

HUMPHREY INSTITUTE OF PUBLIC AFFAIRS,
UNIVERSITY OF MINNESOTA

**MNPASS EVALUATION
ATTITUDINAL PANEL SURVEY
WAVE 2**

Final Report

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NuStats

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TABLE OF CONTENTS

1. Executive Summary	i
1.1 Purpose of the Attitudinal Panel Survey	i
1.2 Attitudinal Panel Survey Methods	i
1.3 Key Findings	ii
1.4 Conclusions and Next Steps	iii
2. Attitudinal Panel Evaluation Methods	1
2.1 MnPASS Attitudinal Panel Evaluation: Significance, Description and Goals	1
2.2 Baseline (Wave 1) Survey 2004	1
2.3 Wave 2 Survey 2005	2
3. Trends: Attitudes about MnPASS	9
3.1 MnPass Acceptance	9
3.2 MnPass Awareness	11
3.3 Opinions about Traffic Congestion, Safety, and Noise	12
4. MnPASS Customers	14
4.1 Satisfaction with MnPASS Operations Among All Paying MnPASS Users	14
4.2 Satisfaction with MnPASS Operations Among All MnPASS Lane Users	17
4.3 Satisfaction with MnPASS Operations by Transponder Ownership	19
4.4 Satisfaction with MnPASS Operations by Transit Use	21
4.5 Transponder Interest	23
4.6 Customer Accounts	26
4.7 MnPASS Lane Usage	27
5. Social Equity Issues	29
5.1 MnPASS Acceptance	29
5.2 Satisfaction with Current Travel Experiences	33
5.3 MnPASS Lane Usage	36
5.4 Demographic Profiles of Transponder Owners	37
6. Impacts: Travel Behavior	40
6.1 Traveling Experience	40
6.2 Travel Mode	43
6.3 Roadway Used	46
6.4 Volume of Travel	49
6.5 Travel Experiences of MnPASS Users versus Non-Users	50
6.6 Travel Profiles of Transponder Owners and Transponder Non-Owners	53

7. Conclusions	57
7.1 Key Findings	57
7.2 Design and Fieldwork	58
Appendix A: Advance Letter	60
Appendix B: Travel Log	61
Appendix C: Survey Instrument	62
Appendix D: Panel Attrition Analysis	63
Appendix E: Panel Demographics	67



LIST OF TABLES AND FIGURES

Table 2.1: Completion Rates by Sample Type	5
Table 2.2: Detailed Panel Sample Outcomes	6
Table 2.3: Major Fieldwork Indicators	7
Table 2.4: Final Sample Dispositions	7
Table 3.1: Perception of Allowing SOV to Use Carpool Lane by Paying Toll	9
Table 3.2: Perception of Operating MnPASS 24-hours per Day	10
Table 3.3: Perception of Peak / Off Peak Toll Hours	10
Table 3.4: MnPass Project Awareness	11
Table 3.5: Opinions about Traffic Congestion in the Twin Cities	12
Table 3.6: Opinions about Impact of MnPASS on Traffic Congestion	12
Table 3.7: Opinions about Impact of MnPASS on Traffic Safety	13
Table 3.8: Opinions about Impact of MnPASS on Noise Levels	13
Table 4.1: Satisfaction with All Electronic Operations	14
Table 4.2: Satisfaction with Using Credit Card to Automatically Replenish Account	14
Table 4.3: Satisfaction with the Ease of Opening a Pre-Paid MnPASS Account	15
Table 4.4: Satisfaction with the Ease of Installing the MnPASS Transponder	15
Table 4.5: Satisfaction with the Clarity of Prices on Overhead Signs	15
Table 4.6: Satisfaction with the Toll Amounts that Vary with Traffic Levels	16
Table 4.7: Satisfaction with the MnPASS Website	16
Table 4.8: Satisfaction with the Staff at the Customer Service Center	16
Table 4.9: Satisfaction with the Speed of Traffic Flow in the MnPASS Lanes	17
Table 4.10: Satisfaction with Ease of Identifying the MnPASS Entry Points	18
Table 4.11: Satisfaction with the Safety of Merging into the MnPASS Lanes	18
Table 4.12: Satisfaction with the Enforcement of MnPASS Usage	18
Table 4.13: Satisfaction with the Speed of Traffic Flow in the MnPASS Lanes	19
Table 4.14: Satisfaction with Ease of Identifying the MnPASS Entry Points	20
Table 4.15: Satisfaction with the Safety of Merging into the MnPASS Lanes	20
Table 4.16: Satisfaction with the Enforcement of MnPASS Usage	21
Table 4.17: Satisfaction with the Speed of Traffic Flow in the MnPASS Lanes	21
Table 4.18: Satisfaction with Ease of Identifying the MnPASS Entry Points	22
Table 4.19: Satisfaction with the Safety of Merging into the MnPASS Lanes	22
Table 4.20: Satisfaction with the Enforcement of MnPASS Usage	23
Table 4.21: MnPASS Subscribers	23
Table 4.22: Reasons For Non-Purchase of Transponders	25
Table 4.23: Month of Transponder Purchase (Calendar Year 2005)	26
Table 4.24: Transponders Per Household	26

Table 4.25: Method of Opening MnPASS Account	27
Table 4.26: How is Your MnPASS Account Paid?	27
Table 4.27: Primary Mode for I-394 Travel During Assigned Week	28
Table 4.28: MnPASS Lane Usage (by sample type)	28
Table 4.29: Most Frequently Mentioned Mode of MnPASS Use (by sample type)	28
Table 5.1: Reasons “Good Idea” by Household Income	30
Table 5.2: Reasons “Bad Idea” by Household Income	30
Table 5.3: Reasons “Good Idea” by Usual Travel Mode	32
Table 5.4: Reasons “Bad Idea” by Usual Travel Mode	32
Table 5.5: Transponder Ownership by Person Characteristics	38
Table 5.6: Transponder Ownership by Household Characteristics	39
Table 6.1: Congestion Delay on Reference Trip	40
Table 6.2: Satisfaction with Travel on Reference Trip	41
Table 6.3: Travel Experience on I-394 during Reference Trip	42
Table 6.4: Current “Usual” Travel Mode	43
Table 6.5: Comparability of Reported Wave 1 and Wave 2 Reference Trips	44
Table 6.6: Current “Reference Trip” Travel Mode	44
Table 6.7: Usual Travel Mode	45
Table 6.8: Change in Usual Mode of Travel (Wave 1 to Wave 2)	45
Table 6.9: Mean Volume of Trips Monday - Friday, 6am - 9pm, Wave 2 Assigned Week	49
Table 6.10: Trip Characteristics of MnPASS Users and Non-Users	50
Table 6.11: Mean Volume of Trips Monday - Friday, 6 am – 9 pm, Wave 2 Assigned Week	53
Table D1: Panel Members and Panel Attrition by Household Size	63
Table D2: Panel Members and Panel Attrition by Household Vehicles	63
Table D3: Panel Members and Panel Attrition by Education	63
Table D4: Panel Members and Panel Attrition by Age	64
Table D5: Panel Members and Panel Attrition by Employment	64
Table D6: Panel Members and Panel Attrition by Full or Part Time Employment Status	64
Table D7: Panel Members and Panel Attrition by HH Workers	65
Table D8: Panel Members and Panel Attrition by Housing Tenure	65
Table D9: Panel Members and Panel Attrition by Licensed Drivers	65
Table D10: Panel Members and Panel Attrition by Household Income	66
Table D11: Panel Members and Panel Attrition by Gender	66
Table E1: Panel Members and Panel Attrition by Household Size	67
Table E2: Panel Members and Panel Attrition by Household Vehicles	67
Table E3: Panel Members and Panel Attrition by Education	67
Table E4: Panel Members and Panel Attrition by Age	67

Table E5: Panel Members and Panel Attrition by Employment	68
Table E6: Panel Members and Panel Attrition by Full or Part Time Employment Status	68
Table E7: Panel Members and Panel Attrition by HH Workers	68
Table E8: Panel Members and Panel Attrition by Housing Tenure	68
Table E9: Panel Members and Panel Attrition by Licensed Drivers	69
Table E10: Panel Members and Panel Attrition by Household Income	69
Table E11: Panel Members and Panel Attrition by Gender	69
Figure 3.1: What Respondents Knew about I-394 MnPASS Project [Open-Ended]	11
Figure 4.1: Comparison of Satisfaction Levels For Various MnPASS Aspects among Paying MnPASS Users	17
Figure 4.2: Comparison of Satisfaction Levels For Various MnPASS Aspects among All MnPASS Users	19
Figure 4.3: MnPASS Purchase Intent Among Non-Subscribers	24
Figure 4.4: MnPASS Purchase Intent Among Panel and Transit Users	24
Figure 5.1: Opinion on Allowing Single Drivers to Use Carpool Lanes by Household Income	29
Figure 5.2: Opinion on Allowing Single Drivers to Use Carpool Lanes by Usual Travel Mode	31
Figure 5.3: Satisfaction with Quality of Reference Trip by Household Income	33
Figure 5.4: Opinion on Reference Trip Experience by Household Income	34
Figure 5.5: Opinion on Congestion in MnPASS Lanes during Reference Trip by Household Income	34
Figure 5.6: Opinion on Congestion in General Traffic Lanes during Reference Trip by Household Income	35
Figure 5.7: Satisfaction with Quality of Reference Trip By Reference Trip Mode	35
Figure 5.8: Opinion on Reference Trip Experience by Reference Trip Mode	36
Figure 5.9: Use of MnPASS Lanes by Household Income	36
Figure 5.10: Mode of MnPASS Use by Income	37
Figure 6.1: Satisfaction with Travel on Reference TRIP BY Use of MnPASS Lanes	41
Figure 6.2: Travel Experience on Reference TRIP BY Use of MnPASS Lanes	43
Figure 6.3: Mode Switching Behavior by Corridor (Wave 1 to Wave 2)	46
Figure 6.4: Roadways Used Monday - Friday, 6am - 9pm, Assigned Week	47
Figure 6.5: Roadway Used Most Frequently Monday - Friday, 6 am – 9 pm, Assigned Week	48
Figure 6.6: Type of Roadway used Monday - Friday, 6 am – 9 pm, Wave 2 Assigned Week	48
Figure 6.7: I-394 Roadway / Lanes Used Monday - Friday, 6 am – 9 pm, Wave 2 Assigned Week	50
Figure 6.8: Congestion in MnPASS Lane and General Traffic Lanes	51
Figure 6.9: Travel Experience for Reference Trip of MnPASS Lane Users and Non-Users	51

Figure 6.10: Satisfaction with Reference Trip	52
Figure 6.11: Perceived Value of MnPASS Toll	52
Figure 6.12: Merging Problems on Reference Trips	53
Figure 6.13: Usual Mode of Travel Monday - Friday, 6 am – 9 pm, Wave 2 Assigned Week	54
Figure 6.14: Familiarity with Traffic Conditions Related to Reference Trip	55
Figure 6.15: Change in Typical Departure Time Related to Reference Trip	55
Figure 6.16: Satisfaction with Reference Trip	56



1. EXECUTIVE SUMMARY

This report documents the methods and results of the second wave of data collection for the I-394 MnPASS Evaluation Attitudinal Panel Survey (hereafter referred to as the Attitudinal Panel Survey). The Wave 2 survey, conducted during November and December 2005, occurred one year subsequent to the first wave and about six months into the implementation of the I-394 MnPASS Express Lane project. NuStats conducted a total of 950 interviews. 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

In May 2005, the I-394 MnPASS Express Lane project began allowing solo drivers to pay a fee to use a 12-mile stretch of carpool lanes between downtown Minneapolis and the western suburbs. While solo drivers pay to use the MnPASS lanes, carpoolers and bus riders may use the lanes free of charge. This combination of free high occupancy vehicle use and priced solo drivers use is generally referred to as high occupancy toll (HOT) lanes. The I-394 MnPASS Express Lanes are divided into two segments for operations and pricing: (1) east of Hwy 100 to downtown Minneapolis and (2) west of Hwy 100 to Hwy 101. The per-trip fee depends on where users enter and exit the MnPASS Express Lanes. The fee is posted on changeable message signs located just before entrances to MnPASS lanes. The per-trip fee is also variable, depending on the real-time traffic levels to make sure that traffic flows at about 50 to 55 miles per hour. The per-trip fees 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 I-394 MnPASS Express Lane project represents a dynamic form of voluntary congestion pricing, where solo drivers can choose to pay to reduce their travel time, and the payment is related to the level of congestion. The project is the first of its kind in Minnesota, and is a new and significant change in highway management. Because of this, it requires a comprehensive monitoring and evaluation plan to inform political, technical, and market demand issues. The Attitudinal Panel Survey measures the attitudinal and reported behavioral responses of corridor travelers before and after the implementation of the I-394 MnPASS project.

1.2 ATTITUDINAL PANEL SURVEY METHODS

Survey panels are made up of individuals who are pre-recruited to participate on a more or less predictable basis in surveys over a period of time. The first wave of the Attitudinal Panel Survey was conducted in November / December 2004, prior to I-394 MnPASS Express Lane implementation. In it, 980 respondents were recruited through the use of probability-based sampling and agreed to a second and third wave of interviewing. The second wave of the panel was conducted in November / December 2005, about six months into MnPASS implementation. The start of the second wave was delayed three months to avoid surveying during construction of an auxiliary lane outbound on a section of the MnPASS lanes (i.e., MN100 to US169) to deal with a contra-peak congestion issue.

In addition to the 980 Wave 1 respondents who agreed to participate in the panel, two additional sample types were targeted for inclusion in the Wave 2 Attitudinal Panel Survey – transit users and MnPASS subscribers. The Wave 2 survey materials included a pre-notification letter, Travel Log, and a telephone survey instrument. The telephone instrument was a slightly modified version of the Wave 1 telephone instrument.

A total of 950 respondents completed Wave 2 interviews. Of these, 549 were panel members (interviewed in both Waves 1 and 2), 151 were MnPASS subscribers, and 250 were transit users. The Wave 2 panel experienced an attrition rate of 44% of Wave 1 respondents. Analyses revealed that people “lost” to the panel tended to be renters and age 34 or younger. This outcome is not surprising given that fact that such persons tend to be more mobile, making them difficult to locate and otherwise non-qualified to have participated in a Wave 2 interview. For the other demographic or attitudinal characteristics measured, no significant differences were found between those that were lost to the panel and those that remained.

1.3 KEY FINDINGS

- Support for the idea of allowing single drivers to use carpool lanes by paying a fee remained high after MnPASS implementation (59% “good idea” versus 29% “bad idea”).
 - Approval was consistent across all income groups – 71% higher income, 60% middle income, and 62% lower-income.
 - Sixty-four percent of carpoolers were supportive of the MnPASS concept and 29% thought it was a “bad idea,” and 45% of transit users were supportive, whereas 39% thought it was a “bad idea.”
- MnPASS lane users represented a broad market – 87% used the MnPASS lanes as a carpooler, 7% as a single driver, and 4% as a bus rider.
 - MnPASS usage was reported across all income levels – 66% higher income, 62% middle income, and 54% lower income.
 - While transponder owners tend to be higher educated, higher income, middle-aged adults, transponder ownership cuts across all income levels, age groups, educational attainment levels, and gender.
- Users, regardless of whether they are paying or not, were very satisfied with MnPASS operations.
 - The highest measures of satisfaction were with the speed of traffic flow in the MnPASS lane (85% satisfaction), and the lowest levels were with the enforcement of MnPASS usage (45%).
 - Safety did not surface as a major issue, with 76% reporting satisfaction with the ease of identifying the MnPASS entry points, and 66% satisfied with the safety of merging into the MnPASS lanes.
 - Thirteen percent of MnPASS users did experience problems merging into the MnPASS lane from the general traffic lane, but the majority placed the responsibility for the problem on congestion or rude drivers rather than operational aspects of the lanes.
 - Paying MnPASS subscribers were exceptionally satisfied with details of having a MnPASS subscription as well as with MnPASS communications (i.e., Customer Service Center staff or the website).
- The implementation of MnPASS has not had a negative impact on carpooling on I-394 nor on traveling experiences on I-394.
 - The current mode share was comparable to pre-implementation distributions – 76% drive alone, 23% carpool, and 1% ride bus.

- The percentage of I-394 panelists reporting a congestion delay fell from 38% in 2004 to 28% in 2005.
- Satisfaction with the overall quality of travel on I-394 rose, from 36% being 100% satisfied in 2004 to 46% reporting 100% satisfaction in 2005 (among I-394 panelists).
- The percentage that rated travel on I-394 “enjoyable” after MnPASS (61%) was higher than before MnPASS (50%).
- MnPASS lane users considered the MnPASS toll a good value.
 - Seventy-one percent said the toll paid was “just right.”
 - The mean value of time estimated for Wave 2 (\$10.50 per hour) was higher than that captured in Wave 1 (\$8.50 per hour), indicating that now that MnPASS is operating, people are more willing to pay a higher toll to avoid congestion.

1.4 CONCLUSIONS AND NEXT STEPS

Overall approval and satisfaction with the I-394 MnPASS Express Lane project is strong and broad. Six-to-seven out of ten believed that allowing single drivers to use carpool lanes by paying a toll was a good idea. Support was almost as strong among lower income households as it was among higher income households. Satisfaction among users with MnPASS operations, subscription elements, and communications is high – whether users are paying (SOVs) or not (carpoolers and bus riders). Users do not appear to be having a difficult time entering and exiting the MnPASS lanes. Almost nine out of ten reported having no problems with merging into the tolled lanes. Most users felt that paying the MnPASS toll to avoid congestion was a good value.

The third wave of the Attitudinal Panel Survey is scheduled for May 2006. Eighty-nine percent of the 950 Wave 2 respondents agreed to be interviewed in the next wave. These respondents will receive a postcard thanking them for their participation. Planning will soon begin for the third wave of data collection. The sample will be refreshed with a larger sample of randomly sampled users of the I-394 and I-35W corridors. Finally, the survey team will identify ways to increase the efficiency of the Wave 3 survey instrument to maximize survey participation.



2. ATTITUDINAL PANEL EVALUATION METHODS

This chapter begins with a brief description of the MnPASS Panel Evaluation, including its significance and goals. It then goes on to review the objectives and outcomes of the baseline survey, followed by a more detailed description of the Wave 2 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 allowed solo drivers to pay a fee to use carpool lanes to avoid a congested stretch of I-394, from Highway 101 to I-94. Because the project's goal was (and remains) to improve the efficiency of the MnPASS lanes by increasing the person and vehicle throughput, it was critical to maintain free flow conditions at all times. To do so, fees charged change dynamically to reflect changing traffic volumes in the carpool lanes, and electronic toll collection (ETC) is used. The project required a comprehensive monitoring and evaluation plan to inform political, technical, and market demand issues. The Attitudinal Panel Survey was one component of this comprehensive evaluation.

The Attitudinal Panel Survey measures the attitudes, perceptions, and reported travel behaviors of panel members. The following information objectives were measured:

- Attitudes toward the HOT lanes and the toll system, including value pricing acceptance, equity, and perceptions of success in congestion management,
- Perceptions of performance of HOT lanes in terms of reliability and safety,
- Perceptions of performance of toll systems in terms of ease of payment, payment conditions, and enforcement,
- Changes in travel behavior in terms of time of day, frequency of travel, and route of travel,
- Characteristics of toll users, and
- Changes in mode split to measure if HOT lanes encourage more HOV use.

The baseline also served to establish a sample base for the conduct of future waves, in addition to testing the survey instrument for use in future waves.

2.2 BASELINE (WAVE 1) SURVEY 2004

Data collection for the Baseline Attitudinal Panel Survey was completed between November 19, 2004 and December 17, 2004, prior to the opening of the I-394 MnPASS express lanes. No interviews were conducted during the Thanksgiving holidays (November 24-27). 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. Segments of each corridor were specifically designated as follows:

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

Respondents eligible for inclusion in the Baseline Attitudinal Panel Survey included individuals 18 years of age or older who had traveled along one of the target road segments (I-394, Hwy 55, I-35W, or Hwy 77) between 6 am and 9 pm at least once in the five days prior to the administration of the Baseline questionnaire. A total of 750 users of the I-394 corridor and 250 users of the control corridor (I-35W) were interviewed. Nearly all of the 1,000 respondents (980) agreed to participate in future waves, thus forming the base panel sample for the Wave 2 Attitudinal Panel Survey.

Respondent eligibility rates averaged approximately 70% and the average interview length was just under 19 minutes. An overall response rate of 66% was achieved. In March of 2005, postcards were sent to panel members reminding them of their prior consent to being interviewed for Wave 2 of the Attitudinal Panel Survey.

2.3 WAVE 2 SURVEY 2005

Objectives

The objectives of the Wave 2 Attitudinal Panel Survey focused on the following issues:

- 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, and
- Impacts on travel behavior as a result of MnPASS.

The Wave 2 Attitudinal Panel Survey also served to establish a sample base for the conduct of Wave 3, the final wave of the Attitudinal Panel Survey.¹

Sampling Approach

In addition to the 980 Baseline respondents who agreed to participate in the panel, NuStats targeted two supplementary sample types for inclusion in the Wave 2 Attitudinal Panel Survey – transit users and MnPASS subscribers (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 to NuStats by Metro Transit. The list contained name, address and contact information for 8,600 regional transit users. NuStats 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. To maximize dialing efficiency, the entire sample was processed by partitioning it into 21 replicates, or subsamples, which, on average, included 130 sample records. Each replicate contained a proportional amount of records from each sample type.

