (WAVE 1 TO WAVE 3)
 (Among Non-Transit Panel Members)¹²

Now consider all trips you made in both directions. On how many of those trips did you:



4.3 ROADWAY USED

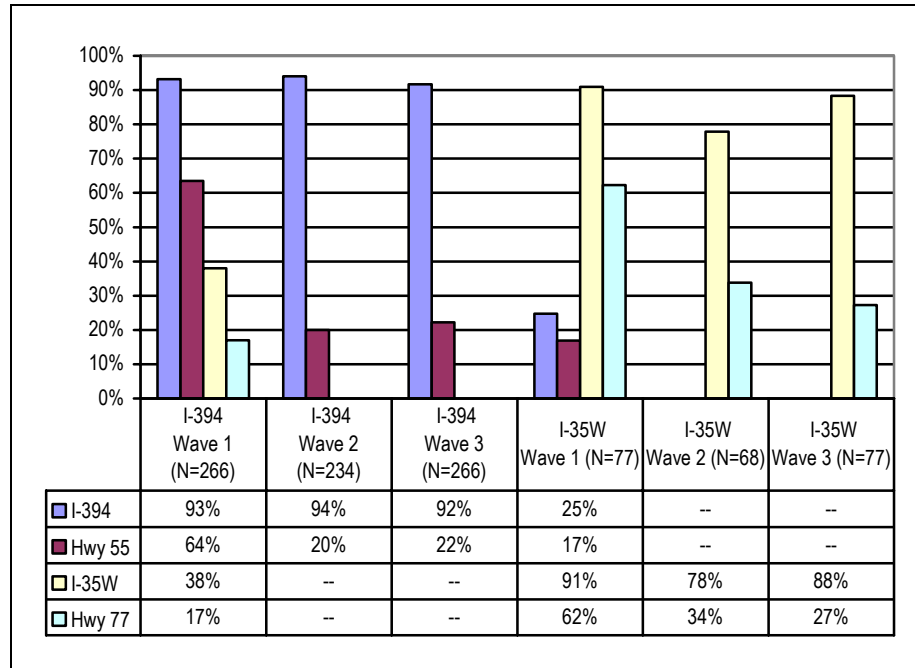
Dissimilar methods were used to capture information about roadways used in the past five weekdays in Wave 1 versus Waves 2 and 3. In Wave 1, respondents were asked, “On which of the following freeways have you traveled in the past 5 weekdays between the hours of 6 am and 9 pm?” (i.e., I-394, I-35W, Hwy 55, and Hwy 77). Responses were captured in a yes / no format and in Wave 1, all respondents were asked about all four roadways.

In Waves 2 and 3, respondents were asked, “On how many [of those total] trips did you mostly...” I-394 respondents were provided the response categories “use the MnPASS lanes, use the general traffic lanes on I-394, and use Hwy 55.” I-35W respondents were provided the categories “use the carpool lanes on I-35W, use the general traffic lanes on I-35W, and use Hwy 77.” So in Waves 2 and 3, respondents were asked only about the roadways in their specific corridor. The intent of this question wording was to simplify Travel Log completion by respondents in Waves 2 and 3. See Figure 4.4 on the following page for further detail.

The differences in question wording between Wave 1 and Waves 2 and 3 make us cautious in drawing inferences about trends in roadway use. However, it does appear that I-394 respondents in Waves 2 and 3 were less likely to use the alternative roadway (Hwy 55) as another option for travel; about one in five chose that option. Meanwhile, I-35W respondents were more likely to try different routes and more readily used the Hwy 77 alternative (34% of Wave 2 respondents and 27% of Wave 3 respondents). See Figure 4.4 below.

¹² Transit sample size is too small to report.

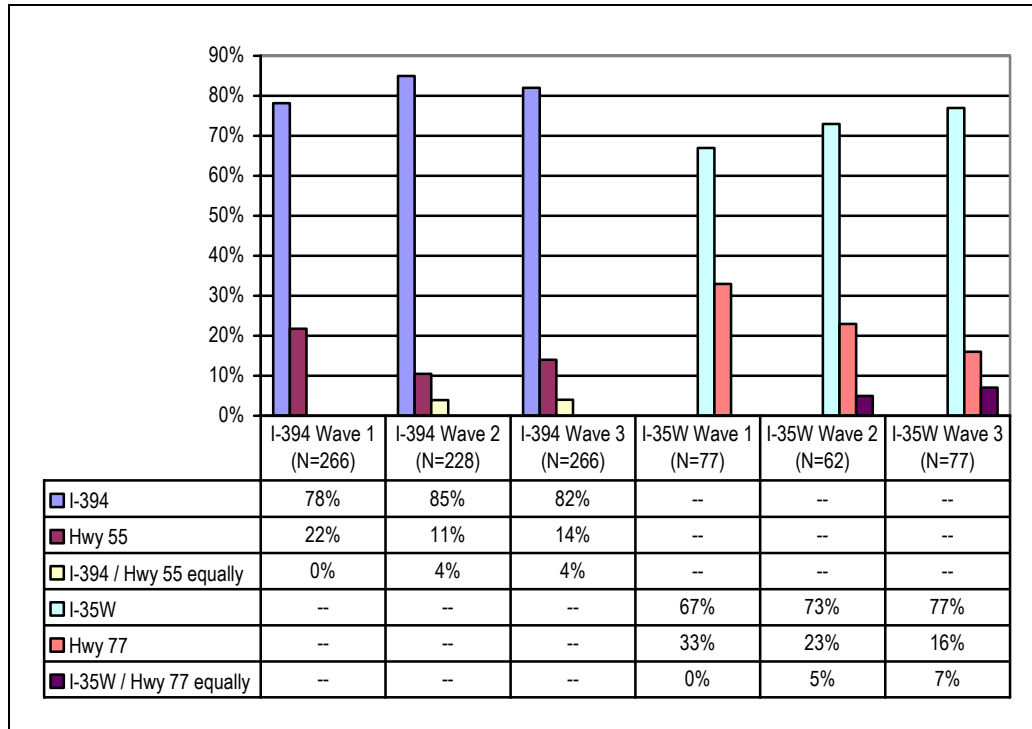
FIGURE 4.4: ROADWAYS USED MONDAY - FRIDAY, 6AM - 9PM, ASSIGNED WEEK
(Among Panel Members)



Another way to compare wave responses on roadway used is in terms of the “most frequently used” roadway. In Wave 1, subsequent to being asked whether respondents used a particular roadway or not, those respondents who reported using more than roadway were asked “which one do you use most frequently?” For Waves 2 and 3, the most frequently used roadway was statistically computed from the trip data so that there were respondents for whom both the interstate and the alternative were used for an equal number of trips.

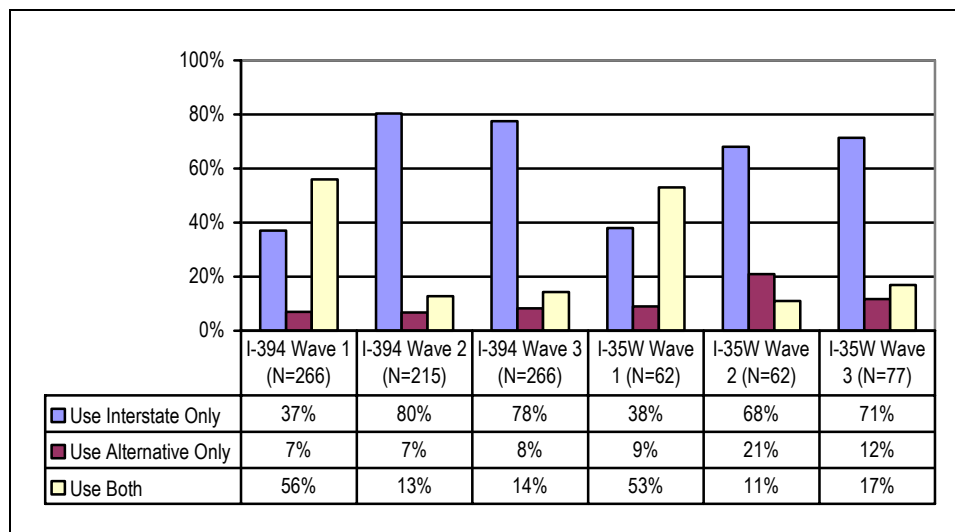
Different patterns of the most frequently used roadway were observed for I-394 panel member versus I-35W panel members. In Wave 2, more I-394 panelists (85%) seemed to use I-394 as opposed to the alternative highway (Hwy 55) than did the I-35W panelists (73%) use the interstate versus the alternative. Also, there appeared to be differences between Wave 1 and Wave 2 in the percentages of I-394 panelists reporting most frequent use of I-394 (78% versus 85%). From Wave 1 to Wave 3, the data suggest a steady increase in the percentage of I-35W panelists that mostly use I-35W (from 67% in Wave 1 to 73% in Wave 2 to 77% in Wave 3). See Figure 4.5 for further detail.

**FIGURE 4.5: ROADWAY USED MOST FREQUENTLY MONDAY - FRIDAY, 6 AM – 9 PM, ASSIGNED WEEK
(Among Panel Members)**



Due to differences in the manner in which the data was collected, the data suggest significant differences between the Wave 1 estimates and the estimates for Waves 2 and 3. However, due to these differences in methodology, one cannot conclude if the differences in these can be attributed to methodology or true travel behavior. I-394 and I-35W panelists reported similar types of roadways used in Waves 2 and 3. The most noticeable difference is seen in the Wave 2 and Wave 3 I-35W panelists. During Wave 2, 21% of I-35W panelists used the alternative only, whereas in Wave 3, this number decreases to 12%. Conversely, during Wave 2, 11% of I-35W panelists reported using both the interstate and the alternative, whereas in Wave 3, this number increased to 17%. See Figure 4.6 for further detail.

**FIGURE 4.6: TYPE OF ROADWAY USED MONDAY - FRIDAY, 6 AM – 9 PM, WAVE 2 ASSIGNED WEEK
(Among Panel Members)**



4.4 VOLUME OF TRAVEL

There were moderate differences between the mean number of trips recorded among the I-394 panel during Wave 1 (7.75), Wave 2 (8.03) and Wave 3 (7.40). See Table 4.9 for further detail.

TABLE 4.9: MEAN VOLUME OF TRIPS MONDAY - FRIDAY, 6AM - 9PM, WAVE 2 ASSIGNED WEEK

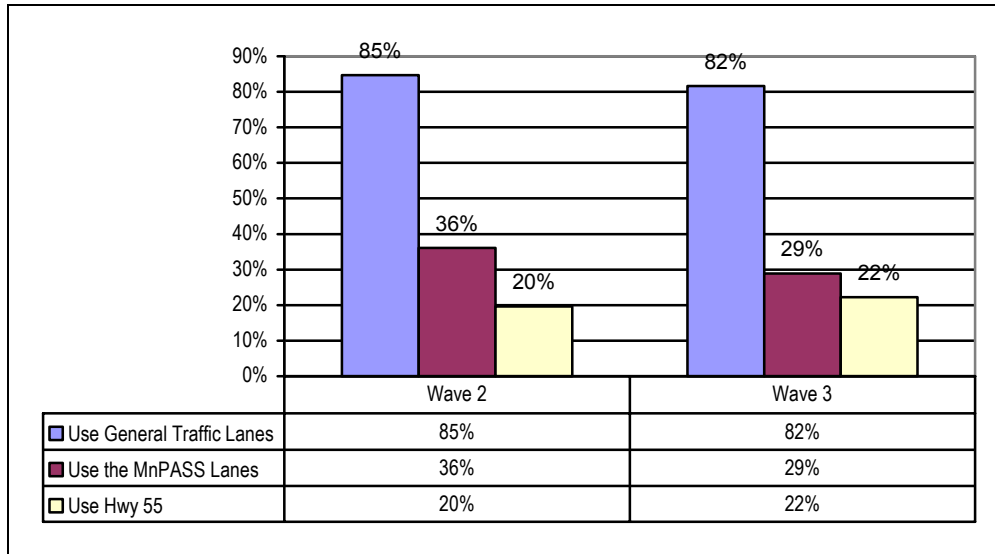
How many trips did you make in total?

TYPE OF TRIP	I-394			I-35W		
	WAVE 1	WAVE 2	WAVE 3	WAVE 1	WAVE 2	WAVE 3
	(N=266)	(N=215)	(N=266)	(N=136)	(N=111)	(N=77)
Total Number of Trips	7.75	8.03	7.40	6.51	6.59	6.60
By Direction						
Total Eastbound Trips	3.72	3.99	3.61	--	--	--
Total Westbound Trips	4.03	4.04	3.79	--	--	--
Total Northbound Trips	--	--	--	3.18	3.23	3.36
Total Southbound Trips	--	--	--	3.32	3.32	3.23
By Mode						
Total Number of Drive Alone Trips	5.95	6.14	5.82	5.21	5.27	4.90
Total Number of Carpool Trips	1.74	1.85	1.42	1.30	1.27	1.36
Total Number of Transit Trips	.06	.08	.08	.00	.00	.13
By Roadway or Lane						
Total Number of MnPASS Trips	--	1.61	1.33	--	--	--
Total Number of Hwy 55 Trips	--	1.12	.92	--	--	--
Total Number of General Traffic Lane Trips	--	5.38	5.06	--	4.42	4.69
Total Number of Carpool Lane Trips	--	--	--	--	.37	.39
Total Number of Hwy 77 Trips	--	--	--	--	1.76	1.31

MnPASS lane usage appears to have diminished as a proportion of all trips on the I-394 corridor. In Wave 2, 36% of trips used the MnPASS lanes whereas in Wave 3, 29% of trips used the MnPASS lane. A reason for this reduction may be the increase in cost for using the MnPASS lanes that occurred in January 2006. At the same time the proportion of trips that used the general traffic lanes and those that used Highway 55 remained stable between Wave 2 and Wave 3. See Figure 4.7 for further detail.

FIGURE 4.7: I-394 ROADWAY / LANES USED MONDAY - FRIDAY, 6 AM – 9 PM, WAVE 2 AND 3 ASSIGNED WEEK

Now consider all trips you made in both directions. On how many of those trips did you use...





5. STATED PREFERENCE ANALYSIS

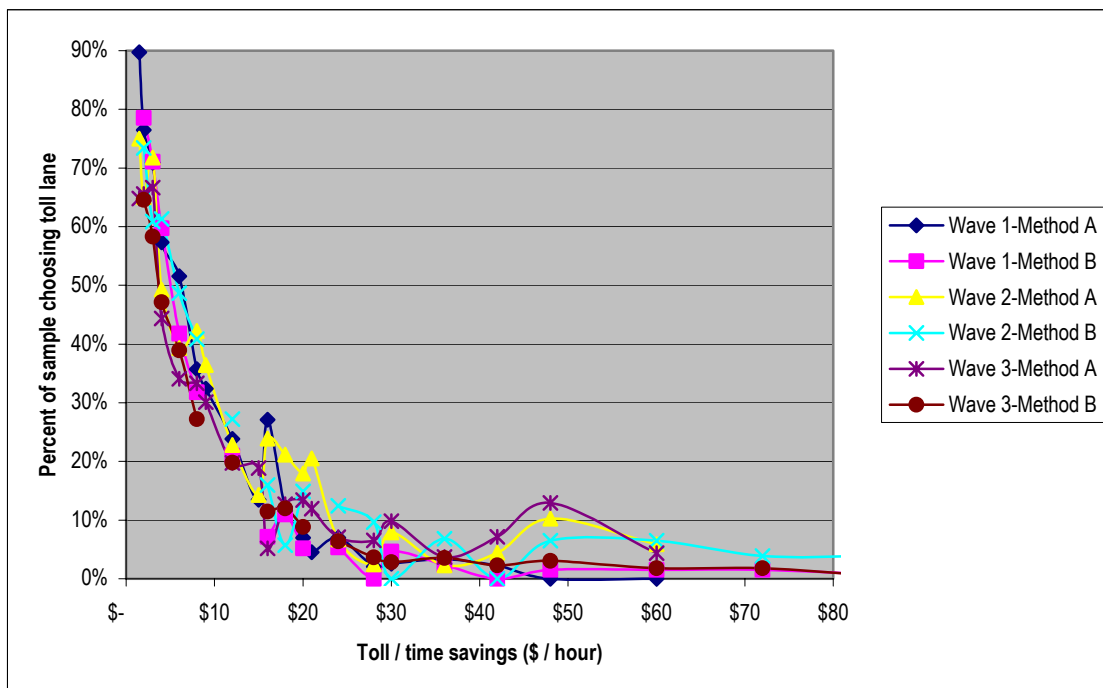
Stated preference (SP) questions were used to measure respondents' likelihood of using the MnPASS lane as a function of the toll level and time savings. The questions were asked of all respondents whose reference trip was made as a solo driver on the I-394. The structure and wording of the SP questions is shown in Chapter 2. The same experimental design and wording was used in all three waves to allow comparisons of SP results across the waves.

5.1 STATED PREFERENCE RESPONSES

The first analysis of the Wave 3 SP responses was a comparison to Waves 1 and 2 SP responses and results. In this analysis, there was no explicit linkage between responses from the same panel member in different waves—the data was analyzed as repeated cross-sections, allowing us to use the full samples from both waves, rather than just panel members.

There were 1,313 SP respondents: 412 in Wave 1, 366 in Wave 2, and 535 in Wave 3. Nearly all of those respondents completed both Methods A and B, with the exception of Wave 2 where Method B was skipped for a substantial number of respondents.¹³ Figure 5.1 shows the percent of respondents choosing the MnPASS lane at different levels of time savings/toll tradeoff ratios. Although there is inevitably some random noise in such a plot due to fairly small sample sizes at each tradeoff point, the overall patterns look quite smooth and similar between the two SP methods and three waves of data.

FIGURE 5.1: PERCENT OF STATED PREFERENCE CHOICES PAYING TOLL VS. TIME/COST TRADEOFF

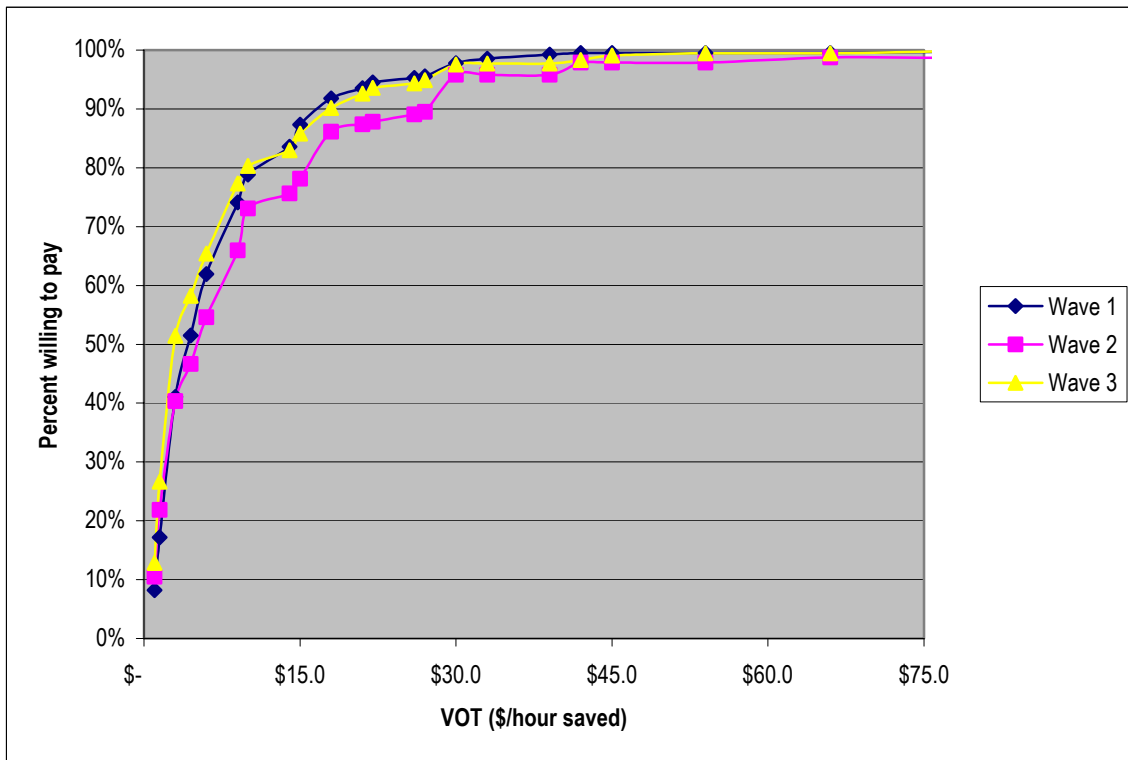


¹³ During Wave 2, the CATI program was modified to collect “short completes” from respondents who reported not taking a trip that matched their assigned trip during their assigned travel week. As a result of this programming change, several respondents that should have been asked the Method B questions were not.

Individual Level VOT Distributions

An advantage of the Method B price meter data is that it provides an individual level estimate of Value of Time (VOT) for each respondent. Figure 5.2 is a plot of the cumulative distribution of those values from each of the three waves of data. While the Wave 2 curve looks somewhat different than Wave 1, with somewhat higher values of time, the Wave 3 curve looks almost identical to Wave 1.

FIGURE 5.2 CUMULATIVE VOT DISTRIBUTIONS FROM METHOD B DATA



Individual Level VOT Correlations

Another interesting analysis was to measure the correlation between the individual-level VOT estimates for the same respondents between waves. The overall results are:

TABLE 5.1: INDIVIDUAL LEVEL VOT CORRELATIONS – WAVES 1 THROUGH 3

WAVE RELATIONSHIP	FREQUENCY	CORRELATION
Wave 1 with Wave 2	101	-0.017
Wave 2 with Wave 3	86	+0.095
Wave 1 with Wave 3	126	+0.367

The correlation between Wave 1 and Wave 3 VOTs for the 126 respondents who provided price meter data in both waves is +0.367, which is highly statistically significant. The Wave 2 VOTs are not significantly correlated with either the Wave 1 or Wave 3 values for the same people. This result, combined with the findings in Table 5.1 above, suggests the Wave 1 and Wave 3 data may be more useful for predictive analyses. For that reason, all further analysis is carried out using only Waves 1 and 3, the first and last waves.

5.2 MULTIVARIATE ANALYSIS

The Wave 1 and Wave 2 reports contain descriptive tables of how willingness to pay to use the toll lane is related to various socio-demographic characteristics, as well as attitudes and opinions. The relationships with attitudes and opinions, while interesting, are fairly obvious, so that analysis is not repeated here. The emphasis is now on observable variables. In this analysis, the Method A and Method B data from Waves 1 and 3 was pooled in order to estimate a logistic multivariate model of VOT that can sort out the effects of several variables that may be correlated with one another. The results of two interesting models are shown in Table 5.2 below. [Note: these models are intended for explanatory purposes, and not for direct use in demand forecasting. Before the data could be used for forecasting, it would need to be weighted to adjust for the non-random methods of recruitment for the panel, MnPASS and transit samples.]

Binary logit models with error scaling were used to estimate models with the time coefficients directly in units of VOT (\$/hour). In Model 1, the “base” value of time is \$9.63, but there are several additional “modifier” variables that are related to either lower or higher willingness to pay:

Income: No significant difference in VOT is found between the income groups below \$50K and between \$50K and \$100K (the base group). However, it appears that willingness to pay rises sharply with income above the \$100K level, and is \$6.45 (about 70%) higher than the base level for those with income above \$125K.

Age: Relative to the base age group of 45-65, younger people have higher VOT and older people have lower VOT, on average. This is presumably due to a busier lifestyle for younger people – particularly those with children. Note that the age effect is additive to the income effect, and that many younger people have lower than average income, so that the net effect of the age and income modifiers may be negative. This fact underlines the importance of analyzing correlated variables simultaneously to avoid spurious results as much as possible.

