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4 **“Preliminary Before and After Results of the I-394 HOT Lane Panel Survey”**
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ABSTRACT

This report documents the methods and results of the second wave of data collection for the I-394 MnPASS Evaluation 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. Data were collected through 950 interviews to evaluate the attitudinal and behavioral impacts of allowing solo drivers to pay to use carpool lanes.

Overall approval and satisfaction with the I-394 MnPASS Express Lane project is strong and broad. Six 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 (single-occupancy vehicles) or not (carpoolers and bus riders). Almost nine out of ten reported having no problems with merging into the tolled lanes. Finally, most users felt that paying the MnPASS toll to avoid congestion was a good value.

I-394 MnPASS OVERVIEW

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 driver 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) an approximately 4-mile section of roadway with reversible lanes located east of Hwy 100 to downtown Minneapolis and (2) an approximately 8-mile section of roadway with diamond lanes located west of Hwy 100 to Hwy 101.

The per-trip fee is variable, depending on the real-time traffic levels to make sure that traffic flows at a minimum of about 50 to 55 miles per hour. The fee is always charged for single-occupancy vehicle (SOV) use in the reversible section, while fees are only charged in the peak direction during rush hours (Monday through Friday-eastbound 6 a.m. to 10 a.m. and westbound 2 p.m. to 7 p.m.) in the diamond lane section. The fee is posted on changeable message signs, which can be adjusted as often as every three minutes, located just before entrances to MnPASS lanes. The per-trip fee depends on where users enter and exit the MnPASS Express Lanes. The tolls range from 25 cents to \$8 and average \$1 to \$4 during rush hour. Solo drivers who subscribe to the MnPASS program (identified in this report as subscribers or transponder owners) are issued windshield-mounted transponders for automatic vehicle identification. Each time subscribers use the lanes; their accounts are automatically debited the per-trip fee. MnPASS subscribers also pay a \$1.50 monthly fee for leasing the MnPASS transponder.

ATTITUDINAL PANEL SURVEY OVERVIEW

This Attitudinal Panel Survey measures the attitudinal and reported behavioral responses of corridor travelers before and after the implementation of the I-394 MnPASS project. 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. Seventy-five percent (736 individuals) of the panel members were users of the I-394 corridor, while the remaining 25 percent (244 individuals) were users of the control corridor (I-35W). I-35W was selected as the control corridor because it was the only other roadway with carpool lanes in the Twin Cities Metropolitan Area. Survey respondents included individuals 18 years of age or older who had traveled along one of the target road segments between 6 a.m. and 9 p.m. at least once in the five weekdays prior to being interviewed. 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. Analysis revealed that people “lost” to the panel tended to be renters and age 34 or younger. This outcome is not surprising given the 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.

KEY FINDINGS

Support for the Idea

Acceptance of the MnPASS concept among panel members had not changed drastically 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. Survey respondents were asked for the reasons behind their opinions on these MnPASS acceptance questions in an unprompted (or open-ended) manner. 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). Other frequently mentioned reasons included adds capacity to roadway (17%), saves time for busy people and only users pay (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%).

TABLE 1 Perception of Allowing SOV to Use Carpool Lane by Paying Toll (Among Panel Members)