¹ The objectives of both Wave 1 and Wave 2 were not mutually exclusive. That is to say, the Wave 2 objectives were implicit in Wave 1.

Survey Materials

The Wave 2 survey materials included a pre-notification packet and a telephone survey instrument (see samples in Appendices A - C). The pre-notification packet² included a letter prepared on letterhead of the 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. 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.

The telephone instrument was a slightly modified version of the baseline 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.³ The Wave 2 instrument differed from the Baseline instrument in the following aspects:

- Addition of separate and distinct introductions and screening criteria for panel and non-panel (subscribers and transit users),
- Capture of any changes in panel household demographics since the Baseline survey,
- Inclusion of subscriber-specific questions (e.g., number of transponders owned and transponder account information),
- Inclusion of transit user-specific questions (e.g., level of importance of potential transit related improvements),
- Replacement of general toll lane references with MnPASS references, and
- Addition of MnPASS-related questions in the reference trip section.

Stated preference (SP) questions were used to measure respondents' likelihood of using the HOT lane as a function of the toll level and time savings. The questions were asked of all 412 respondents whose reference trip was made as a solo driver on the I-394. The introduction and wording of the questions is shown below.

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, 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.

[Either VERSION 1]

If you were to use the general traffic lanes on I-394, your trip would take $TT+Y$ minutes and be free. If you were to use the toll lane, you would pay $\$X$ and your trip would take TT minutes, saving Y minutes. Now under these conditions, which would you choose to do?

Use the toll lane, pay $\$X$ and save Y minutes	001
Use the general lane for free	002

² Prior to mailing, both the advance letter and travel log were tested during cognitive interviews held at the MnPASS Customer Service Center the week of 10/10/2005.

³ Demographic items were asked of the new sample only – MnPASS subscribers and transit users.

[or VERSION 2]

If you were to use the toll lane on I-394, you would pay \$X and your trip would take *TT* minutes. If you were to use the general lanes, your trip would take *TT+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	002
Use the toll lane, pay \$X and save Y minutes	001

Method A (Trade-off Analysis). First, each person received four different scenarios, each with a different amount of time savings ($Y = 5, 10, 15$ or 20 minutes) and toll ($X = 50$ cents, \$1, \$2, \$3, \$4, \$5, \$6 or \$7). (The value “TT” used for the tolled lane was based on the respondent’s estimate of their travel time with no congestion.) 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 (9×4) different scenarios were used, each identifying a different time / cost tradeoff point. Also, to avoid bias due to ordering effects, each respondent was randomly assigned one of two versions of presenting the toll and non-toll options.

Method B (Price Meter). Next, the same type question was asked using the “price meter” approach. 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 (from Method A) was asked. If the person said they would pay the toll, a higher price point was chosen at random, and if they 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. Note that from the respondents’ perspective, there was no obvious difference between the Method A and Method B SP questions—both sets of questions used virtually identical wording.

Fieldwork Process

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. If a new address was provided by the postal service for the panel member, the contact information was updated in the mail database 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 dialing the 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.

Data collection for the Wave 2 Attitudinal Panel Survey was completed between November 14, 2005, and January 11, 2006. A total of 21 interviewers participated in data collection over this time period, many of whom also participated in the Baseline Attitudinal Panel Survey; dialing times ran from 4 pm – 9 pm during weekdays and 11 am – 7 pm on Saturdays and Sundays. No interviews were conducted during the Thanksgiving holiday (November 24 to 25), nor the Christmas / New Years holiday (December 24, 2005, to January 2, 2006).

The interviewing process was organized to ensure that respondents would receive the pre-notification packet a few days prior to the start of the assigned travel week (i.e., travel weeks started on Monday), and that the first contact to retrieve their travel information was subsequent to the last day of their assigned travel week (i.e., travel weeks ended on Friday). Assigned travel weeks began the first week in November. The week prior to each assigned travel week, all sample replicates for that assigned travel week were sent to the call center for mailing of the pre-notification packet. Phone sample was delivered to the call center the Friday ending the assigned travel week, and dialing to collect travel information began the following Monday. Respondents who reported not receiving their advance mail packet were rescheduled to a future travel week and re-mailed the pre-notification packet. Respondents reporting zero-trips during their assigned travel week were rescheduled to a future travel week, with their consent.

For the 70 “failed delivery” records noted above, the panel members were “cold called” during the assigned travel week and administered the interview, during which they were asked to reconstruct (from memory) their travel behavior for their assigned travel week. If they were unable to do so, or they did not take trips that matched their reference trip, their correct address information was collected and they were re-scheduled to a future travel week. These actions were taken to maximize participation given a finite number of panel respondents from which valid travel data could be collected, but at the same time, lengthened the data collection period.

Another action taken to maximize participation among panel members included the decision to conduct “short completes” with respondents who reported zero-trips. These short completes collected data identical to the regular complete, minus the reference trip and stated preference information. Short completes were only conducted after the point at which rescheduling was unfeasible due to the data collection deadline. Using this method, an additional 137 surveys were conducted with respondents who would previously have been determined non-qualified. To accommodate these short completes, data collection was extended into 2006.

Data Collection Outcomes

A total of 950 respondents completed Wave 2 interviews. Of these, 549 were panel members (interviewed in both the Baseline and Wave 2), 151 were MnPASS subscribers, and 250 were transit users.

TABLE 2.1: COMPLETION RATES BY SAMPLE TYPE

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

Table 2.2 provides additional detail on the panel sample. We were able to contact and complete interviews with 56% of the Baseline respondents (i.e., members of the panel). No differences were observed in the completion rates between the treatment (I-394) and control (I-35W) panel samples. So 44% of the Baseline respondents were not interviewed in Wave 2. This 44% breaks down as follows. Of the Baseline respondents, 15% of the I-394 panel and 13% of the I-35W panel refused to be interviewed in Wave 2. Approximately one-tenth (12%) were not qualified to be interviewed (i.e., indicated they no longer used the corridor, did not make any trips on their assigned corridor during their assigned travel period or would soon be changing their place of residence). Nine percent (9%) were “reschedules or call backs” for which the follow-up contact was never achieved. For about 8%, the sampled telephone numbers were no longer working residential numbers.

TABLE 2.2: DETAILED PANEL SAMPLE OUTCOMES

DISPOSITION	PANEL			
	I-394		I-35W	
Interviewed				
Long Complete	314	43%	98	40%
Short Complete	99	13%	38	16%
Subtotal	413	56%	136	56%
Not Interviewed				
Refuse	112	15%	32	13%
Not Qualified	85	12%	31	13%
Contact made – no interview ⁴	75	9%	23	9%
Disconnect / Business / Fax ⁵	51	8%	22	9%
Subtotal	323	44%	108	44%
Total	736	100%	244	100%

Because of the panel attrition, an analysis was conducted in which the demographic characteristics of respondents participating in both the Baseline and Wave 2 interviews were compared to respondents who agreed to participate in Wave 2, but did not complete a Wave 2 interview. These comparative tables are included as Appendix D to this report. The analysis revealed that persons “lost” to the panel tended to be renters and age 34 or younger. This outcome is not surprising given that 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 the other demographic characteristics measured, no significant differences were found among those that were lost to the panel and those that remained.

It is important to note that 89% of the 950 Wave 2 respondents (or 847 persons) agreed to be re-contacted in the final phase (Wave 3) of the Attitudinal Panel Survey. Of the 549 panel members, 88% (or 482 persons) agreed to be re-contacted for the final phase of the Attitudinal Panel Survey.

According to Table 2.3 on the next page, completion rates were much higher among panel members than among MnPASS subscribers or transit users. This outcome is due to the greater level of effort that was put into re-contacting panel members than was put into making initial contact with either subscribers or transit members sample records. On average, panel members were contacted 8 times, whereas a non-panel member was contacted an average of 6 times.⁶

If one excludes sample records that resulted in a completed interview for this analysis, the number of attempts per record increases to 11 for panel records. Furthermore, toward the end of the survey, once subscriber and transit quotas were met, eligibility requirements were made less stringent for panel members in an attempt to capture “short completes.”

⁴ These were reschedules or call-backs for which the follow-up contact was not achieved.

⁵ These sample numbers were called multiple times to verify outcome.

⁶ This takes into account attempts made on all sample records, not just sample records that resulted in completed interviews.

TABLE 2.3: MAJOR FIELDWORK INDICATORS

SAMPLE TYPE	AVERAGE INTERVIEW LENGTH	AVERAGE ATTEMPTS PER COMPLETE
I-394 Panel	17.4	5.5
I-35W Panel	14.0	6.4
MnPASS Subscribers	21.1	3.9
Transit Users	16.9	4.0

Table 2.4 presents the final sample dispositions for all 2,563 pieces of sample (i.e., panel, MnPASS subscribers, and transit lists) dialed for Wave 2 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 65%.

TABLE 2.4: FINAL SAMPLE DISPOSITIONS

SAMPLE DISPOSITION	TOTAL	
	COUNT	PERCENT
Ineligible	577	23%
Not Qualified (changing jobs, no trips, moving, does not use corridor, language barrier)	359	14%
Disconnected Phone	202	8%
Business/ Fax/ Modem	16	<1%
Unknown Eligibility, Non-Interview	1,029	40%
Answering Machine / Caller ID	393	15%
Hang Up / Refused (prior to screening)	400	16%
Ask for Callback (prior to screening)	133	6%
No Answer / Busy	64	2%
Rescheduled -- Pre-Notification Package Never Received	33	1%
Rescheduled -- Zero-Trips	6	<1%
Eligible	957	37%
Complete	950	37%
Partial Complete	7	<1%
Total Sample	2,563	100%

Data Analysis

The final data were prepared as two SPSS databases. One database contained all of the variables comprising the Wave 2 final data file, representing all 950 respondents. The second database contained Baseline and Wave 2 data representing the 549 panel members only. The file variables in both data sets are identified by variable name. For each file variable, the File Information contains:

- Label, which is a brief description of the variable,
- Value labels, which identify the response codes, and
- Column width and alignment.

The analyses conducted with this data file were primarily descriptive – to determine current attitudes and behaviors of the sampled respondents, as well as to assess trends and changes within the panel. A logit regression analysis was conducted to model transponder ownership. The stated preference data were analyzed by estimating logit discrete choice models.

It should be noted that the datasets contain computed variables that were created during the analysis. For instance, about 19% of respondents did not report their household income. For this reason, we imputed income for missing records using the hot deck approach⁷ utilizing a combination of employment, education and age, and included this variable in addition to reported income.

⁷ For information on this approach, see <http://stats.oecd.org/glossary/detail.asp?ID=3417>.



3. TRENDS: ATTITUDES ABOUT MNPASS

This section examines trends in attitudes about MnPASS by comparing responses to attitude, opinion, and knowledge questions among the 549 panel members who answered these questions both in November / December 2004 (Wave 1) and November / December 2005 (Wave 2).

3.1 MNPASS ACCEPTANCE

Acceptance of the MnPASS concept among panel members had not changed significantly between the Wave 1 and Wave 2 interviews (61% versus 59%, respectively). In 2005, about six out of ten respondents (59%) indicated that allowing single drivers to use the carpool lanes by paying a toll was a good idea. The main reason that panel members thought it was good idea was that it was a better use of carpool lanes (representing 23% of all panel members).⁸ Other frequently mentioned reasons included adds capacity to roadway (17%), saves time for busy people and only users pay not everyone (10% each), time is money (6%), eases congestion (5%), and toll used during peak hours (3%).

About three out of ten respondents thought it was a bad idea. The main reason that panel members thought it was a bad idea was because “it only benefits the rich” (representing 9% of all panel members). Other frequently mentioned reasons included carpool lanes should be free for all (6%), it’s inefficient (4%), carpool lanes should only be used for carpools (3%), gives too much money to the road agency (3%), carpools are not encouraged (2%), and will not work (2%).

While the aggregate percentages on this opinion question did not change significantly from 2004 to 2005, there was shifting of opinions within the panel. Two-thirds of the panel answered similarly in 2004 and 2005, but slightly more than one-fourth shifted their stance in the intervening year. Almost equal numbers switched from good idea to bad idea (10%) or bad idea to good idea (10%). Another 5% shifted from no opinion in 2004 to good idea in 2005, whereas 2% shifted from no opinion to bad idea.

TABLE 3.1: PERCEPTION OF ALLOWING SOV TO USE CARPOOL LANE 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)
Good Idea	334	61%	323	59%
Bad Idea	157	28%	158	29%
No Opinion	58	11%	68	12%
Total	549	100%	549	100%

Acceptance of a 24-hour operation of MnPASS declined from 2004 to 2005 (54% versus 25%, respectively). The percentage of panel members who thought this was a bad idea increased from 33% in 2004 to 58% in 2005. Of the 296 panel members who thought this would be a good idea in 2004, 30% still felt that way in 2005, but 54% switched their opinion to bad idea and 16% reported no opinion.

⁸ Survey respondents were asked for the reasons behind their opinions on these MnPASS acceptance questions in an unprompted (or open-ended) manner.

When the 320 people who thought the 24-hour operation was a bad idea in 2005 were asked, “why,” their most frequent response was now carpool lanes are free to all in non-peak hours (representing 16% of panel members). Other frequently mentioned reasons were: it’s inefficient (14%), tolls should only be during peak hours (8%), causes congestion (6%), and only benefits the rich (3%). The most frequent reasons provided by respondents who thought it was a good idea were: better use of carpool lanes (representing 9% of panel members), adds capacity to roadway (7%), users pay not everyone (3%), and encourages carpooling (2%).

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)
Good Idea	296	54%	136	25%
Bad Idea	180	33%	320	58%
No Opinion	73	13%	93	17%
Total	549	100%	549	100%

When asked in November / December 2005, most panel members (61%) thought that 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. Slightly more than one-fourth (27%) of the panel members had no opinion on this operational element, and 12% thought it was a bad idea. The people who thought this was a good idea thought it eased congestion (representing 21% of panel members), was a better use of the tolled lanes (16%), and that there should only be peak hours tolls (11%).

Those people who thought this revised operational plan was a bad idea tended to provide anti-toll reasons (road already paid for, 5%; tolls not needed, 1%) or reasons that indicated that they preferred the “old” hours (hours should be extended, 1%; or should modify times, 1%). Almost three fourths (73%) of those panel members who had answered “bad idea” to the 24-hour operation of MnPASS, answered “good idea” to the new tolling operational hours. Only 12% answered “bad idea” to both questions. Of those who had answered “good idea” to the 24-hour operation, about 13% thought the new tolling operational hours were 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)
Good Idea	337	61%
Bad Idea	63	12%
No Opinion	149	27%
Total	549	100%

3.2 MnPASS AWARENESS

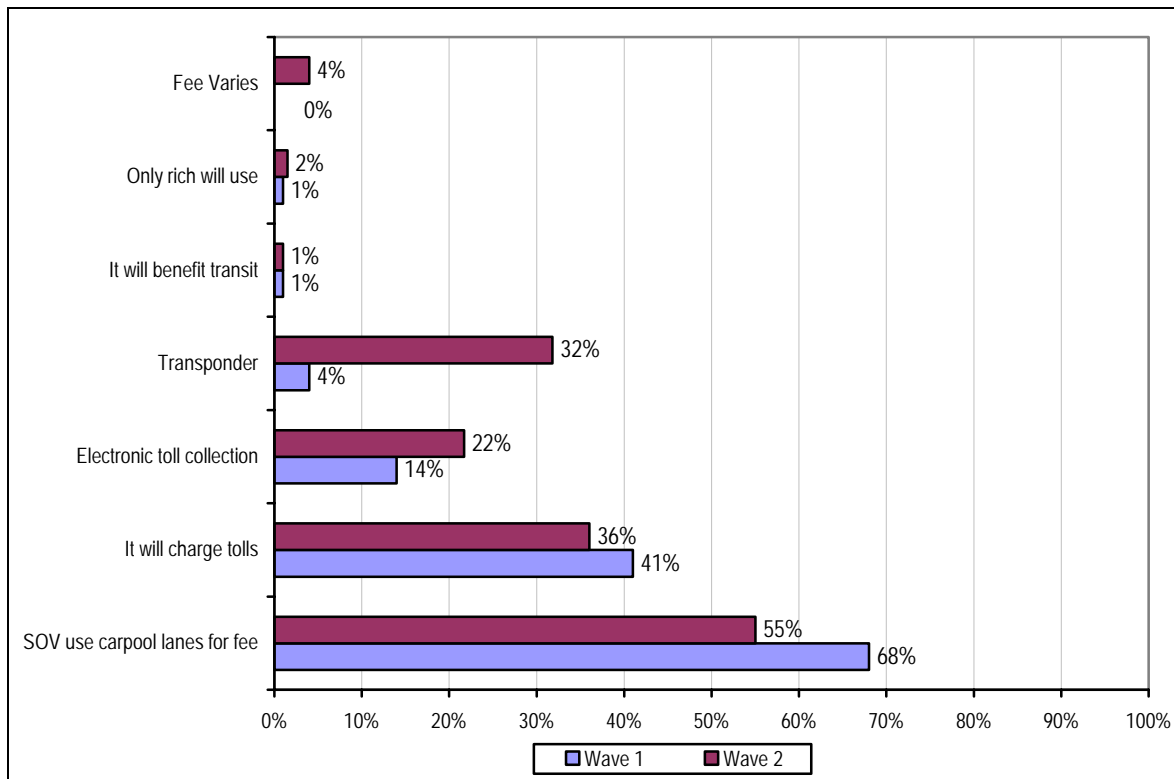
Virtually all of the panel members (95%) were aware of the MnPASS project during the Wave 2 interview.⁹ The 35 panel members who had not heard of the MnPASS project were almost equally split among those in the I-35W panel sample (54%) and those in the I-394 panel sample (46%). Panel members reported different types of knowledge in their Wave 1 versus Wave 2 interviews. In Wave 2, more panel members were aware of specific operational elements, such as awareness of a transponder, electronic toll collection, and the variable toll. Of the non-panel members (i.e., MnPASS subscriber and transit user samples), 83% reported they had heard of the MnPASS project.

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)
Yes	391	71%	513	94%
No	142	26%	35	6%
Unsure	16	3%	1	0%
Total	549	100%	549	100%

FIGURE 3.1: WHAT RESPONDENTS KNEW ABOUT I-394 MNPASS PROJECT [OPEN-ENDED]
(Unprompted Multiple Response Question, Wave 1 = 391 valid cases, Wave 2 = 544 valid cases)



⁹ This level of awareness is not surprising given that panel members participated in a Wave 1 interview. However, the advance letters and postcards sent to respondents did not reference MnPASS.

3.3 OPINIONS ABOUT TRAFFIC CONGESTION, SAFETY, AND NOISE

About six of ten respondents (62%) considered traffic congestion a major problem in November / December 2004. A similar percentage (58%) expressed that same opinion in 2005.¹⁰ About two-thirds of the panel (65%) provided the same response in Wave 2 as they had in Wave 1. About 21% of panel members showed a downward shift in attitudes about congestion, that is they responded “major problem” in Wave 1 but shifted to “moderate,” “minor,” or “no problem” in Wave 2. However, 14% revealed an upward shift in their opinions about congestion.

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)
Major Problem	340	62%	319	58%
Moderate Problem	192	35%	183	33%
Minor Problem	13	2%	33	6%
No Problem at All	4	1%	9	2%
Unsure / Refused	0	0%	5	1%
Total	549	100%	549	100%

Panel members were less optimistic about MnPASS having a positive impact on traffic congestion on I-394 in 2005 than they were in 2004 (42% versus 69%, respectively). This decrease was 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)
Positive	378	69%	229	42%
Negative	34	6%	62	11%
No Impact	113	21%	153	28%
Don't Know	24	4%	105	19%
Total	549	100%	549	100%

Of Wave 1 respondents who answered that MnPASS would have a “positive impact” on traffic congestion, half (52%) responded similarly in 2005. Of the remaining, 22% responded “no impact,” 18% “don’t know,” and 9% “negative impact.” The increase in those answering “negative impact” from 6% to 11% was not statistically significant.

Panel members were also less optimistic about MnPASS having a positive impact on traffic safety in 2005 than in 2004 (27% versus 43%, respectively). The decrease was statistically significant. Of those who answered “positive impact” in 2004, less than half (40%) responded similarly in 2005. The increase in those answering “negative impact” from 6% to 14% was not statistically significant.

¹⁰ The difference between the two percentages is not statistically significant.

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)
Positive	235	43%	149	27%
Negative	34	6%	75	14%
No Impact	235	43%	207	38%
Don't Know	45	8%	118	21%
Total	549	100%	549	100%

Similar to results on the two preceding attitudinal items, 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 interview. The large percentage of “don’t know” responses in Wave 2 indicated that “noise level” was not a top-of-mind issue among the panel.

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)
Positive	43	8%	45	8%
Negative	39	7%	23	4%
No Impact	413	75%	286	52%
Don't Know	54	10%	195	36%
Total	549	100%	549	100%



4. MNPASS CUSTOMERS

This chapter examines transponder ownership and customer accounts, and then investigates MnPASS lane usage and satisfaction with several different aspects of MnPASS operation. The chapter culminates with a stated preference (SP) analysis of respondents that participated in both Waves 1 and 2 and strives to assess the accuracy of the Wave 1 SP prediction, as well as how respondent preferences have changed as a function of familiarity with the MnPASS program.