Trip purpose/time of day: The willingness to pay for time savings in the AM commute and for work-related non-commute trips is about \$3/hour higher than the base, while the VOT for the PM commute is less than \$1 higher than the base. The value for non-work trips in the PM peak is about \$2/hour lower than the base group. (The “base” group includes any purpose for which there is no modifier variable, in this case mainly off-peak social and recreation trips.)

Trip distance: Relative to medium-distance trips, trips of less than 10 miles are related to a significantly lower value of time, while trips of more than 20 miles have significantly higher value. One might expect the opposite effect because each minute saved is a higher percentage of travel time on short trips. On the other hand, it is often found that peoples’ marginal disutility of in-vehicle time increases as more time is spent in the vehicle, and these results confirm that finding.

Time saved: The willingness to pay for each marginal minute of time saved may also depend on the total amount saved. The marginal willingness to pay for 15 and 20-minute time savings is about \$2/hour (about 3.5 cents/minute) lower than for the base levels of 5 and 10 minutes. Perhaps respondents think saving 5 or 10 minutes would already get congestion down to bearable levels, or else some people may not believe that 15 or 20-minute savings are realistic.

Price meter (method B): When compared to the base Method A data, the price meter SP choices do not give significantly higher or lower values of time. This result is very encouraging for analyses such as this that pool the data together.

Wave/sample: Among the SP panel members (the 126 individuals that completed all SP questions in both Waves 1 and 3), the average VOT in Wave 1 was very similar to that of the other Wave 1 respondents (63 cents difference). In Wave 3, however, the mean value of time for the SP panel members is \$3.71 lower (-\$3.08 - 0.63) than it was for the same individuals in Wave 1. That means the willingness to pay for those individuals dropped by almost 40% between the two waves, after any other differences are taken into account. The VOT for the non-panel SP respondents in Wave 3 is \$1.77 lower than for the non-panel in Wave 1. So, the willingness to pay for other respondents also decreased between the two waves, but not by as much as for SP panel members. (The non-panel SP sample in Wave 3 is non-random and includes a proportion of MnPASS subscribers that is higher than in the general population, so any comparison with Wave 1 must be interpreted with caution.) Further analysis described below was done in an attempt to sort out some possible reasons for the decrease in willingness to pay between waves.

Toll lane constant: Aside from time and cost differences, there is a negative constant on the toll lane equivalent to about \$1.60. This result suggests that some people have resistance to using the toll lane, regardless of the toll or time saving levels. This may be related to the perceived difficulty of subscribing, of getting into and out of the lane, or simply an aversion to the concept of tolls.

TABLE 5.2: LOGISTIC MULTIVARIATE MODEL

	MODEL 1		MODEL 2		MODEL 3	
	COEFFICIENT	T-STAT	COEFFICIENT	T-STAT	COEFFICIENT	T-STAT
Base value of time (\$/hour)	9.63	6.9	10.33	7.7	9.97	7.5
Differences from the base VOT						
HH income under \$50K	+0.02	0.0	+0.04	0.1	-0.02	0.0
HH income \$100K-\$125K	+2.07	4.0	+1.84	3.7	+2.11	4.2
HH income over \$125K	+6.21	15.0	+5.12	12.7	+5.28	13.1
Age under 35	+2.44	4.5	+2.62	4.9	+2.22	4.2
Age 35 to 45	+1.38	3.3	+1.42	3.5	+0.92	2.2
Age over 65	-2.87	-4.2	-2.87	-4.3	-2.53	-3.8
AM commute trips	+3.46	6.1	+0.86	1.5	+1.86	3.4
PM commute trips	+0.85	1.2	-0.17	-0.3	+0.53	0.8
Other AM peak trips	-0.02	0.0	-0.55	-1.1	+0.03	0.1
Other PM peak trips	-2.10	-3.2	-2.53	-4.0	-1.99	-3.1
Work-related trips	+3.82	6.4	+3.21	5.5	+3.09	5.3
Shopping/personal business trips	+1.51	2.2	+1.51	2.3	+1.42	2.2
Trip distance under 10 miles	-1.90	-4.6	-1.28	-3.2	-1.55	-3.9
Trip distance over 20 miles	+2.28	5.6	+1.11	2.7	+1.28	3.1
Time saved = 15 minutes	-2.03	-3.1	-1.84	-3.0	-1.74	-2.8
Time saved = 20 minutes	-2.21	-2.5	-1.82	-2.2	-1.77	-2.1
Price meter (B) data	-0.16	-0.4	-0.22	-0.5	-0.24	-0.6
Wave 1- SP Panel	+0.63	1.2				
Is a MnPASS subscriber			+2.65	1.8		
Is not a MnPASS subscriber			+0.70	1.3		
Used the MnPASS lane					+0.79	0.6
Did not use MnPASS lane					+0.75	1.4

Table 5.2: Logistic Multivariate Model (Continued)

Wave 3 – SP Panel	-3.08	-5.3				
Is a MnPASS subscriber			+2.48	1.8		
Is not a MnPASS subscriber			-3.09	-5.4		
Used the MnPASS lane					-2.67	-2.1
Did not use MnPASS lane					-2.70	-4.7
Wave 3 – New SP	-1.77	-4.3				
Is a MnPASS subscriber			+5.95	10.3		
Is not a MnPASS subscriber			-4.68	10.6		
Used the MnPASS lane					+5.90	10.0
Did not use MnPass lane					-4.33	10.0
Additional variables						
Toll cost (\$/\$)	-1.00	fixed	-1.00	fixed	-1.00	fixed
Constant for MnPASS lane (\$)	-1.61	-8.7	-1.41	-8.1	-1.42	-8.1
Scale on the error term	0.8014	38.4	0.8490	38.4	0.8457	38.4
Model fit statistics						
Observations	11250		11250		11250	
Final log-likelihood	-3880		-3705.3		-3726.3	
Rho-squared (0)	0.502		0.525		0.522	
Rho-squared (const)	0.31		0.341		0.338	

5.3 DIFFERENCES BETWEEN MnPASS SUBSCRIBERS AND NON-SUBSCRIBERS

In Model 2, instead of the three VOT **modifiers** for Wave 1 SP panel, Wave 3 SP panel and Wave 3 new respondents, each of those groups is further divided by whether or not the respondent was a MnPASS subscriber at the time of Wave 3. The results are:

- **SP panel members who subscribed to MnPASS:** In Wave 1 (before they actually subscribed), this group had a \$2.65 higher willingness to pay than the other Wave 1 respondents (the base group). In Wave 3, the same group had an average willingness to pay that was virtually unchanged since Wave 1 (\$2.48 higher than the base group). Note: this group is quite small, as only about 10% of the 126 Wave 1 SP panel members had subscribed to MnPASS by the time of Wave 3.
- **SP panel members who have NOT subscribed to MnPASS:** In Wave 1, this group has an average VOT that was not significantly different (\$0.70 higher) than the other Wave 1 respondents. In Wave 3, however, the average VOT for this group is over \$3.00 lower than the base group. Thus, the drop in willingness to pay among panel members occurs entirely among those who have not subscribed to MnPASS.
- **New Wave 3 SP respondents who have subscribed to MnPASS:** This group has the highest VOT, about \$6/hour higher than the non-panel Wave 1 SP.
- **New Wave 3 SP respondents who have NOT subscribed to MnPass:** This group has the lowest VOT, almost \$5/hour lower than the non-panel Wave 1 SP.

Even though these variables are very significant, most of the other variables related to income, age, etc., also remain significant and similar to Model 1. If other variables are highly correlated with whether or not a person is a subscriber or not, and if those variables had become insignificant in Model 2, then the original results in Model 1 would have been spurious. This is generally not the case, meaning that income, age, etc. are important determinants of value of willingness to pay in the SP responses regardless of whether or not a person is a current subscriber. (The biggest changes between Models 1 and 2 are the

AM commute and trip distance > 20 miles effects, suggesting that many of the MnPASS subscribers with high willingness to pay were in those trip segments.)

It is interesting that the difference in willingness to pay between subscribers and non-subscribers is much larger for the new Wave 3 respondents than for the panel respondents. It may be the case that people who agree to participate in the survey now that the system is in place tend to be those who have strong feelings one way or the other, with fewer in the middle. It may also be the case that people who have completed the survey before respond somewhat differently than the new respondents, either because they want to respond in a way that is consistent with past responses, or because they are more “educated” about the tradeoffs involved.

The analysis in Model 2 was repeated, this time including the Wave 2 SP responses as well as those from Waves 1 and 3. Although the exact estimation results are not shown here, the findings for Wave 2 were very similar to those for Wave 3: non-subscribers had much lower willingness to pay than subscribers, both in the SP panel and in the non-panel sample. There was virtually no difference between the Wave 2 and Wave 3 values, so, while there is evidence that there has been a “split” in willingness to pay related to actual behavior, there is no evidence that the split is growing over time. Note, however, that the time gap between waves 2 and 3 was quite short, so more data would need to be collected in the future to test whether there is any longer term trend in attitudes or willingness to pay.

5.4 DIFFERENCES BETWEEN MNPASS LANE USERS AND NON-USERS

Model 3 is identical to Model 2, except that instead of segmenting by whether or not the person was a MnPASS subscriber, it is segmented by whether or not the person actually used the MnPASS lane during their SOV reference trip. In general, the MnPASS user segment is the same as the subscriber segment, but there are some differences, e.g., many subscribers did not use the MnPASS lane for that particular trip, and a few non-subscribers who reported using the toll lane.

For new Wave 3 SP respondents, the results confirm those of Model 2, with actual MnPASS lane users reporting much higher willingness to pay than non-users. For the SP panel respondents, however, the value of time for Wave 3 reference trip toll lane users in both the Wave 1 and Wave 3 choices is virtually the same as for those who did not use the toll lane. This is a curious result that suggests that some SP respondents may be answering the questions based more on their typical willingness to pay than on their willingness for that specific reference trip. (Again the caveat that this result is based on a very small sample—only 16 of the 126 SP panel members reported using the MnPASS lane.)

5.5 OVERALL CONCLUSIONS FROM THE SP ANALYSIS

- The distribution of SP responses and willingness to pay looks quite similar across all waves.
- Within the SP panel, a significant correlation was found between the individual-level willingness to pay measures from Waves 1 and 3.
- The willingness to pay is found to be significantly related to several observable factors of the traveling population, including income, age, trip purpose, time of day, trip distance, and amount of time saved.
- After those factors are taken into account, there appears to be a significant drop in willingness to pay between Waves 1 and 3, particularly in the SP panel.
- Relative to the pre-introduction SP, the measured value of time in the post-introduction SP is strongly bifurcated, with MnPASS subscribers and users showing willingness to pay at least 3 times as high as non-subscribers/non-users. Because the majority of the population are non-users, this

will tend to skew the distribution even further to the left, with a lower median VOT but with a higher variance.

- The Wave 3 SP sample is a choice-based sample, oversampling MnPASS subscribers. Before using these results to forecast or to represent the general population, reweighting would be necessary.

It is also recommended to compile the data to perform RP analysis to the extent possible. This would mean relating the reference trips used in the SP analysis to the actual toll level and time savings available on that day at that time.



6. MNPASS CUSTOMERS

6.1 TRANSPONDER INTEREST

The question, “Are you a MnPASS subscriber?” was asked of all respondents not coming from the original subscriber list.¹⁴ Table 6.1 provides the responses of the I-394 panel members only. Six percent confirmed they were MnPASS subscribers. When combined with the respondents sampled from the MnPASS subscriber list and the non I-394 panel members, the total MnPASS subscriber sample for analysis was 145 people. See Table 6.1 for further detail.

TABLE 6.1: MNPASS SUBSCRIBERS

Are you a MnPASS Subscriber?

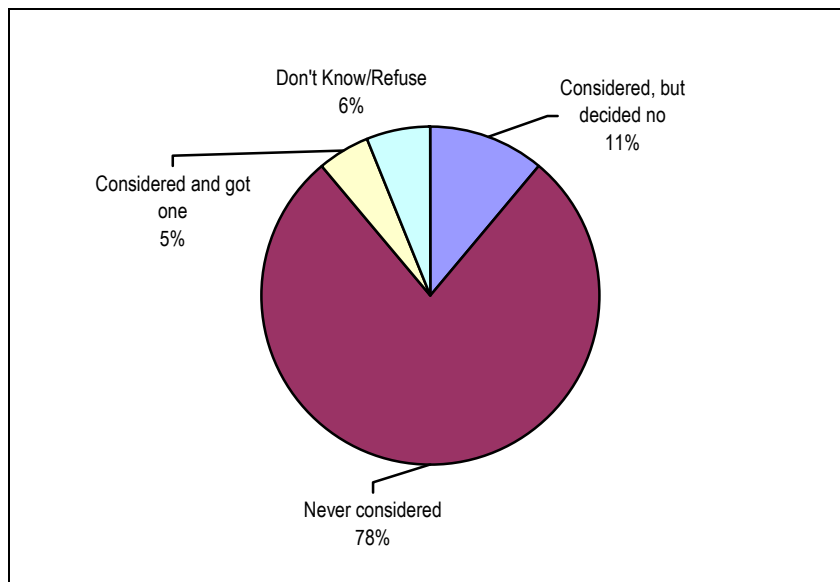
RESPONSE	FREQUENCY	PERCENT
Yes	15	6%
No	251	94%
Total	266	100%

The 251 I-394 panel respondents who said “no” to the question above (Table 6.1) were asked if they had ever considered purchasing a transponder. Of these, 11% had considered it but decided against it. Seventy-eight percent had never considered it, and 6% did not know or refused to provide an answer. See Figure 6.1 for further detail.

FIGURE 6.1: MNPASS PURCHASE CONSIDERATION AMONG NON-SUBSCRIBERS

N=251

Have you Considered Purchasing a Transponder?



¹⁴ Survey respondents sampled from the original subscriber list were not asked if they were still MnPASS subscribers. It was assumed that they were.

Three of ten I-394 panel respondents that said they considered purchasing a transponder, decided against it because they generally don't drive the I-394 route. Approximately three of ten felt they would not use the MnPASS lane enough to justify the purchase. One of ten panel respondents carpool and one of ten did not want to pay for MnPASS. Less than one of ten reported transit use as the reason for not purchasing a transponder. Less than one of ten were unaware of MnPASS and less than two of ten (but more than one of ten) commented that the transponder was too expensive to lease.

TABLE 6.2: REASONS FOR NON-PURCHASE OF TRANSPONDERS

Why?

REASONS TRANSPONDER NOT PURCHASED	CONSIDERED PURCHASE AND DECIDED AGAINST IT N=30	DID NOT CONSIDER PURCHASE N=207
Would not use MnPASS lane enough	33%	28%
Transponder is too expensive to lease	17%	5%
Have not gotten around to it	17%	1%
Generally don't drive I-394	10%	27%
Traffic is not that bad	7%	6%
I use carpools	3%	14%
Don't want to pay to use MnPASS	3%	14%
I use transit	3%	0%
Drive in the opposite direction	3%	1%
Unaware of MnPASS	0%	1%
Don't know how to purchase	0%	0%
Don't support the idea of MnPASS	0%	2%
Other, specify	3%	1%
Don't Know / Refuse	1%	0%
Total	100%	100%

Those I-394 panel respondents who indicated not purchasing a transponder because it was too costly were asked to identify the price of the transponder. Of these respondents, nearly four of ten did not know. Two of ten thought it was \$5, and more than four of ten thought it was \$20 or more.

TABLE 6.3 KNOWLEDGE OF COST OF TRANSPONDER AMOUNT

N=251

How much did you anticipate the cost to be?

PURCHASE COST	PERCENT N=14
5.00	21%
20.00	14%
25.00	7%
30.00	14%
40.00	7%
Don't Know / Refuse	37%
Total	100%

6.2 CUSTOMER ACCOUNTS

As shown in Table 6.4 below, most respondents did not know, or chose not to share, when they purchased their transponder. Of respondents who knew the month, 23% reported making their purchase in May. Nearly 40 percent of transponder owners purchased a unit between April and June. The fewest number of transponders was purchased in December.

TABLE 6.4: MONTH OF TRANSPONDER PURCHASE

In what month did you acquire a transponder?

MONTH	FREQUENCY	PERCENT
January	3	2%
February	3	2%
March	2	1%
April	10	7%
May	33	23%
June	11	8%
July	4	3%
August	3	2%
September	5	3%
October	2	1%
November	5	3%
December	1	1%
Don't Know / Refuse	62	44%
Total	140	100%

Slightly less than two-thirds of subscribers purchased only one transponder. Of the 60% of subscriber households that purchased only one transponder, half (52%) were in one or two person households, and 72% owned two or fewer vehicles. Of the 40% of subscriber households that purchased more than one transponder, nearly half (42%) were in 4+ person households and over half (56%) were in 2-vehicle households. Table 6.5 provides further detail.

TABLE 6.5: TRANSPONDERS PER HOUSEHOLD

How many transponders does your household have?

TRANSPONDERS	FREQUENCY	PERCENT
One	87	60%
Two	44	30%
Three	6	4%
Don't know / refused	8	6%
Total	145	100%

Eight of 10 (79%) subscribers opened an account online, while more than 1 of 10 (12%) went to the customer service center and opened an account in-person. Only 4% opened an account over the phone. See Table 6.6 for further detail.

TABLE 6.6: METHOD OF OPENING MnPASS ACCOUNT

How did you open your MnPASS Account?

METHOD USED TO OPEN ACCOUNT	FREQUENCY	PERCENT
Online	115	79%
In-person at customer service center	17	12%
Telephone	6	4%
Don't know / refused	7	5%
Total	138	100%

Most (87%) transponder owners paid for their own MnPASS account. See Table 6.7 for more detail.

TABLE 6.7: HOW IS YOUR MnPASS ACCOUNT PAID?

WHO PAYS FOR ACCOUNT	FREQUENCY	PERCENT
Paid by you	126	87%
Paid directly by employer	7	5%
Paid by you but reimbursed by employer	5	3%
Don't know / refused	7	5%
Total	145	100%

6.3 SATISFACTION WITH MnPASS OPERATIONS BY TRANSIT USE

Satisfaction questions were also compared among respondents known to be transit users (sampled from the MnPASS-provided transit list) and non-transit users. Table 6.8 shows that transit users and non-users alike were most satisfied with the speed of traffic flow in the MnPASS lanes (92% satisfaction with transit users and 89% satisfaction with non-users). Less than 1 of 10 users and non-users were dissatisfied with this aspect of MnPASS.

TABLE 6.8: SATISFACTION WITH THE SPEED OF TRAFFIC FLOW IN THE MnPASS LANES

LEVEL OF SATISFACTION	TRANSIT USER			
	YES		NO	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	91	92%	489	89%
Very satisfied	55	56%	310	56%
Somewhat satisfied	36	36%	179	33%
Dissatisfied	4	4%	46	9%
Very dissatisfied	1	1%	15	3%
Somewhat dissatisfied	3	3%	31	6%
No opinion	3	3%	7	1%
Don't Know / Refuse	1	1%	7	1%
Total	99	100%	549	100%

Table 6.9 shows that ease of identifying the MnPASS entry points was satisfying to transit users and non-users alike (80% and 85%, respectively, were very or somewhat satisfied). Less than one of twenty (4%) of transit users had no opinion or did not know.

TABLE 6.9 SATISFACTION WITH EASE OF IDENTIFYING THE MNPASS ENTRY POINTS

LEVEL OF SATISFACTION	TRANSIT USER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	79	80%	464	85%
Very satisfied	41	41%	269	49%
Somewhat satisfied	39	39%	195	36%
Dissatisfied	16	16%	72	13%
Very dissatisfied	4	4%	26	5%
Somewhat dissatisfied	12	12%	46	8%
No opinion	3	3%	5	1%
Don't Know / Refuse	1	1%	8	2%
Total	99	100%	549	100%

Just over two-thirds of transit users (68%) and slightly less than three quarters of non-users (74%) were satisfied with the safety of merging into the MnPASS lanes. About one-fourth of both groups were dissatisfied with this aspect of MnPASS (27% dissatisfaction among users and 23% of non-users). Less than one-tenth of users and non-users alike were indifferent or refused to provide and answer. See Table 6.10 for further detail.

TABLE 6.10: SATISFACTION WITH THE SAFETY OF MERGING INTO THE MNPASS LANES

LEVEL OF SATISFACTION	TRANSIT USER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	67	68%	403	74%
Very satisfied	22	22%	175	32%
Somewhat satisfied	45	46%	228	42%
Dissatisfied	27	27%	123	23%
Very dissatisfied	12	12%	48	9%
Somewhat dissatisfied	15	15%	75	14%
No opinion	4	4%	14	3%
Don't Know / Refuse	1	1%	9	2%
Total	99	100%	549	100%

Transit users and non-users alike were least satisfied with the enforcement of MnPASS usage (63% satisfaction among users and 50% satisfaction among non users). However, it should be noted that the percent of dissatisfied users and non-users was also low (9% and 17%, for each group, respectively). This may be attributed to the high percentage of users and non-users that had no opinion or refused to provide an answer; more than one quarter (28%) of transit users and one-third (33%) of non-users had no opinion or refused to provide an answer. See Table 6.11 below for additional detail.

TABLE 6.11: SATISFACTION WITH THE ENFORCEMENT OF MNPASS USAGE

LEVEL OF SATISFACTION	TRANSIT USER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	62	63%	272	50%
Very satisfied	33	33%	121	22%
Somewhat satisfied	29	29%	151	28%
Dissatisfied	9	9%	90	17%
Very dissatisfied	1	1%	31	6%
Somewhat dissatisfied	8	8%	59	11%
No opinion	18	18%	111	20%
Don't Know / Refuse	10	10%	76	13%
Total	99	100%	549	100%

6.4 MNPASS LANE USAGE

All respondents were asked about their travel during an assigned travel week (Monday through Friday). Almost 6 of ten trips on I-394 in both directions were reported by SOV drivers that did not use the MnPASS lanes (i.e., used the general lane for free). Twelve percent of trips were taken by SOVs in the MnPASS lanes – 10% who chose to pay a toll and 2% who reported using the MnPASS lanes for free. Carpoolers reported 18% of I-394 trips, and bus riders reported 10% of I-394 trips. See Table 6.12.

When examined by sample type, the data suggest that more than three-fourths (76%) of I-394 trips taken by panel members (N=266) were taken while driving alone and not using the MnPASS lanes (i.e., used the general lane for free). Nearly two-third (61%) of subscriber trips were taken while driving alone and paying to use the MnPASS lane. Finally, more than half (54%) of all trips taken by transit users were taken while riding a bus. See Table 6.12 for further detail.

TABLE 6.12: PRIMARY MODE FOR I-394 TRAVEL DURING ASSIGNED WEEK

Now consider all trips you made in both directions. On how many of those trips did you...

TYPE OF TRAVEL ON I-394 DURING ASSIGNED	PANEL (N=266)		SUBSCRIBERS (N=106)		TRANSIT (N=110)		NEW I-394 SAMPLE (N=350)		NEW I-394 SAMPLE WEST OF 494 (N=101)		ALL (N=933)	
	TRIPS	% TOTAL TRIPS	TRIPS	% TOTAL TRIPS	TRIPS	% TOTAL TRIPS	TRIPS	% TOTAL TRIPS	TRIPS	% TOTAL TRIPS	TRIPS	% TOTAL TRIPS
Drive alone and not use MnPASS lanes	1,468	76%	267	29%	261	26%	1612	69%	445	68%	4053	59%
Drive alone and pay a toll to use the MnPASS lanes	41	2%	552	61%	10	1%	72	3%	13	2%	688	10%
Drive alone, use MnPASS lanes and not pay a toll	39	2%	7	1%	10	1%	61	3%	36	5%	153	2%
Carpool	379	19%	67	7%	181	18%	497	22%	131	20%	1255	18%
Ride a bus	20	1%	18	2%	533	54%	62	3%	60	5%	693	10%
Total	1,947	100%	911	100%	995	100%	2304	100%	655	100%	6,842	100%

When the window for reporting MnPASS usage was expanded to “ever used the MnPASS lanes,” the percent of users increased from 12% to 66%. Of course, this percent includes those sampled from the MnPASS subscriber list. But 59% of panel members and 61% of people sampled from the transit list had used the MnPASS lanes at least once since their implementation. See Table 6.13 for further detail.