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

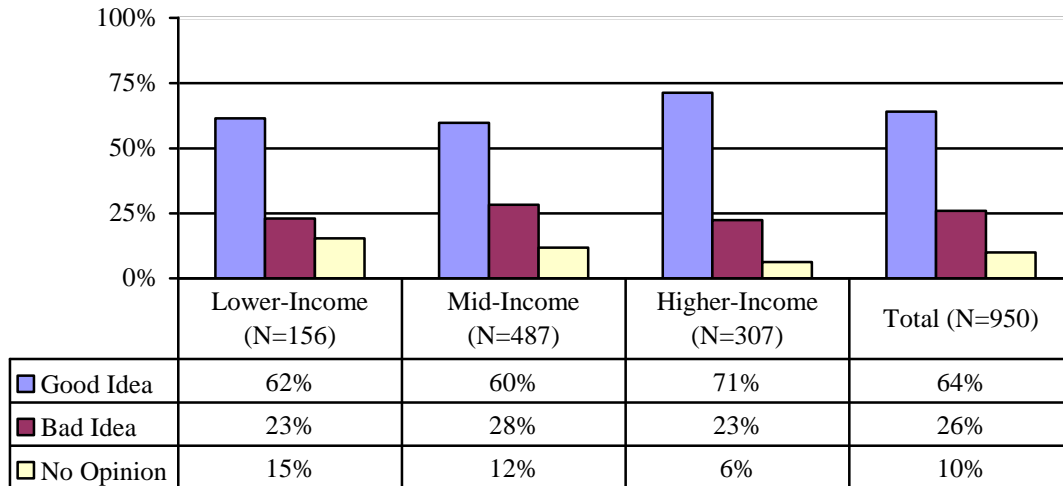
	FREQUENCY WAVE 1 (2004)	PERCENT WAVE 1 (2004)	FREQUENCY WAVE 2 (2005)	PERCENT WAVE 2 (2005)
Good Idea	334	61%	323	59%
Bad Idea	157	28%	158	29%
No Opinion	58	11%	68	12%
Total	549	100%	549	100%

Consistent Approval Across All Income Groups

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. 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. 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 1 Opinion on Allowing Single Drivers to Use Carpool Lanes by Household Income (Among All Wave 2 Participants).

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



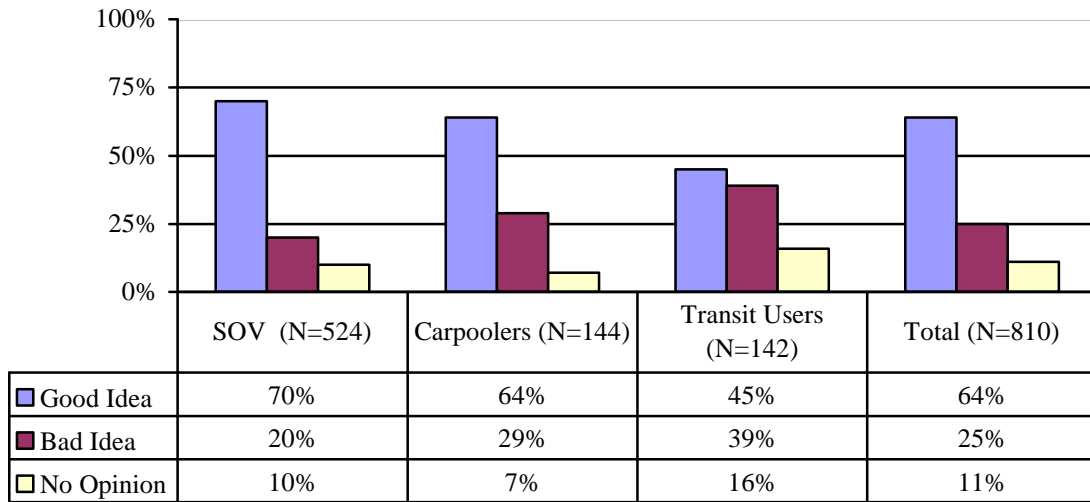
There were slight differences by income in the reasons given by respondents for their positive responses on questions pertaining to MnPASS tolling operations. Mid- and higher-income respondents were more likely to say that MnPASS provides a better use for the carpool lane than were lower-income respondents. 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.

Support of the Concept by Commute Mode

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 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.

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.

MnPASS Lane Users Represented a Broad Market

Mode Split

Among panel respondents who reported having used the MnPASS lanes in the past, carpooling was the most frequently mentioned mode (87%). Subscribers reported using the MnPASS lane most often as a paying SOV (87%), however, transit users noted that they were almost as likely to use the lane as a carpool (47%) as they were to use it as a bus rider (49%).