4.1 SATISFACTION WITH MNPASS OPERATIONS AMONG ALL PAYING MNPASS USERS

A similar series of satisfaction questions were asked of respondents who had used the MnPASS lanes as a paying single driver (SOV, N=169). 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.¹¹ Paying MnPASS users were extremely satisfied with the all-electronic operation of MnPASS, with 9 of 10 (90%) being very satisfied. Only 2% were dissatisfied.

TABLE 4.1: SATISFACTION WITH ALL ELECTRONIC OPERATIONS

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	160	95%
Very satisfied	151	90%
Somewhat satisfied	9	5%
Dissatisfied	3	2%
Very dissatisfied	1	1%
Somewhat dissatisfied	2	1%
Don't Know / Refuse	6	3%
Total	169	100%

Paying MnPASS users were just as satisfied with the ability to use their credit card to automatically replenish their account, with 87% very satisfied and 6% somewhat satisfied. Only 2% expressed dissatisfaction.

TABLE 4.2: SATISFACTION WITH USING CREDIT CARD TO AUTOMATICALLY REPLENISH ACCOUNT

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	157	93%
Very satisfied	147	87%
Somewhat satisfied	10	6%
Dissatisfied	2	2%
Very dissatisfied	1	1%
Somewhat dissatisfied	1	1%
Don't Know / Refuse	10	5%
Total	169	100%

¹¹ 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 1% said they were dissatisfied.

Paying MnPASS users were also extremely satisfied with the ease of opening a pre-paid MnPASS account, with 81% being very satisfied and 11% somewhat satisfied.

TABLE 4.3: SATISFACTION WITH THE EASE OF OPENING A PRE-PAID MNPASS ACCOUNT

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	155	92%
Very satisfied	137	81%
Somewhat satisfied	18	11%
Dissatisfied	1	1%
Very dissatisfied	0	0%
Somewhat dissatisfied	1	1%
Don't Know / Refuse	13	7%
Total	169	100%

Installing the MnPASS transponder was easy – 92% of respondents expressed satisfaction with this element, with nearly three-quarters (73%) being very satisfied. Three percent were dissatisfied, and 5% did not know or refused to provide an answer.

TABLE 4.4: SATISFACTION WITH THE EASE OF INSTALLING THE MNPASS TRANSPONDER

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	154	92%
Very satisfied	123	73%
Somewhat satisfied	31	19%
Dissatisfied	5	3%
Very dissatisfied	3	2%
Somewhat dissatisfied	2	1%
Don't Know / Refuse	10	5%
Total	169	100%

Nearly 8 of 10 paying MnPASS users were satisfied with the clarity of prices on overhead signs, with more than half (60%) being very satisfied. But 19% were dissatisfied.

TABLE 4.5: SATISFACTION WITH THE CLARITY OF PRICES ON OVERHEAD SIGNS

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	134	79%
Very satisfied	101	60%
Somewhat satisfied	33	19%
Dissatisfied	33	19%
Very dissatisfied	7	4%
Somewhat dissatisfied	26	15%
Don't Know / Refuse	2	2%
Total	169	100%

Three-quarters (76%) of paying MnPASS users were satisfied with the varying toll amounts that fluctuate with traffic levels, with more than one-third (37%) being very satisfied. One-fifth (21%) was dissatisfied and 3% did not know or refused to provide an answer.

TABLE 4.6: SATISFACTION WITH THE TOLL AMOUNTS THAT VARY WITH TRAFFIC LEVELS

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	128	76%
Very satisfied	62	37%
Somewhat satisfied	66	39%
Dissatisfied	35	21%
Very dissatisfied	11	7%
Somewhat dissatisfied	24	14%
Don't Know / Refuse	6	3%
Total	169	100%

Nearly two-thirds (64%) of paying MnPASS users were satisfied with the MnPASS website, with 43% 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 4.7: SATISFACTION WITH THE MNPASS WEBSITE

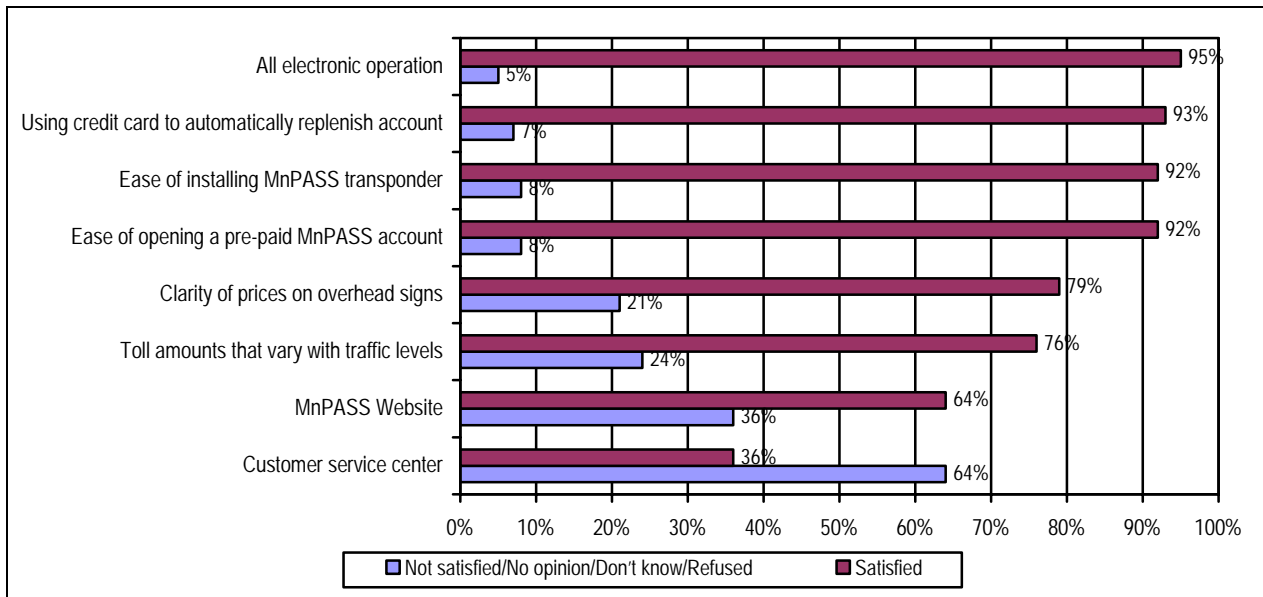
LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	109	64%
Very satisfied	72	43%
Somewhat satisfied	37	21%
Dissatisfied	8	5%
Very dissatisfied	2	1%
Somewhat dissatisfied	6	4%
Don't Know / Refuse	52	31%
Total	169	100%

The majority (63%) of paying MnPASS users were not familiar with or refused to provide their opinion about the staff at the customer service center – expressing lack of knowledge about the customer service center. Of those with an opinion indicating contact with the center, virtually all were satisfied.

TABLE 4.8: SATISFACTION WITH THE STAFF AT THE CUSTOMER SERVICE CENTER

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	59	36%
Very satisfied	48	29%
Somewhat satisfied	11	7%
Dissatisfied	1	1%
Very dissatisfied	0	0%
Somewhat dissatisfied	1	1%
Don't Know / Refuse	109	63%
Total	169	100%

FIGURE 4.1: COMPARISON OF SATISFACTION LEVELS FOR VARIOUS MNPASS ASPECTS AMONG PAYING MNPASS USERS



4.2 SATISFACTION WITH MNPASS OPERATIONS AMONG ALL MNPASS LANE USERS

MnPASS users, 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 (85% satisfaction). The enforcement of MnPASS usage gained the lowest satisfaction (45%, refer to Table 4.12).

Nearly 9 of 10 (85%) respondents were satisfied with the speed of traffic flow in the MnPASS lanes, with half (50%) being very satisfied. Less than one-tenth (7%) were dissatisfied, 4% had no opinion, and 4% did not know or refused to provide an answer.

TABLE 4.9: SATISFACTION WITH THE SPEED OF TRAFFIC FLOW IN THE MNPASS LANES

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	499	85%
Very satisfied	291	50%
Somewhat satisfied	208	35%
Dissatisfied	43	7%
Very dissatisfied	7	1%
Somewhat dissatisfied	36	6%
No opinion	25	4%
Don't Know / Refuse	18	4%
Total	585	100%

Nearly 8 of 10 (76%) respondents were satisfied with the ease of identifying the MnPASS entry points, with (39%) very satisfied. Less than one-fifth (17%) were dissatisfied, 4% had no opinion, and 3% did not know or refused to provide an answer.

TABLE 4.10: SATISFACTION WITH EASE OF IDENTIFYING THE MnPASS ENTRY POINTS

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	439	76%
Very satisfied	225	39%
Somewhat satisfied	214	37%
Dissatisfied	99	17%
Very dissatisfied	27	5%
Somewhat dissatisfied	72	12%
No opinion	26	4%
Don't Know / Refuse	21	3%
Total	585	100%

Most respondents (66%) were satisfied with the safety of merging into the MnPASS lanes, with one-fourth (25%) very satisfied. But one fourth (26%) were dissatisfied. Four percent had no opinion and 4% refused to provide an answer.

TABLE 4.11: SATISFACTION WITH THE SAFETY OF MERGING INTO THE MnPASS LANES

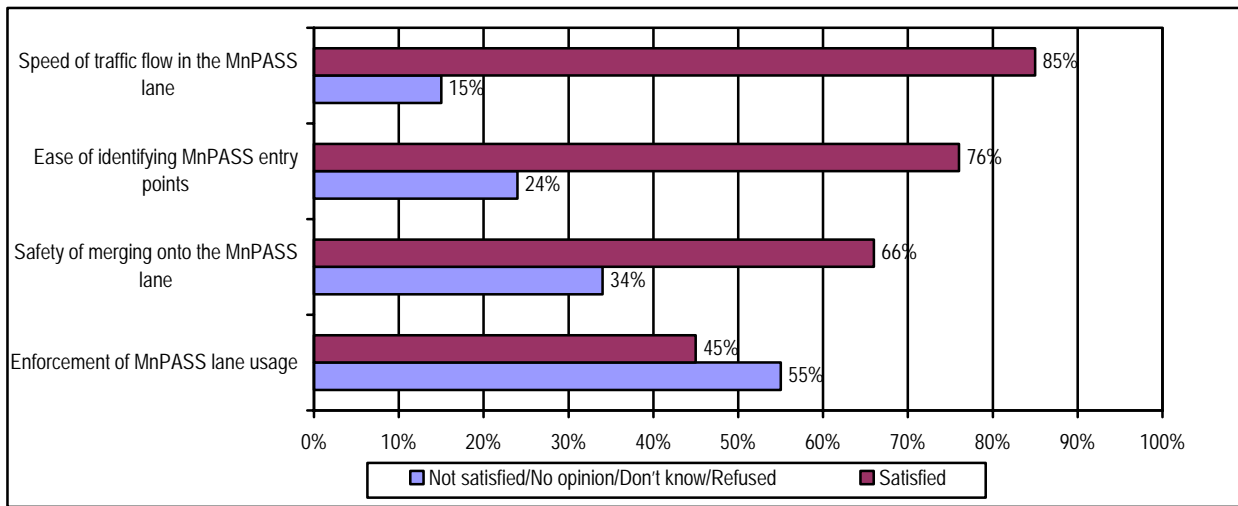
LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	384	66%
Very satisfied	145	25%
Somewhat satisfied	239	41%
Dissatisfied	153	26%
Very dissatisfied	55	9%
Somewhat dissatisfied	98	17%
No opinion	25	4%
Don't Know / Refuse	23	4%
Total	585	100%

Less than half of respondents (45%) were satisfied with the enforcement of MnPASS usage; 21% were very satisfied. Fourteen percent were dissatisfied. A large percentage either had no opinion (24%) or did not know or refused to provide an answer (17%).

TABLE 4.12: SATISFACTION WITH THE ENFORCEMENT OF MnPASS USAGE

LEVEL OF SATISFACTION	FREQUENCY	PERCENT
Satisfied	262	45%
Very satisfied	123	21%
Somewhat satisfied	139	24%
Dissatisfied	81	14%
Very dissatisfied	31	9%
Somewhat dissatisfied	50	5%
No opinion	141	24%
Don't Know / Refuse	101	17%
Total	585	100%

FIGURE 4.2: COMPARISON OF SATISFACTION LEVELS FOR VARIOUS MNPASS ASPECTS AMONG ALL MNPASS USERS



4.3 SATISFACTION WITH MNPASS OPERATIONS BY TRANSPONDER OWNERSHIP

Similar to what was presented in section 4.2, levels of satisfaction regarding certain aspects of MnPASS operation were compared for respondents who own transponders and respondents that do not own transponders. Overall, MnPASS subscribers were most satisfied with the speed of traffic flow in the MnPASS lanes (93% satisfied). More than 8 of 10 non-subscribers were also satisfied with this aspect of MnPASS. Less than 1 of 10 subscribers or non-subscribers were dissatisfied.

TABLE 4.13: SATISFACTION WITH THE SPEED OF TRAFFIC FLOW IN THE MNPASS LANES

LEVEL OF SATISFACTION	TRANSPONDER OWNER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	166	93%	333	82%
Very satisfied	116	65%	175	43%
Somewhat satisfied	50	28%	158	39%
Dissatisfied	11	6%	32	8%
Very dissatisfied	2	1%	5	1%
Somewhat dissatisfied	9	5%	27	7%
No opinion	1	1%	24	6%
Don't Know / Refuse	0	0%	18	4%
Total	178	100%	407	100%

MnPASS subscribers were also satisfied with the ease of identifying the MnPASS entry points (87% of subscribers satisfied), with over half (59%) very satisfied. Seventy percent of non-subscribers were satisfied. Less than two of ten subscribers and non-subscribers were dissatisfied with this aspect of MnPASS operations.

TABLE 4.14: SATISFACTION WITH EASE OF IDENTIFYING THE MnPASS ENTRY POINTS

LEVEL OF SATISFACTION	TRANSPONDER OWNER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	154	87%	285	70%
Very satisfied	105	59%	120	30%
Somewhat satisfied	49	28%	165	40%
Dissatisfied	24	13%	75	18%
Very dissatisfied	9	5%	18	4%
Somewhat dissatisfied	15	8%	57	14%
No opinion	0	0%	26	7%
Don't Know / Refuse	0	0%	21	5%
Total	178	100%	407	100%

Three-fourths (75%) of subscribers were satisfied with the safety of merging into the MnPASS lanes, with more than one-third (36%) being very satisfied. Six of ten non-subscribers were satisfied with this aspect of MnPASS, with slightly more than one-fourth (27%) dissatisfied.

TABLE 4.15: SATISFACTION WITH THE SAFETY OF MERGING INTO THE MnPASS LANES

LEVEL OF SATISFACTION	TRANSIT USER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	134	75%	250	61%
Very satisfied	64	36%	81	20%
Somewhat satisfied	70	39%	169	41%
Dissatisfied	44	25%	109	27%
Very dissatisfied	17	10%	38	9%
Somewhat dissatisfied	27	15%	71	18%
No opinion	0	0%	25	6%
Don't Know / Refuse	0	0%	23	6%
Total	178	100%	407	100%

Subscribers and non-subscribers alike were least satisfied with the enforcement of MnPASS usage (62% satisfaction with subscribers and 37% satisfaction with non-subscribers). Sixteen percent of subscribers were dissatisfied and 13% of non-subscribers were dissatisfied. More than one fifth of subscribers (22%) and one-half of non-subscribers (50%) either had no opinion or refused to provide an answer.

TABLE 4.16: SATISFACTION WITH THE ENFORCEMENT OF MNPASS USAGE

LEVEL OF SATISFACTION	TRANSIT USER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	111	62%	151	37%
Very satisfied	68	38%	55	14%
Somewhat satisfied	43	24%	96	23%
Dissatisfied	28	16%	53	13%
Very dissatisfied	17	10%	14	3%
Somewhat dissatisfied	11	6%	39	10%
No opinion	32	18%	109	27%
Don't Know / Refuse	7	4%	94	23%
Total	178	100%	407	100%

4.4 SATISFACTION WITH MNPASS OPERATIONS BY TRANSIT USE

Satisfaction questions were also compared among respondents known to be transit users (sampled from the transit list) and non-transit users. In general, the data suggests that transit users were less satisfied with varying aspects of MnPASS operations than were the respondents that do not use transit. Transit users and non-users alike were most satisfied with the speed of traffic flow in the MnPASS lanes (81% satisfaction with transit users and 87% satisfaction with non-users). Less than 1 of 10 users and non-users were dissatisfied with this aspect of MnPASS.

TABLE 4.17: SATISFACTION WITH THE SPEED OF TRAFFIC FLOW IN THE MNPASS LANES

LEVEL OF SATISFACTION	TRANSIT USER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	125	81%	374	87%
Very satisfied	69	45%	222	52%
Somewhat satisfied	56	36%	152	35%
Dissatisfied	11	7%	32	7%
Very dissatisfied	2	1%	5	1%
Somewhat dissatisfied	9	6%	27	6%
No opinion	12	8%	13	3%
Don't Know / Refuse	6	4%	12	3%
Total	154	100%	431	100%

Seven of ten transit users and nearly 8 of 10 non-users were satisfied with the ease of identifying the MnPASS entry points, with less than 2 of 10 from either group showing dissatisfaction. Less than one-fifth (15%) of transit users had no opinion or did not know.

TABLE 4.18: SATISFACTION WITH EASE OF IDENTIFYING THE MNPASS ENTRY POINTS

LEVEL OF SATISFACTION	TRANSIT USER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	106	69%	333	77%
Very satisfied	49	32%	176	41%
Somewhat satisfied	57	37%	157	36%
Dissatisfied	25	16%	74	17%
Very dissatisfied	6	4%	21	5%
Somewhat dissatisfied	19	12%	53	12%
No opinion	14	9%	12	3%
Don't Know / Refuse	9	6%	12	3%
Total	154	100%	431	100%

Just over half of transit users (56%) and slightly more than two-thirds of non-users (69%) were satisfied with the safety of merging into the MnPASS lanes. One-fourth of both groups were dissatisfied with this aspect of MnPASS (28% dissatisfaction among users and 25% of non-users). Less than 2 of 10 users were indifferent or refused to provide and answer, while less than 1 of 10 non-users responded in like fashion.

TABLE 4.19: SATISFACTION WITH THE SAFETY OF MERGING INTO THE MNPASS LANES

LEVEL OF SATISFACTION	TRANSIT USER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	87	56%	297	69%
Very satisfied	28	18%	117	27%
Somewhat satisfied	59	38%	180	42%
Dissatisfied	43	28%	110	25%
Very dissatisfied	16	10%	39	9%
Somewhat dissatisfied	27	18%	71	16%
No opinion	16	11%	9	2%
Don't Know / Refuse	8	5%	15	4%
Total	154	100%	431	100%

Transit users and non-users alike were least satisfied with the enforcement of MnPASS usage (38% satisfaction among users and 47% satisfaction among non users). However, it should be noted that the percent of dissatisfied users and non-users was also low (11% and 15%, 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; half (51%) of transit users and more than one-third (38%) of non-users.

TABLE 4.20: SATISFACTION WITH THE ENFORCEMENT OF MNPASS USAGE

LEVEL OF SATISFACTION	TRANSIT USER			
	Yes		No	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Satisfied	59	38%	203	47%
Very satisfied	28	18%	95	22%
Somewhat satisfied	31	20%	108	25%
Dissatisfied	17	11%	64	15%
Very dissatisfied	4	3%	27	6%
Somewhat dissatisfied	13	8%	37	9%
No opinion	44	29%	97	23%
Don't Know / Refuse	34	22%	67	15%
Total	154	100%	431	100%

4.5 TRANSPONDER INTEREST

The question, “Are you a MnPASS subscriber?” was asked of panel members and those respondents sampled from the transit user list. Table 4.21 provides the responses of the I-394 panel members only. Four percent of these persons confirmed that they were MnPASS subscribers. When combined with the respondents sampled from the MnPASS subscriber list and the I-35W panel members, the total MnPASS subscriber sample for analysis was 180 persons.

TABLE 4.21: MNPASS SUBSCRIBERS

Are you a MnPASS Subscriber?

RESPONSE	FREQUENCY	PERCENT
Yes	18	4%
No	395	96%
Total	413	100%

The 395 respondents who said “no” to the question above (Table 4.21) were asked if they had ever considered purchasing a transponder. Of these, 13% had considered it but decided against it. Eighty-five percent had never considered it, and 2% did not know or refused to provide an answer.

FIGURE 4.3: MNPASS PURCHASE INTENT AMONG NON-SUBSCRIBERS

N=395

Have you Considered Purchasing a Transponder?