TABLE 6.13: MNPASS LANE USAGE (BY SAMPLE TYPE)

Have you ever used the MnPASS Lanes?

RESPONSE	PANEL		SUBSCRIBER		TRANSIT	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Yes	202	59%	105	99%	108	61%
No	141	41%	1	1%	70	39%
Total	343	100%	106	100%	178	100%

Among panel respondents who reported having used MnPASS in the past, carpooling was the most frequently mentioned mode (84%). Subscribers reported using the MnPASS lane most often as a paying SOV (91%), and transit users reported using the MnPASS lane most frequently as a bus rider (53%). See Table 6.14 below.

TABLE 6.14: MOST FREQUENTLY MENTIONED MODE OF MNPASS USE (BY SAMPLE TYPE)

When you have used the MnPASS lanes in the past, were you: (all that apply) How did you travel on the MnPASS lanes most frequently?

MODE	PANEL		SUBSCRIBER		TRANSIT	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Paying SOV	19	9%	95	91%	3	3%
Carpooler	171	84%	8	8%	48	44%
Bus Rider	4	2%	2	2%	58	53%
Don't Know / Refuse	10	5%	0	0%	1	1%
Total	204	100%	105	100%	110	100%

6.5 MNPASS LANE USAGE

Respondents from all income levels use MnPASS. Sixty-nine percent of all income groups among I-394 respondents reported using the MnPASS lanes. While this is true, those in higher-income households are using MnPASS at a higher rate than those in lower-income households. Figure 6.2 includes users who use the MnPASS for free or pay, regardless of mode (SOV, HOV or transit).

FIGURE 6.2: USE OF MnPASS LANES BY HOUSEHOLD INCOME
 (Among I-394 Respondents Only)

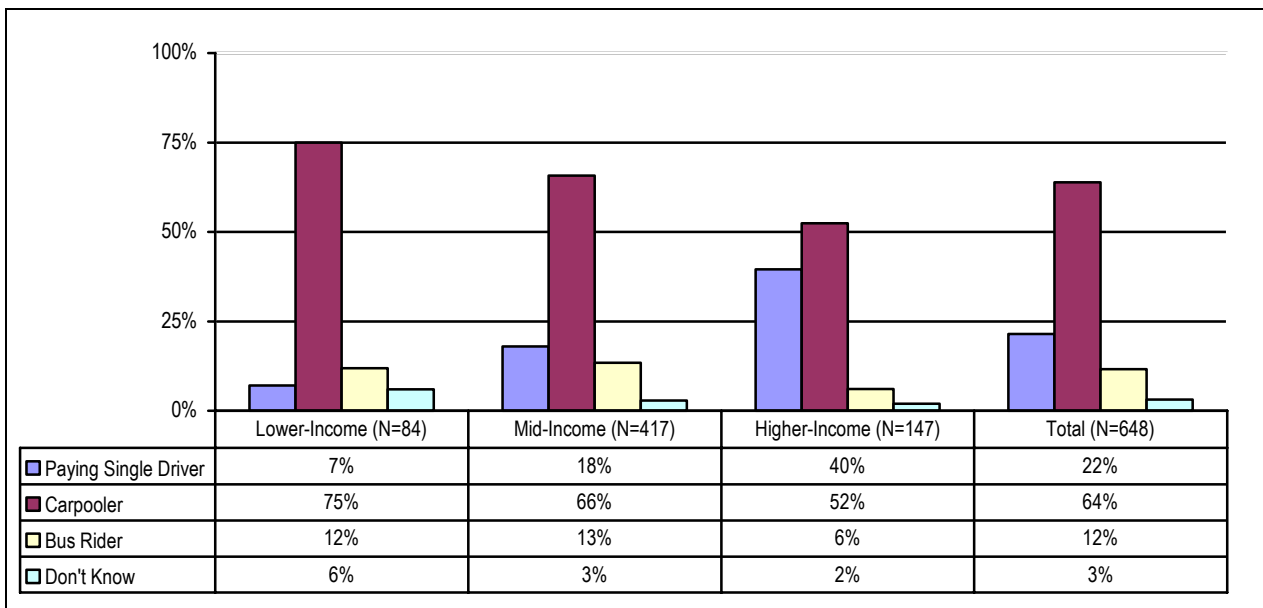
Have you ever used the MnPASS lanes?



Respondents who used the MnPASS lanes were asked if they were a single driver, carpooler, or bus rider when they used the lanes. Significant differences were found as illustrated in Figure 6.3. Whereas 40% of higher-income responses were paying single drivers, only 18% of mid-income and 7% of lower-income responses were paying SOVs. The majority of lower-income responses (75%) were carpoolers.

FIGURE 6.3: MODE OF MnPASS USE BY INCOME
 (Among I-394 Respondents Reporting MnPASS use)

When you have used the MnPASS lanes in the past, were you...



Multiple response table based on percent of responses

6.6 TRAVEL EXPERIENCES OF MNPASS USERS VERSUS NON-USERS

MnPASS lane users reported significantly more trips than non-users (7.88 versus 6.04 trips). Transponder owners averaged 8.66 trips, with a minimum of 1 trip and a maximum of 20. MnPASS lane users actually reported shorter trips, on average, than non-users (14.81 miles versus 15.27 miles). However, travel time in minutes of the reference trip was slightly less for MnPass users, which means that speeds for MnPASS lane users were close to the same as for non-users. Table 6.15 provides further detail.

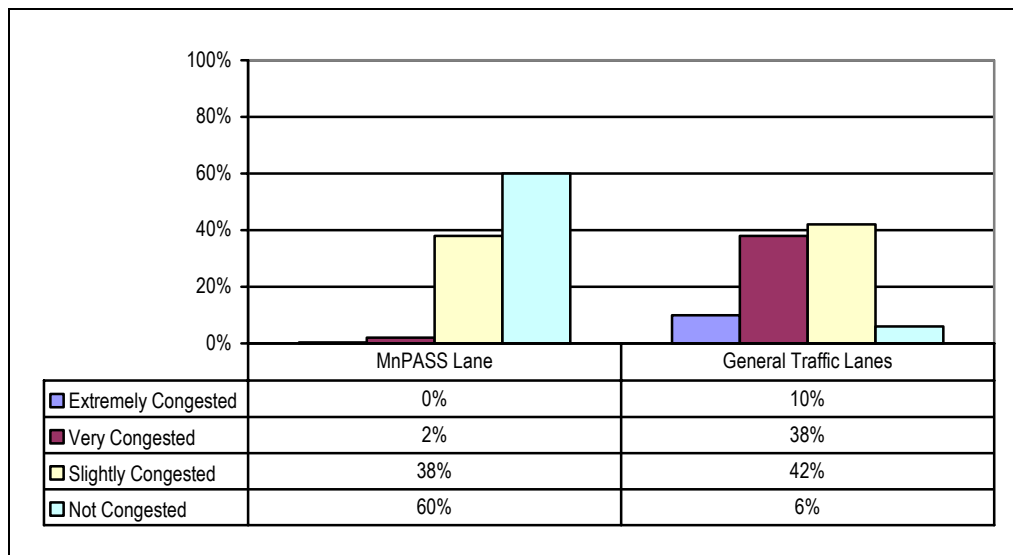
TABLE 6.15: TRIP CHARACTERISTICS OF MNPASS USERS AND NON-USERS
(All I-394 Respondents)

TRIP STATISTIC	MNPASS LANE USER	MNPASS LANE NON-USER
	(N=644)	(N=289)
Total Trips Assigned Week (mean)	7.88	6.04
Total Trips Assigned Week (median)	8.00	5.00
Reference Trip in Miles (mean)	14.81	15.27
Reference Trip in Miles (median)	14.00	13.00
Reference Trip Travel Time (mean)	35.24	36.15
Reference Trip Travel Time (median)	30.00	30.00

At the time of their reference trip travel, almost half of MnPASS lane users (48%) characterized the level of congestion in the general traffic lanes as very congested or extremely congested. About 42% said congestion in the general traffic lanes was slightly congested. About all (98%) described the MnPASS lane as not congested at all, indicating that there were free flow conditions. See Figure 6.4.

FIGURE 6.4: CONGESTION IN MNPASS LANE AND GENERAL TRAFFIC LANES
(I-394 Respondents who Used MnPASS Lane for reference trip, N=276)

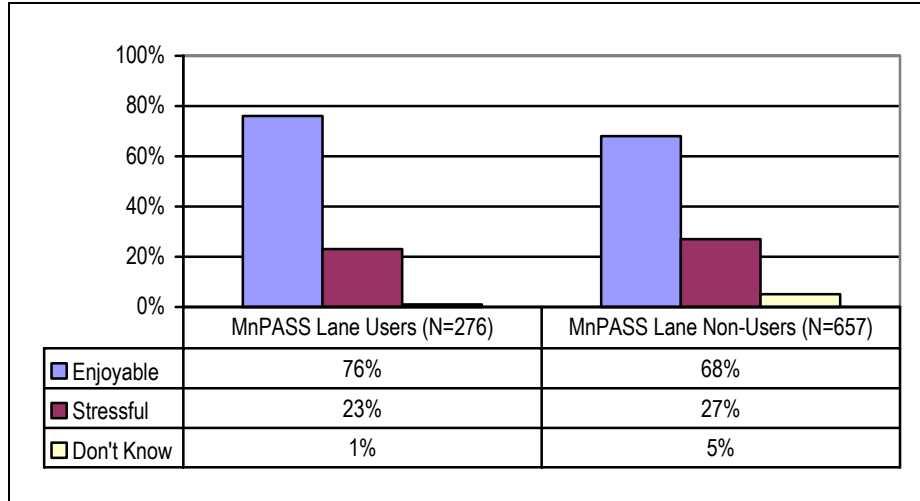
How would you describe the level of congestion in the MnPASS / general traffic lanes at the time of your travel?



MnPASS lane users were much more likely than non-users to describe their reference trip as “enjoyable” (76% versus 68%, respectively).

FIGURE 6.5: TRAVEL EXPERIENCE FOR REFERENCE TRIP OF MNPASS LANE USERS AND NON-USERS
(All I-394 Respondents)

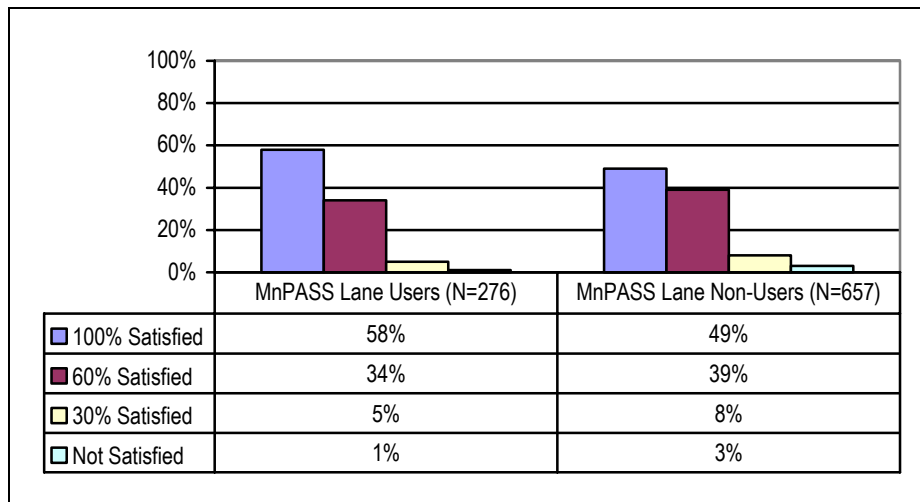
Which of the following descriptors best captures your travel experience on I-394 at that time?



MnPASS lane users were also more satisfied with their trip than were non-users (58% were “100% satisfied” versus 49%, respectively).

FIGURE 6.6: SATISFACTION WITH REFERENCE TRIP
(All I-394 Respondents)

Based on this trip, how satisfied were you with the overall quality of your travel on this roadway?

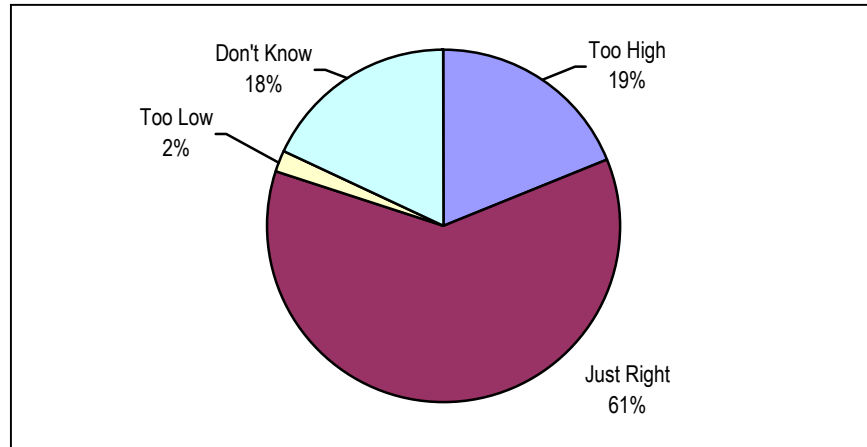


As Figure 6.7 shows, some MnPASS lane users considered the MnPASS toll a good value; 61% said the toll paid for their reference trip was just right – neither too high nor too low. Less than 20% perceived the toll as too high.

FIGURE 6.7: PERCEIVED VALUE OF MNPASS TOLL

(I-394 Respondents who Used All or Part of MnPASS Lane for Reference Trip (not as bus rider), N=218)

Given the time saved using the MnPASS lane for this trip, do you think the toll paid was...

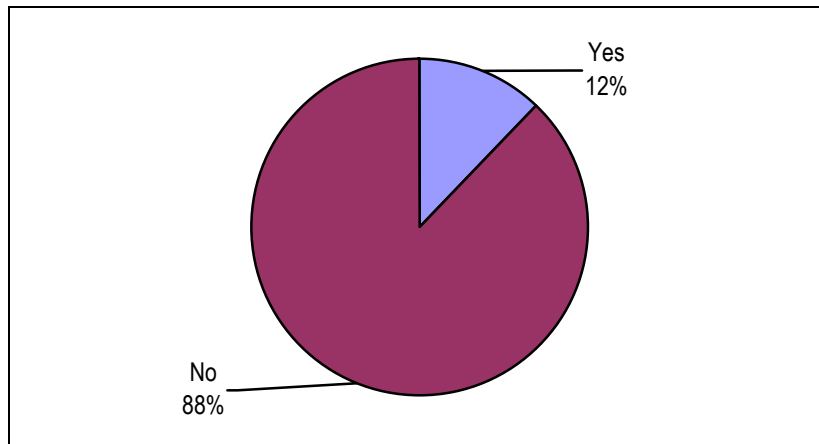


The vast majority of MnPASS lane users (88%) did not experience any problems merging into the MnPASS from the general traffic lane on their reference trip, while 12% experienced problems, as illustrated in Figure 6.8. Of the total sample, 6% identified the problem as congestion; 4% as lanes were confusing; and 3% said they experienced rude drivers.

FIGURE 6.8: MERGING PROBLEMS ON REFERENCE TRIPS

(I-394 Respondents who Used MnPASS Lanes, N=276)

Did you experience any problems in merging into the MnPASS lane from the general traffic lane?



6.7 TRAVEL PROFILES OF TRANSPONDER OWNERS AND TRANSPONDER NON-OWNERS

Does being a transponder owner influence travel behavior? There was a significant difference between transponder owners and non-owners in their trip volumes during the assigned travel week (Monday through Friday). Transponder owners averaged 8.55 trips, with a minimum of 1 trip and a maximum of 20 trips. Transponder non-owners averaged 7.08 trips, with a minimum of 1 trip and a maximum of 20 trips. There is also a significant difference in the number of miles traveled, which was measured in terms of the reference trip. Transponder owners reported a mean distance of 18.90 miles and median distance of 18.00 miles, whereas non-owners reported a mean distance of 14.21 miles and a median distance of 12 miles. Travel time in minutes of the reference trip was virtually the same, which means speeds for transponder owners were 16 mph faster for the mean trip, even though their trip lengths were 33% longer.

TABLE 6.16: MEAN VOLUME OF TRIPS MONDAY - FRIDAY, 6 AM – 9 PM, WAVE 2 ASSIGNED WEEK (All I-394 Respondents)

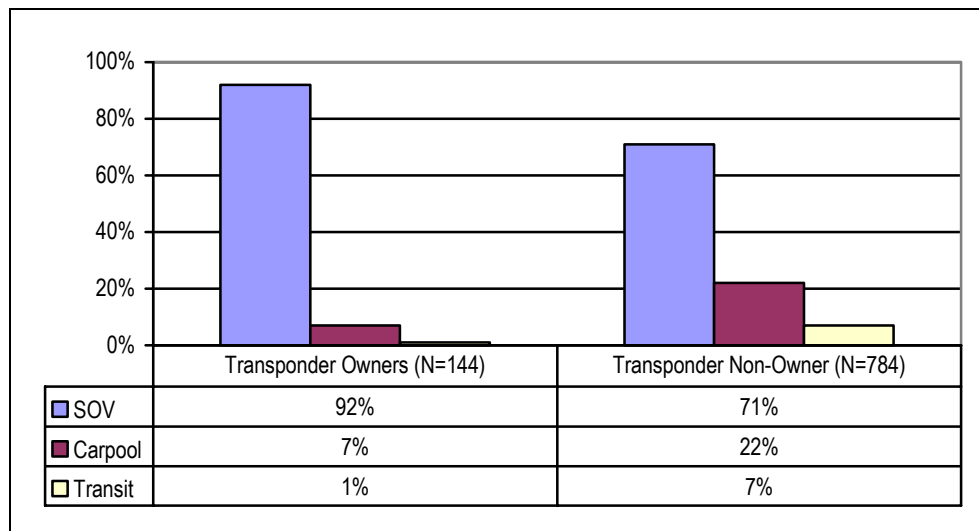
How many trips did you make in total?

TRIP STATISTIC	TRANSPONDER OWNERS	TRANSPONDER NON-OWNERS
	(N=144)	(N=789)
Total Trips Assigned Week (mean)	8.55	7.08
Total Trips Assigned Week (median)	10.00	6.00
Reference Trip in Miles (mean)	18.90	14.21
Reference Trip in Miles (median)	18.00	12.00
Reference Trip Travel Time (mean)	34.32	35.74
Reference Trip Travel Time (median)	30.00	30.00

Since only SOV users of the MnPASS lane are required to have transponders, the overwhelming majority of transponder owners (92%) were SOV drivers. It is interesting to note, however, that 7% of transponder owners also carpooled, and probably own the transponder for occasions when they need to drive alone.

FIGURE 6.9: USUAL MODE OF TRAVEL MONDAY - FRIDAY, 6 AM – 9 PM, WAVE 2 ASSIGNED WEEK (All I-394 Respondents reporting reference trips Monday through Friday between 6 AM and 9 PM, N=928)

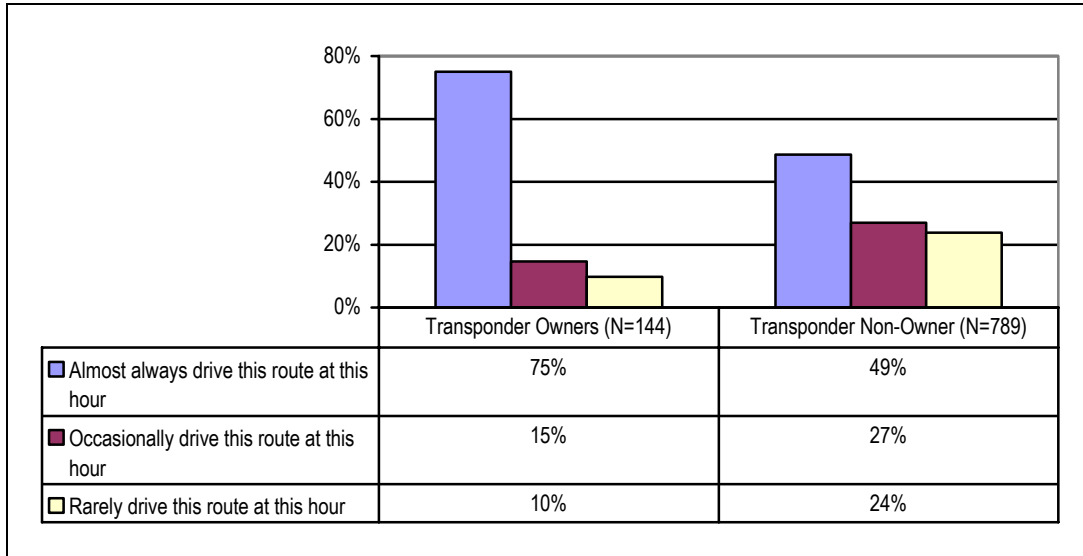
Now consider all trips you made in both directions. On how many of those trips did you:



There were significant differences between the two ownership segments in terms of how familiar they were with the traffic conditions at the time of their reference trip. Transponder owners are frequent, regular users of the I-394 corridor. Three-fourths of transponder owners (75%) said they almost always drive this route at this hour (3 or 4 times per week) compared to only 49% of non-owners (see Figure 6.10). There were no differences in the flexibility that transponder owners versus non-owners have in their scheduled arrival times at destinations.

FIGURE 6.10: FAMILIARITY WITH TRAFFIC CONDITIONS RELATED TO REFERENCE TRIP
(All I-394 Respondents, N=933)

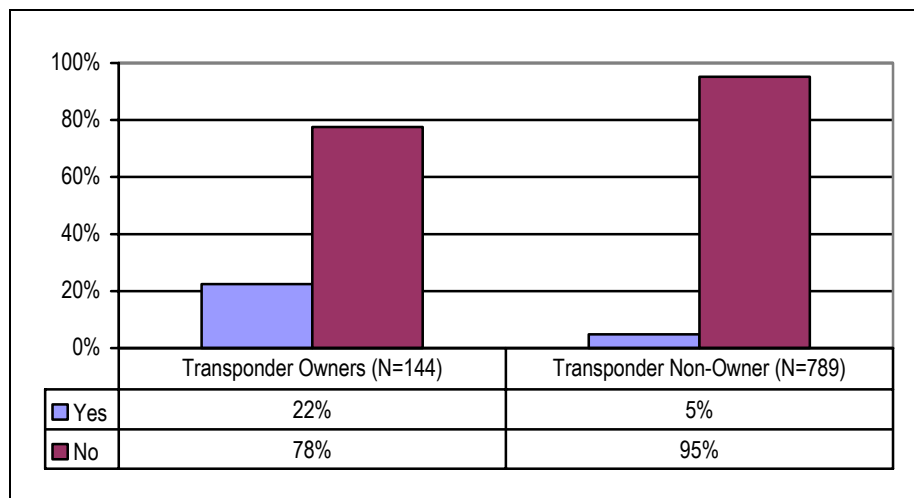
How familiar are you with the traffic conditions on the freeway at this time? Would you say you...



A larger percent of transponder owners reported changes in their typical departure time for their reference trip because of MnPASS (22% versus 5%). This difference is statistically significant. Of those transponder owners who changed their departure time, 81% are leaving later and 19% are leaving earlier. The fact that 78% of transponder owners did not change the time of their trip, compared to 95% for non-owners is an indication that MnPASS affords greater departure flexibility / choice. See Figure 6.11 below.