TABLE 2 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?

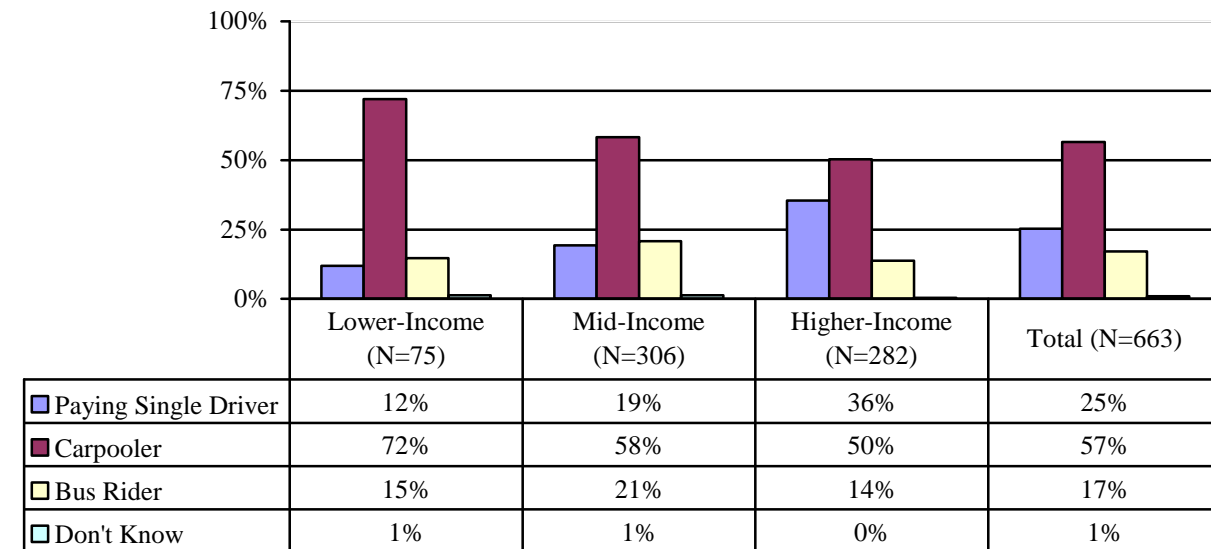
MODE	PANEL		SUBSCRIBER		TRANSIT	
	FREQUENCY	PERCENT	FREQUENCY	PERCENT	FREQUENCY	PERCENT
Paying SOV	20	7%	132	87%	4	3%
Carpooler	243	87%	17	11%	73	47%
Bus Rider	11	4%	1	1%	76	49%
Don't Know / Refuse	6	2%	1	1%	1	1%
Total	280	100%	151	100%	154	100%

People from All Income Levels Use the MnPASS Lanes, Although Mode Changed with Income

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. 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 3 Mode of MnPASS Use by Income (Among I-394 Respondents Only).

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



Demographics of Transponder Owners

Transponder owners were more strongly represented among respondents with a higher educational attainment and those who were employed full-time. The largest percentage of transponder owners were between 35 and 54 years old. 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.

TABLE 3 Transponder Ownership 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%	100%	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%)

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

TABLE 4 Transponder Ownership by Household Characteristics (Among I-394 Respondents Only)

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

MnPASS Has a Positive Impact on Carpooling and Travel Experiences on I-394*Current Mode Share Was Comparable to Pre-Implementation Distributions*

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 carpoled, 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.

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 (It should be noted that panel attrition affected the mode split distribution as reported in Table 5 for the control sample, I-35W). The implementation of MnPASS has not had a negative impact on carpooling on I-394. 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%).

TABLE 5 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%

Fewer Panelists Reported a Congestion Delay

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 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%

Satisfaction with the Overall Quality of Travel on I-394 Rose

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 7). 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 7 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?