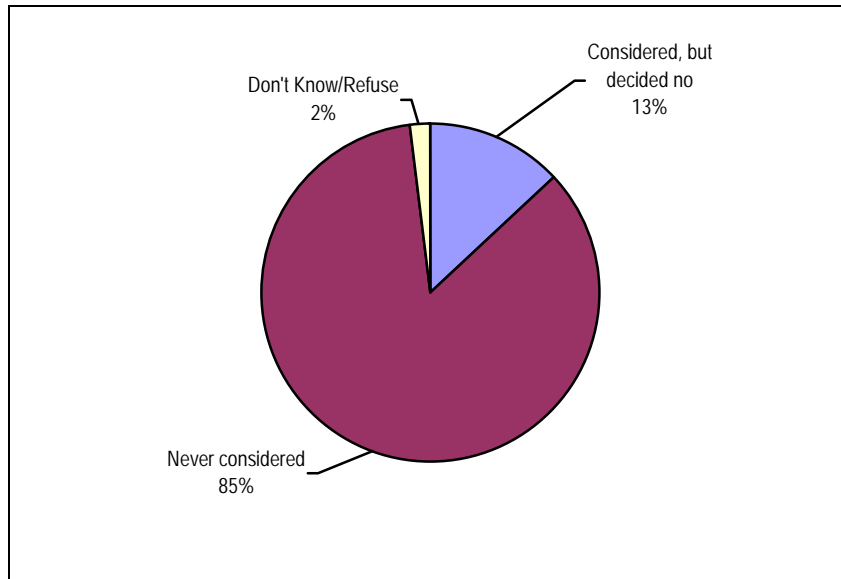
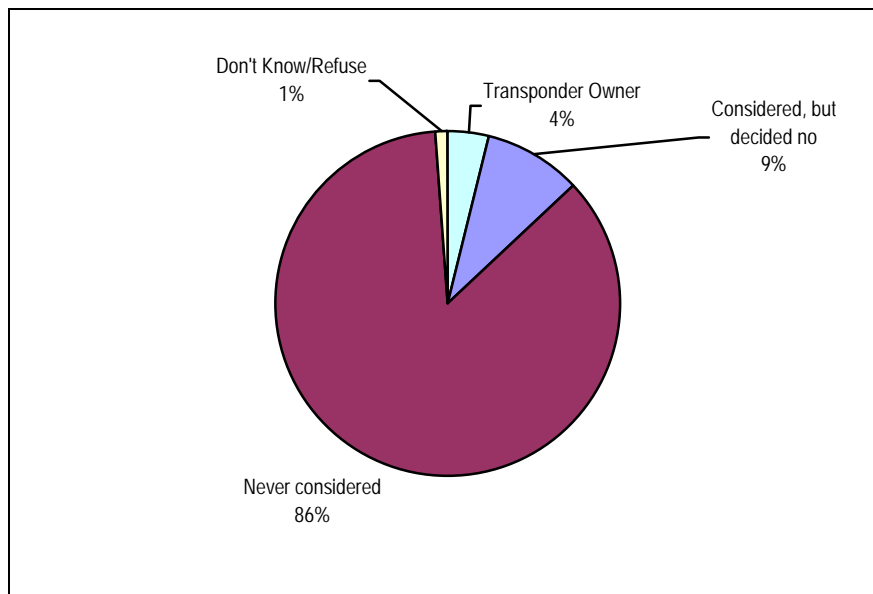


Figure 4.4 graphically combines Tables 4.21 and 4.22, presenting transponder purchase intent of all I-394 panel respondents.

FIGURE 4.4: MNPASS PURCHASE INTENT AMONG PANEL AND TRANSIT USERS

N=413

Have you Considered Purchasing a Transponder?



Four of ten I-394 panel respondents that said they considered purchasing a transponder, then decided against it felt they would not use the MnPASS lane enough to justify the purchase. Current travel behaviors were important factors for about one in four respondents – generally not driving I-394 and using carpools. Slightly more than one of ten thought the transponder was too expensive. Four percent each either procrastinated or lacked sufficient information on how to purchase a transponder.

The main reason why I-394 panel members never considered purchasing a transponder was that they generally do not drive I-394 (34%). Thirty percent felt as if they would not use the MnPASS lane enough to justify leasing a transponder and 10% use carpools. Nine percent didn't want to pay to use MnPASS, 6% didn't think traffic was that bad and 5% felt as if the transponder was too expensive to lease. Only 3% were unaware of MnPASS and 1% commented that they mostly used transit.

TABLE 4.22: REASONS FOR NON-PURCHASE OF TRANSPONDERS

Why?

REASONS TRANSPONDER NOT PURCHASED	PERCENT THAT SAID "YES, AND DECIDED AGAINST IT" N=51	PERCENT THAT SAID "NO" N=335
Generally don't drive I-394	14%	34%
Would not use MnPASS lane enough	40%	30%
I use carpools	6%	10%
Don't want to pay to use MnPASS	6%	9%
Traffic is not that bad	8%	6%
Transponder is too expensive to lease	16%	5%
Unaware of MnPASS	0%	3%
I use transit	0%	1%
Don't know how to purchase	4%	0%
Have not gotten around to it	4%	0%
Other, specify	0%	1%
Don't Know / Refuse	2%	1%
Total	100%	100%

4.6 CUSTOMER ACCOUNTS

Of the 180-transponder owners, 71% purchased their transponder from April through July of 2005, with half of all transponders purchased in either April or May. Of those respondents that reported purchasing their transponders in either April or May, more than half resided in high-income households (i.e., reported an annual household income of at least \$125,000).

TABLE 4.23: MONTH OF TRANSPONDER PURCHASE (CALENDAR YEAR 2005)

In what month did you acquire a transponder?

MONTH	FREQUENCY	PERCENT
April	51	29%
May	47	26%
June	21	12%
July	17	9%
August	7	4%
September	4	2%
October	3	2%
November	1	1%
December	0	0%
Don't Know / Refuse	29	15%
Total	180	100%

Slightly more than two-thirds of subscribers¹² purchased only one transponder. Of the 63% of households that purchased only one transponder, half (51%) were in one or two person households, and 75% owned two or fewer vehicles. Of the 37% of households that purchased more than one transponder, half (48%) were in 4+ person households and over half (55%) were in 2-vehicle households.

TABLE 4.24: TRANSPONDERS PER HOUSEHOLD

How many transponders does your household have?

TRANSPONDERS	FREQUENCY	PERCENT
One	95	63%
Two	49	33%
Three	5	3%
Four+	2	1%
Total	151	100%

¹² Tables 4.25, 4.26 and 4.27 based on questions only asked of respondents sampled from subscriber list.

Eight of 10 (79%) subscribers opened their account online, while 1 of 10 (10%) went to the customer service center and opened their account in-person. One of 10 (9%) opened their account over the phone.

TABLE 4.25: METHOD OF OPENING MNPASS ACCOUNT

How did you open your MnPASS Account?

METHOD USED TO OPEN ACCOUNT	FREQUENCY	PERCENT
Online	119	79%
In-person at customer service center	15	10%
Telephone	13	9%
Unsure	4	2%
Total	151	100%

Virtually all (94%) transponder owners paid for their own MnPASS account. Only 5% were employer subsidized.

TABLE 4.26: HOW IS YOUR MNPASS ACCOUNT PAID?

WHO PAYS FOR ACCOUNT	FREQUENCY	PERCENT
Paid by you	142	94%
Paid directly by employer	6	4%
Paid by you but reimbursed by employer	2	1%
Don't Know / Refuse	1	1%
Total	151	100%

4.7 MNPASS LANE USAGE

All respondents were asked about their travel during an assigned travel week (Monday through Friday). Half of all trips (50%) 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). Twenty percent of trips were taken by SOVs in the MnPASS lanes – 17% who chose to pay a toll and 3% who reported using the MnPASS lanes for free. Carpoolers reported 17% of I-394 trips, and bus riders reported 14% of I-394 trips.

When examined by sample type, the data suggests that nearly three-fourths (72%) of I-394 trips taken by Wave 2 panel members were taken while driving alone and not using the MnPASS lanes (i.e., used the general lane for free). Nearly two-thirds (63%) of subscriber trips were taken while driving alone and paying to use the MnPASS lane. Finally, half (48%) of all trips taken by transit users were taken while riding a bus.

TABLE 4.27: 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=338)		SUBSCRIBERS (N=151)		TRANSIT (N=147)		ALL (N=636)	
	TRIPS	PERCENT TOTAL TRIPS	TRIPS	PERCENT TOTAL TRIPS	TRIPS	PERCENT TOTAL TRIPS	TRIPS	PERCENT TOTAL TRIPS
Drive alone and not use MnPASS lanes	1,900	72%	322	24%	457	32%	2,679	50%
Drive alone and pay a toll to use the MnPASS lanes	43	2%	832	63%	16	1%	891	16%
Drive alone, use MnPASS lanes and not pay a toll	54	2%	87	7%	22	2%	163	3%
Carpool	599	23%	53	4%	253	17%	905	17%
Ride a bus	32	1%	24	2%	699	48%	755	14%
Total	2,628	100%	1,318	100%	1,447	100%	5,393	100%

When the window for reporting MnPASS usage was expanded to “ever used the MnPASS lanes,” the percent of users increased from 20% to 62%. Of course, this percent includes persons sampled from the MnPASS subscriber list. But 51% of panel member and 62% of persons sampled from the transit list had used the MnPASS lanes at least once since their implementation.

TABLE 4.28: MNPASS LANE USAGE (BY SAMPLE TYPE)

Have you ever used the MnPASS Lanes?

RESPONSE	PANEL		SUBSCRIBER		TRANSIT	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Yes	280	51%	151	100%	154	62%
No	269	49%	0	0%	96	38%
Total	549	100%	151	100%	250	100%

Among panel respondents who reported having used MnPASS in the past, carpooling was the most frequently mentioned mode (87%). Subscribers reported using the MnPASS lane most often as a paying SOV (87%), and transit users reported using the MnPASS lane most frequently as a bus rider (49%).

TABLE 4.29: 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	20	7%	132	87%	4	3%
Carpooler	243	87%	17	11%	73	47%
Bus Rider	11	4%	1	1%	76	49%
Don't Know / Refuse	6	2%	1	1%	1	1%
Total	280	100%	151	100%	154	100%



5. SOCIAL EQUITY ISSUES

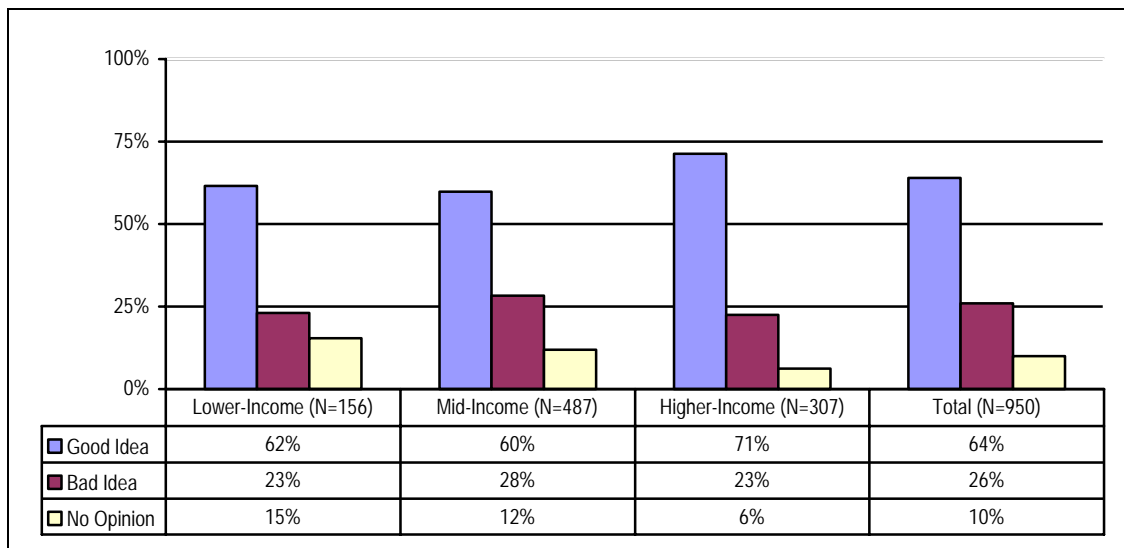
There is extensive academic literature on the subject of social equity, but it is best expressed in everyday language in terms of ‘fairness.’ In the case of road user charging, this translates to questions of whether the tolling operation is regarded as having a disproportionate impact on some groups 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.¹³

5.1 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. At the same time, acceptance was greater among the higher-income respondents (71%), than among lower-income (62%) or mid-income (60%) respondents.¹⁴ 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 (28% of mid-income, 23% of lower-income, and 23% of higher-income).

FIGURE 5.1: 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...



¹³ Many of the tables presented in this section report results by income. About 19% of respondents did not report their household income. For this reason, we have imputed income for missing records using the hot deck approach.

¹⁴ 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 (\$42,363) and for the Minneapolis-St. Paul region (\$54,304), according to Census 2000.

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 tolls are used during peak hours only were slightly more salient factors for lower-income householders than those in other income groups. Otherwise, the ranking of reasons for supporting MnPASS were consistent across income groups.

There were also slight differences among household income groups in opinions about why the MnPASS concept was a bad idea. A smaller percent of lower-income respondents than higher-income groups said it only benefits the rich, but a larger percent mentioned carpool lanes should be free to all.

TABLE 5.1: 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	22%	33%	34%	31%
Adds capacity to roadway	18%	20%	20%	20%
Saves time for busy people	17%	16%	18%	17%
Only users pay, not everyone	10%	11%	11%	11%
Time is money for some people	10%	8%	8%	8%
Eases congestion	5%	4%	2%	4%
Tolls are used during peak hours only	6%	1%	2%	2%
Carpools are not encouraged enough	2%	0%	0%	0%
Other	7%	4%	4%	5%
Don't Know	3%	3%	1%	2%
Total %	100%	100%	100%	100%
Total Number	125	387	298	810

TABLE 5.2: 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.)

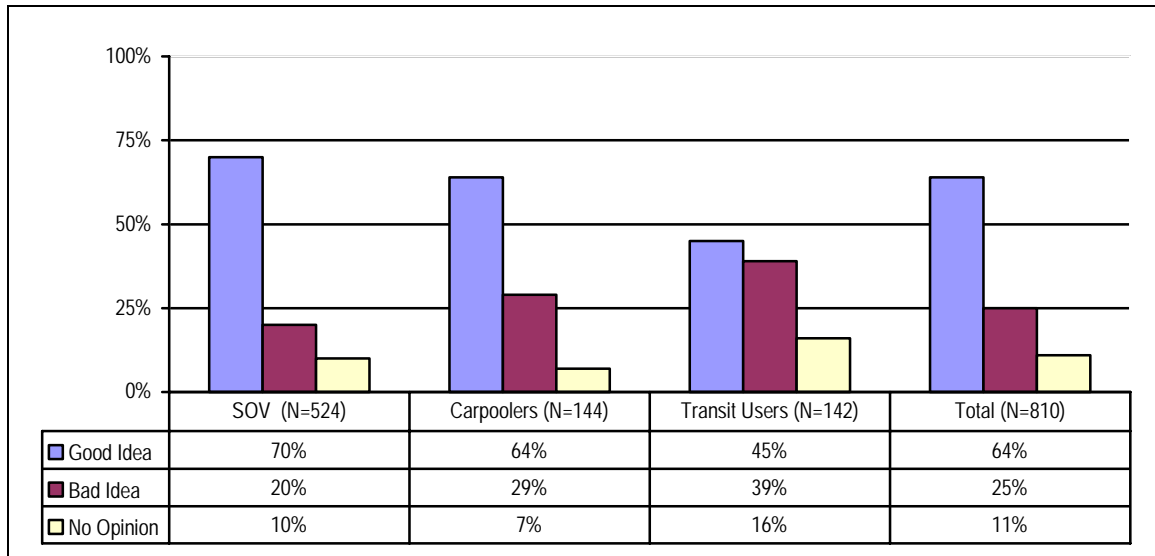
	LOWER-INCOME	MID-INCOME	HIGHER-INCOME	TOTAL
Only benefits the rich	18%	22%	24%	22%
Carpool lanes should be free to all	19%	11%	12%	13%
Inefficient	4%	13%	8%	10%
Carpool lanes should only be open to carpoolers	8%	10%	11%	10%
Carpool lanes are not encouraged enough	4%	7%	7%	7%
Gives too much money to MnDOT	6%	4%	7%	5%
Bad for environment	8%	3%	4%	4%
Will not work	4%	4%	5%	4%
Roads are already paid for	6%	3%	4%	4%
Delays roadway improvements for all	4%	3%	1%	3%
Makes level of service worse in carpool lane	2%	3%	2%	3%
Increases bureaucracy	0%	2%	1%	2%

	LOWER-INCOME	MID-INCOME	HIGHER-INCOME	TOTAL
Unfair	0%	1%	2%	1%
Too confusing for people	0%	1%	2%	1%
Other	15%	8%	8%	10%
Don't Know	0%	2%	1%	1%
Total%	98%	97%	99%	100%
Total Number	48	185	85	318

When MnPASS acceptance was examined by respondents' usual commute mode, significant differences were observed. MnPASS acceptance is highest among SOV drivers (70%) and lowest among transit users (45%). Yet, acceptance among carpoolers was also high (64%). Two in five transit users (39%) thought allowing paying single drivers to use carpool lanes was a bad idea compared to 29% of carpoolers and 20% of SOV drivers. At the same time, a larger percent of transit users had no opinion on this issue than other groups.

FIGURE 5.2: 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 provides a better use for carpool lanes. Transit users were slightly more likely to respond that MnPASS adds capacity to the roadway. On the other hand, carpoolers were more likely than users of other modes to respond only users pay, not everyone.

TABLE 5.3: 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	32%	32%	31%	32%
Adds capacity to roadway	19%	18%	23%	19%
Saves time for busy people	20%	10%	16%	18%
Only users pay, not everyone	9%	15%	8%	10%
Time is money for some people	9%	8%	6%	8%
Eases congestion	4%	5%	2%	4%
Tolls only during peak hours	2%	3%	3%	2%
Other	4%	3%	6%	4%
Don't Know	1%	6%	5%	3%
Total %	100%	100%	100%	100%
Total Number	556	120	62	738

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 it only benefits the rich, whereas transit users were more likely to suggest that the concept is inefficient and carpool lanes should only be open to carpoolers. SOV drivers were also more likely than others to respond carpool lanes should be free to all than were users of other modes.

TABLE 5.4: 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.)

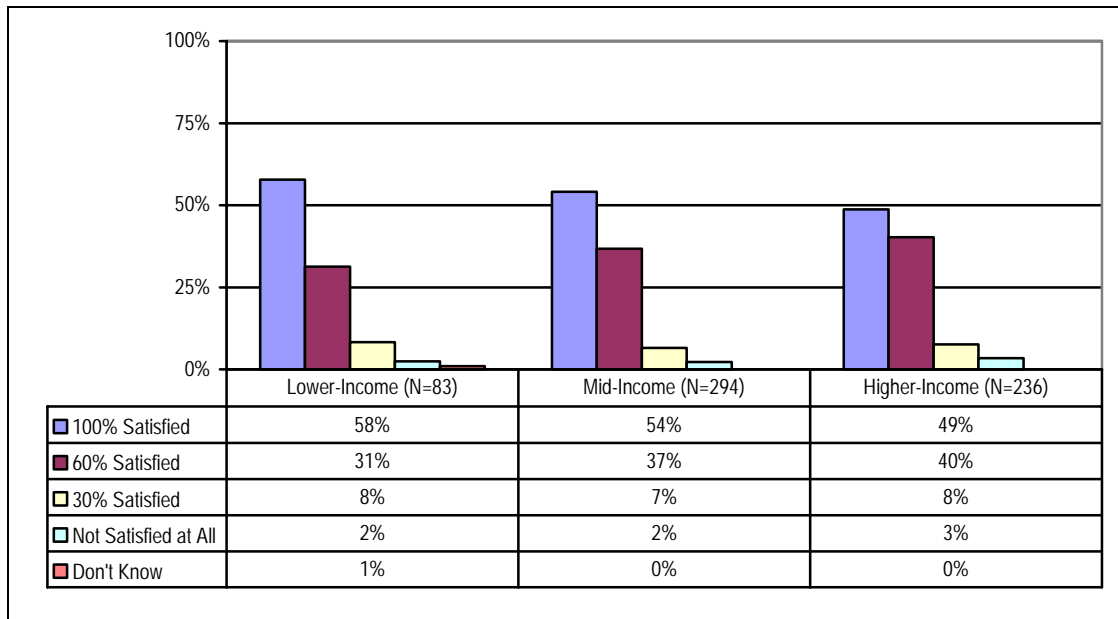
	SOV	CARPOOLERS	TRANSIT	TOTAL
Only benefits the rich	24%	23%	14%	22%
Carpool lanes should be free to all	15%	7%	2%	11%
Inefficient	9%	10%	17%	11%
Carpool lanes should only be for carpoos	8%	8%	17%	11%
Carpool lanes are not encouraged enough	5%	13%	6%	7%
Gives too much money to MnDOT	5%	7%	2%	5%
Bad for environment	2%	7%	10%	5%
Roads are already paid for	5%	2%	0%	4%
Will not work	5%	3%	2%	4%
Delays roadway improvements for all	2%	5%	2%	3%
Makes level of service worse in carpool lane	2%	2%	6%	3%
Increases bureaucracy	2%	0%	0%	1%
Unfair	0%	2%	6%	1%
Too confusing for people	1%	2%	2%	1%
Other	13%	9%	12%	10%
Don't Know	2%	0%	2%	1%
Total%	100%	100%	100%	100%
Total Number	171	60	51	282

5.2 SATISFACTION WITH CURRENT TRAVEL EXPERIENCES

The implementation of the MnPASS lanes on I-394 did not have a differential impact on the travel experiences of respondents. The majority of respondents, regardless of their income level, were satisfied with the quality of travel on the roadway used for their reference trip.¹⁵ Differences by income were not statistically significant.

FIGURE 5.3: 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?