FIGURE 6.11: CHANGE IN TYPICAL DEPARTURE TIME RELATED TO REFERENCE TRIP
(All I-394 Respondents, N=933)

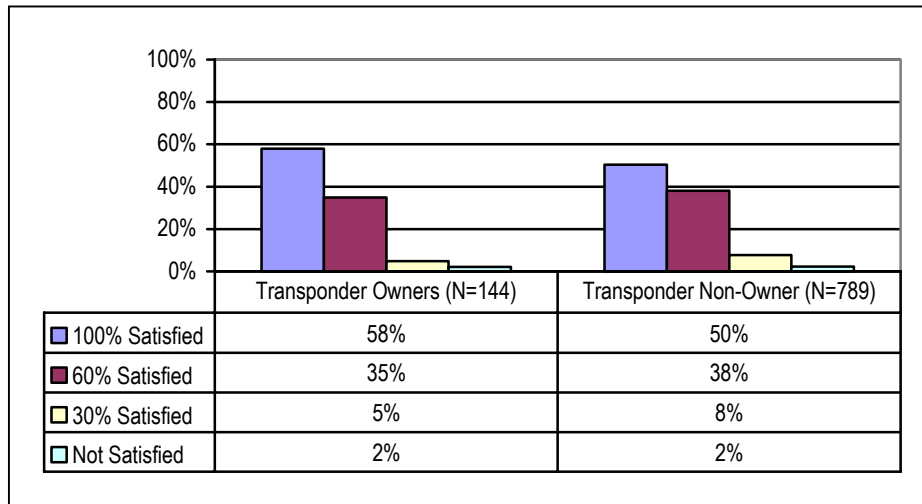
Have you changed your typical departure time for this trip because of MnPASS?



Transponder owners were more likely to report 100% satisfaction with the overall quality of their reference trip than were non-owners (58% versus 50%). Beyond that, there seems to be little difference between owners and non-owners that are 60% and 30% satisfied. Only 2% of transponder owners and transponder non-owners were not satisfied. See Figure 6.12 for further detail.

FIGURE 6.12: SATISFACTION WITH REFERENCE TRIP
(All I-394 Respondents)

Based on this trip, how satisfied were you with the overall quality of your travel on this roadway?





7. MNPASS CUSTOMER SATISFACTION

This chapter examines satisfaction with several different aspects of MnPASS operation among both paying and non-paying MnPASS lane users.

7.1 DEMOGRAPHIC PROFILES OF TRANSPONDER OWNERS

The MnPASS lanes can be used for free by carpoolers and transit riders. Drivers of single occupancy vehicles (SOVs) can use the MnPASS lanes by paying a fee. The fee is assessed through a transponder placed on the windshield of the vehicle. The following two tables (7.1 and 7.2) present demographic profiles (person and household) of transponder owners¹⁵, and the table row percentages sum up to 100%.

Transponder owners were more strongly represented among respondents with a higher educational attainment and those who were employed full-time. Transponder owners were between 35 and 54 years of age. The sample included very few people representing racial or ethnic minorities. Still, it appears that transponder owners were more likely to be White than Non-White. About the same percentages of males as females reported owning transponders. In terms of household characteristics, transponder owners resided in higher-income households, as well larger households and those with multiple vehicles.

TABLE 7.1: TRANSPONDER OWNERSHIP¹⁶ BY PERSON CHARACTERISTICS
(Among I-394 Respondents Only)

PERSON CHARACTERISTIC	TRANSPONDER OWNERSHIP		TOTAL
	Yes	No	
<i>Educational Attainment</i>			
High School or Less	5%	95%	74 (100%)
Some College / Trade	9%	91%	171 (100%)
Graduated College	15%	85%	385 (100%)
Graduate Work	21%	79%	303 (100%)
<i>Employment Status</i>			
Full-time	19%	81%	664 (100%)
Part-time	8%	92%	109 (100%)
Retired	4%	96%	117 (100%)
Other / Disabled / Unemployed	5%	95%	43 (100%)
<i>Type of Employment</i>			
Part-Time	8%	92%	109 (100%)
Full-time	19%	81%	664 (100%)
<i>Age</i>			
18-34	10%	90%	10 (100%)
25-34	11%	89%	100 (100%)

¹⁵ The tables in this section include all I-394 respondents (i.e., panel members, MnPASS subscribers, transit users and new I-394 sample). This base was chosen to ensure robust numbers for the analysis. Six percent of panel members were transponder owners.

¹⁶ Transponder ownership was defined as “yes” to the question, “Are you a MnPASS subscriber?” or “yes, and decided to purchase one” to the question “Have you considered purchasing a transponder?” or respondents sampled from the MnPASS subscriber list.

PERSON CHARACTERISTIC	TRANSPONDER OWNERSHIP		TOTAL
	Yes	No	
35-44	21%	79%	205 (100%)
45-54	19%	81%	287 (100%)
55-64	15%	85%	201 (100%)
65+	4%	96%	129(100%)
Race / Ethnicity			
White / Caucasian	16%	84%	871 (100%)
Non-White / Minority	11%	89%	62 (100%)
Gender			
Male	16%	84%	533 (100%)
Female	15%	85%	400 (100%)

TABLE 7.2: TRANSPONDER OWNERSHIP BY HOUSEHOLD CHARACTERISTICS
(Among I-394 Respondents Only)

HOUSEHOLD CHARACTERISTIC	TRANSPONDER OWNERSHIP		TOTAL
	Yes	No	
Household Income			
Lower-Income	4%	96%	149 (100%)
Mid-Income	12%	88%	597 (100%)
Higher-Income	34%	66%	187 (100%)
Household Size			
One-person	9%	91%	161 (100%)
Two-person	15%	85%	344 (100%)
Three-person	20%	80%	145 (100%)
Four+ person	17%	83%	282 (100%)
Vehicles Available			
Zero	0%	100%	6 (100%)
One	6%	94%	198 (100%)
Two	17%	83%	485 (100%)
Three+	20%	80%	244 (100%)

7.2 SATISFACTION WITH MNPASS OPERATIONS BY TRANSPONDER OWNERSHIP

Levels of satisfaction regarding certain aspects of MnPASS operation were compared for respondents who own transponders and respondents that do not own transponders. As shown in Table 7.3, overall, MnPASS subscribers were most satisfied with the speed of traffic flow in the MnPASS lanes (94% satisfied). Almost 90% of non-subscribers were also satisfied with this aspect of MnPASS. Less than 1 of 10 subscribers or non-subscribers were dissatisfied.

TABLE 7.3: SATISFACTION WITH THE SPEED OF TRAFFIC FLOW IN THE MNPASS LANES

LEVEL OF SATISFACTION	TRANSPONDER OWNER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	134	94%	446	89%
Very satisfied	86	60%	279	56%
Somewhat satisfied	48	34%	167	33%
Dissatisfied	9	6%	41	8%
Very dissatisfied	2	1%	14	3%
Somewhat dissatisfied	7	5%	27	5%
No opinion	0	0%	10	2%
Don't Know / Refuse	0	0%	8	1%
Total	143	100%	505	100%

MnPASS subscribers were also satisfied with the ease of identifying the MnPASS entry points (91% of subscribers satisfied), with more than two thirds (67%) very satisfied, as shown in Table 7.4. Eighty two percent of non-subscribers were satisfied. Less than one of ten subscribers and two of ten non-subscribers were dissatisfied with this aspect of MnPASS operations.

TABLE 7.4: SATISFACTION WITH EASE OF IDENTIFYING THE MNPASS ENTRY POINTS

LEVEL OF SATISFACTION	TRANSPONDER OWNER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	130	91%	413	82%
Very satisfied	96	67%	213	42%
Somewhat satisfied	34	24%	200	40%
Dissatisfied	13	9%	75	15%
Very dissatisfied	5	4%	25	5%
Somewhat dissatisfied	8	6%	50	10%
No opinion	0	0%	8	2%
Don't Know / Refuse	0	0%	9	2%
Total	143	100%	505	100%

More than three-fourths (78%) of subscribers were satisfied with the safety of merging into the MnPASS lanes. Seven of ten non-subscribers were satisfied with this aspect of MnPASS, with slightly less than one-fourth (24%) dissatisfied. Table 7.5 provides further detail.

TABLE 7.5: SATISFACTION WITH THE SAFETY OF MERGING INTO THE MNPASS LANES

LEVEL OF SATISFACTION	TRANSPONDER OWNER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	112	78%	358	71%
Very satisfied	54	37%	143	29%
Somewhat satisfied	58	41%	215	43%
Dissatisfied	31	22%	119	24%
Very dissatisfied	12	9%	48	10%
Somewhat dissatisfied	19	13%	71	14%
No opinion	0	0%	18	4%
Don't Know / Refuse	0	0%	10	2%
Total	143	100%	505	100%

As seen in Table 7.6 below, the enforcement of MnPASS usage was least satisfying to subscribers and non-subscribers alike (64% satisfaction with subscribers and 48% satisfaction with non-subscribers). Nineteen percent of subscribers and 15% of non-subscribers were dissatisfied. Slightly less than one fifth of subscribers (17%) and more than one third of non-subscribers (37%) either had no opinion or refused to provide an answer.

TABLE 7.6: SATISFACTION WITH THE ENFORCEMENT OF MNPASS USAGE

LEVEL OF SATISFACTION	TRANSPONDER OWNER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	91	64%	243	48%
Very satisfied	48	34%	106	21%
Somewhat satisfied	43	30%	137	27%
Dissatisfied	27	19%	72	15%
Very dissatisfied	9	6%	23	5%
Somewhat dissatisfied	18	13%	49	10%
No opinion	16	11%	113	22%
Don't Know / Refuse	9	6%	77	15%
Total	143	100%	505	100%

7.3 SATISFACTION WITH MNPASS OPERATIONS AMONG ALL PAYING MNPASS USERS

As indicated in Table 7.7, overall satisfaction levels with MnPASS electronic operations were high among respondents who used the MnPASS lanes as a paying single driver (SOV, N=163). About 9 of 10 (87%) reported being very satisfied. Paying users had the highest levels of satisfaction with the all-electronic operation of the tolls and the lowest with the staff at the customer service center.¹⁷

TABLE 7.7: SATISFACTION WITH ALL ELECTRONIC OPERATIONS

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	151	93%
Very satisfied	141	87%
Somewhat satisfied	10	6%
Dissatisfied	0	0%
Very dissatisfied	0	0%
Somewhat dissatisfied	0	0%
Don't Know / Refuse	12	7%
Total	163	100%

Paying MnPASS users were also satisfied with the ability to use their credit card to automatically replenish their account, with 70% very satisfied and 17% somewhat satisfied. Only 2% expressed dissatisfaction. See Table 7.8 for further detail.

TABLE 7.8: SATISFACTION WITH USING CREDIT CARD TO AUTOMATICALLY REPLENISH ACCOUNT

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	142	87%
Very satisfied	115	70%
Somewhat satisfied	27	17%
Dissatisfied	3	2%
Very dissatisfied	1	1%
Somewhat dissatisfied	2	1%
Don't Know / Refuse	18	11%
Total	163	100%

¹⁷ Due to the high percentage of respondents that answered “Don’t Know” to this question, it is expected that not many respondents have actually visited the customer service center. Only 2% said they were dissatisfied. Furthermore, it should be noted that the customer service center manages almost all accounts and inquiries online. There are very few walk-ins, which may explain the high levels of respondents that report Don’t Know or Refuse.

Among paying MnPASS users, there was relatively high satisfaction with the ease of opening a pre-paid MnPASS account; 70% were very satisfied and 13% somewhat satisfied. See Table 7.9 for further detail.

TABLE 7.9: SATISFACTION WITH THE EASE OF OPENING A PRE-PAID MNPASS ACCOUNT

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	135	83%
Very satisfied	114	70%
Somewhat satisfied	21	13%
Dissatisfied	3	2%
Very dissatisfied	2	1%
Somewhat dissatisfied	1	1%
Don't Know / Refuse	25	15%
Total	163	100%

As shown in Table 7.10, more than 80% of respondents expressed satisfaction with the ease of installing the MnPASS transponder, with approximately two-thirds (65%) being very satisfied. Four percent were dissatisfied, and 13% did not know or refused to provide an answer.

TABLE 7.10: SATISFACTION WITH THE EASE OF INSTALLING THE MNPASS TRANSPONDER

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	135	83%
Very satisfied	106	65%
Somewhat satisfied	29	18%
Dissatisfied	6	4%
Very dissatisfied	4	3%
Somewhat dissatisfied	2	1%
Don't Know / Refuse	22	13%
Total	163	100%

Eight of 10 paying MnPASS users were satisfied with the clarity of prices on overhead signs, with more than half (57%) being very satisfied. Sixteen percent were dissatisfied. See Table 7.11.

TABLE 7.11: SATISFACTION WITH THE CLARITY OF PRICES ON OVERHEAD SIGNS

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	131	80%
Very satisfied	93	57%
Somewhat satisfied	38	23%
Dissatisfied	26	16%
Very dissatisfied	9	6%
Somewhat dissatisfied	17	10%
Don't Know / Refuse	6	4%
Total	163	100%

Table 7.12 shows that two-thirds (65%) of paying MnPASS users were satisfied with the varying toll amounts that fluctuate with traffic levels, with slightly less than one quarter (23%) being very satisfied. Nearly 30% were dissatisfied and 6% did not know or refused to provide an answer.

TABLE 7.12: SATISFACTION WITH THE TOLL AMOUNTS THAT VARY WITH TRAFFIC LEVELS

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	107	65%
Very satisfied	38	23%
Somewhat satisfied	69	42%
Dissatisfied	47	29%
Very dissatisfied	17	10%
Somewhat dissatisfied	30	19%
Don't Know / Refuse	9	6%
Total	163	100%

Nearly two-thirds (62%) of paying MnPASS users were satisfied with the MnPASS website, with 37% being very satisfied. Five percent were dissatisfied. One-third did not know or refused to provide an answer, suggesting they had not accessed the website. Table 7.13 shows additional detail.

TABLE 7.13: SATISFACTION WITH THE MNPASS WEBSITE

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	102	62%
Very satisfied	61	37%
Somewhat satisfied	41	25%
Dissatisfied	8	5%
Very dissatisfied	1	1%
Somewhat dissatisfied	7	4%
Don't Know / Refuse	53	33%
Total	163	100%

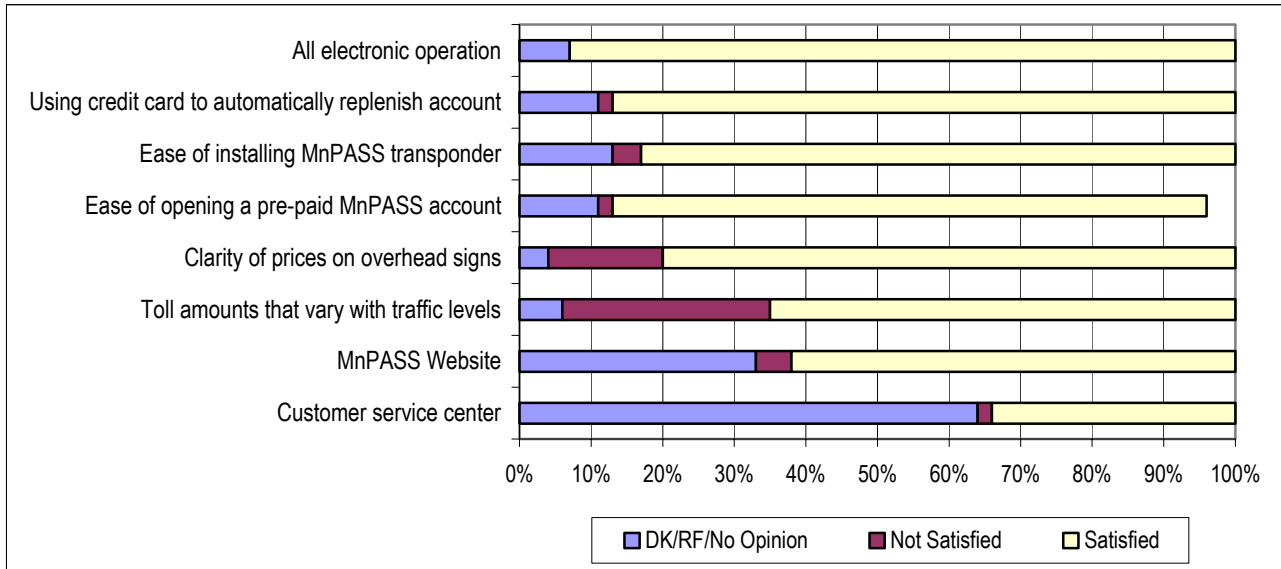
The majority (64%) of paying MnPASS users were not familiar with or did not provide their opinion about the customer service center staff, expressing lack of knowledge about the center. Of those with an opinion acknowledging contact with the center, virtually all were satisfied. See Table 7.14.

TABLE 7.14: SATISFACTION WITH THE STAFF AT THE CUSTOMER SERVICE CENTER

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	57	34%
Very satisfied	43	25%
Somewhat satisfied	14	9%
Dissatisfied	2	2%
Very dissatisfied	1	1%
Somewhat dissatisfied	1	1%
Don't Know / Refuse	104	64%
Total	163	100%

Figure 7.1 below provides a summary of tables 7.7 through 7.14.

FIGURE 7.1: COMPARISON OF SATISFACTION LEVELS FOR VARIOUS MNPASS ASPECTS AMONG PAYING MNPASS USERS



7.4 SATISFACTION WITH MNPASS OPERATIONS AMONG ALL MNPASS LANE USERS

MnPASS users¹⁸, regardless of whether they were paying users or not, were satisfied with MnPASS operations. Of all MnPASS aspects about which they were asked to provide their level of satisfaction, the speed of traffic flow in the MnPASS lane gained the highest satisfaction rating (88% satisfaction). The enforcement of MnPASS usage had the lowest satisfaction (50%; refer to Table 4.12).

Nearly 9 of 10 (88%) respondents were satisfied with the speed of traffic flow in the MnPASS lanes, with half (55%) being very satisfied as seen in Table 7.15 below. Less than one-tenth (8%) were dissatisfied, 2% had no opinion, and 2% did not know or refused to provide an answer.

TABLE 7.15: SATISFACTION WITH THE SPEED OF TRAFFIC FLOW IN THE MNPASS

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	623	88%
Very satisfied	390	55%
Somewhat satisfied	233	33%
Dissatisfied	55	8%
Very dissatisfied	17	2%
Somewhat dissatisfied	38	5%
No opinion	17	2%
Don't Know / Refuse	9	2%
Total	704	100%

¹⁸ These 704 MnPASS users reported trips in the MnPASS lane during their reference trip week (N=359) or users who reported using MnPASS sometime in the past, but not during their reference trip week (N=345).

More than 8 of 10 (83%) respondents were satisfied with the ease of identifying the MnPASS entry points, with (46%) very satisfied. Less than one-fifth (14%) were dissatisfied, 2% had no opinion, and 1% did not know or refused to provide an answer. See Table 7.16 for further detail.

TABLE 7.16: SATISFACTION WITH EASE OF IDENTIFYING THE MNPASS ENTRY POINTS

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	581	83%
Very satisfied	324	46%
Somewhat satisfied	257	37%
Dissatisfied	97	14%
Very dissatisfied	30	4%
Somewhat dissatisfied	67	10%
No opinion	14	2%
Don't Know / Refuse	12	1%
Total	704	100%

Most respondents (72%) were satisfied with the safety of merging into the MnPASS lanes, with almost one-third (30%) being very satisfied. But slightly more than one fifth (22%) were dissatisfied. Four percent had no opinion and 2% refused to provide an answer. See Table 7.17 for further detail.

TABLE 7.17: SATISFACTION WITH THE SAFETY OF MERGING INTO THE MNPASS LANES

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	510	72%
Very satisfied	214	30%
Somewhat satisfied	296	42%
Dissatisfied	154	22%
Very dissatisfied	61	9%
Somewhat dissatisfied	93	13%
No opinion	27	4%
Don't Know / Refuse	13	2%
Total	704	100%

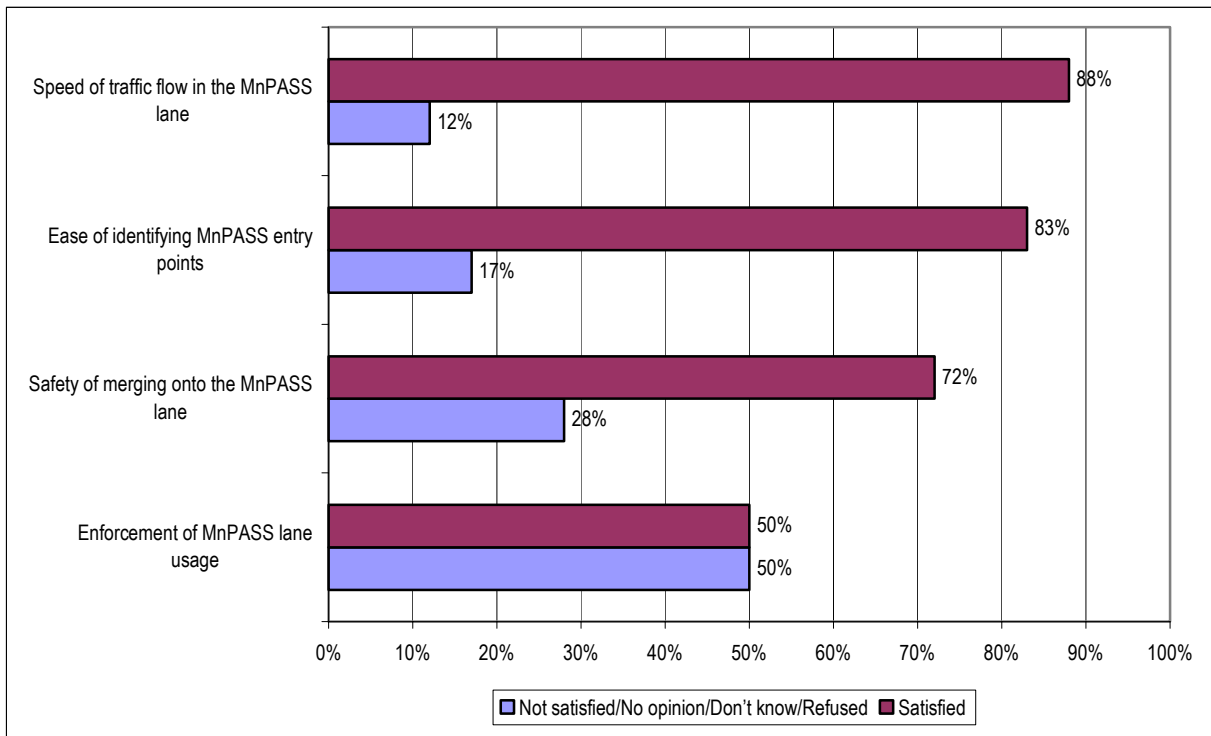
Half of respondents were somewhat (27%) or very (23%) satisfied with the enforcement of MnPASS usage. Fifteen percent were dissatisfied. A large percentage either had no opinion (21%) or did not know or refused to provide an answer (14%). See Table 7.18 for further detail.

TABLE 7.18: SATISFACTION WITH THE ENFORCEMENT OF MnPASS USAGE

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	348	50%
Very satisfied	161	23%
Somewhat satisfied	187	27%
Dissatisfied	109	15%
Very dissatisfied	37	5%
Somewhat dissatisfied	72	10%
No opinion	145	21%
Don't Know / Refuse	102	14%
Total	704	100%

Figure 7.2 below provides summary of tables 7.15 through 7.18.