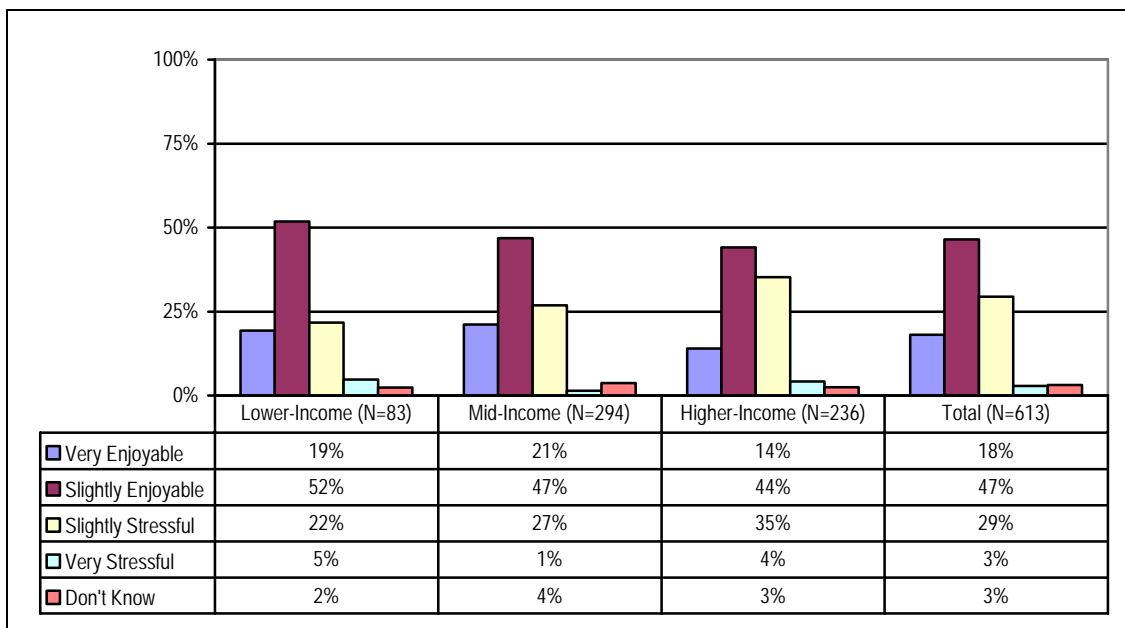


Across all income levels, the majority of respondents reported that their reference trip was more enjoyable than stressful. Lower-income respondents reported the least stressful trips. Only a small percentage of I-394 respondents (ranging from 1% to 5%) found the trip very stressful. Differences by income are not statistically significant.

¹⁵ 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 5.4: 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?



In the figure above, higher-income households were more likely than other income groups to characterize their reference trip as stressful. They also reported greater congestion levels in both the MnPASS and general traffic lanes, as indicated in the following two figures.

FIGURE 5.5: 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?

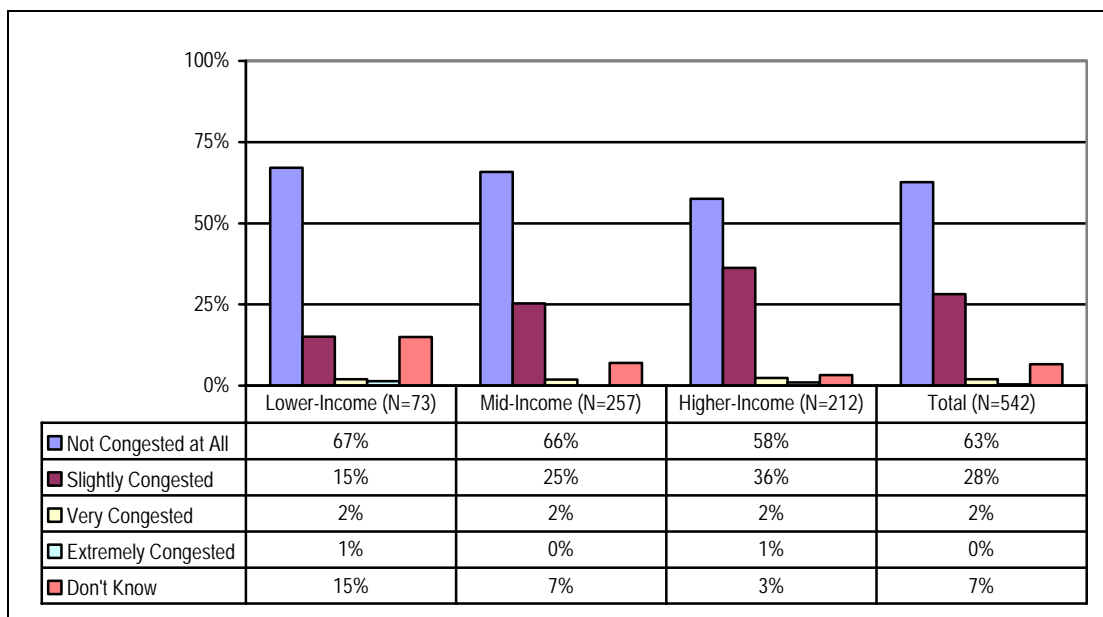
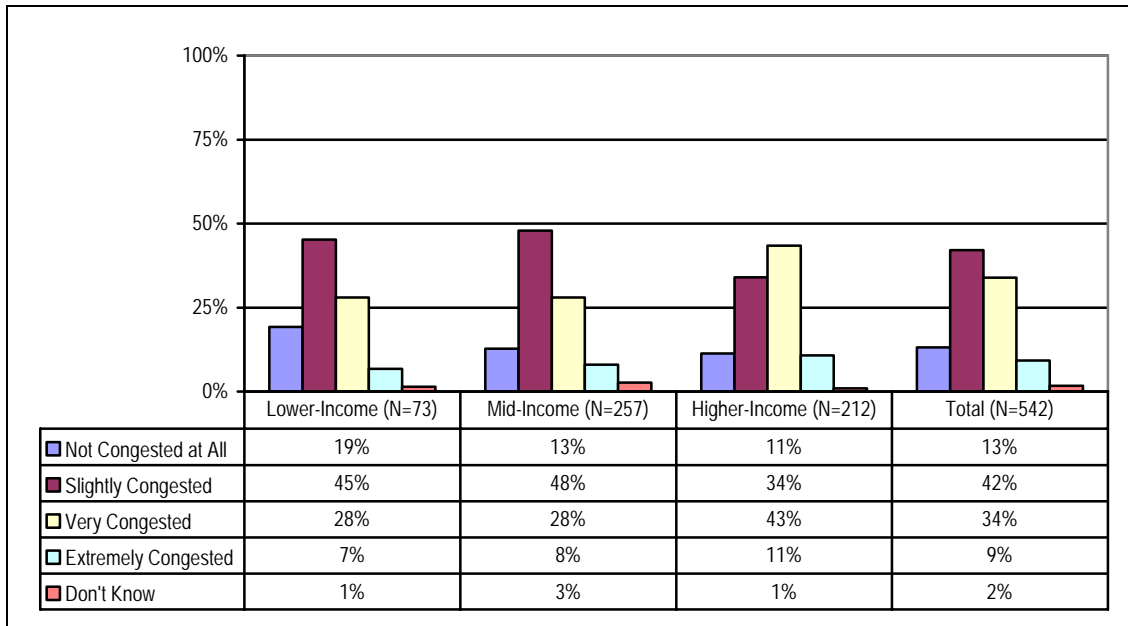


FIGURE 5.6: OPINION ON CONGESTION IN GENERAL TRAFFIC LANES DURING REFERENCE TRIP BY HOUSEHOLD INCOME
(Among I-394 Respondents Only)

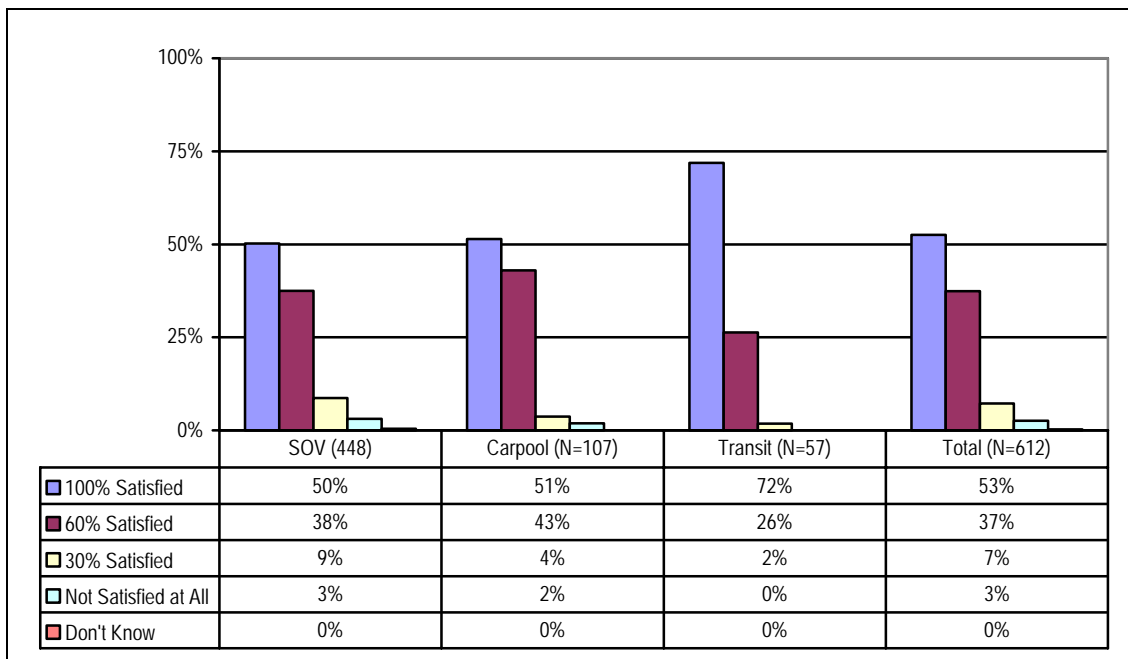
What about the general traffic lanes at that time, would you say the lanes were...



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; 72% reported being 100% satisfied, compared with 51% of carpoolers and 50% of SOV drivers.

FIGURE 5.7: SATISFACTION WITH QUALITY OF REFERENCE TRIP BY REFERENCE TRIP MODE
(Among I-394 Respondents Only)

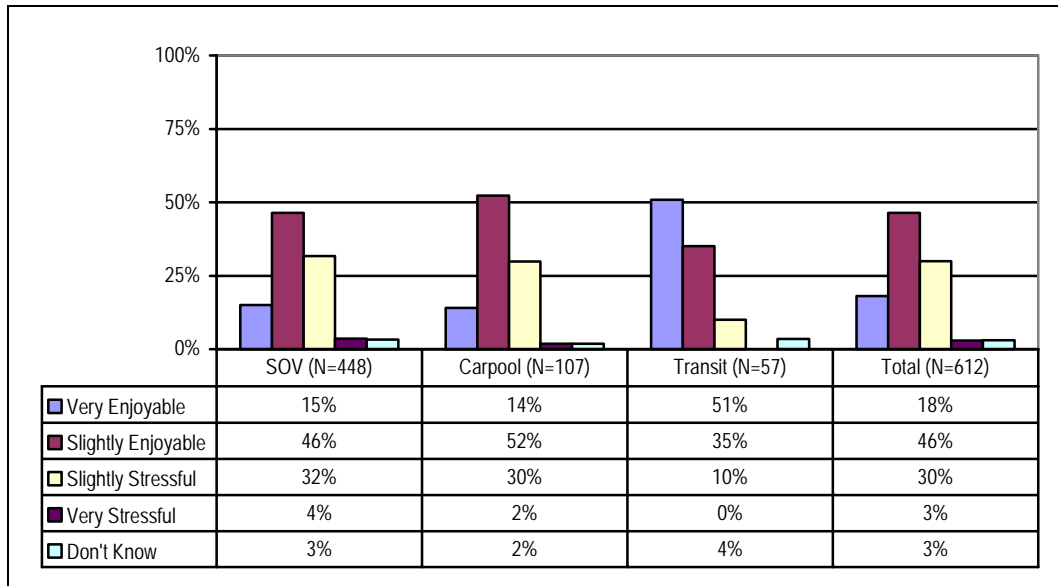
Based on this trip, how satisfied were you with the overall quality of your travel on this roadway?



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. Half (51%) of transit users rated the target trip as very enjoyable compared to 15% of SOV drivers and 14% of carpoolers. Similarly, a third of HOV or SOV users found the trip slightly stressful, compared to only 10% of transit users.

FIGURE 5.8: 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?

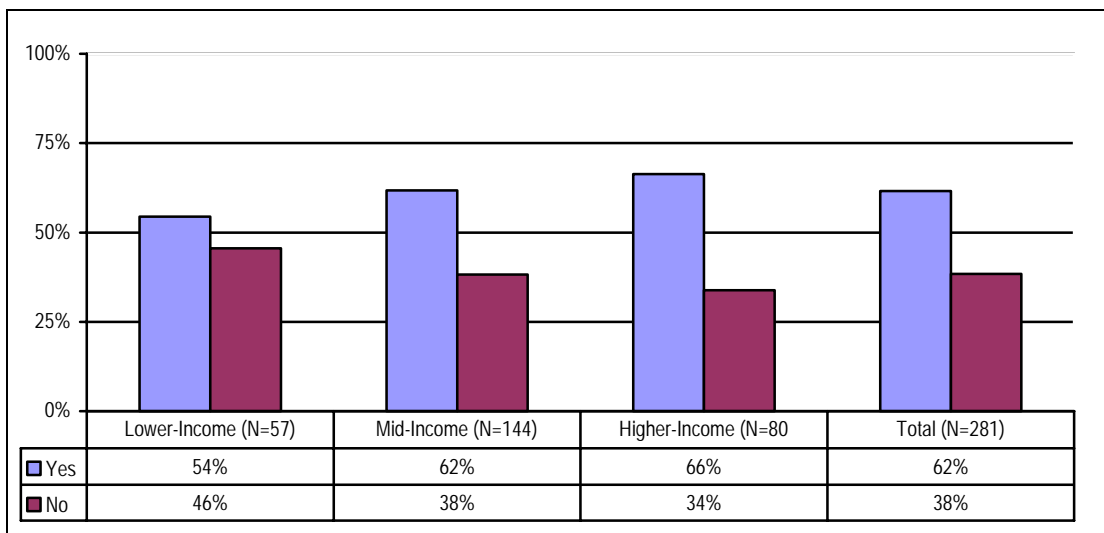


5.3 MNPASS LANE USAGE

Respondents from all income levels are using MnPASS. Over 50% of all income groups among the I-394 respondents reported they have used the MnPASS lanes.

FIGURE 5.9: USE OF MNPASS LANES BY HOUSEHOLD INCOME
(Among I-394 Respondents Only)

Have you ever used the MnPASS lanes?

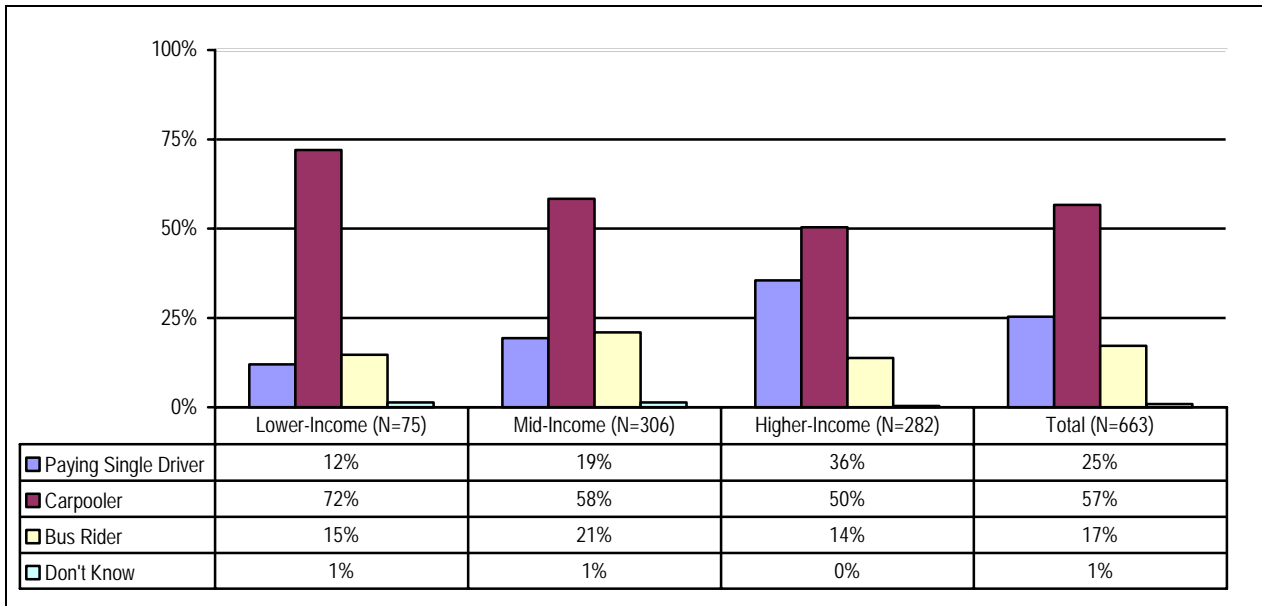


Respondents who used the MnPASS lanes were asked if they were a single driver, carpooler, or bus rider when they used the lanes. Significant differences were found. Whereas 36% of higher-income responses were as paying single drivers, only 19% of mid-income and 12% of lower-income responses were as paying SOVs. The majority of lower-income responses (72%) were as a carpooler.

FIGURE 5.10: MODE OF MNPASS USE BY INCOME

(Among I-394 Respondents Only)

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



Multiple response table based on percent of responses.

5.4 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 that is placed on the windshield of the vehicle. The following two tables present demographic profiles of transponder owners.¹⁶ Transponder owners were more strongly represented among respondents with a higher educational attainment and those who were employed full-time. Transponder owners were middle-aged (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.

¹⁶ The tables in this section include all I-394 respondents (i.e., panel members, MnPASS subscribers, and transit users). This base was chosen to ensure robust numbers for the analysis. Four percent of panel members were transponder owners.

TABLE 5.5: TRANSPONDER OWNERSHIP¹⁷ BY PERSON CHARACTERISTICS
(Among I-394 Respondents Only)

PERSON CHARACTERISTIC	TRANSPONDER OWNERSHIP		TOTAL
	Yes	No	
<i>Educational Attainment</i>			
High School or Less	11%	89%	44 (100%)
Some College / Trade	19%	81%	131 (100%)
Graduated College	25%	75%	293 (100%)
Graduate Work	31%	69%	246 (100%)
<i>Employment Status</i>			
Full or Part-time	27%	73%	617 (100%)
Homemaker	11%	89%	70 (100%)
Retired	8%	92%	79 (100%)
Other / Disabled / Unemployed	0%	10%	12 (100%)
<i>Type of Employment</i>			
Part-Time	14%	86%	71 (100%)
Full-time	29%	71%	546 (100%)
<i>Age</i>			
18-34	15%	85%	81 (100%)
35-44	31%	69%	176 (100%)
45-54	30%	70%	220 (100%)
55-64	26%	74%	156 (100%)
65+	7%	93%	81(100%)
<i>Race / Ethnicity</i>			
White / Caucasian	26%	74%	674 (100%)
Non-White / Minority	15%	85%	40 (100%)
<i>Gender</i>			
Male	24%	76%	430 (100%)
Female	27%	73%	284 (100%)

¹⁷ Transponder ownership was defined as “yes” to the question, “Are you a MnPASS subscriber?” or respondents sampled from the MnPASS subscriber list.

In terms of their household characteristics, transponder owners resided in higher-income households, as well larger households and those with multiple vehicles.

TABLE 5.6: TRANSPONDER OWNERSHIP BY HOUSEHOLD CHARACTERISTICS
(Among I-394 Respondents Only)

HOUSEHOLD CHARACTERISTIC	TRANSPONDER OWNERSHIP		TOTAL
	YES	NO	
Household Income			
Lower-Income	10%	90%	104 (100%)
Mid-Income	18%	82%	351 (100%)
Higher-Income	41%	59%	259 (100%)
Household Size			
One-person	15%	85%	107 (100%)
Two-person	24%	76%	262 (100%)
Three-person	30%	70%	114 (100%)
Four+ person	28%	72%	231 (100%)
Vehicles Available			
One	10%	90%	141 (100%)
Two	28%	72%	385 (100%)
Three+	31%	69%	188 (100%)

The preceding tables indicate that transponder ownership was related to many different demographic variables. So, a predictive model was specified to identify variables that may predict transponder ownership. After a through review and diagnostic tests of demographic, attitudinal, and trip variables, nine variables were specified for inclusion in the model:

- Household income,
- Age,
- Vehicles available,
- Educational attainment,
- Number of licensed drivers in the households,
- Number of workers in the household,
- Distance of reference trip in miles,
- Home tenure in years,
- Opinion on 24-hour toll lane operation.

The model run indicated that annual household income and reference trip distance in miles were the combination of model variables that best explained transponder ownership, explaining nearly 30% of the variability in transponder ownership



6. IMPACTS: TRAVEL BEHAVIOR

The opening of the MnPASS lanes altered the congestion patterns on I-394, which in turn influenced travel behavior in the corridor. As such, 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. This chapter concludes with comparative travel profiles of transponder owners and non-owners.

6.1 TRAVELING EXPERIENCE

The reported traveling experiences of I-394 panelists have improved. The percentage of I-394 panelists reporting a delay was lower in Wave 2 (28%) than in Wave 1 (38%). 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 (30% versus 21%, respectively). However, the percentages of respondents who reported leaving at a particular time to avoid congestion were similar, with about one-fourth in both waves saying that they left at a particular time to avoid congestion. Among I-35W panelists, the percentage reporting a congestion delay was the same in both waves (37%).

TABLE 6.1: 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)
Yes	158	38%	89	28%
No	255	62%	223	72%
Total	413	100%	312	100%
I-35W				
Yes	50	37%	36	37%
No	86	63%	61	63%
Total	136	100%	97	100%

I-394 panelists reported higher levels of satisfaction with their reference trip travel in Wave 2 than in Wave 1-- 46% vs. 36%, respectively (see Table 6.2). Satisfaction was highest among panelists who used the MnPASS lanes for their entire reference trip – 58% reported 100% satisfaction, compared with 44% who did not use the MnPASS lanes. We found virtually no differences in the reported satisfaction levels among I-35W panelists between Wave 1 and Wave 2.

TABLE 6.2: 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?

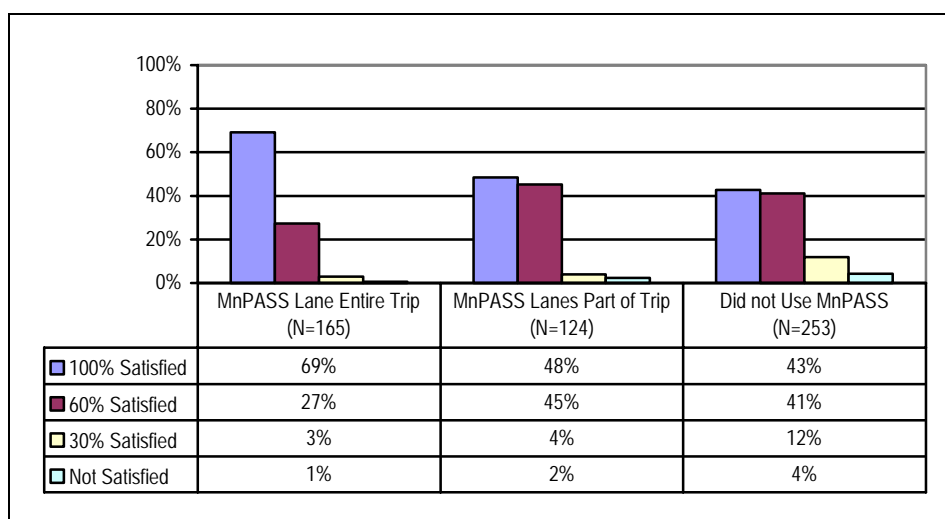
I-394	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)
100% Satisfied	147	36%	144	46%
60% Satisfied	202	49%	129	42%
30% Satisfied	43	10%	29	9%
Not Satisfied	21	5%	10	3%
Total	413	100%	312	100%
I-35W				
100% Satisfied	55	40%	42	43%
60% Satisfied	54	40%	35	36%
30% Satisfied	19	14%	13	14%
Not Satisfied	8	6%	7	7%
Total	136	100%	97	100%

Among all I-394 respondents (which provides a larger, more reliable sample), we find that 69% of those who used the MnPASS lanes for their entire trip were 100% satisfied, compared with 48% who used the MnPASS lanes for part of their trip, or 43% of those who did not use the MnPASS lanes at all.

FIGURE 6.1: 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?



Panelists in both corridors (I-394 and I-35W) found their travel more enjoyable and less stressful in Wave 2 than in Wave 1. Sixty-one percent of the I-394 Wave 2 panelists said their travel experience was enjoyable, compared with 50% of Wave 1 panelists. Conversely, 47% of I-394 Wave 1 panelists said their travel experience was stressful, compared to 36% of Wave 2 panelists.

Among I-35W panelists, 57% reported their travel as enjoyable in Wave 2 compared to 47% of Wave 1 respondents. The percentage characterizing their travel as stressful also decreased from 52% in Wave 1 to 41% in Wave 2.

**TABLE 6.3: TRAVEL EXPERIENCE ON I-394 DURING REFERENCE TRIP
(Among All Panel Members)**

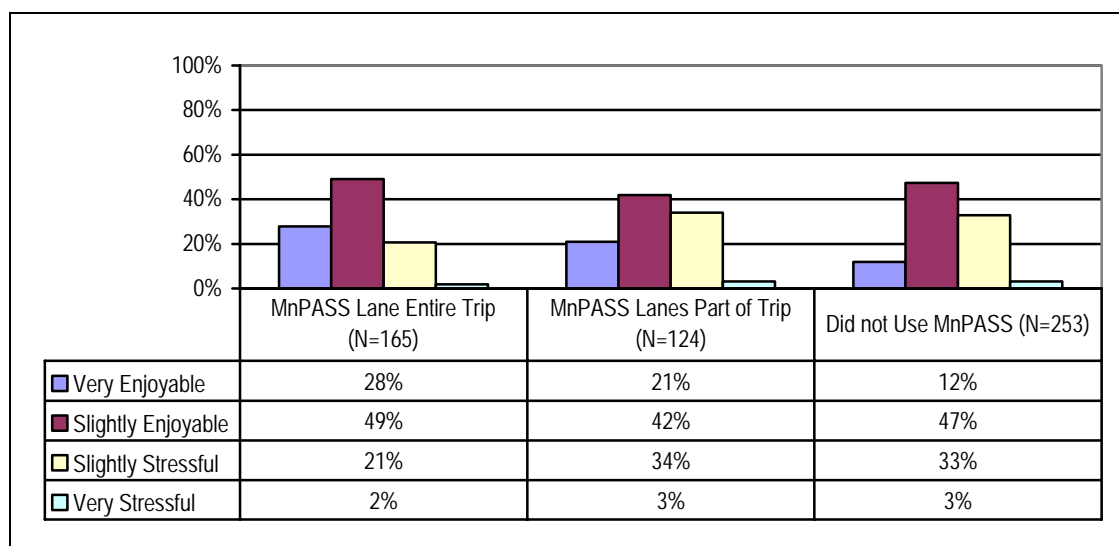
Which of the following descriptors best captures your travel experience on I-394 [I-35W] at that time?

I-394	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)
Enjoyable	206	50%	188	61%
Very Enjoyable	41	10%	39	13%
Slightly Enjoyable	165	40%	149	48%
Stressful	197	48%	115	36%
Slightly Stressful	170	41%	103	33%
Very Stressful	27	7%	12	3%
Don't Know	10	2%	9	3%
Total	413	100%	312	100%
I-35W				
Enjoyable	64	47%	55	57%
Very Enjoyable	19	14%	13	14%
Slightly Enjoyable	45	33%	42	43%
Stressful	71	52%	40	41%
Slightly Stressful	61	45%	37	38%
Very Stressful	10	7%	3	3%
Don't Know	1	1%	2	2%
Total	136	100%	97	100%

Among all I-394 respondents – which provides a larger, more reliable sample – we find that 76% of those who used the MnPASS lanes for all of their trip characterized their travel as enjoyable, compared with 63% of those who used the MnPASS lanes for part of their trip, and 59% of those who did not use the MnPASS lanes at all (see Figure 6.2 on the following page).

FIGURE 6.2: 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?



6.2 TRAVEL MODE

The Wave 2 survey captured information about travel mode in two ways: (1) “usual” mode and (2) “reference trip” mode. While these two measures were identical to those used in Wave 1, the Wave 2 respondents were provided with a Travel Log in which 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 three-quarters of all panelists, drive alone (SOV) was the most commonly used travel mode. Slightly less than one-fourth of panelists carpooled, and 2% or less rode the bus. Carpooling was higher among I-394 panelists (23%) than among I-35W panelists (19%), but the difference was not statistically significant.

TABLE 6.4: 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	264	76%	88	79%
Carpool	78	23%	21	19%
Ride bus	3	1%	2	2%
Total	345	100%	111	100%

The travel mode of the respondents' reference trip was also measured; however, reference trip was not collected for people who were interviewed as a "short" complete (see Methods chapter). All other panelists were asked to report on the same type of trip as they reported in Wave 1. For most panel members, reporting on a similar trip (i.e., same time, trip type, and direction) was possible. But for slightly more than one-fourth of panel members, a similar trip was not captured because we could not continue rescheduling the respondent to collect a similar trip due to the data collection deadline. The reference trips for those respondents who reported a similar trip were distributed as: commute trip (71%), non-commute trip (29%), and peak period trip (73%) and non-peak trip (27%).

**TABLE 6.5: COMPARABILITY OF REPORTED WAVE 1 AND WAVE 2 REFERENCE TRIPS
(Among All "Long Complete" Panel Members)**

	FREQUENCY I-394	PERCENT I-394	FREQUENCY I-35W	PERCENT I-35W
Reported Similar Trip	218	70%	72	74%
Reported Different Trip	94	30%	25	26%
Total	312	100%	97	100%

Very similar travel mode patterns were observed for the reference trip as for "usual" mode – about three-quarters of panelists drove alone, slightly less than one-fourth carpooled, and 4% or less rode the bus. It appears that I-394 panelists were slightly more likely to carpool (24%) than those panelists on I-35W (21%) but the differences are not statistically significant due to small sample sizes.

**TABLE 6.6: CURRENT "REFERENCE TRIP" TRAVEL MODE
(Among All Panel Members Reporting Similar Trips)**

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

	FREQUENCY I-394	PERCENT I-394	FREQUENCY I-35W	PERCENT I-35W
Drive alone	162	74%	54	75%
Carpool	52	24%	15	21%
Ride bus	4	2%	3	4%
Total	218	100%	72	100%

Comparing Wave 1 and Wave 2 usual modes of travel, the share of carpooling among I-394 panelists was slightly higher in Wave 2 than in Wave 1; carpooling share decreased among I-35W panelists.¹⁸

TABLE 6.7: 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)
Drive alone	318	77%	264	76%
Carpool	88	21%	78	23%
Ride bus	7	2%	3	1%
Total	413	100%	345	100%
I-35W				
Drive alone	97	71%	88	79%
Carpool	38	28%	21	19%
Ride bus	1	1%	2	2%
Total	136	100%	111	100%

When the responses of individual panelists are explored, about one-fourth of them reported different usual modes of travel in the two panel waves. There were no statistically significant differences observed between I-394 and I-35W panelists.

**TABLE 6.8: CHANGE IN USUAL MODE OF TRAVEL (WAVE 1 TO WAVE 2)
(Among All Panel Members)**

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

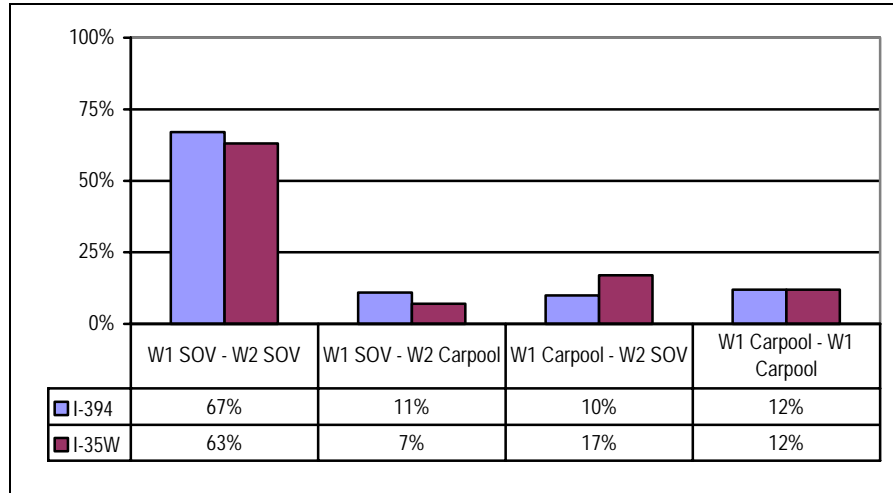
	FREQUENCY I-394	PERCENT I-394	FREQUENCY I-35W	PERCENT I-35W
Same Mode	269	78%	83	75%
Different Mode	76	22%	28	25%
Total	315	100%	111	100%

¹⁸ It should be noted that panel attrition affected the mode split distribution as reported in Table 6.7 for the control sample (I-35W). The mode split reported in the 2004 Baseline report was 71% drive alone, 22% carpool, and 1% transit. The panel retained more carpoolers than were found in the Wave 1 survey. The mode split reported for the I-394 sample was not affected by panel attrition. Since these data represent the same people, the mode shift patterns observed between Wave 1 and Wave 2 are still valid.

Consistent with the information presented in Table 6.8, I-394 panelists were slightly more likely than those in the control corridor (I-35W) to switch from SOV to carpool (11% versus 7%), whereas those in the control corridor were more likely to switch from carpool to SOV (17% versus 10%).

FIGURE 6.3: MODE SWITCHING BEHAVIOR BY CORRIDOR (WAVE 1 TO WAVE 2)
(Among Non-Transit Panel Members)¹⁹

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



6.3 ROADWAY USED

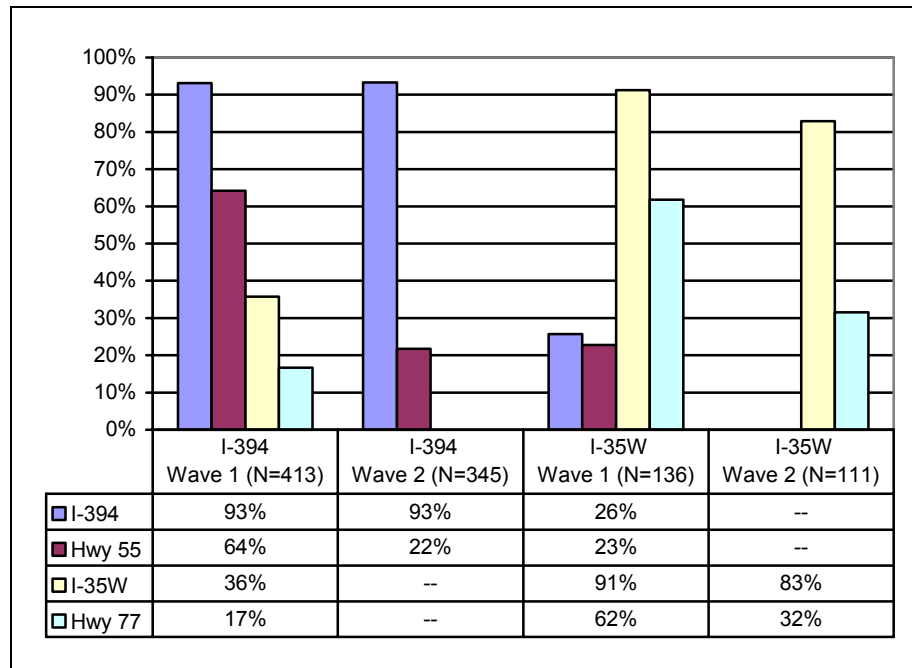
Dissimilar methods were used to capture information about roadways used in the past five weekdays in Wave 1 versus Wave 2. In Wave 1, respondents were asked, “On which of the following freeways have you traveled in the past 5 weekdays between the hours of 6 am and 9 pm?” (i.e., I-394, I-35W, Hwy 55,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

In Wave 2, 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 Wave 2, respondents were asked only about the roadways in their specific corridor. This question wording was used to simplify Travel Log completion by Wave 2 respondents.

The differences in question wording between Wave 1 and Wave 2 make us cautious in drawing inferences about trends in roadway use. However, it does appear that I-394 respondents in Wave 2 were less likely to use the alternative roadway (Hwy 55) than were I-35W respondents to use Hwy 77 (22% versus 32%, respectively). In Wave 1, I-394 and I-35W respondents exhibited similar patterns in their use of the alternative roadway.

¹⁹ Transit sample size is too small to report.

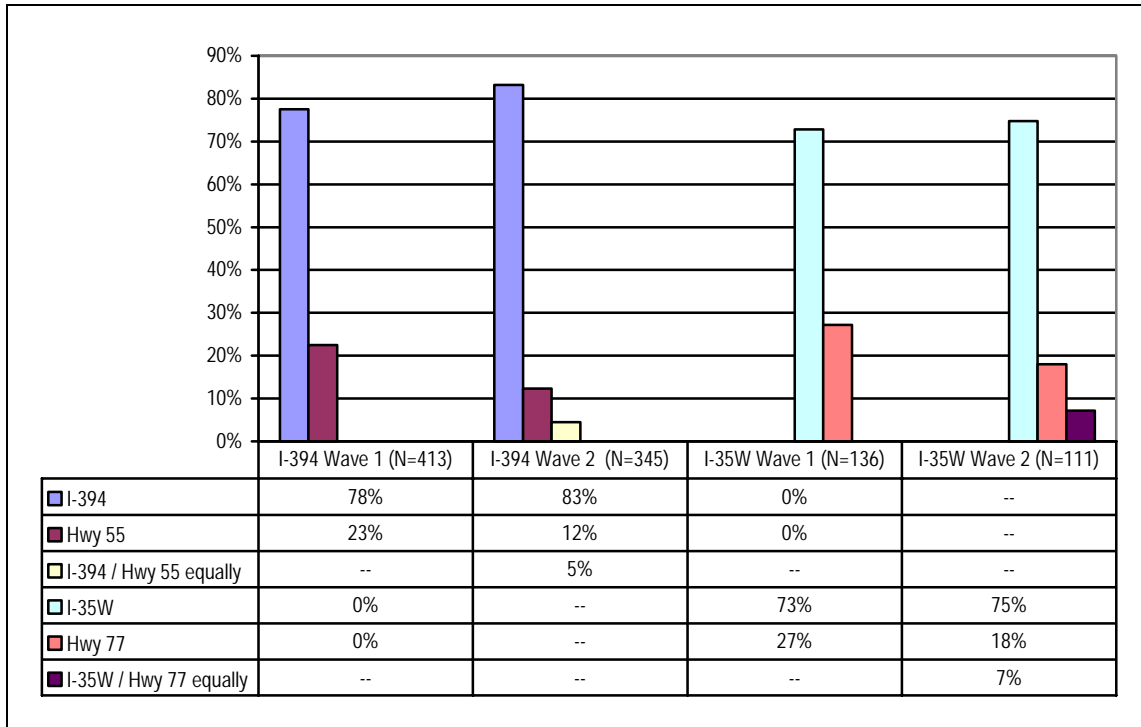
FIGURE 6.4: ROADWAYS USED MONDAY - FRIDAY, 6AM - 9PM, ASSIGNED WEEK
(Among Panel Members)



Another way to try to compare Wave 1 and Wave 2 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 Wave 2, 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.

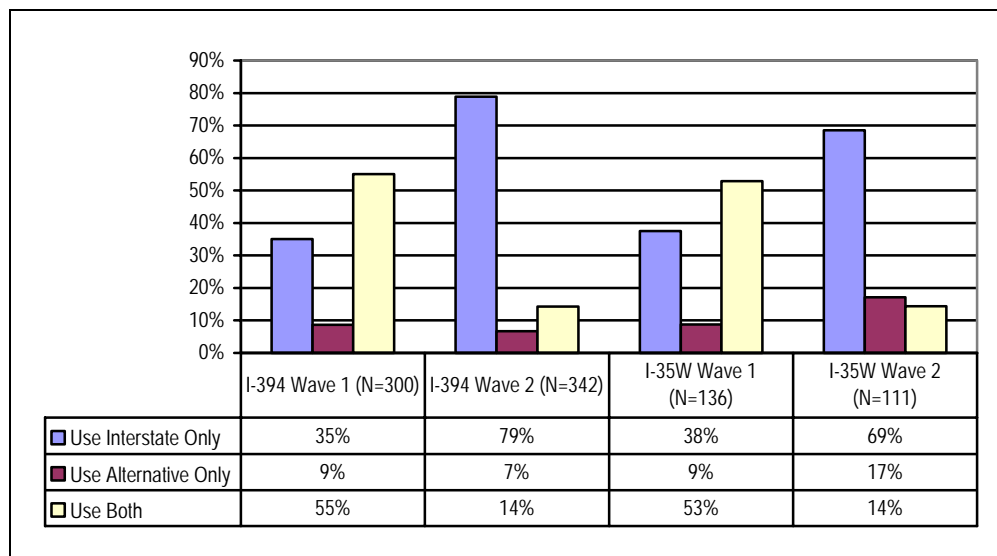
Different patterns of the most frequently used roadway were observed for I-394 panel member versus I-35W panel members. In Wave 2, more I-394 panelists (83%) seemed to use the interstate (I-394) as opposed to the alternative highway (Hwy 55) than did the I-35W panelists (75%) use the interstate versus 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 83%), whereas the same percentage of I-35W panelists reported using I-35W most frequently in the two waves (73% versus 75%).

**FIGURE 6.5: ROADWAY USED MOST FREQUENTLY MONDAY - FRIDAY, 6 AM – 9 PM, ASSIGNED WEEK
(Among Panel Members)**



In Wave 1, I-394 and I-35W panelists reported similar types of roadways used. However, differences between these panelists were observed in Wave 2. A larger percentage of I-394 panel members reported using only the interstate (i.e., I-394 versus I-35W) during their assigned travel week (79% versus 69%). A larger percentage of I-35W panelists reported using only the alternative highway (17% versus 7%). About the same percentages said that they used both the interstate and the alternative.

**FIGURE 6.6: TYPE OF ROADWAY USED MONDAY - FRIDAY, 6 AM – 9 PM, WAVE 2 ASSIGNED WEEK
(Among Panel Members)**



6.4 VOLUME OF TRAVEL

About the same mean number of trips was recorded among the I-394 panel in Wave 2 (7.62) than in Wave 1 (7.51). Different methods were used to capture volume of trips in the Wave 1 survey (i.e., retrospective recall) versus the Wave 2 survey (i.e., recorded in travel log). The different methods may account for the difference in reported volume of trips. In Wave 2, the mean total number of trips taken by the I-394 panelists (7.62) was higher than I-35W (6.60), regardless of type of trip. But the difference was not statistically significant.