FIGURE 7.2: COMPARISON OF SATISFACTION LEVELS FOR VARIOUS MnPASS ASPECTS AMONG ALL MnPASS USERS





8. SOCIAL EQUITY ISSUES

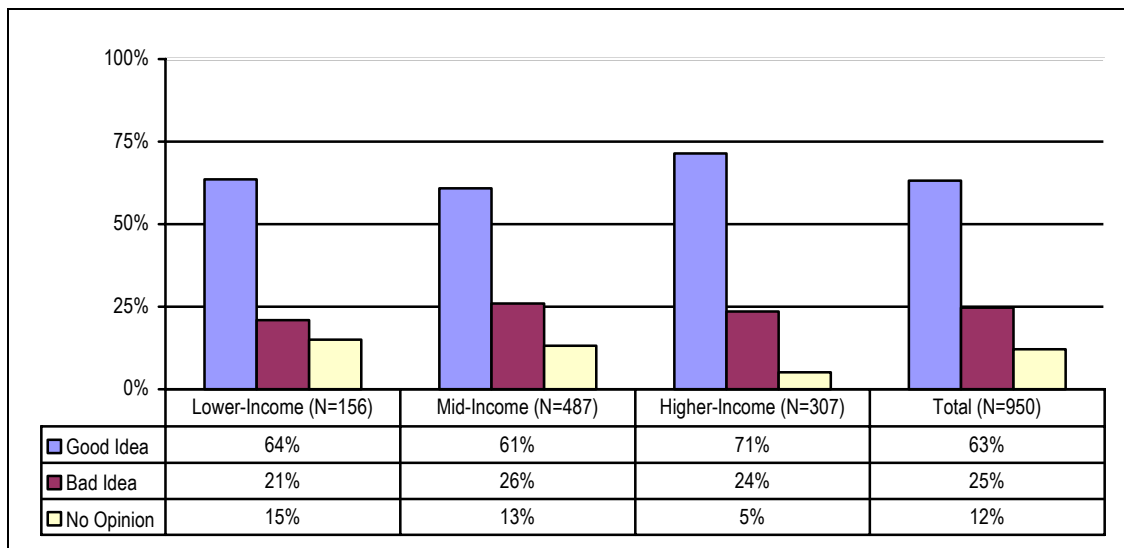
There is extensive academic literature on the subject of social equity, but it is best expressed in everyday language in terms of ‘fairness.’ In the case of road user charging, this translates to questions of whether the tolling operation is regarded as having a disproportionate impact on some groups relative to others. This section examines social equity issues relative to opinions about current traveling experiences, attitudes about MnPASS tolling operations, and use of MnPASS lanes relative to differences in income, education, employment status, gender, age, and ethnicity.¹⁹

8.1 MNPASS ACCEPTANCE

A majority of respondents in all income groups responded positively to the idea of allowing SOV drivers to use carpool lanes by paying a toll, as illustrated in Figure 8.1. At the same time, acceptance was greater among the higher-income respondents (71%), than among lower-income (64%) or mid-income (61%) respondents.²⁰ There were no significant differences across the income groups in terms of negative response to the concept. About one-fourth of each income group thought this concept was a bad idea (26% of mid-income, 24% of lower-income, and 21% of higher-income).

FIGURE 8.1: OPINION ON ALLOWING SINGLE DRIVERS TO USE CARPOOL LANES BY HOUSEHOLD INCOME

What do you think of allowing single drivers to use the carpool lanes by paying a toll? Is it...



¹⁹ Many of the tables presented in this section report results by income. About 16% of respondents did not report their household income. For this reason, we have imputed income for missing records using the hot deck approach. For an explanation of hot deck imputation, refer to <http://stats.oecd.org/glossary/detail.asp?ID=3379>.

²⁰ The lower-income group represents respondents reporting total household income less than \$50,000, mid-income \$50,000 to \$124,999, and higher-income greater than \$125,000. These breaks were determined based on the income category breaks used in the survey instrument (see Appendix C) combined with the 1999 median household income levels for the 170 sampled census tracts for the I-394 corridor. Median incomes for these 170 sampled census tracts for the I-394 corridor ranged from \$14,000 to \$114,000.

Table 8.1 shows there were slight differences by income in the reasons given by respondents for their positive responses on questions pertaining to MnPASS tolling operations. Mid and higher-income respondents were more likely to say that MnPASS provides a better use for the carpool lane than were lower-income respondents. That MnPASS eases congestion and receives payment only from users, not everyone, were slightly more salient factors for lower and mid-income households than those in the higher-income group. Otherwise, the resulting rank order of reasons for supporting MnPASS were consistent across income groups.

TABLE 8.1: REASONS “GOOD IDEA” BY HOUSEHOLD INCOME

(Among Respondents who Thought Allowing Single Drivers to Pay a Toll to Use the Carpool Lane Was a Good Idea)

Why do you feel this way? (Multiple response table based on percent of responses.)

	LOWER-INCOME	MID-INCOME	HIGHER-INCOME	TOTAL
It provides a better use for carpool lanes	14%	18%	21%	18%
Adds capacity to roadway	4%	7%	6%	6%
Saves time for busy people	11%	11%	14%	11%
Only users pay, not everyone	16%	16%	10%	15%
Time is money for some people	12%	10%	16%	12%
Eases congestion	28%	26%	21%	25%
Tolls are used during peak hours only	1%	1%	1%	1%
Use of carpool lanes not encouraged enough	4%	2%	3%	2%
Creates revenue	5%	6%	5%	5%
Provides another transportation option	0%	1%	1%	1%
Increases safety	1%	0%	1%	0%
Conserves fuel	1%	1%	0%	1%
Other	3%	1%	1%	3%
Total %	100%	100%	100%	100%
Total Number	172	689	215	1076

There were also slight differences among household income groups in opinions about why the MnPASS concept was a bad idea, as shown in Table 8.2. Interestingly, all income groups held a relatively similar level of agreement that the MnPASS concept only benefits the rich. This pattern was similar among those who thought MnPASS should be free to all. A much higher percentage of respondents in the higher-income group felt carpool lanes were not encouraged enough compared with those in lower-income groups. Conversely, a much higher percent of lower-income groups thought the MnPASS concept was unfair when compared with the percent of those in the higher-income group who held the same opinion.

TABLE 8.2: REASONS “BAD IDEA” BY HOUSEHOLD INCOME

(Among Respondents who Thought Allowing Single Drivers to Pay a Toll to Use the Carpool Lane Was a Bad Idea)

Why do you feel this way?

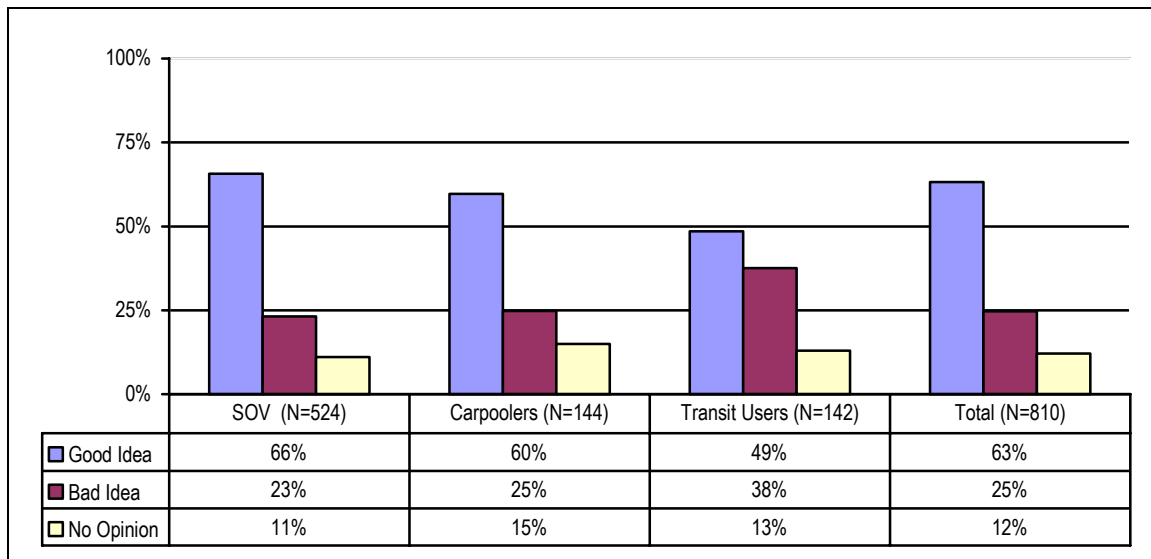
(Multiple response table based on percent of responses. Percents do not total 100 due to rounding.)

	LOWER-INCOME	MID-INCOME	HIGHER-INCOME	TOTAL
Only benefits the rich	11%	12%	13%	12%
Carpool lanes should be free to all	11%	10%	12%	10%
Inefficient	5%	7%	10%	7%
Carpool lanes should only be open to carpoolers	11%	10%	12%	10%
Use of carpool lanes not encouraged enough	8%	16%	21%	16%
Gives too much money to MnDOT	8%	4%	1%	4%
Bad for environment	0%	3%	5%	3%
Will not work	5%	4%	0%	4%
Roads are already paid for	11%	8%	10%	9%
Delays roadway improvements for all	2%	2%	1%	2%
Makes level of service worse in carpool lane	2%	4%	3%	4%
Increases bureaucracy	3%	3%	3%	3%
Unfair	16%	7%	1%	7.4%
Too confusing for people	3%	0%	0%	1%
Adds capacity to the roads	2%	1%	0%	1%
Better use of carpool lanes	2%	2%	3%	2%
Did not improve congestion	0%	1%	1%	1%
Would prefer public transportation	0%	0%	1%	0%
Opposes tolls	0%	1%	0%	0%
Other	6%	5%	3%	4%
Total%	100%	100%	100%	100%
Total Number	64	331	77	472

When MnPASS acceptance was examined by respondents’ usual commute mode, significant differences were observed. MnPASS acceptance is highest among SOV drivers (66%) and lowest among transit users (49%). Yet, acceptance among carpoolers was also high (60%). Roughly two in five transit users (38%) thought allowing paying single drivers to use carpool lanes was a bad idea compared to 25% of carpoolers and 23% of SOV drivers. At the same time, a larger percent of carpoolers had no opinion on this issue than other groups. See Figure 8.2 for further detail.

FIGURE 8.2: OPINION ON ALLOWING SINGLE DRIVERS TO USE CARPOOL LANES BY USUAL TRAVEL MODE

What do you think of allowing single drivers to use the carpool lanes by paying a toll? Is it...



Opinions about why the single paying driver concept was a good idea did not differ significantly by usual travel mode. Transit users' most frequent response, like users of other modes, was that MnPASS eases congestion. Transit users were slightly more likely to respond that MnPASS would create more revenue. On the other hand, carpoolers were more likely than users of other modes to respond that only users pay, not everyone. Both carpoolers and SOV drivers seemed supportive of the idea that the MnPASS concept would provide a better use of the carpool lane. See Table 8.3 for further detail.

TABLE 8.3: REASONS "GOOD IDEA" BY USUAL TRAVEL MODE

(Among Respondents who Thought Allowing Single Drivers to Pay a Toll to Use the Carpool Lane Was a Good Idea)

Why do you feel this way? (Multiple response table based on percent of responses.)

	SOV	CARPOOLERS	TRANSIT	TOTAL
It provides a better use for carpool lanes	18%	19%	15%	18%
Adds capacity to roadway	6%	4%	10%	6%
Saves time for busy people	12%	9%	5%	11%
Only users pay, not everyone	15%	16%	13%	15%
Time is money for some people	12%	10%	5%	12%
Eases congestion	25%	28%	27%	25%
Tolls only during peak hours	2%	3%	3%	2%
Use of carpool lanes not encouraged enough	2%	2%	2%	2%
Creates Revenue	5%	6%	13%	5%
Provides another transportation option	1%	0%	2%	1%
Increases safety	0%	0%	0%	0%
Conserves fuel	1%	0%	0%	1%
Other	1%	3%	5%	2%
Total %	100%	100%	100%	100%
Total Number	829	187	60	1076

There were significant differences by usual travel mode in the reasons cited by respondents who thought the MnPASS concept was a bad idea. SOV drivers and carpoolers were much more likely than transit users to respond that carpool lanes should be free to all, whereas transit users were more likely to suggest that the use of carpool lanes was not encouraged enough. They were also more likely to suggest that the MnPASS concept only benefited the rich. SOV drivers and carpoolers were more likely than transit users to respond that roads were already paid for. See Table 8.4 for further detail.

TABLE 8.4: REASONS “BAD IDEA” BY USUAL TRAVEL MODE

(Among Respondents who Thought Allowing Single Drivers to Pay a Toll to Use the Carpool Lane Was a Bad Idea)

Why do you feel this way? (Multiple response table based on percent of responses.)

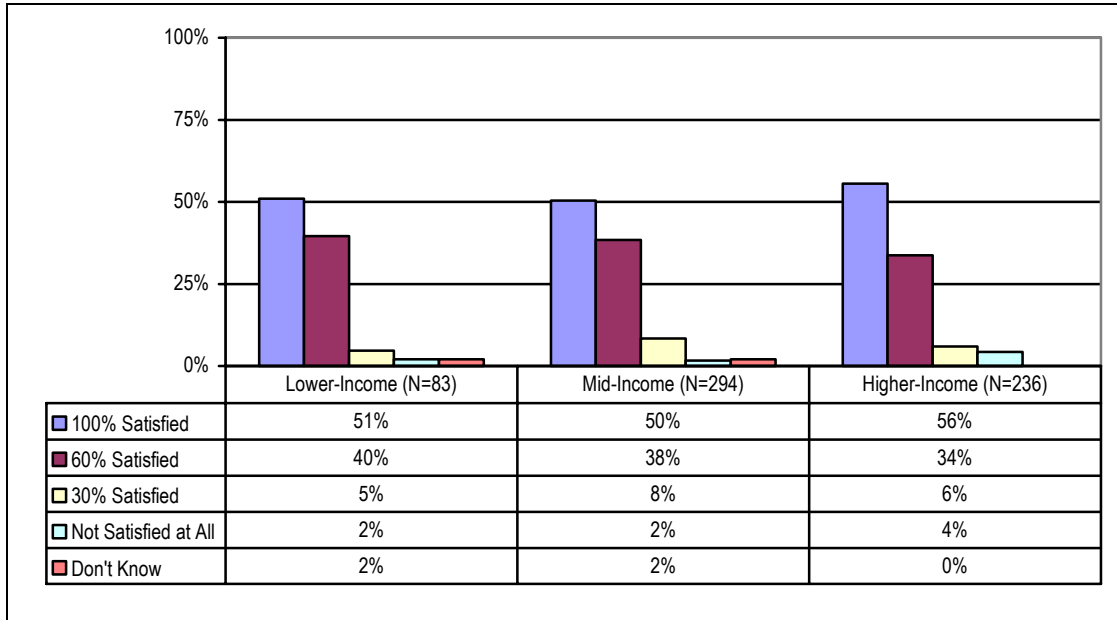
	SOV	CARPOOLERS	TRANSIT	TOTAL
Only benefits the rich	11%	11%	17%	12%
Carpool lanes should be free to all	15%	7%	2%	11%
Inefficient	8%	6%	7%	7%
Carpool lanes should only be for carpools	8%	12%	14%	9%
Use of carpool lanes not encouraged enough	13%	16%	31%	16%
Gives too much money to MnDOT	5%	3%	2%	4%
Bad for environment	3%	4%	3%	3%
Roads are already paid for	10%	8%	2%	9%
Will not work	2%	7%	2%	3%
Delays roadway improvements for all	2%	3%	2%	2%
Makes level of service worse in carpool lane	3%	6%	3%	4%
Increases bureaucracy	3%	5%	2%	3%
Unfair	7%	8%	9%	7%
Too confusing for people	1%	0%	2%	1%
Better use of carpool lanes	2%	3%	0%	2%
Adds capacity to roadways	1%	1%	0%	1%
Did not improve congestion	1%	0%	0%	0%
Would prefer public transportation	0%	1%	0%	0%
Opposes tolls	1%	0%	0%	0%
Other	4%	2%	2%	6%
Total%	100%	100%	100%	100%
Total Number	310	104	58	472

8.2 SATISFACTION WITH CURRENT TRAVEL EXPERIENCES

The majority of respondents, regardless of their income level, were satisfied with the quality of travel on the roadway used for their reference trip.²¹ See Figure 8.3 for further detail.

FIGURE 8.3: SATISFACTION WITH QUALITY OF REFERENCE TRIP BY HOUSEHOLD INCOME
(Among I-394 Respondents Only)

Based on this trip, how satisfied were you with the overall quality of your travel on this roadway?

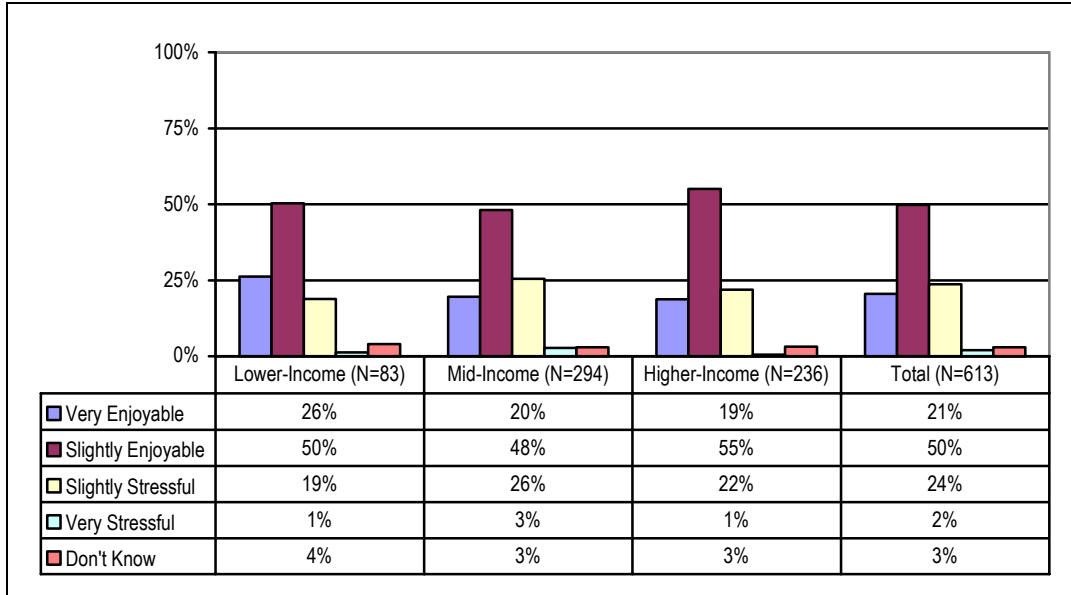


Across all income levels, the majority of respondents reported that their reference trip was more enjoyable than stressful. Overall, lower-income respondents reported the least stressful trips. Only a small percentage of I-394 respondents (ranging from 1% to 3%) found the trip very stressful. See Figure 8.4 on the following page for further detail.

²¹ Reference trip was defined as the most recent trip on I-394 that either matched their Wave 1 trip (in the case of the panel sample) or was a commute trip in the case of respondents sampled from the transit user or MnPASS subscriber lists. These trips were recorded in Travel Logs and subsequently reported to the telephone interviewers.

FIGURE 8.4: OPINION ON REFERENCE TRIP EXPERIENCE BY HOUSEHOLD INCOME
 (Among I-394 Respondents Only)

Which of the following descriptors best captures your travel experience on this trip?



Travelers at all income levels made a distinction between their travel experience with MnPASS and the general traffic lanes. Travelers found the general traffic lanes to be more congested than MnPASS lanes, as indicated in the following two figures - 8.5 and 8.6.

FIGURE 8.5: OPINION ON CONGESTION IN MNPASS LANES DURING REFERENCE TRIP BY HOUSEHOLD INCOME
 (Among I-394 Respondents Only)

How would you describe the level of congestion in the MnPASS lane at the time of your travel?

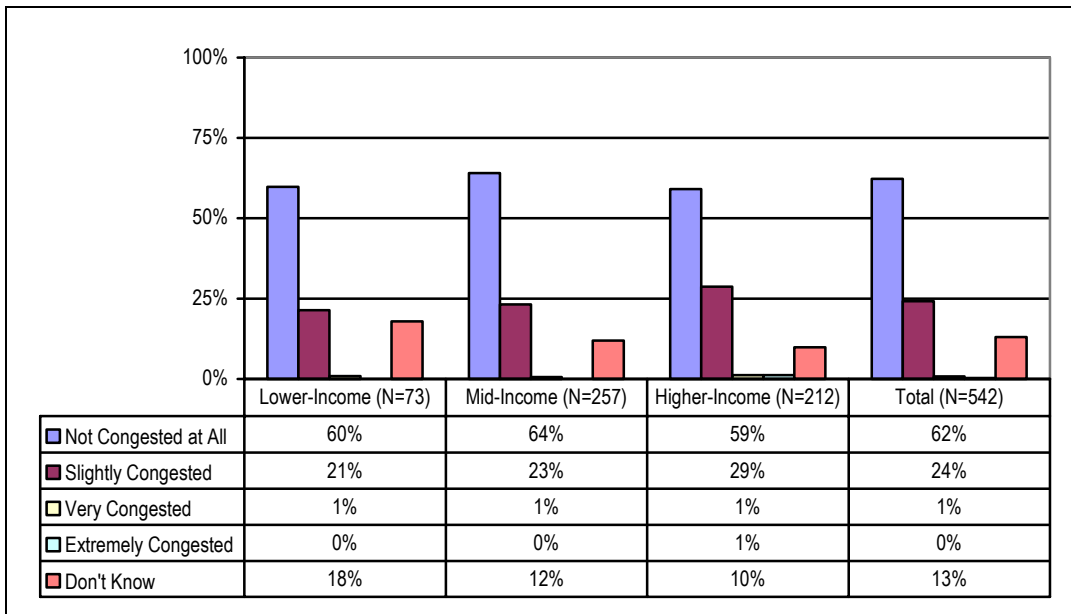
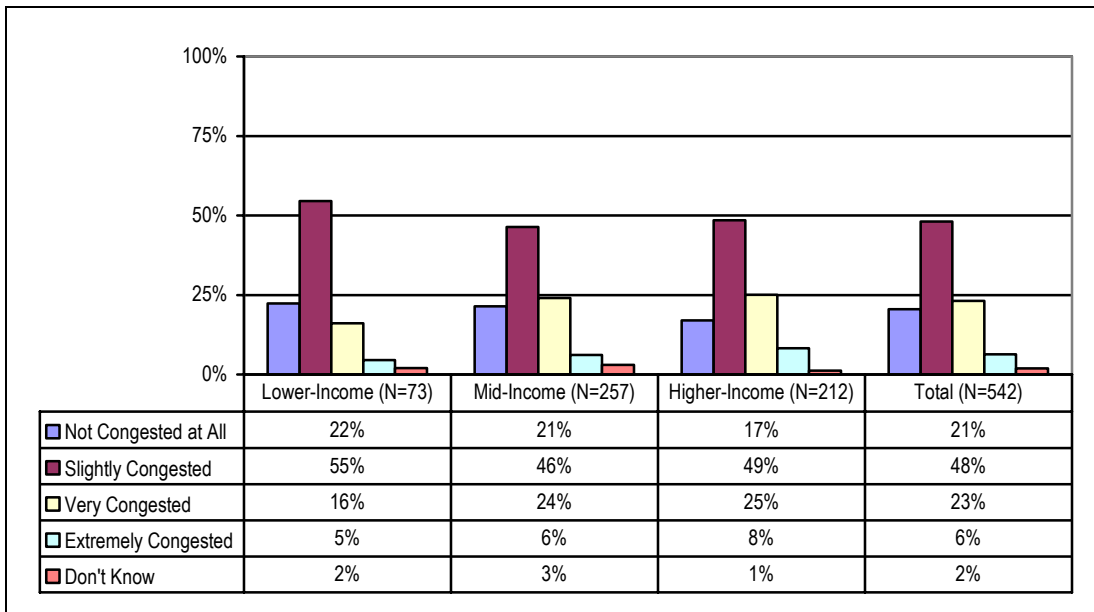


FIGURE 8.6: OPINION ON CONGESTION IN GENERAL TRAFFIC LANES DURING REFERENCE TRIP BY HOUSEHOLD INCOME
(Among I-394 Respondents Only)

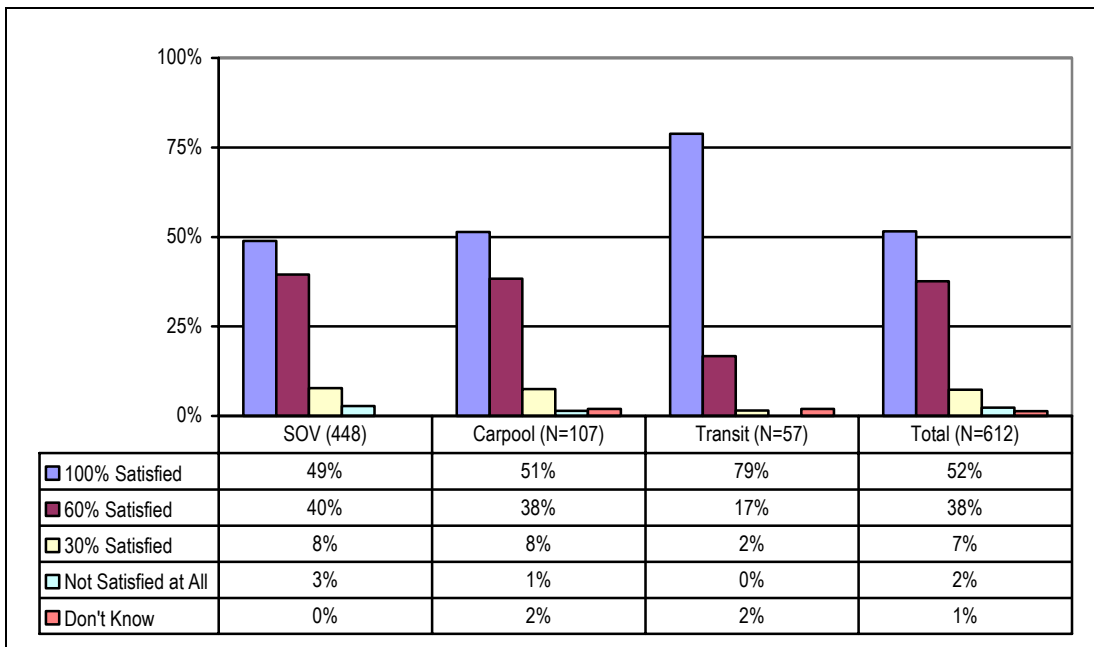
What about the general traffic lanes at that time, would you say the lanes were...



Most respondents, regardless of travel mode, were satisfied with the quality of travel on their reference trip. Transit users had the highest level of satisfaction with the quality of travel on their reference trip; 79% reported being “100% satisfied”, compared with 51% of carpoolers and 49% of SOV drivers. See Figure 8.7 for further detail.

FIGURE 8.7: SATISFACTION WITH QUALITY OF REFERENCE TRIP BY REFERENCE TRIP MODE
(Among I-394 Respondents Only)

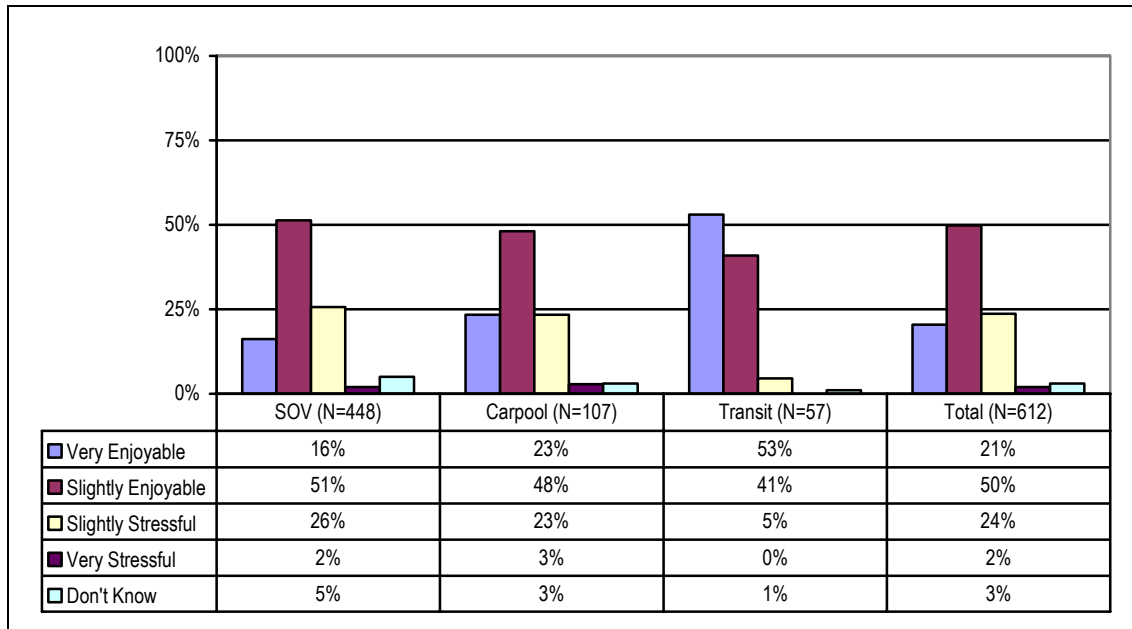
Based on this trip, how satisfied were you with the overall quality of your travel on this roadway?



The travel experience was most enjoyable for transit users, though respondents in all travel mode categories were more likely to find the trip enjoyable than stressful. More than half (53%) of transit users rated the target trip as very enjoyable compared to 16% of SOV drivers and 23% of carpoolers. Similarly, a quarter of HOV or SOV users found the trip slightly stressful, compared to only 5% of transit users. See Figure 8.8 for further detail.

FIGURE 8.8: OPINION ON REFERENCE TRIP EXPERIENCE BY REFERENCE TRIP MODE
(Among I-394 Respondents Only)

Which of the following descriptors best captures your travel experience on this trip?





9. CONCLUSIONS

This chapter contains the key findings of the Attitudinal Panel Survey. The survey materials (advance letter, travel log and survey instrument) are in the Appendices section of this report. That chapter concludes with data tables that present panel attrition and panel demographics.

9.1 KEY FINDINGS

I-394 MnPASS Acceptance

Acceptance of the MnPASS concept reached its highest levels of support during the third wave of surveying (65% “good idea” versus 22% bad idea). The 43 percentage point spread between support and opposition was also the widest among the waves (i.e., 30 point spread in Wave 1 and 29 point spread in Wave 2). Experience with the High Occupancy Vehicle (HOT) lanes in operation was positively associated with acceptance of allowing single drivers to use carpool lanes by paying a toll. Approval was consistent across all income groups. Higher-income respondents were the most supportive (71%). Lower-income respondents were also quite supportive, and by a three-to-one margin (64% “good idea” versus 21% “bad idea”). The majority of carpoolers were supportive (60% “good idea”). About half of transit users surveyed (49%) expressed support for the MnPASS concept. The most common reason for supporting MnPASS was that it “eases congestion.” There was ample evidence in the Wave 3 data that the MnPASS lanes did have a positive impact on perceived congestion levels on I-394. The percent of panel members who believed traffic congestion was a major problem decreased from 62% in Wave 1 to 50% in Wave 3. The percent that was delayed by congestion on their reference trip decreased from 37% in Wave 1 to 29% in Wave 3.

The level of opposition to the MnPASS concept decreased from 30% in Wave 1 to 22% in Wave 3. The shrinking size of the group in opposition created greater agreement among them as to the reasons why MnPASS was a “bad idea.” About one-fourth believed either it “only benefits the rich” (16%) or that it is “unfair” (9%). About one in five (21%) were opposed to tolling the lanes in general -- 11% saying “carpool lanes should be free for all”, and 10% saying “roads are already paid for.” About 18% cited a reason that was associated with carpooling – 12% said “carpools are not encouraged”, and 6% said “carpool lanes should be used only for carpools.” These three categories of reasons accounted for nearly two-thirds of the reasons cited for why MnPASS was a “bad idea.”

Soon after MnPASS implementation, a contra-peak congestion issues arose and, to deal with it, pricing was eliminated in the off peak direction. Shortly thereafter, the construction of a previously planned outbound auxiliary lane on a section of the MnPASS lanes (i.e., MN100 to US169) was accelerated. With the congestion issue that arose, support for a 24-hour operation of the MnPASS Express Lane project fell from 53% in Wave 1 to 23% in Wave 2. However, with longer experience with the MnPASS project in operation as well as greater elapse of time since the contra-peak congestion event, support for the 24-hour operation had grown to 32% in Wave 3. The percent that think the 24-hour operation is a “bad idea” decreased from 61% in Wave 2 to 54 % in Wave 3.

I-394 MnPASS Use and Satisfaction

The Wave 3 panel captured a 6% incidence of MnPASS subscribers. However, use of the MnPASS lanes represented a much broader market. The 6% represented just those who leased a transponder to pay for the use of the MnPASS lane as a Single Occupancy Vehicle (SOV); however, beneficiaries of the MnPASS project included non-paying users as well. Of panel members, 84% reported that they had used the MnPASS lanes in the past for free as a carpooler; 9% said they have used the lanes as a paying SOV driver; and 2% reported usage as a bus rider. MnPASS usage was reported across all income levels, with

55% of lower-income, 70% of middle-income, and 79% of higher-income respondents reporting that they have used the MnPASS lanes. Usage has remained stable among the lower-income group (54% in Wave 2 and 55% in Wave 3), while it has grown among middle-income group (62% to 70%) and the higher income (66% to 79%) group.

MnPASS users, regardless of whether they were paying users or not, were satisfied with MnPASS operations. Users had the highest levels of satisfaction with the all-electronic toll operations (93% satisfied) and with the speed of traffic flow in the MnPASS lane (88% satisfied). The absence of “safety” concerns related to the non-barrier separated MnPASS lane or the five access points was evidenced by that fact 83% were satisfied with the ease of identifying the MnPASS entry points and 72% were satisfied with the safety of merging into the MnPASS lanes. These levels of satisfaction were higher than those reported in Wave 2.

There was a slight decrease in the percent of MnPASS lane users who considered the MnPASS toll a good value from Wave 2 to Wave 3. During Wave 2, 71% stated the toll they paid was just right, whereas, during Wave 3, 61% felt that the toll they paid was just right. This may be a result of the modification of the dynamic pricing formula in 2006. This may also have impacted the overall satisfaction reported by paying customers (reducing these) such as the ease of opening a transponder account (83%); using a credit card to replenish the account (87%), and the ease of installing the MnPASS transponder (83%); the clarity of prices on overhead signs (80%) or with the toll amounts that vary with traffic levels (65%).

Travel Behavior and Experience among I-394 Users

I-394 panelists reported higher levels of satisfaction as the Attitudinal Panel survey progressed with 37%, 48% and 49% of respondents reporting 100% satisfaction in Wave 1, Wave 2 and Wave 3, respectively. Satisfaction was highest among panelists who used the MnPASS lanes for their entire reference trip. In the same way, panelists reported their travel as enjoyable and less stressful from Wave 1 to Wave 3 of the panel. Sixty-eight percent of the Wave 3 panelists reported an enjoyable travel experience, compared with 63% of Wave 2 panelists, and 47% of Wave 1 panelists. The implementation of MnPASS has not had a negative impact on carpooling on I-394, nor on traveling experiences in the corridor. The current mode share of I-394 panelists is comparable to that captured in the Wave 1 survey: 81% drive alone and 19% carpool.

Willingness to Pay the MnPASS Toll

There was a positive association between experience with MnPASS and willingness to pay the MnPASS toll. The willingness to pay is found to be significantly related to several observable factors of the traveling population, including income, age, trip purpose, time of day, trip distance, and amount of time saved. After those factors are taken into account, there appears to be a significant drop in willingness to pay between waves 1 and 3, particularly in the Stated Preference (SP) panel. Relative to the pre-introduction SP, the measured value of time in the post-introduction SP is strongly bifurcated, with MnPASS subscribers and users showing willingness to pay at least 3 times as high as non-subscribers/non-users. Because the majority of the population is non-users, this will tend to skew the distribution even further to the left, with a lower median Value of Time (VOT) but with a higher variance. It seems that when an SP survey is done before respondents have any experience with the actual HOT lane context, their responses may tend to “homogenize” to some extent. On the other hand, after the actual HOT lane system is introduced, respondents may have a much better idea of whether or not they would be willing to pay the toll in specific situations, so their responses will tend to show a wider variance.

In the longer term, as more HOT lane systems open, it would be best to build up revealed preference (RP) evidence on willingness to pay and value of time. This would require linking the types of trips that were intercepted in the MnPASS surveys to actual operating data on the toll levels charged and the time

savings offered at the times that the reported trips were made. We hope to be able to complete such analyses in the future.

9.2 DESIGN AND FIELDWORK

The Attitudinal Panel Survey was successfully implemented for three panel waves. There was the cost advantage for the panel of being able to spread out the recruitment cost over multiple waves of data collection. However, this study also required the analyses of specific subgroups, such as subscribers and transit users that were not present in sufficient numbers in the pure random sample. The cost of recruiting these new sample members diminished the full cost advantage of the panel.

In addition, the Attitudinal Panel Survey experienced a substantial rate of attrition. About one-third of the Wave 1 respondents were also interviewed in Wave 3. The attrition level experienced was comparable to that of other panel surveys. However, panel attrition limited the samples sizes available for longitudinal analyses, particularly within specific subgroups, such as for the SP analyses. This fact limited the statistical advantage of the panel design. That said, the panel data was shown to be extremely useful for disentangling the longitudinal effects of the MnPASS Express Lane project.



APPENDICES



APPENDIX A: ADVANCE LETTERS

UNIVERSITY OF MINNESOTA

Twin Cities Campus

*State and Local Policy Program
Hubert H. Humphrey Institute of
Public Affairs*

*Humphrey Center
301-19th Avenue South
Minneapolis, MN 55455-0429
612-626-0347
Fax: 612-626-9833
E-mail: slpp@hhh.umn.edu
<http://www.hhh.umn.edu/Centers/SLP/>*

August 11, 2006

«FNAME» «LNAME»
«HADDR»
«HCITY», «HSTAT» «HZIP1»

«SAMPN»-«REP»-«STYPE»

Dear «FNAME» «LNAME»,

Thank you for continuing to participate in the **Attitudinal Panel Survey**. Your participation will ensure that our regional transportation system truly meets citizens' needs. A representative of NuStats, a professional survey research firm, will telephone you in about a week to remind you to complete the enclosed travel log. If you would like to participate in the survey at that time you may do so. We ask that you record information about your travel during a recent week that you make a trip that matches the trip described in the in the **enclosed travel log**.

What are we asking of you?

- **First, summarize the number of trips you make during a week that you made a trip that matches the trip described in the in Part A of the enclosed travel log.** Use the enclosed travel log to record the volume of *one-way* trips you made Monday through Friday during the week by direction of travel and also by your mode of travel.
- **Second, record specific information about a one-way trip you made during the week that matches the information provided in Part B of the enclosed travel log.** Record information about a trip you make during the week that resembles the one that you detailed for us in your previous interview. To assist you, we have indicated the time of day and purpose of your last trip in Part B of the enclosed travel log.
- **Third, provide us this information in a telephone interview.** An interviewer from NuStats will call to collect your information and also to ask some additional opinion questions. At the start of this call, the interviewer will ask if any of the Household Profile information provided in the box below has changed. If so, please report the changes.

Household Profile

Household size, including you: <<xx>>
No. of vehicles available: <<xx>>

No. of Workers, including you? <<xx>>
Total Household Income: <<xx>>

Remember, all information will be held in strict confidence. ***It is very important that this survey is conducted with the individual from your household who was originally surveyed in late 2004.*** If you have any questions or concerns about this study, please contact Frank Douma, the principal investigator 612-626-9946, fdouma@hhh.umn.edu). If you have questions about the interview, contact Chris Simek of NuStats (1-800-447-8287, csimek@nustats.com).

Sincerely,



Lee Munnich
Director, State and Local Policy Program
Hubert H. Humphrey Institute

UNIVERSITY OF MINNESOTA

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Hubert H. Humphrey Institute of
Public Affairs*

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301-19th Avenue South
Minneapolis, MN 55455-0429*

*612-626-0347
Fax: 612-626-9833
E-mail: slpp@hhh.umn.edu
<http://www.hhh.umn.edu/Centers/SLP/>*

August 11, 2006

«FNAME» «LNAME»

«SAMPN»-«REP»-«STYPE»

«HADDR»

«HCITY», «HSTAT» «HZIP1»

Dear «FNAME» «LNAME»,

We need your help. You have been selected to participate in a panel survey to evaluate travel conditions in our region. Your participation will ensure that our transportation system truly meets citizens' needs. The study's sponsors are the State and Local Policy Program of the Hubert H. Humphrey Institute of Public Affairs at the University of Minnesota and the Minnesota Department of Transportation. A representative of NuStats, a professional survey research firm, will telephone you in about a week to remind you to complete the enclosed travel log. If you would like to participate in the survey at that time you may do so. We ask that you record information about your travel during a recent week that you make a trip that matches the trip described in the in the **enclosed travel log**.

What are we asking you to do?

- **First, summarize the number of trips you make during a week that you made a trip that matches the trip described in the in Part A of the enclosed travel log.** Use the enclosed travel log to record the volume of *one-way* trips you made Monday through Friday during the week by direction of travel and also by your mode of travel.
- **Second, record specific information about a one-way trip you made during the week that matches the information provided in Part B of the enclosed travel log.** Record information about a trip you make during the week that resembles the one described in Part B of the enclosed travel log.
- **Third, provide us this information in a telephone interview.** An interviewer from NuStats will call to collect your information and also to ask some additional opinion questions. The interview will only last about 15 minutes.

Confidentiality is critical to the success of our study. We want you to feel secure in providing candid responses to our questions. So, your name and other identifying information will be stored separately from the data files containing your responses. Your decision to participate is voluntary. And, you may refuse to answer any question without risk. Such actions will not affect relations with any survey sponsors. If you have any questions or concerns about the study, please contact Frank Douma, principal investigator, at 612-626-9946, fdouma@hhh.umn.edu). If you have questions about the interview, contact Chris Simek of NuStats (1-800-447-8287, csimek@nustats.com). If you want to talk to someone other than the researchers, contact Research Subjects Advocate line (612) 625-1650.

Sincerely,



Lee Munnich
Director, State and Local Policy Program
Hubert H. Humphrey Institute



APPENDIX B: TRAVEL LOG



TRAVEL LOG

(I-35W/Hwy 77)

Part A: Travel Week

Record information about ALL trips you make on I-35W or Hwy 77, each day during your travel week between 6 a.m. and 9 p.m.

Your travel week is the week during which you make a trip that matches the characteristics described in Part B: Assigned Trip, below.

1 For each day during your travel week, please record how many trips you make:

- a. Northbound on I-35W or Hwy 77
- b. Southbound on I-35W or Hwy 77

Direction of Travel	Mon	Tue	Wed	Thu	Fri	Total
a. Northbound on I-35W or Hwy 77						
b. Southbound on I-35W or Hwy 77						

Total Trips North & South bound

2 For the total trips in question 1, please tell us how many of them you:

- a. Drive alone
- b. Carpool (2 or more persons, regardless of age)
- c. Ride a bus

How Traveled	Mon	Tue	Wed	Thu	Fri	Total
a. Drive alone						
b. Carpool (2 or more persons, regardless of age)						
c. Ride a bus						

Total Number of Trips should be the same

Total Trips by all travel modes

Part B: Assigned Trip

Record information about a ONE-WAY TRIP you make on I-35W or Hwy 77, during your travel week, that matches your assigned trip below.

3 On what day of the week was the first trip you took matching your Assigned Trip above?

- Monday
 Tuesday
 Wednesday
 Thursday
 Friday

4 How many TOTAL CAR TRIPS (number of times you turned on the ignition) did you make that day? (include ALL car trips, not just those on I-35W and Hwy 77)

_____ # car trips (# times you turned on the ignition)

- 5** What was the purpose of your trip?
 Work Shop Recreation
 Work-related Medical/Personal Appointment Other: _____
 School Visit friends/relatives
- 6** Which PRIMARY ROADWAY did you use? I-35W only Hwy 77 only Both I-35W & Hwy 77
- 7** In what DIRECTION were you travelling? North South
- 8** What was your START LOCATION? Home Work Other: _____
- 9** What time did you DEPART? _____ : _____ am pm
- 10** What was your DESTINATION LOCATION? Home Work Other: _____
- 11** What time did you PLAN TO ARRIVE at your destination? _____ : _____ am pm
- 12** What time did you ACTUALLY ARRIVE at your destination? _____ : _____ am pm
- 13** What was your TOTAL TRAVEL TIME (from your start location to your destination location)? _____ # minutes
- 14** What was your PRIMARY MODE OF TRAVEL? Drive alone Carpool Bus
- 15** How many SIDE TRIPS (or stops) did you make on the way to your destination location?
 _____ # side trips or stops
- Total number of people in vehicle, including yourself:
 _____ # people

THANK YOU! DO NOT MAIL. You will receive a call to collect your information. For questions about how to complete your log, call the **toll-free hotline at 877-261-4621**.



Part A: Travel Week

Record information about ALL trips you make on I-394 or Hwy 55, each day during your travel week between 6 a.m. and 9 p.m.

Your travel week is the week during which you make a trip that matches the characteristics described in Part B: Assigned Trip, below.

1 For each day during your travel week, please record how many trips you make:

- a. Eastbound on I-394 or Hwy 55
- b. Westbound on I-394 or Hwy 55

Direction of Travel	Mon	Tue	Wed	Thu	Fri	Total
a. Eastbound on I-394 or Hwy 55						
b. Westbound on I-394 or Hwy 55						

Total Trips East & West bound

2 For the total trips in question 1, please tell us how many of them you:

- a. Drive alone and do not use the MnPass lanes
- b. Drive alone and pay a toll to use the MnPass lanes
- c. Drive alone, use the MnPass lanes and not pay a toll
- d. Carpool (2 or more persons, regardless of age)
- e. Ride a bus

Total Number of Trips should be the same

How Traveled	Mon	Tue	Wed	Thu	Fri	Total
a. Drive alone and do not use MnPass lanes						
b. Drive alone and pay toll to use MnPass lanes						
c. Drive alone, use MnPass lanes and not pay a toll						
d. Carpool (2 or more persons, regardless of age)						
e. Ride a bus						

Total Trips by all travel modes

Part B: Assigned Trip

Record information about a ONE-WAY TRIP you make on I-394 or Hwy 55, during your travel week, that matches your assigned trip below.

3 On what day of the week was the first trip you took matching your Assigned Trip above?

- Monday
 Tuesday
 Wednesday
 Thursday
 Friday

4 How many TOTAL CAR TRIPS (number of times you turned on the ignition) did you make that day? (include ALL car trips, not just those on I-394 and Hwy 55)

_____ # car trips (# times you turned on the ignition)

5 What was the purpose of your trip?

Work Shop Recreation
 Work-related Medical/Personal Appointment Other: _____
 School Visit friends/relatives

6 Which PRIMARY ROADWAY did you use? I-394 only Hwy 55 only Both I-394 & Hwy 55

7 IF I-394: At what RAMP or INTERCHANGE did you enter the roadway? _____

8 In what DIRECTION were you travelling? East West

9 What was your START LOCATION? Home Work Other: _____

10 What time did you DEPART? _____ : _____ am pm

11 What was your DESTINATION LOCATION? Home Work Other: _____

12 What time did you PLAN TO ARRIVE at your destination? _____ : _____ am pm

13 What time did you ACTUALLY ARRIVE at your destination? _____ : _____ am pm

14 What was your TOTAL TRAVEL TIME (from your start location to your destination location)? _____ # minutes

15 What was your PRIMARY MODE OF TRAVEL? Drive alone Carpool Bus

16 How many SIDE TRIPS (or stops) did you make on the way to your destination location?

_____ # side trips or stops

Total number of people in vehicle, including yourself:
 _____ # people

17 Did you use the MnPASS Lane?

YES

a Toll paid (one-way) \$ _____ . _____

b What do you think your travel time would be if you **had not** used the MnPASS lane? _____ # minutes

c Did you **plan to use** the MnPASS lane **before** you left your start location?
 Yes No

d Why did you decide to use the MnPASS lane? (mark all that apply)

To avoid an unexpected delay.
 To travel more safely.
 To avoid an unexpected level of congestion.
 I travelled by carpool or bus.
 Other: _____

NO

a What do you think your travel time would be if you **had** used the MnPASS lane? _____ # minutes

b Why didn't you use the MnPASS lane? (mark all that apply)

I am not a MnPASS subscriber.
 Traffic levels were lighter than usual.
 Price was too high.