TABLE 6.9: MEAN VOLUME OF TRIPS MONDAY - FRIDAY, 6AM - 9PM, WAVE 2 ASSIGNED WEEK

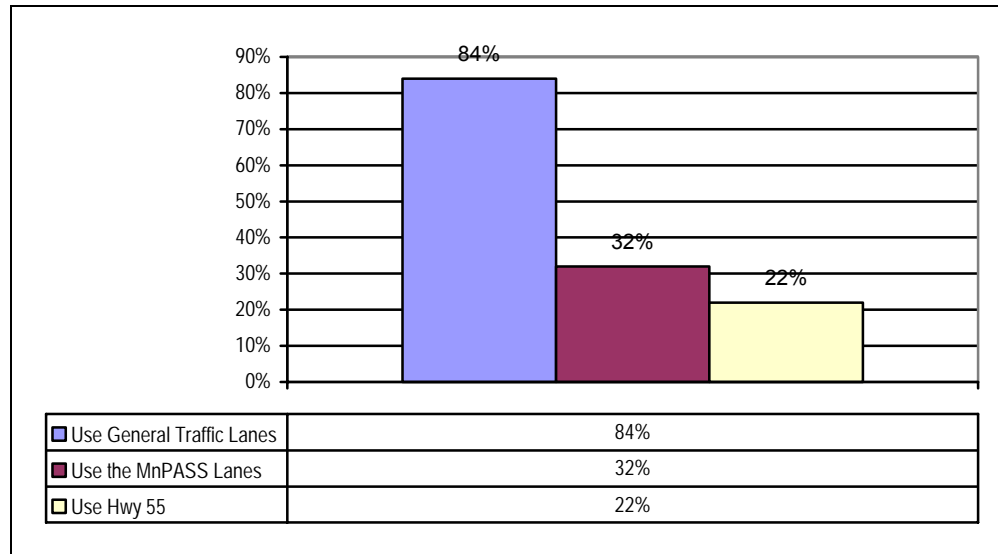
How many trips did you make in total?

TYPE OF TRIP	I-394		I-35W	
	WAVE 1	WAVE 2	WAVE 1	WAVE 2
	(N=413)	(N=345)	(N=136)	(N=111)
Total Number of Trips	7.51	7.62	6.52	6.60
By Direction				
Total Eastbound Trips	3.62	3.77	--	--
Total Westbound Trips	3.89	3.85	--	--
Total Northbound Trips	--	--	3.12	3.22
Total Southbound Trips	--	--	3.40	3.38
By Mode				
Total Number of Drive Alone Trips	5.68	5.80	4.93	5.12
Total Number of Carpool Trips	1.67	1.74	1.52	1.37
Total Number of Transit Trips	.15	.09	.07	.11
By Roadway or Lane				
Total Number of MnPASS Trips	--	1.44	--	--
Total Number of Hwy 55 Trips	--	1.19	--	--
Total Number of General Traffic Lane Trips	--	5.05	--	4.56
Total Number of Carpool Lane Trips	--	--	--	.59
Total Number of Hwy 77 Trips	--	--	--	1.44

One-third of all Wave 2 I-394 panel respondents (32%) reported using the MnPASS lanes for at least one trip Monday through Friday, 6 am – 9 pm, whereas 84% reported using the general traffic lanes and 22% reported using Hwy 55.

FIGURE 6.7: I-394 ROADWAY / LANES USED MONDAY - FRIDAY, 6 AM – 9 PM, WAVE 2 ASSIGNED WEEK

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



6.5 TRAVEL EXPERIENCES OF MNPASS USERS VERSUS NON-USERS

MnPASS lane users reported significantly more trips than non-users (9.07 versus 7.63 trips). Transponder owners averaged 8.7 trips, with a minimum of 2 trips and a maximum of 16 trips. MnPASS lane users also reported longer trips, on average, than non-users (19.41 miles versus 15.42 miles). However, travel time in minutes of the reference trip was virtually the same, which means that speeds for MnPASS lane users were faster, even though their trip lengths were about 25% longer.

TABLE 6.10: TRIP CHARACTERISTICS OF MNPASS USERS AND NON-USERS (All I-394 Respondents)

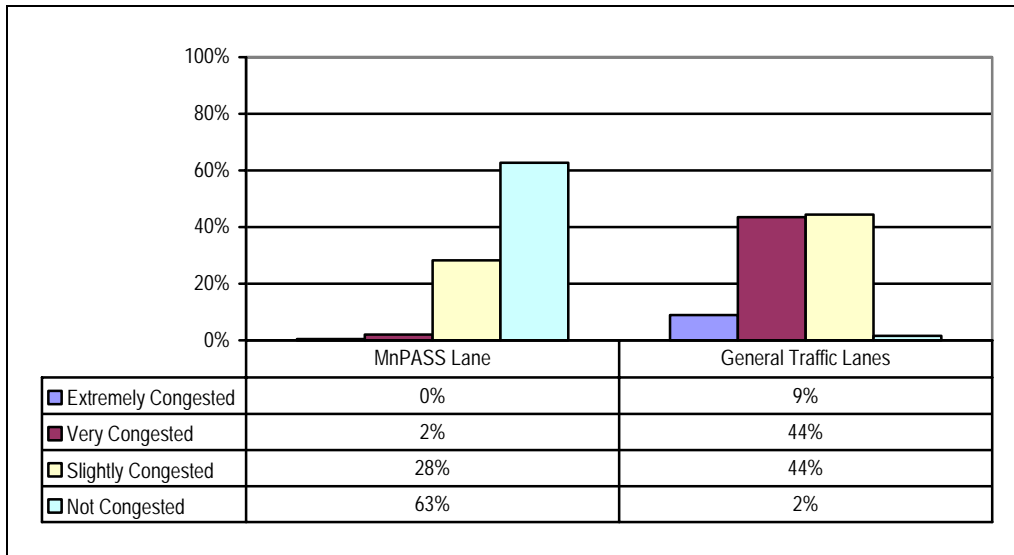
TRIP STATISTIC	MNPASS LANE USER	MNPASS LANE NON-USER
	(N=289)	(N=253)
Total Trips Assigned Week (mean)	9.07	7.63
Total Trips Assigned Week (median)	10.00	8.00
Reference Trip in Miles (mean)	19.41	15.42
Reference Trip in Miles (median)	15.00	12.00
Reference Trip Travel Time (mean)	35.58	35.68
Reference Trip Travel Time (median)	30.00	30.00

At the time of their reference trip travel, half of MnPASS lane users (53%) characterized the level of congestion in the general traffic lanes as very congested or extremely congested. About 44% said congestion in the general traffic lanes was slightly congested. About two-thirds (63%) described the MnPASS lane as not congested at all, indicating that there were free flow conditions.

FIGURE 6.8: CONGESTION IN MNPASS LANE AND GENERAL TRAFFIC LANES

(I-394 Respondents who Used MnPASS Lanes, N=289)

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” (70% versus 59%, respectively). MnPASS lane users were also more satisfied with their trip than were non-users (60% 100% satisfied versus 43%, respectively).

FIGURE 6.9: 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 [I-35W] at that time?

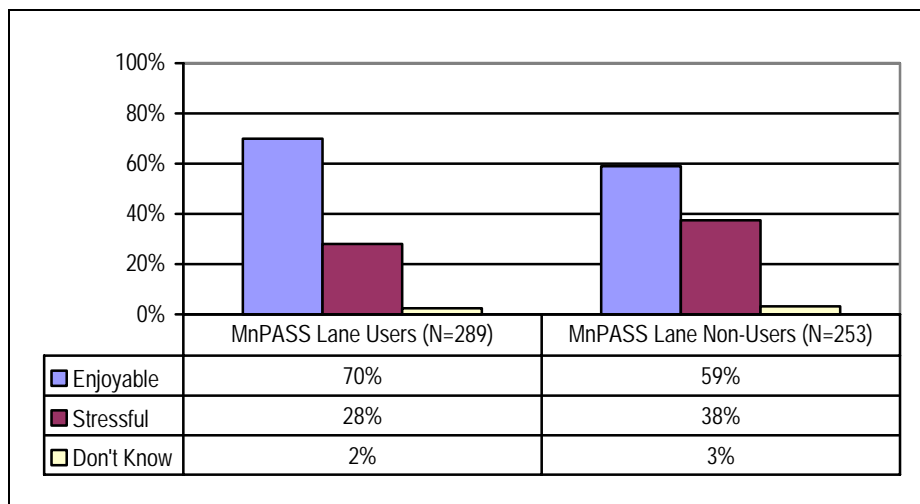
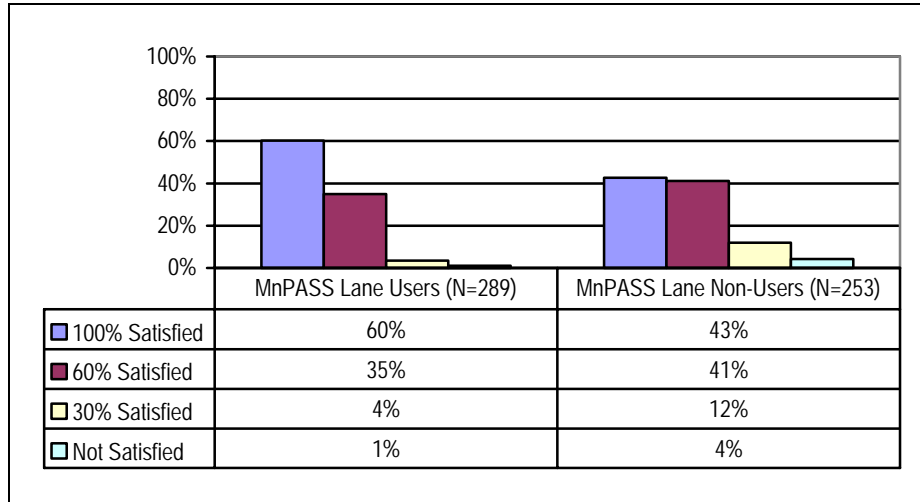


FIGURE 6.10: SATISFACTION WITH REFERENCE TRIP

(All I-394 Respondents)

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

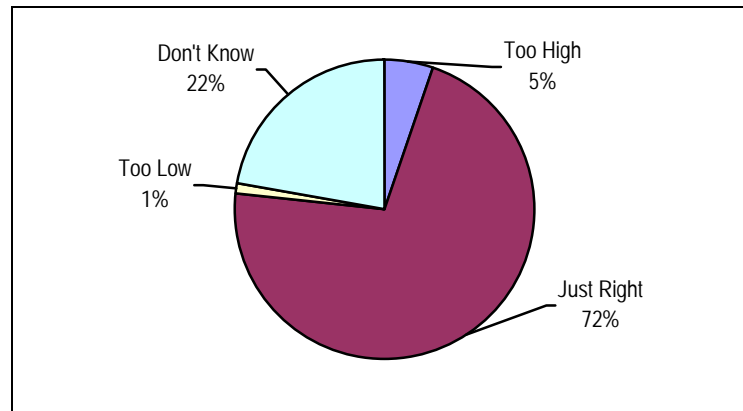


Most MnPASS lane users considered the MnPASS toll a good value; 72% said the toll paid for their reference trip was just right – neither too high nor too low. About one in five could not place a value on the toll paid.

FIGURE 6.11: PERCEIVED VALUE OF MNPASS TOLL

(I-394 Respondents who Used MnPASS Lanes, N=289)

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

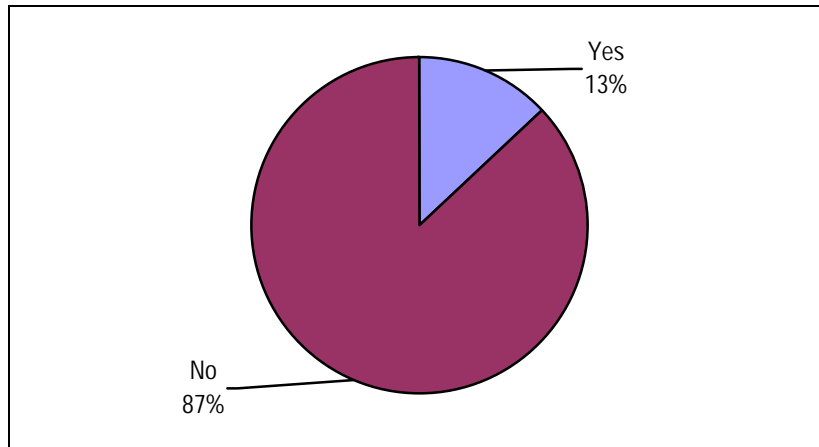


The vast majority of MnPASS lane users (87%) did not experience any problems merging into the MnPASS from the general traffic lane on their reference trip, while 13% experienced problems. Of the total sample, 6% identified the problem as congestion; 4% as lanes were confusing; and 3% said they experienced rude drivers.

FIGURE 6.12: MERGING PROBLEMS ON REFERENCE TRIPS

(I-394 Respondents who Used MnPASS Lanes, N=289)

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



6.6 TRAVEL PROFILES OF TRANSPONDER OWNERS AND TRANSPONDER NON-OWNERS

Does being a transponder owner influence travel behavior? There was no difference between transponder owners and transponder non-owners in their trip volumes during the assigned travel week (Monday through Friday). Transponder owners averaged 8.7 trips, with a minimum of 2 trips and a maximum of 16 trips. Transponder non-owners averaged 8.2 trips, with a minimum of 1 trip and a maximum of 20 trips. However, there is 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 20.4 miles and median distance of 17 miles, whereas non-owners reported a mean distance of 15.9 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 8 mph and 10 mph faster for the mean and median trip, respectively, even though their trip lengths were 28% and 42% longer, respectively.

TABLE 6.11: MEAN VOLUME OF TRIPS MONDAY - FRIDAY, 6 AM – 9 PM, WAVE 2 ASSIGNED WEEK
(All I-394 Respondents)

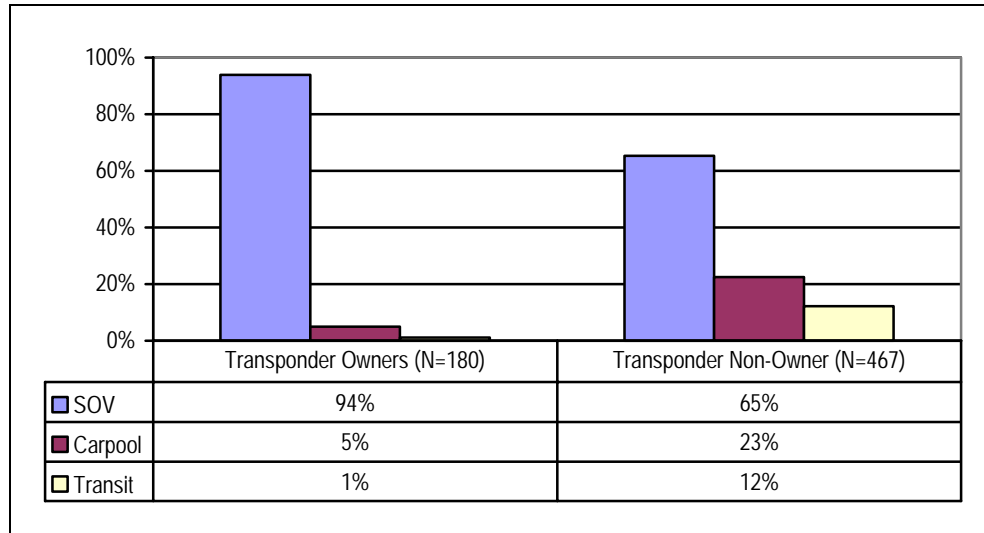
How many trips did you make in total?

TRIP STATISTIC	TRANSPONDER OWNERS	TRANSPONDER NON-OWNERS
	(N=179)	(N=467)
Total Trips Assigned Week (mean)	8.69	8.22
Total Trips Assigned Week (median)	10.00	8.00
Reference Trip in Miles (mean)	20.43	15.90
Reference Trip in Miles (median)	17.00	12.00
Reference Trip Travel Time (mean)	34.93	34.80
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 (94%) was SOV drivers. It is interesting to note, however, that 5% of carpoolers own transponders, probably for occasions when they need to drive alone.

FIGURE 6.13: USUAL MODE OF TRAVEL MONDAY - FRIDAY, 6 AM – 9 PM, WAVE 2 ASSIGNED WEEK
(All I-394 Respondents)

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



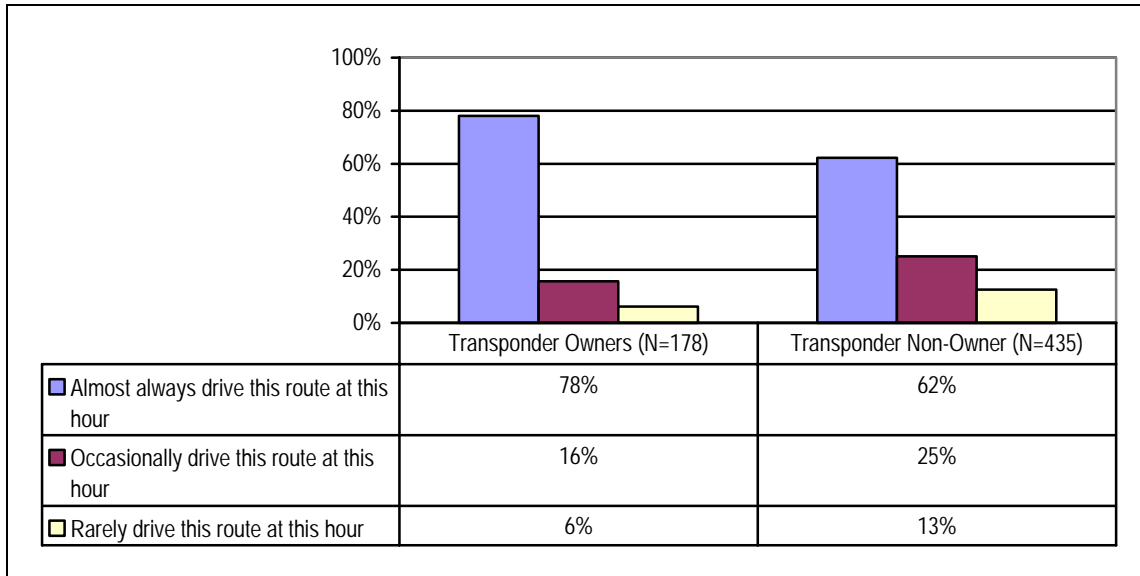
There were significant differences among the two ownership segments in terms of how familiar they were with the traffic conditions at the time of their reference trip. Transponder owners are frequent, regular users of the I-394 corridor. Three-fourths of transponder owners (78%) said they almost always drive this route at this hour (3 or 4 times per week) compared to only 62% of non-owners (see Figure 6.14). There were no differences in the flexibility that transponder owners versus non-owners have in their scheduled arrival times at destinations. Seventy-eight percent of transponder owners report that they “almost always drive [I-394] at this hour,” compared to 62% of non-owners.

As shown in Table 6.8 previously, travel speeds experienced by transponder owners are significantly higher. This probably translates into higher travel time reliability and thus an ability to drive the MnPASS route at generally the same hour.

FIGURE 6.14: FAMILIARITY WITH TRAFFIC CONDITIONS RELATED TO REFERENCE TRIP

(All I-394 Respondents)

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

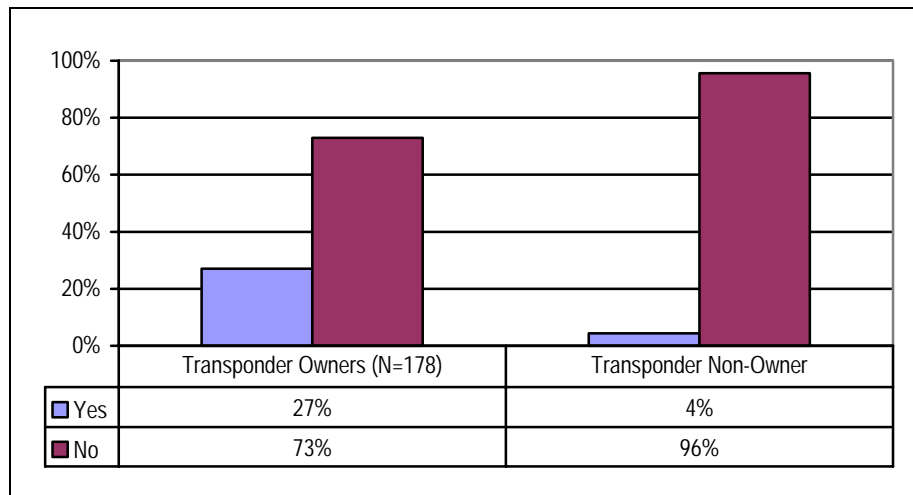


A larger percent of transponder owners reported changes in their typical departure time for their reference trip because of MnPASS (27% versus 4%). This difference is statistically significant. Of those transponder owners who changed their departure time, 88% are leaving later and 12% are leaving earlier. The fact that 73% of transponder owners did not change the time of their trip, compared to 96% for non-owners is an indication that MnPASS affords greater departure flexibility / choice.

FIGURE 6.15: CHANGE IN TYPICAL DEPARTURE TIME RELATED TO REFERENCE TRIP

(All I-394 Respondents)

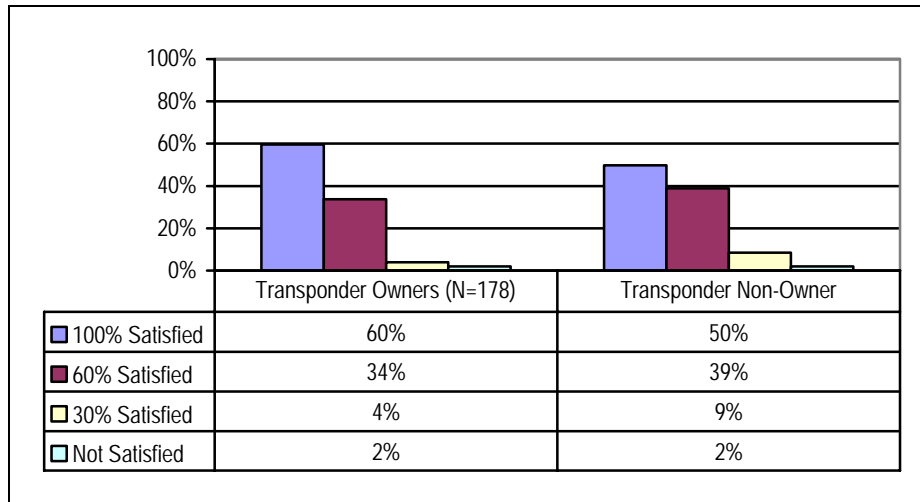
Have you changed your typical departure time for this trip because of MnPASS?



Transponder owners were more likely to report 100% satisfaction with the overall quality of their reference trip than were non-owners (60% versus 50%). But differences between the two groups were not statistically significant. The same finding was observed in terms of their reported travel experience descriptors (i.e., enjoyable versus stressful). About two-thirds of each group reported their trip as being “enjoyable,” and one-third reported a “stressful” trip.

FIGURE 6.16: 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. CONCLUSIONS

7.1 KEY FINDINGS

I-394 MnPASS Acceptance

Acceptance of the MnPASS concept remains high (59% “good idea” versus 29% “bad idea”). Actual experience of the MnPASS lanes in operation has not diminished panel respondents’ support for the idea 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 (62% “good idea” versus 23% “bad idea”). The majority of carpoolers were supportive (64% “good idea”). Just under half of transit users surveyed (45%) expressed support for the MnPASS concept.

The most common reason for supporting MnPASS was that “it provides a better use for carpool lanes.” The most common reason for believing it was a bad idea was that it “only benefits the rich.” But the most likely groups to have this latter opinion were higher-income respondents and SOV drivers. The high levels of support may be influenced by travelers’ appreciation of their current driving experiences on I-394. The majority of I-394 users are 100% satisfied with the overall quality of their travel. Most, regardless of their choice of mode, described their travel experience on a recent trip on the corridor as “enjoyable” rather than “stressful.” Citizens of all income levels were satisfied with their travel on I-394. Seventy-one percent of low-income citizens said their travel experience was “enjoyable,” versus 68% for middle-income citizens and 55% for high-income citizens.

I-394 MnPASS Use and Satisfaction

The panel captured a 4% incidence of MnPASS subscribers. However, use of the MnPASS lanes represents a much broader market. Of panel members, 87% reported that they have used the MnPASS lanes in the past as a carpooler; 7% said they have used the lanes as a paying SOV driver; and 4% reported usage as a bus rider. MnPASS usage was reported across all income levels, with 54% of lower-income, 62% of middle-income, and 66% of higher-income respondents reporting that they have used the MnPASS lanes.

MnPASS users, regardless of whether they were paying users or not, were satisfied with MnPASS operations. Users had the highest levels of satisfaction with speed of traffic flow in the MnPASS lane. Eight of ten are satisfied with the speeds / flow in the MnPASS lane. In fact, when describing the level of congestion in the MnPASS lanes on their reference trip, 63% described MnPASS lane as not congested at all, whereas 53% characterized the level of congestion in the general traffic lane as very congested or extremely congested. Most MnPASS lane users considered the MnPASS toll as a good value; 71% said that the toll paid for their reference trip was “just right.”

Safety issues were not raised in conjunction with MnPASS operations, with 76% reporting satisfaction with the ease of identifying the MnPASS entry points, and 66% satisfied with the safety of merging into MnPASS lanes. Only 13% of MnPASS users had experienced any problems merging into the MnPASS lanes from the general traffic lane; and most of these persons attributed the problems to “congestion” or “rude drivers” rather than to some engineering or operational aspect of the lanes, themselves. Among all users, the lowest levels of satisfaction were with the enforcement of MnPASS usage (45%); still satisfaction of enforcement outpaced dissatisfaction by a three-to-one margin.

Paying MnPASS customers were exceptionally satisfied with the details of having an MnPASS subscription. Virtually all (95%) were satisfied with the all electronic toll collection, ease of opening an account (92%); using a credit card to replenish the account (92%), and the ease of installing the MnPASS transponder (92%). Communications appear to be handled well with virtually no complaints about the staff at the Customer Service Center or about the MnPASS website. About one-of-five paying customers reported dissatisfaction with the clarity of prices on overhead signs or with the toll amounts that vary with traffic levels.

Attitudes and Travel Behavior among I-394 Users

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: 76% drive alone, 23% carpool, and 1% ride bus. While one in ten (11%) I-394 panelists reported switching from SOV to carpool as their usual mode of travel on the corridor, about the same percent reported switching from carpool to SOV (10%). The control corridor (I-35W) did experience less switching from SOV to carpool (7%) and more switching from carpool to SOV (17%).

The percentage of I-394 panelists reporting a congestion delay was lower in 2005 (28%) than in 2004 (38%). Respondents who did not use the MnPASS lanes were more likely to experience congestion than those who did (30% versus 21%, respectively). Satisfaction with the overall quality of travel on I-394 has also risen, with 46% of panelists now reporting 100% satisfaction compared with 36% in 2004. The percentage of panel members who rated travel on I-394 “enjoyable” after MnPASS (61%) was higher than before MnPASS (50%).

Willing to Pay the MnPASS Toll

The mean value of time estimated for the Wave 2 respondents (\$10.50 per hour) was higher than that captured in Wave 1 (\$8.50 per hour). This result indicated that now the MnPASS lane is in operation, people are more aware of their willingness to pay a higher toll to avoid congestion. The types of people who expressed a higher willingness to pay the MnPASS toll included those traveling a longer distance, traveling in the peak period and on a commute trip, planning to use the MnPASS lane before their trip started, supporting the MnPASS concept, and, finally, persons who are aged 35-44 and higher-income.

7.2 DESIGN AND FIELDWORK

The Attitudinal Panel Survey has been successfully implemented for two of the three planned panel waves. The first wave of the panel was conducted in November / December 2004, prior to MnPASS implementation. In it, NuStats recruited 980 respondents (using probability-based sampling) who agreed to be re-interviewed in Waves 2 and 3. The second wave of the panel was conducted in November / December 2005, about six months into MnPASS implementation. The start of the second wave was delayed three months to avoid surveying during construction of an auxiliary lane outbound on a section of the MnPASS lanes (i.e., MN100 to US169) to deal with a contra-peak congestion issue. The delay in Wave 2 data collection resulted in a longer than anticipated hiatus in panel contact and contributed to a larger than anticipated rate of panel attrition.

The Wave 2 survey experienced an attrition rate of 44% of the Wave 1 respondents. While this rate of attrition was higher than expected, it is comparable to that experienced in other recent transportation panels.²⁰ Reasons for the attrition in the Wave 2 survey included: unable to locate or contact target person, target person no longer willing to participate, or target person no longer using corridor. An attrition analysis determined that no systematic bias was introduced into the Wave 2 panel 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. Our use of the “short” completes also diminished the sample size for the reference trip and SP analysis. However, it did serve to increase the Wave 2 sample for all other analytical purposes.

The Wave 3 survey is scheduled to start in May 2006. As such, it would occur five months after Wave 2 and prior to the typical time for household relocations (i.e., summer school break). This schedule should diminish the level of attrition in the Wave 3 sample, which is anticipated to be around 20%. A thank-you postcard will be mailed in March 2006 and used as an interim panel contact.

Eighty-nine percent of Wave 2 respondents agreed to be re-interviewed in Wave 3. Taking 20% attrition into consideration, this would effectively reduce the Wave 3 sample to 680 persons, of which about 400 would be long-term panel members (i.e., interviewed in Wave 1 and Wave 2). The final sample size should be larger. So, NuStats recommends that it be refreshed with new probability samples of I-394 and I-35W corridor users. This refreshment sample would be comprised of 600 new respondents -- of which 450 would be I-394 users and 150 would be I-35W users. The geographic coverage of the I-394 sample should be extended to include the census tracts west of I-94 that analysis of MnPASS subscribers has shown account for MnPASS trips. According to this recommended plan, the Wave 3 sample would total between 1200-1300 respondents. It would be comprised of 600 new randomly sampled corridor users; 400 long-term panel members, and 320 returning targeted respondents (i.e., 120 MnPASS subscribers and 200 transit users).

The data collection schedule will be extended to account for tracing panel respondents, contacting the target respondent, rescheduling assigned travel weeks to ensure capture of similar trips, and the timing of mailing of pre-notification packets and the follow-up telephone data retrieval. In addition, the Wave 3 data collection will include the use of a “reminder” call to the target respondents that is timed to arrive after the receipt of the package and prior to the assigned travel week to ensure that respondents have received their package with the Travel Log, to answer any questions, and to confirm the respondents participation in the Wave 3 interview.

²⁰ 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.



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/>

March 13, 2006

«FNAME» «LNAME»

«HADDR»

«HCITY», «HSTAT» «HZIP1»

«SAMPN»-«REP»-«STYPE»

Dear «FNAME» «LNAME», [MnPASS subscribers and Transit sample]

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. Full participation in this study requires your consent to be interviewed on two separate occasions. A representative of NuStats, a professional survey research firm, will telephone you in about a week for the first interview. Prior to this interview, please record information about your travel during the week specified in the box below in the **enclosed travel log**.

Your assigned travel week is:

<<assigned week>

What are we asking you to do?

- **First, summarize the number of trips you make during your assigned travel week in Part A: Assigned Travel Week.** Use the enclosed travel log to record the volume of one-way trips you make Monday through Friday during the week of <<assigned week>> by direction of travel and also by your mode of travel.
- **Second, record specific information about a one-way trip you take during your assigned travel week that matches the information provided in Part B: Assigned Trip.** Record information about the a trip you take during the week of <<assigned week>> that matches the day of the week, time of day, purpose and the direction provided under Part B: Assigned Trip.
- **Third, provide us this information in a telephone interview.** An interviewer from NuStats will call after <<assigned week>> to collect your information and also to ask some additional questions. This interview will take 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

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
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E-mail: slpp@hhh.umn.edu
<http://www.hhh.umn.edu/Centers/SLP/>*

March 13, 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 will telephone you in about a week to complete your next interview. Prior to this interview, please record information about your travel during the week specified in the box below in the **enclosed travel log**.

Your assigned travel week is:

<<assigned week>>

What are we asking of you?

- **First, summarize the number of trips you make during your assigned travel week in Part A: Assigned Travel Week.** Use the enclosed travel log to record the volume of one-way trips you make Monday through Friday during the week of <<assigned week>> by direction of travel and also by your mode of travel.
- **Second, record specific information about a one-way trip you take during your assigned travel week that matches the information provided in Part B: Assigned Trip.** Record information about a trip you take during the week of <<assigned week>> that resembles the one that you detailed for us in your first interview. To assist you, we have indicated the day, time of day, and purpose of your last trip in Part B: Assigned Trip.
- **Third, provide us this information in a second telephone interview.** An interviewer from NuStats will call after <<assigned week>> 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. 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



APPENDIX B: TRAVEL LOG



Part A: Assigned Travel Week

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

Assigned Travel Week: <<travel week>>

1 For each day during your assigned 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 take on I-394 or Hwy 55, during your assigned travel week, that matches your assigned trip below.

Assigned Trip: Day of Week: <<Day of Week>>
 Trip Purpose: (Panel version only)
 Direction of Travel: (Panel version only)
 Time of Departure: <<Time of day>>

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

NO

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 levels of congestion.
 I travelled by carpool or bus.
 Other: _____

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: _____



APPENDIX C: SURVEY INSTRUMENT

MnPASS -- Wave 2 Survey Instrument

SAMPLE TYPE (From sample databases):

PANEL – I-394	1
MNPASS SUBSCRIBERS – I-394	2
TRANSIT LIST – I-394	3
PANEL – I-35w	4
TRANSIT LIST – I-35W	5
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

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. Did you receive our package with the travel log? Did you complete it? Great. I'll continue with the survey. *If not: Reschedule.*

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

HH Size:
 No. Vehicles:
 No. Workers:
 HH Income:

UNSURE	998
REFUSED	999

THEN PANEL MEMBERS SKIP TO A1.

MNPASS SUBSCRIBERS / TRANSIT USERS

I1. May I speak with _____ (subscriber/transit user)? 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 -- ALL

I2. 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 I4)	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.

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. Let me explain why I've called. 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.

I need your informed consent to be interviewed on three separate occasions over the next 16 months. The reason for these three interviews is to enable researchers to understand any changes in behavior, or attitudes you might have before and after the implementation of the new roadway project. 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 I4.

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 S1)	1
NO (THANK AND ASK FOR OTHER ELIGIBLE PERSON IN HH)	2
DK/RF (THANK AND ASK FOR OTHER ELIGIBLE PERSON IN HH)	3

CONT: Thank you for participating in our Attitudinal Panel Survey. Did you receive our package with the travel log? Did you complete it? Great. I'll continue with the survey. *If not: Reschedule.*

General Attitude, MnPASS Awareness , Knowledge

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 SKIP S2-S6

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
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 SKIP A1-A4

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
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

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

A8. What do you know about MnPASS?
[ALLOW MORE THAN ONE ANSWER]

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”)

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

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

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?

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?

- 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?

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 Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied	DK	RF
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	4

traffic,	
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 Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied	DK	RF
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 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

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

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

DT15: Are you leaving earlier or later?

	RF	999
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?

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

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

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
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?

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

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

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

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

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. Are you still willing to be surveyed one more time next Spring?

YES	1
NO	2
UNSURE	998
RF	999

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

IF PARTICIPATING IN PANEL:

P1: 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	108	203	94	144	549
	Row	19.7%	37.0%	17.1%	26.2%	100.0%
ATTRITORS	Count	76	170	83	102	431
	Row	17.6%	39.4%	19.3%	23.7%	100.0%
Total	Count	184	373	177	246	980
	Row	18.7%	38.1%	18.1%	25.1%	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	1	132	284	132	549
	Row	.2%	23.7%	52.8%	23.3%	100.0%
ATTRITORS	Count	3	90	231	107	431
	Row	.7%	20.9%	53.6%	24.8%	100.0%
Total	Count	4	222	515	239	980
	Row	.4%	22.7%	52.6%	24.4%	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	45	119	221	163	1	549
	Row	8.2%	21.7%	40.3%	29.7%	.2%	100.0%
ATTRITORS	Count	52	98	172	109	0	431
	Row	12.1%	22.7%	39.9%	25.3%	.0%	100.0%
Total	Count	97	217	393	272	1	980
	Row	9.9%	22.1%	40.1%	27.8%	.1%	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	Count	67	112	156	117	96	1	549
	Row	12.2%	20.4%	28.4%	21.3%	17.5%	.2%	100.0%
ATTRITORS	Count	110	97	97	76	51	0	431
	Row	25.5%	22.5%	22.5%	17.6%	11.8%	.0%	100.0%
Total	Count	177	209	253	193	147	1	980
	Row	15.8%	21.3%	25.8%	19.7%	15.0%	.1%	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	Count	435	19	3	82	3	7	549
	Row	79.2%	3.5%	.5%	14.9%	.5%	1.3%	100.0%
ATTRITORS	Count	352	19	6	47	4	3	431
	Row	81.7%	4.4%	1.4%	10.9%	.9%	.7%	100.0%
Total	Count	787	38	9	129	7	10	980
	Row	80.3%	3.9%	.9%	13.2%	.7%	1.0%	100.0%

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

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	Count	63	376	0	439
	Row	14.4%	85.6%	.0%	100.0%
ATTRITORS	Count	52	306	2	360
	Row	14.4%	85.0%	.6%	100.0%
Total	Count	115	682	2	799
	Row	14.4%	85.4%	.3%	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	Count	76	196	230	47	549
	Row	13.8%	35.7%	41.9%	8.6%	100.0%
ATTRITORS	Count	41	156	197	37	431
	Row	9.5%	36.2%	45.7%	8.6%	100.0%
Total	Count	117	352	427	84	980
	Row	11.9%	35.9%	43.6%	8.6%	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	Count	497	47	5	0	549
	Row	90.5%	8.6%	.9%	.0%	100.0%
ATTRITORS	Count	340	82	7	2	431
	Row	78.9%	19.0%	1.6%	.5%	100.0%
Total	Count	837	129	12	2	980
	Row	85.4%	13.2%	1.2%	.2%	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	Count	1	130	330	88	549
	Row	.2%	23.7%	60.1%	16.0%	100.0%
ATTRITORS	Count	2	96	262	71	431
	Row	.5%	22.3%	60.8%	16.5%	100.0%
Total	Count	3	226	592	159	980
	Row	.3%	23.1%	60.4%	16.2%	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	Count	106	410	33	549
	Row	19.3%	74.7%	15.5%	100.0%
Attritors	Count	69	314	48	431
	Row	16.0%	72.9%	11.1%	100.0%
Total	Count	175	724	81	980
	Row	17.9%	73.9%	8.3%	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	Count	313	236	549
	Row	57.0%	43.0%	100.0%
Attritors	Count	212	219	431
	Row	49.2%	50.8%	100.0%
Total	Count	525	455	980
	Row	53.6%	46.4%	100.0%
	Column	100.0%	100.0%	100.0%

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



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	Count	0	184	373	423	980
	Row	0.0%	18.8%	38.0%	43.2%	100.0
Wave 2 Panel	Count	0	106	204	239	549
	Row	0.0%	19.3%	37.2%	43.5%	100.0

TABLE E2: PANEL MEMBERS AND PANEL ATTRITION BY HOUSEHOLD VEHICLES

WAVE 1		HOUSEHOLD VEHICLES				TOTAL
		0	1	2	3+	
Baseline Panel	Count	0	222	515	239	976
	Row	0.0%	22.7%	52.8%	24.5%	100.0%
Wave 2 Panel	Count	1	130	290	128	549
	Row	0.2%	23.7%	52.8%	23.3%	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	Count	97	217	393	272	1	980
	Row	9.9%	22.1%	40.1%	27.8%	0.1%	100.0%
Wave 2 Panel	Count	45	119	221	163	1	549
	Row	8.2%	21.7%	40.3%	29.7%	0.1%	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	Count	177	209	253	193	147	1	980
	Row	18.0%	21.4%	25.8%	19.7%	15.0%	0.1%	100.0%
Wave 2 Panel	Count	67	112	156	117	96	1	549
	Row	12.2%	20.4%	28.4%	21.3%	17.5%	0.2%	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	Count	799	153	40	153	14	18	1177
	Row	67.9%	13.0%	3.4%	13.0%	1.2%	1.5%	100.0%
Wave 2 Panel	Count	439	85	10	98	9	10	651
	Row	67.4%	13.1%	1.5%	15.1%	1.4%	1.5%	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	Count	115	682	2	799
	Row	14.4%	85.3%	0.3%	100.0%
Wave 2 Panel	Count	63	376	0.0	439
	Row	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	Count	117	352	427	84	980
	Row	12.0%	35.9%	43.6%	8.5%	100.0%
Wave 2 Panel	Count	77	101	336	35	549
	Row	14.0%	18.4%	61.2%	6.4%	100.0%

TABLE E8: PANEL MEMBERS AND PANEL ATTRITION BY HOUSING TENURE

WAVE 1		HOUSING TENURE				TOTAL
		OWN	RENT	OTHER	REFUSED	
Baseline Panel	Count	837	129	12	2	980
	Row	85.4%	13.2%	1.2%	0.2%	100.0%
Wave 2 Panel	Count	497	47	5	0	549
	Row	90.5%	8.6%	0.9%	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	Count	3	226	592	159	980
	Row	0.3%	23.1%	60.4%	16.2%	100.0%
Wave 2 Panel	Count	1	130	330	88	549
	Row	0.2%	23.7%	60.1%	16.0%	100.0%

TABLE E10: PANEL MEMBERS AND PANEL ATTRITION BY HOUSEHOLD INCOME

WAVE 1		HOUSEHOLD INCOME							RF	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		
Baseline Panel	Count	57	118	162	213	133	81	135	81	980
	Row	5.8%	12.0%	16.5%	21.7%	13.6%	8.3%	13.8%	8.3%	100.0%
Wave 2 Panel	Count	22	67	78	114	76	37	70	85	549
	Row	4.0%	12.2%	14.2%	20.8%	13.8%	6.7%	12.8%	15.5%	100.0%

TABLE E11: PANEL MEMBERS AND PANEL ATTRITION BY GENDER

WAVE 1		GENDER		TOTAL
		MALE	FEMALE	
Baseline Panel	Count	525	455	980
	Row	53.6%	46.4%	100.0%
Wave 2 Panel	Count	369	180	549
	Row	67.2%	32.8%	100.0%