How much would the one-way toll have been?
 \$ _____ . _____

MnPASS lanes were not available in my direction of travel.
 Other: _____

THANK YOU! DO NOT MAIL. You will receive a call to collect your information. For questions about how to complete your log, call the toll-free hotline at 877-261-4621.



APPENDIX C: SURVEY INSTRUMENT

COMBO PANEL / NEW SAMPLE DRAFT

MnPASS Wave 3

NOTE: For the I-394 corridor, we will add 450 respondents from the I-394 corridor and 150 respondents from the I-35W corridor.

SAMPLE TYPE (From sample databases):

RETURNING PANEL – I-394	1
SUBSCRIBER PANEL – I-394	2
TRANSIT PANEL – I-394	3
RETURNING PANEL – I-35	4
TRANSIT PANEL – I-35W	5
NEW SAMPLE - I-394	6
NEW SAMPLE - I-35W	7
NEW SAMPLE - I-394 WEST OF 494	8
Final Refusal ---→ TERM	999

INTRO_A: Hello, my name is _____, and I'm calling on behalf of the Minnesota DOT and the Hubert Humphrey Institute of the University of Minnesota.

PANEL MEMBERS – SAMPLE TYPE < 6

S1. May I speak with _____(respondent)? He/ she is participating in our Attitudinal Panel Survey.

Continue	1
Callback	2
First Refusal	3
Final Refusal ---→ TERM	4

CB1. What would be a good time to call back? Enter date and time.

CONT: Thank you for participating in our Attitudinal Panel Survey. In order to make sure we're speaking to the correct HH member, can you confirm that you participated in a survey about travel conditions and traffic congestion in the Fall/Winter of 2004?

YES (go to I1)	1
NO (continue)	2
UNSURE (continue)	998
RF (terminate)	999

Our records indicate that a [import gender] member of your household participated in the 2004 survey? Do you have any idea what member of your household that might be?

YES (ask to speak to that person and re-start interview with that person)	1
---	---

COMBO PANEL / NEW SAMPLE DRAFT

NO (terminate)	2
UNSURE (terminate)	998
RF (terminate)	999

I1: Did any of the information in your demographic profile change? IF SO: MAKE CHANGES.

HH Size:

No. Vehicles:

No. Workers:

HH Income:

PANEL_LTR_Did you receive an advance letter describing the survey and a travel log?

YES (go to TRIP)
NO (go to TRIP)
UNSURE (go to TRIP)
RF (terminate)

NEW SAMPLE – SAMPLE TYPE 6 - 8

I1. May I speak with _____? We're conducting a survey on travel conditions in the Twin Cities. This is not a sales call.

Continue	1
Callback	2
First Refusal	3
Final Refusal ---→ TERM	4

CB1. What would be a good time to call back? Enter date and time.

INFORMED CONSENT CONTINUE – NEW SAMPLE ONLY (STPYPE 6-8)

I2. Your household has been randomly selected to be surveyed as part of an evaluation of a new roadway project in the Twin Cities area, resulting from statewide legislation in 2003. This interview should take about 15 minutes. I'll ask questions on congestion, carpool (diamond) lanes, and other transportation issues. I'll also collect travel information relating to your use of the I-394 and I-35W corridors and some demographic questions. Confidentiality is critical to the success of our study. Your name and other identifying information will be stored separately from the data files containing your responses.

We sent a letter about this survey to your home address. You should have received it within the past week. Do you remember receiving and reading this letter?

YES (GOTO I4A)	1
NO (GOTO I3)	2
DK/RF (GO TO I3)	3

I3. Can I confirm your name [and mailing address – IF ANSWERED NO]? READ AND CONFIRM.

COMBO PANEL / NEW SAMPLE DRAFT

MAILING CORRECT—GO TO CONSENT	1
MAILING INCORRECT – COLLECT ADDRESS THEN GO TO CONSENT	2

ENTER NEW MAILING ADDRESS:

- I3a. NAME**
- I3b. ADDRESS**
- I3c. CITY**
- I3d. ZIP**

CONSENT. The benefits of participation in the study are truly helping our community identify new ways of dealing with the congestion problem. Your decision to participate is voluntary. And, you may refuse to answer any question without risk. Such actions will not affect any relations with study sponsors GO TO I4a.

I4a. Do you understand the study??

YES	1
NO (THANK AND ASK FOR OTHER ELIGIBLE PERSON IN HH)	2
DK/RF (THANK AND ASK FOR OTHER ELIGIBLE PERSON IN HH)	3

I4b. Do you agree to be interviewed?

YES (GO TO TRIP)	1
NO (THANK AND ASK FOR OTHER ELIGIBLE PERSON IN HH)	2
DK/RF (THANK AND ASK FOR OTHER ELIGIBLE PERSON IN HH)	3

NEW SCREENER PORTION THAT IS ASKED OF EVERYONE

TRIP: PANEL: Have you taken a trip in the last few months on [ROAD] that was [TRIP PURPOSE] during [TIME OF DAY]

TRIP: NON PANEL: Have you taken a trip in the last few months on [ROAD] during [TIME OF DAY]

YES (GO TO LOG)	1
NO (SKIP TO WHEN)	2
UNSURE (SKIP TO WHEN)	998
RF (terminate)	999

LOG: Did you use your travel log to record information about this trip and all trips taken on [road] during the week you took your assigned trip?

YES (GO TO S1)	1
NO (GO TO S1)	2
UNSURE (GO TO S1)	998
RF (GO TO S1)	999

COMBO PANEL / NEW SAMPLE DRAFT

WHEN: Do you think you'll be taking a trip like the one described in your travel log in the near future?

YES (SCHEDULE CALLBACK IN 5 DAYS)	1
NO (FIND OUT WHY AND MAKE NQ)	2
UNSURE (SCHEDULE CALLBACK IN 5 DAYS)	998
RF (TERMINATE)	999

General Attitude, MnPASS Awareness , Knowledge - Everyone

S1. In general, do you think traffic congestion in the Twin Cities is ...?
(ROTATE)

A major problem	1
A moderate problem	2
A minor problem,	3
No problem at all	4
UNSURE	998
REFUSED	999

PANEL MEMBERS (SAMPLE TYPE < 6) SKIP S2-S3

S2. How many people, including yourself, are currently living in your household?
_____# valid range 1-10

UNSURE	998
REFUSED	999

S3. How many motor vehicles in working condition does your household have available for use?
_____#

valid range 0-10

UNSURE	998
REFUSED	999

S4. Do you plan on moving anytime in the next year?

YES (GOTO S5)	1
NO	2
UNSURE	998
RF	999

S5. And, do you plan on moving outside of the Twin Cities area?

YES (GOTO TERM - NOT ELIGIBLE FOR PANEL)	1
--	---

COMBO PANEL / NEW SAMPLE DRAFT

NO	2
UNSURE	998
REFUSED	999

S6. Do you plan on changing jobs in the next year?

YES (GOTO TERM - NOT ELIGIBLE)	1
NO	2
UNSURE	998
RF	999

Now, I'd like to ask you a few questions about a new transportation project in the Twin Cities area.

MNPASS SUBSCRIBERS (STYPE 2) SKIP A1-A4A

A1. Have you heard of the MnPASS lanes on I-394?

YES	1
NO	2
UNSURE	998
REFUSED	999

A2. Are you an MnPASS subscriber?

YES (GO TO A5)	1
NO	2
UNSURE	998
REFUSED	999

A3. Have you considered getting a transponder?

YES – AND DID GET ONE (GOTO A5)	1
YES – AND DECIDED AGAINST IT	2
NO	3
UNSURE	998
REFUSED	999

A4. Why? **THEN SKIP TO A9**

TRANSPONDER IS TOO EXPENSIVE TO LEASE	1
DON'T WANT TO PAY TO USE MNPASS	2
TRAFFIC IS NOT THAT BAD	3
GENERALLY DON'T DRIVE THE I-394 ROUTE	4
I USE CARPOOLS	5
I USE TRANSIT	6

COMBO PANEL / NEW SAMPLE DRAFT

UNAWARE OF MNPASS	7
WOULDN'T USE MNPASS LANE ENOUGH TO JUSTIFY LEASING TRANSPONDER	8
UNLIKELY TO USE IT: SPECIFY	9
OTHER: SPECIFY	997
UNSURE-→READ DESC	998
REFUSED-→READ DESC	999

A4A. IF RESPONDENT A4=1 ASK How much do you think it costs to lease a transponder?

Enter number in dollar format.

WE NEED TO ASK A5-A9 OF MNPASS SUBSCRIBERS (SAMPLE TYPE 2 AND THOSE THAT RESPOND YES (1) TO A2.

A5. In what month did you acquire a transponder?

MONTH: SPECIFY	1
DON'T HAVE ONE	2
UNSURE	998
REFUSED	999

A6. How many transponders does your household have?

1	1
2	2
3	3
4+	4
UNSURE	998
REFUSED	999

A7. How did you open your MnPASS account?

Online	1
Telephone	2
In-Person at Customer Service Center	3
UNSURE	998
REFUSED	999

A8. Is your MnPASS account...

Paid by you	1
Paid directly by your employer	2
Paid by you but reimbursed by your employer	3
UNSURE	998
REFUSED	999

A9. What do you know about MnPASS?
[ALLOW MORE THAN ONE ANSWER]

COMBO PANEL / NEW SAMPLE DRAFT

SINGLE DRIVERS USE CARPOOL LANES FOR FEE	1
ELECTRONIC TOLL COLLECTION	2
TRANSPONDER	3
IT WILL CHARGE TOLLS	4
IT MAY BENEFIT TRANSIT	5
ONLY RICH WILL USE	6
OTHER: SPECIFY	7
NOTHING	8
UNSURE	998
REFUSED	999

READ TO EVERYONE : The MnPASS program permits single drivers on I-394 to pay a fee to use the MnPASS lanes. Drivers who pay the fee can use the carpool lanes without being in a carpool. The fee varies based on how congested the roadway is.

A9. What do you think of allowing single drivers to use the carpool lanes by paying a toll? Is it [rotate]

Good idea	1
Bad idea	2
No opinion	3

A10. Why do you feel this way? (Not asked of those who state “No opinion”) ADD ALL CODES

SAVES TIME FOR BUSY PEOPLE	1
USERS PAY NOT EVERYONE	2
TIME IS MONEY FOR SOME PEOPLE	3
BETTER USE OF CARPOOL LANES	4
ADDS CAPACITY TO ROADWAY	5
UNFAIR, SPECIFY	6
DELAYS ROADWAY IMPROVEMENT FOR ALL	7
LEVEL OF SERVICE WORSE IN CARPOOL LANE	8
INCREASES BUREAUCRACY	9
WILL NOT WORK	10
INEFFICIENT	11
ONLY BENEFITS THE RICH	12
BAD FOR ENVIRONMENT	13
TOO CONFUSING FOR PEOPLE	14
GIVES TOO MUCH MONEY TO ROAD AGENCY	15
OTHER: SPECIFY	16
CARPOOL LANES SHOULD BE FREE TO ALL	17
DON'T KNOW	998
REFUSED	999

A11 When MnPASS opened, the toll lane program on I-394 operated 24 hours per day, meaning that the only persons who could travel in the MnPASS lanes at any time were carpoolers, bus riders, motorcyclists, and those who opt to pay the toll. Was this a...[rotate]

Good idea	1
Bad idea	2
No opinion	3

COMBO PANEL / NEW SAMPLE DRAFT

A12. Why do you feel this way? (Not asked of those who state “No opinion”) ADD ALL CODES

USERS PAY NOT EVERYONE	2
TIME IS MONEY FOR SOME PEOPLE	3
BETTER USE OF CARPOOL LANES	4
ADDS CAPACITY TO ROADWAY	5
UNFAIR, SPECIFY	6
INCREASES BUREAUCRACY	9
WILL NOT WORK	10
INEFFICIENT	11
ONLY BENEFITS THE RICH	12
BAD FOR ENVIRONMENT	13
TOO CONFUSING FOR PEOPLE	14
GIVES TOO MUCH MONEY TO ROAD AGENCY	15
NOW CARPOOL LANES ARE FREE TO ALL IN NON-PEAK	17
OTHER: SPECIFY	16
DON'T KNOW	998
REFUSED	999

A13 Now there are no tolls outbound from MN100 from 5:30am to 2pm weekdays and inbound to MN100 from 1pm to 5:30am weekdays. Is this a...[rotate]

Good idea	1
Bad idea	2
No opinion	3

A14. Why is that? ADD ALL CODES

A15. For the next few items, please tell me if you think MnPASS has a positive impact, a negative impact, or no impact at all. What impact do you think MnPASS has on...

	Positive	Negative	No Impact	DK
a. Traffic congestion on I-394?	1	2	3	998
b. Traffic safety on I-394?	1	2	3	998
c. Noise levels along I-394?	1	2	3	998

General Trip Making Characteristics

Now I'd like to collect the information that you recorded in your travel log about total one-way trips made Monday through Friday during your assigned travel week.

TM1. IF I-394: For this next question, you can refer to #1 on your travel log. How many eastbound trips [TOWARD DOWNTOWN] did you make? And how many westbound trips?
 a. EASTBOUND _____ valid range = 1-10
 b. WESTBOUND _____ valid range = 1-10

IF I-35W: For this next question, you can refer to #1 on your travel log. How many northbound trips [TOWARD DOWNTOWN] did you make? And how many southbound trips?

COMBO PANEL / NEW SAMPLE DRAFT

- c. NORTHBOUND _____ valid range = 1-10
- d. SOUTHBOUND _____ valid range = 1-10

TM2 IF I-394: For this next question, you can refer to #2 on your travel log. Now consider all [TOTAL TM1] trips you made in both directions. On how many of those trips did you mostly:

- Use the MnPASS Lanes (#)
- Use the general traffic lanes on I-394 (#)
- Use Hwy 55 (#)

IF I-35W: For this next question, you can refer to #2 on your travel log. Now consider all [TOTAL TM1] trips you made in both directions. On how many of those trips did you mostly:

- Use the carpool lanes on I-35W (#)
- Use the general traffic lanes on I-35W (#)
- Use Hwy 77 (#)

TM3 For this next question, you can refer to #2 on your travel log. Now consider all [TOTAL TM1] trips you made in both directions. On how many of those trips did you:

- Drive alone (and not use MnPASS lanes) (#)

NOT OPTION FOR I-35W TRAVEL SHED<----Drive alone and pay a toll to use the MnPASS lanes

- Drive alone, use MnPASS and not pay a toll (#)
- Carpool (#) (IF > 0, ASK TM10)
- Ride a bus (#)
- Total (calculated)

CHECK AGAINST TM3RESPONSE

COMPUTE NEW VARIABLE = USUAL MODE

SOV = mostly drive alone trips in TM3

HOV = mostly drive with other passengers or ride as passenger in person vehicle in TM3

TRANSIT= mostly ride as passenger in a bus in TM3

IF TM2 OR TM3 IDENTIFY MNPASS LANE USE SKIP TO TM5.

TM4. Have you ever used the MnPASS lanes?

YES	1
NO	2
DON'T KNOW	998
REFUSED	999

TM5. IF TM2, TM3 = MnPASS OR TM4=YES: When you have used the MnPASS lanes in the past were you: CHECK ALL APPLY.

A paying single driver	1
carpooler	2
Bus rider	3
DON'T KNOW	998
REFUSED	999

TM6: IF MORE THAN ONE ANSWER TO TM5: How did you travel on the MnPASS lanes most frequently?

COMBO PANEL / NEW SAMPLE DRAFT

A paying single driver	1
carpooler	2
Bus rider	3

TM7. IF TM2, TM3 = MnPASS OR TM4=YES: Now I'd like to ask how satisfied you have been with certain aspects of the MnPASS program. For each item I mention, please tell me if you are very satisfied, somewhat satisfied, very dissatisfied, or somewhat dissatisfied. First, how satisfied are you with

	Very DK Satisfied	Somewhat RF Satisfied	Somewhat Disatisfied	Very Disatisfied	
a. Ease of identifying the MnPASS entry points along I-394	4.....	3	2	1	998 999
b. Safety of merging into the MnPASS lane at designated entry points	4	3	2	1	998 999
c. The speed of traffic flow in the MnPASS lanes	4.....	3	2	1	998 999
d. Enforcement of MnPASS usage.....	4.....	3	2	1	998 999

TM8. IF TM5 OR TM6 = 1: Which of the following factors was the most important reason that you use the MnPASS lane?

To reduce overall travel time	1
To reduce amount of time you spend in heavy traffic	2
Too increase reliability of your travel time	3
To increase personal safety while driving in traffic,	4
Or something else: SPECIFY	5
RF	999

TM9. IF TM5 OR TM6 = 1: Now I have a few more of the satisfaction questions. For each item I mention, please tell me if you are very satisfied, somewhat satisfied, very dissatisfied, or somewhat dissatisfied. First, how satisfied are you with

	Very DK Satisfied	Somewhat RF Satisfied	Somewhat Disatisfied	Very Disatisfied	
a. The clarity of prices on overhead signs located before MnPASS entrances	4.....	3	2	1	998 999
b. The MnPASS website	4.....	3	2	1	998 999
c. The staff at customer service center	4.....	3	2	1	998 999
d. The ease of opening a pre-paid MnPASS account	4.....	3	2	1	998 999
e. The ease of installing the MnPASS transponder.....	4.....	3	2	1	998 999
f. All electronic operation – no tollbooths, gates, dropping in coins.....	4	3	2	1	998 999
g. The toll amounts that vary with traffic levels.....	4.....	3	2	1	998 999
h. Using your credit card or debit card to automatically replenish your account	4.....	3	2	1	998 999

TM10. IF TM3= TRANSIT: Revenues from the MnPASS program will be used to make transit system improvements. I'd like to know which of the following transit service improvements

COMBO PANEL / NEW SAMPLE DRAFT

would be most important to you. For each item I mention, please tell me if the improvement is very important, somewhat important, or not important at all to you. First, how important is....USE SCALE WHERE 1=NOT IMPORTANT AT ALL, 2=SOMEWHAT IMPORTANT AND 3=VERY IMPORTANT.

More Park and Ride Lots	
More frequent service	
Greater enforcement in the MnPASS lane	
Service routed differently	
Security at Park and Ride Lots	
Light Rail	

Detailed Trip Making Characteristics

Now, I have some questions about the trip that you recorded in your travel log. So use the reference trip information that you provided in the travel log to assist you in answering the next few questions.

DT1. For this next question, you can refer to #3 on your travel log. On what day of the week was your trip? (ALLOW ONLY ONE ANSWER)

MONDAY	1
TUESDAY	2
WEDNESDAY	3
THURSDAY	4
FRIDAY	5

DT1A. For this next question, you can refer to #4 on your travel log. How many total one-way trips (on any roadway) did you make on this day?

DT2. For this next question, you can refer to #5 on your travel log. What was the main reason for the trip you recorded in your travel log?

COMMUTE TO OR FROM WORK	1
WORK-RELATED	2
SCHOOL	3
SHOP	4
MEDICAL OR OTHER PERSONAL APPT	5
VISIT FRIENDS OR FAMILY	6
RECREATIONAL OR ENTERTAINMENT ACTIVITY	7
OR SOMETHING ELSE (DO NOT SPECIFY)?	998
REFUSED	999

COMPUTE NEW VARIABLE BASED ON DT3 = TARGET TRIP TYPE

MAINTENANCE = 4, 5,

SUBSISTENCE = 1, 2 3,

DISCRETIONARY = 6, 7, 998

COMBO PANEL / NEW SAMPLE DRAFT

DT3: For this next question, you can refer to #6 on your travel log. On what roadway were you traveling?

I-394	1
Hwy 55	2
I-35W	3
Hwy 77	4

DT4: For this next question, you can refer to #8 on your travel log. And, in what direction?

East	1
West	2
North	3
South	4

DT5: IF A2 = YES and DT3 = I-394: For this next question, you can refer to #17 on your travel log. Did you use the MnPASS lane for all or part of your trip?

ALL	1
PART	2
DID NOT USE (GO TO DT7)	3

DT6: If DT5 = 1, 2: For this next question, you can refer to #17a on your travel log. What toll amount did you pay?

DT7: IF A2 = YES and DT3 = I-394: For this next question, you can refer to #17c on your travel log. Did you plan to use the MnPASS lane before you left your start location?

YES	1
NO	2
UNSURE	998
RF	999

DT8: IF DT5 = 1, 2: For this next question, you can refer to #17d on your travel log. Why did you decide to use the MnPASS lane?

To avoid unexpected delay	1
To travel more safely	2
To avoid unexpected levels of congestion	3
I traveled by carpool or bus	4
Or some other reason: SPECIFY	997
UNSURE	998
RF	999

DT9: IF DT5 = 3: For this next question, you can refer to #17b on your travel log, under the “no” option. Why didn’t you use the MnPASS lane?

I am not an MnPASS subscriber	1
Traffic levels were lighter than usual	2
Price was too high	3
MnPASS lanes were not available in my direction of travel	4
Or some other reason: SPECIFY	997
UNSURE	998
RF	999

COMBO PANEL / NEW SAMPLE DRAFT

DT10 What time did you start this trip? For this next question, you can refer to #10 on your travel log. [military time]

COMPUTE TIME PERIOD VARIABLE:

- 6AM-9AM = 1
- 9AM-1PM =2
- 1PM-3PM =3
- 3PM-6PM =4
- 6PM-9PM =5

DT11. How familiar are you with the traffic conditions on the freeway at this time? Would you say you

Almost always drive this route at this hour (3 or 4 times / wk)	1
Occasionally drive this route at this hour (1 or 2 time/ wk)	2
Rarely drive this route at this hour (less than 1/ wk)	3
RF	999

DT12 Did you leave at this particular time to avoid traffic congestion?

YES	1
NO (GO TO DT14)	2
RF	999

DT13. What time would you have preferred to leave if there was no traffic congestion to avoid? [military time]

DT14 IF DT3 = I-394 or Hwy 55: Have you changed your typical departure time for this trip because of MnPASS?

YES	1
NO (GO TO DT17)	2
RF	999

DT15: Are you leaving earlier or later?

EARLIER	1
LATER	2
RF	999

DT16. By how much? #
minutes_____

DT17. For this next question, you can refer to #9 on your travel log. Where did you start this trip? Was it at home, work, or someplace else?

HOME (GOTO DT19)	1
WORK (GOTO DT19)	2
SOMEPLACE ELSE	3
RF	999

DT18. IF SOMEPLACE ELSE: Can you give me a street address or the names of two nearby intersecting streets?

COMBO PANEL / NEW SAMPLE DRAFT

Address (GOTO DT18A)	1
Intersection (GOTO DT18B)	2
DK	998
RF	999

DT18a. Collect address information

DT18b. Collect xstreet information

DT18c. What city was that in? _____

DT19. IF I-394: For this next question, you can refer to #7 on your travel log. At which ramp did you get I-394?
[DROP DOWN LIST OF RAMPS]

DT20. IF DT5 = 1, 2: And, where did you enter the MnPASS lane? DROP DOWN LIST OF ENTRY POINTS (need points)

DT21. IF DT5 = 1, 2: Did you experience any problems in merging into the MnPASS lane from the general traffic lane?

YES	1
NO	2
REFUSE	999

DT22. IF DT21 = YES: What type of problem did you encounter? Open-ended

DT23. And where did you exit the MnPASS lane? DROP DOWN LIST OF EXIT POINTS (need points)

DT24. For this next question, you can refer to #15 on your travel log. And were you ...

Driving alone (GOTO DT23)	1
Carpooling	2
Riding a bus	3
DK	998
RF	999

COMPUTE NEW VARIABLE BASED ON DT24 RESPONSE = TARGET TRIP MODE

SOV = 1

HOV = 2

TRANSIT = 3

DT25. IF TARGET TRIP MODE = HOV: How many adults, 18 or older, traveled with you on this trip, [not including yourself]? # _____ Valid range = 1-6

DK	998
----	-----

DT26. IF TARGET TRIP MODE = HOV: And, how many children? # _____ Valid range = 1-6

COMBO PANEL / NEW SAMPLE DRAFT

DK	999
----	-----

DT27 IF TAGET TRIP MODE = HOV/TRANSIT: When you made this trip, did you park at a park and ride facility?

YES	1
NO	2
DK	998
RF	999

DT27a. Why did you choose [IMPORT ANSNWER FROM DT24] for this trip?

RECORD OPEN TEXT RESPONSE.

DT28. For this next question, you can refer to #11 on your travel log. Now, I want to know where you ended this trip? Was it at home, work or someplace else? [THEY STARTED FROM DT12 CAN'T BE SAME]

HOME (GOTO DT30)	1
WORK (GOTO DT30)	2
SOMEPLACE ELSE	3
DK	999

DT29. IF SOMEPLACE ELSE: Can you give me a street address or the names of two nearby intersecting streets?

Address (GOTO DT29A)	1
Intersection (GOTO DT29B)	2
DK	998
RF	999

DT29A. Collect address information

DT29B. Collect xstreet information

DT29C. IF SOMEPLACE ELSE: What city was that in? _____

DT30. About how many miles is this trip from door-to-door?Miles (#) valid range = 1-50

DT31. For this next question, you can refer to #12 on your travel log. At what time did you plan to arrive at your destination? [military time]

DT32. For this next question, you can refer to #13 on your travel log. What time did you actually arrive? [military time]

COMPUTE NEW VARIABLE, TRAVEL TIME = DT32-DT10

DT33 For this next question, you can refer to #14 on your travel log. This means your trip took about [TRAVEL TIME] minutes from door-to-door. Is this about right?

YES	1
-----	---

COMBO PANEL / NEW SAMPLE DRAFT

NO→TRY TO CLARIFY START (DT10) and END (DT32) times	2
DK	998
RF	999

DT34. How much flexibility did you have in the time you had to arrive at your destination? Did you

Have to be there at a specific time	1
Have to be there at a specific time plus or minus 10 minutes	2
Plus or minus 30 minutes	3
Or did you have more flexibility in the arrival time than that?	4
DK	998
RF	999

DT35. For this next question, you can refer to #16 on your travel log. Did you make any stops or side trips as any part of this trip?

YES	1
NO (GOTO DT37)	2
DK (GOTO DT37)	998
REFUSED (GOTO DT37)	999

DT36. Which of the following best describes the type of stops you made? Was it to... [ALLOW MORE THAN ONE ANSWER]

Dropping child off at day care	6
Drop someone else off	1
Pick people up	2
Take care of personal business, like shopping	3
Do a work-related activity	4
Or, did you make multiple detours for many different purposes?	5
DK	998
RF	999

DT37. Were you delayed by congestion on this trip?

YES	1
NO (GOTO DT33DT39)	2
DK (GOTO DT39)	998
REFUSED (GOTO DT39)	999

DT38 Your trip took about [TRAVEL TIME] minutes door-to-door. If you had not been delayed by congestion, about how long do you think this trip would have taken? # minutes valid range = 5-120

DT39: IF DT5 = 1, 2: For this next question, you can refer to #17b on your travel log, under the "yes" option. If you had not used MnPASS for this trip, how long do you think this trip would have taken?

COMBO PANEL / NEW SAMPLE DRAFT

DT40: IF DT5=3: For this next question, you can refer to #17a on your travel log, under the “no” option. If you had used MnPASS, how long do you think this trip would have taken?

DT41. Which of the following experience best captures your travel experience on this trip?
[ROTATE]

Very enjoyable	1
Slightly enjoyable	2
Slightly stressful	3
Very stressful	4
DK	998
RF	999

DT42. Based on this trip, how satisfied were you with the overall quality of your travel on this roadway?

100% satisfied	1
60% satisfied	2
30% satisfied	3
Not satisfied at all?	4
DK	998

DT43. IF DT3 = I-394: How would you describe the general level of congestion in the MnPASS lane at the time of your travel? Would you say the MnPASS lane was...[ROTATE]

Not congested at all	1
Slightly congested	2
Very congested	3
Extremely congested	4
DK	998
RF	999

DT44. IF DT3 = 1-394: What about the general traffic lanes at that time, would you say the lanes were...

Not congested at all	1
Slightly congested	2
Very congested	3
Extremely congested	4
DK	998

DT45. IF DT5 = 1, 2: Given the time saved using the MnPASS lane for this trip, do you think the toll you paid was...

Too high	1
Just right	2
Too low	3
DK	998

Stated Preference Questions -- only asked of TARGET TRIP MODE = SOV and TM2 = I-394

Now assume you're making the same trip in the future that you recorded in your travel log. It's a trip on the same day, at the same time of day, for the same purpose, and you're under the same time pressures. You enter the freeway, I-394, and have the option of making this trip using MnPASS if you want to. RANDOMLY ASSIGN [\$] AND [#] BELOW

SP1-2. If you were to use the general traffic lanes on I-394, your trip would take TOLLTIME+[#] and be free. If you used the MnPASS lane you would pay [\$] and your trip would take TOLLTIME, saving [#] minutes. Now under these conditions, which would you choose to: [ROTATE]

- Use the MnPASS lane, pay [\$] and save [#] minutes 1
- Use the general lane for free 2
- DK 998

SP1-2. If you were to use the MnPASS lane on I-394, you would pay [\$] and your trip would take TOLLTIME. If you were to use the general traffic lanes, your trip would take TOLLTIME+[#], [#] minutes longer than in the toll lane, but it would be free, Now under these conditions, which would you choose to: [ROTATE]

- Use the MnPASS lane, pay [\$] and save [#] minutes 1
- Use the general lane for free 2
- DK 998

SP3. Now imagine a different scenario. If you were to use the MnPASS lane on I-394, you would pay [\$] and you would save [#] minutes. Under these conditions what would you do?

- Use the MnPASS lane, pay [\$] and save [#] minutes 1
- Use the general lane for free 2
- DK 998

Respondent Characteristics

So we can make sure this survey represents all persons in the Twin Cities area. I need to ask some questions about you.

PANEL SAMPLE SKIP TO R12

R1. What is the highest grade or year of school that you have completed?

HIGH SCHOOL OR LESS	1
SOME COLLEGE, TRADE OR VOCATIONAL SCHOOL	2

COMBO PANEL / NEW SAMPLE DRAFT

GRADUATED COLLECTED WITH A BA DEGREE	3
GRADUATE WORK BEYOND BA DEGREE	4
DK	998
RF	999

R2. And what is your age, are you between...

18-24	1
25-34	2
35-44	3
45-54	4
55-64	5
65+	6
RF	999

R3. Currently are you...[ALLOW MORE THAN ONE RESPONSE]

Employed full or part time (GOTO R4)	1
Homemaker	2
A Student full or part time	3
Retired	4
Disabled	5
Unemployed	6
DK	998
RF	999

R4. Do you work...

Part-time, less than 30 hours	1
Full-time, 30 hours or more	2
DK	998
RF	999

R5. Are you self-employed?

YES	1
NO	2
DK	998
RF	999

R6A. IF S4>1: How many of the other people in your household work outside the home, either full- or part-time? _____ # valid range 1-9

COMPUTE NEW VARIABLE, NUMBER OF WORKERS IN HH = R3 (1) + R5

R6. How many years have you lived at your current residence?
_____ YEARS valid range = 1 - 99

R7. Do you own or rent this residence?

OWN	1
RENT	2
OTHER	3

COMBO PANEL / NEW SAMPLE DRAFT

DK	998
RF	999

R8. Are you a licensed driver?

YES	1
NO	2
DK	998
RF	999

R9. IF S4>1: How many of the other people in your household are licensed to drive?
 _____ # valid range = 1-9

COMPUTE NEW VARIABLE, NUMBER OF LICENSED DRIVERS IN HH = R8 + R9

R10. What is the total annual income for your household, when you consider the income of all employed individuals? Was it above or below \$75,000?

BELOW \$75,000 (GOTO R11A)	1
ABOVE \$75,000 (GOTO R11B)	2
RF (GOTO R14)	999

R11A. Please stop me when I state the range that best describes your household's total annual income...

\$30,000 or less	1
\$30,000 to \$49,999	2
\$50,000 to \$74,999	3
RF	999

R11B. Please stop me when I state the range that best describes your household's total annual income...

\$75,000 to \$99,999	4
\$100,000 to \$124,999	5
\$125,000 to \$149,999	6
\$150,000 or above	7
RF	999

R12. Which of the following categories best describes your race or ethnic background?

White or Caucasian	1
Black/ African American	2
Hispanic	3
Asian	4
RF	999

R13.GENDER (DO NOT ASK)

MALE	1
FEMALE	2

Thank you/ Wrap Up

COMBO PANEL / NEW SAMPLE DRAFT

Thank you so much for answering my questions today. Your participation in this survey will make a difference in our evaluation of the MnPASS Project. Would you be willing to participate in future research activities on this topic?

YES	1
NO	2
UNSURE	998
RF	999

IF NO or UNSURE: PROVIDE MORE INFORMATION ABOUT USES OF RESULTS AND BENEFITS OF PARTICIPATION.

P1: IF AGREE TO PARTICIPATE IN FUTURE SURVEYS We will need to contact you to let you know about next survey. Which of the following ways would be the best ways to contact you?

Home phone	1
Cell phone	2
Email	3

P2: COLLECT CONTACT INFORMATION

Confirm home number
Collect cell phone
Collect email



APPENDIX D: PANEL ATTRITION ANALYSIS

TABLE D1: PANEL MEMBERS AND PANEL ATTRITION BY HOUSEHOLD SIZE

WAVE 1		HOUSEHOLD SIZE				TOTAL
		1	2	3	4+	
PANEL	Count	64	129	49	101	343
	Row %	18.7	37.6	14.3	29.4	100.0
ATTRITORS	Count	124	255	126	152	657
	Row %	18.9	38.8	19.2	23.1	100.0
Total	Count	188	384	175	253	1,000
	Row	18.8	38.4	17.5	25.3	100.0

Note: Asked of Wave 1 respondents that agreed to participate in Wave 2.

TABLE D2: PANEL MEMBERS AND PANEL ATTRITION BY HOUSEHOLD VEHICLES

WAVE 1		COLLAPSED HOUSEHOLD VEHICLES				TOTAL
		0	1	2	3+	
PANEL	Count	0	82	185	76	343
	Row %	0.0	23.9	53.9	22.2	100.0
ATTRITORS	Count	4	143	347	163	657
	Row %	0.6	21.8	52.8	24.8	100.0
Total	Count	4	225	532	239	1,000
	Row %	0.4	22.5	53.2	23.9	100.0

Note: Asked of Wave 1 respondents that agreed to participate in Wave 2.

TABLE D3: PANEL MEMBERS AND PANEL ATTRITION BY EDUCATION

WAVE 1		EDUCATION					TOTAL
		High School or less	Some college, trade / voc.	Graduated with a BA / BS	Graduated beyond BA / BS	Refused	
PANEL	Count	31	72	126	114	0	343
	Row %	9.0	21.0	36.7	33.2	0.0	100.0
ATTRITORS	Count	69	148	273	165	2	657
	Row %	10.5	22.5	41.6	25.1	0.3	100.0
Total	Count	100	220	399	279	2	1,000
	Row %	10.0	22.0	39.9	27.9	0.2	100.0

Note: Asked of Wave 1 respondents that agreed to participate in Wave 2.

TABLE D4: PANEL MEMBERS AND PANEL ATTRITION BY AGE

WAVE 1		AGE						TOTAL
		18-34	35-44	45-54	55-64	65+	Refused	
PANEL	<i>Count</i>	34	73	104	72	60	0	343
	<i>Row %</i>	9.9	21.3	30.3	21.0	17.5	0.0	100.0
ATTRITORS	<i>Count</i>	145	136	154	127	93	2	657
	<i>Row %</i>	22.1	20.7	23.4	19.3	14.2	0.3	0.0
<i>Total</i>	<i>Count</i>	179	209	258	199	153	2	1,000
	<i>Row %</i>	17.9	20.9	25.8	19.9	15.3	0.2	100.0

Note: Asked of Wave 1 respondents that agreed to participate in Wave 2.

TABLE D5: PANEL MEMBERS AND PANEL ATTRITION BY EMPLOYMENT

WAVE 1		EMPLOYMENT						TOTAL
		Employed full or part time	Homemaker	Student full or part time	Retired	Disabled	Unemployed	
PANEL	<i>Count</i>	276	50	8	59	5	7	405
	<i>Row %</i>	68.2	12.3	2.0	14.6	1.2	1.7	100.0
ATTRITORS	<i>Count</i>	537	103	32	102	9	11	794
	<i>Row %</i>	67.7	13.0	4.0	12.8	1.1	1.4	100.0
<i>Total</i>	<i>Count</i>	813	153	40	161	14	18	1,199
	<i>Row %</i>	67.8	12.8	3.3	13.4	1.2	1.5	100.0

Note: Multiple response questions based on % responses

TABLE D6: PANEL MEMBERS AND PANEL ATTRITION BY FULL OR PART TIME EMPLOYMENT STATUS

WAVE 1		FULL OR PART TIME EMPLOYMENT			TOTAL
		Part time, less than 30-hours	Full time, 30-hours or more	Don't Know	
PANEL	<i>Count</i>	40	236	0	276
	<i>Row %</i>	14.5	85.5	0.0	100.0
ATTRITORS	<i>Count</i>	79	456	2	537
	<i>Row %</i>	14.7	84.9	0.4	100.0
<i>Total</i>	<i>Count</i>	119	692	2	813
	<i>Row %</i>	14.7	85.1	0.2	100.0

Note: Asked of Wave 1 respondents that agreed to participate in Wave 2.

TABLE D7: PANEL MEMBERS AND PANEL ATTRITION BY HH WORKERS

WAVE 1		COLLAPSED HOUSEHOLD WORKERS				TOTAL
		0	1	2	3+	
PANEL	<i>Count</i>	52	117	145	29	343
	<i>Row %</i>	16.0	34.1	42.3	7.6	100.0
ATTRITORS	<i>Count</i>	76	233	289	59	657
	<i>Row %</i>	11.6	35.5	44.0	8.9	100.0
<i>Total</i>	<i>Count</i>	128	350	434	88	1,000
	<i>Row %</i>	13.1	35.0	43.4	8.5	100.0

Note: Asked of Wave 1 respondents that agreed to participate in Wave 2.

TABLE D8: PANEL MEMBERS AND PANEL ATTRITION BY HOUSING TENURE

WAVE 1		HOUSING TENURE				TOTAL
		Own	Rent	Other	Refused	
PANEL	<i>Count</i>	313	29	1	0	343
	<i>Row %</i>	91.3	8.5	0.2	0.0	100.0
ATTRITORS	<i>Count</i>	538	105	11	3	657
	<i>Row %</i>	81.9	16.0	1.6	0.5	100.0
<i>Total</i>	<i>Count</i>	851	134	12	3	1,000
	<i>Row %</i>	85.1	13.4	1.2	0.3	100.0

Note: Asked of Wave 1 respondents that agreed to participate in Wave 2.

TABLE D9: PANEL MEMBERS AND PANEL ATTRITION BY LICENSED DRIVERS

WAVE 1		LICENSED DRIVERS IN HOUSEHOLD				TOTAL
		0	1	2	3+	
PANEL	<i>Count</i>	0	80	209	54	343
	<i>Row %</i>	0.0	23.3	60.9	15.8	100.0
ATTRITORS	<i>Count</i>	3	152	397	105	657
	<i>Row %</i>	0.5	23.1	60.4	16.0	100.0
<i>Total</i>	<i>Count</i>	3	232	606	159	1,000
	<i>Row %</i>	0.3	23.2	60.6	15.9	100.0

Note: Asked of Wave 1 respondents that agreed to participate in Wave 2.

TABLE D10: PANEL MEMBERS AND PANEL ATTRITION BY HOUSEHOLD INCOME

WAVE 1		COLLAPSED HOUSEHOLD INCOME			TOTAL
		Less than \$50k	\$50k or greater	Refused	
PANEL	<i>Count</i>	69	274	0	343
	<i>Row %</i>	20.1	79.9	0.0	100.0
ATTRITORS	<i>Count</i>	109	478	0	587
	<i>Row %</i>	18.6	81.4	0.0	100.0 ¹
<i>Total</i>	<i>Count</i>	178	752	0	930
	<i>Row %</i>	19.1	80.9	0	100.0

Note: Asked of Wave 1 respondents that agreed to participate in Wave 2.

TABLE D11: PANEL MEMBERS AND PANEL ATTRITION BY GENDER

WAVE 1		GENDER		TOTAL
		Male	Female	
PANEL	<i>Count</i>	197	146	343
	<i>Row %</i>	57.4	42.6	100.0
ATTRITORS	<i>Count</i>	338	319	657
	<i>Row %</i>	51.4	48.6	100.0
<i>Total</i>	<i>Count</i>	535	465	1,000
	<i>Row %</i>	53.5	46.5	100.0

Note: Asked of Wave 1 respondents that agreed to participate in Wave 2.

¹ Income was not imputed for Wave 1 and was for Waves 2 and 3. As such, the comparison shown here compares the income distribution of the panel for which income has been imputed (if refused) to the attritors for which income has been omitted (if refused).



APPENDIX E: PANEL DEMOGRAPHICS

TABLE E1: PANEL MEMBERS AND PANEL ATTRITION BY HOUSEHOLD SIZE

WAVE 1		HOUSEHOLD SIZE				TOTAL
		0	1	2	3+	
BASELINE PANEL	<i>Count</i>	188	384	175	253	1,000
	<i>Row %</i>	18.8	38.4	17.5	25.3	100.0
WAVE 3 PANEL	<i>Count</i>	64	129	49	101	343
	<i>Row %</i>	18.7	37.6	14.3	29.4	100.0

TABLE E2: PANEL MEMBERS AND PANEL ATTRITION BY HOUSEHOLD VEHICLES

WAVE 1		HOUSEHOLD VEHICLES				TOTAL
		0	1	2	3+	
BASELINE PANEL	<i>Count</i>	4	225	532	239	1,000
	<i>Row %</i>	0.4	22.5	53.2	23.9	100.0
WAVE 3 PANEL	<i>Count</i>	0	82	185	76	343
	<i>Row %</i>	0.0	23.9	53.9	22.2	100.0

TABLE E3: PANEL MEMBERS AND PANEL ATTRITION BY EDUCATION

WAVE 1		EDUCATION					TOTAL
		High School or less	Some college, trade / voc.	Graduated with a BA / BS	Graduated beyond BA / BS	Refused	
BASELINE PANEL	<i>Count</i>	100	220	399	279	2	1,000
	<i>Row %</i>	10.0	22.0	39.9	27.9	0.2	100.0
WAVE 3 PANEL	<i>Count</i>	31	72	126	114	0	343
	<i>Row %</i>	9.0	21.0	36.7	33.2	0.0	100.0

TABLE E4: PANEL MEMBERS AND PANEL ATTRITION BY AGE

WAVE 1		AGE						TOTAL
		18-34	35-44	45-54	55-64	65+	Refused	
BASELINE PANEL	<i>Count</i>	179	209	258	199	153	2	1,000
	<i>Row %</i>	17.9	20.9	25.8	19.9	15.3	0.2	100.0
WAVE 3 PANEL	<i>Count</i>	34	73	104	72	60	0	343
	<i>Row %</i>	9.9	21.3	30.3	21.0	17.5	0.0	100.0

TABLE E5: PANEL MEMBERS AND PANEL ATTRITION BY EMPLOYMENT

WAVE 1		EMPLOYMENT						TOTAL
		Employed full or part time	Homemaker	student full or part time	Retired	Disabled	Unemployed	
BASELINE PANEL	<i>Count</i>	813	153	40	161	14	18	1,199
	<i>Row %</i>	67.8	12.8	3.3	13.4	1.2	1.5	100.0
WAVE 3 PANEL	<i>Count</i>	276	50	8	59	5	7	405
	<i>Row %</i>	68.1	12.4	2.0	14.6	1.2	1.7	100.0

Multiple response table base on percent responses

TABLE E6: PANEL MEMBERS AND PANEL ATTRITION BY FULL OR PART TIME EMPLOYMENT STATUS

WAVE 1		FULL OR PART TIME EMPLOYMENT			TOTAL
		Part time, less than 30-hours	Full time, 30-hours or more	Don't Know	
BASELINE PANEL	<i>Count</i>	119	692	2	813
	<i>Row %</i>	14.6	85.2	0.2	100.0
WAVE 3 PANEL	<i>Count</i>	40	236	0	276
	<i>Row %</i>	14.4	85.6	0.0	100.0

TABLE E7: PANEL MEMBERS AND PANEL ATTRITION BY HH WORKERS

WAVE 1		COLLAPSED HOUSEHOLD WORKERS				TOTAL
		0	1	2	3+	
BASELINE PANEL	<i>Count</i>	128	350	434	88	1,000
	<i>Row %</i>	13.1	35.0	43.4	8.5	100.0
WAVE 3 PANEL	<i>Count</i>	52	117	145	29	343
	<i>Row %</i>	16.0	34.1	42.3	7.6	100.0

TABLE E8: PANEL MEMBERS AND PANEL ATTRITION BY HOUSING TENURE

WAVE 1		HOUSING TENURE				TOTAL
		Own	Rent	Other	Refused	
BASELINE PANEL	<i>Count</i>	851	134	12	3	1,000
	<i>Row %</i>	85.1	13.4	1.2	0.3	100.0
WAVE 3 PANEL	<i>Count</i>	313	29	1	0	343
	<i>Row %</i>	91.3	8.5	0.2	0.0	100.0

TABLE E9: PANEL MEMBERS AND PANEL ATTRITION BY LICENSED DRIVERS

WAVE 1		LICENSED DRIVERS IN HOUSEHOLD				TOTAL
		0	1	2	3+	
BASELINE PANEL	<i>Count</i>	3	232	606	159	1,000
	<i>Row %</i>	0.3	23.2	60.6	15.9	100.0
WAVE 3 PANEL	<i>Count</i>	0	80	209	54	343
	<i>Row %</i>	0.0	23.3	60.9	15.8	100.0

TABLE E10: PANEL MEMBERS AND PANEL ATTRITION BY HOUSEHOLD INCOME

WAVE 1		HOUSEHOLD INCOME							TOTAL	
		Less than \$30k	\$30k to Less than \$50k	\$50k to Less than \$75k	\$75k to Less than \$100k	\$100k to Less than \$125k	\$125k to Less than \$150k	\$150k or More		Refused
BASELINE PANEL	<i>Count</i>	56	111	161	212	132	76	130	122	1,000
	<i>Row %</i>	5.6	11.1	16.1	21.2	13.2	7.6	13.0	12.2	100.0
WAVE 3 PANEL	<i>Count</i>	19	50	61	77	60	28	48	0	343
	<i>Row %</i>	5.5	14.6	17.8	22.4	17.5	8.2	14.0	0.0	100.0

TABLE E11: PANEL MEMBERS AND PANEL ATTRITION BY GENDER

WAVE 1		GENDER		TOTAL
		Male	Female	
BASELINE PANEL	<i>Count</i>	535	465	1,000
	<i>Row %</i>	53.5	46.5	100.0
WAVE 3 PANEL	<i>Count</i>	197	146	343
	<i>Row %</i>	57.4	42.6	100.0