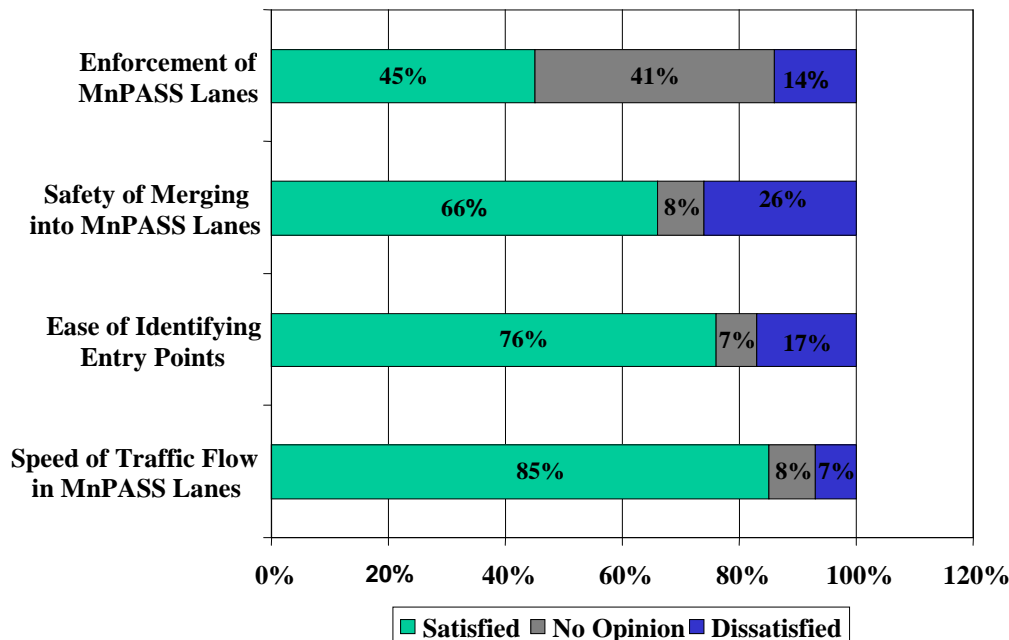
I-394	FREQUENCY	PERCENT	FREQUENCY	PERCENT
	WAVE 1 (2004)	WAVE 1 (2004)	WAVE 2 (2005)	WAVE 2 (2005)
100% Satisfied	147	36%	144	46%
60% Satisfied	202	49%	129	42%
30% Satisfied	43	10%	29	9%
Not Satisfied	21	5%	10	3%
Total	413	100%	312	100%

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%

Users Were Very Satisfied with MnPASS Operations

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), 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. The enforcement of MnPASS usage gained the lowest satisfaction (45%); 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%).

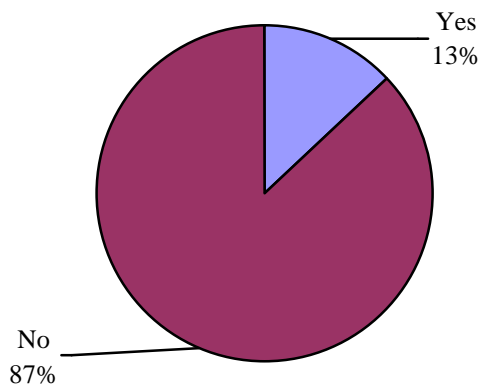
FIGURE 4 Satisfaction of Operational Elements of MnPASS (All Participants).



Safety Did Not Surface as a Major Issue

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. Most respondents (66%) were satisfied with the safety of merging into the MnPASS lanes, with one-fourth (25%) very satisfied. This number may reflect a perception that the merge is difficult among those that have not tried it, however, as the vast majority of those who reported using the MnPASS lane on their reference trip (87%) did not experience any problems merging into it from the general traffic lane, and only 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.

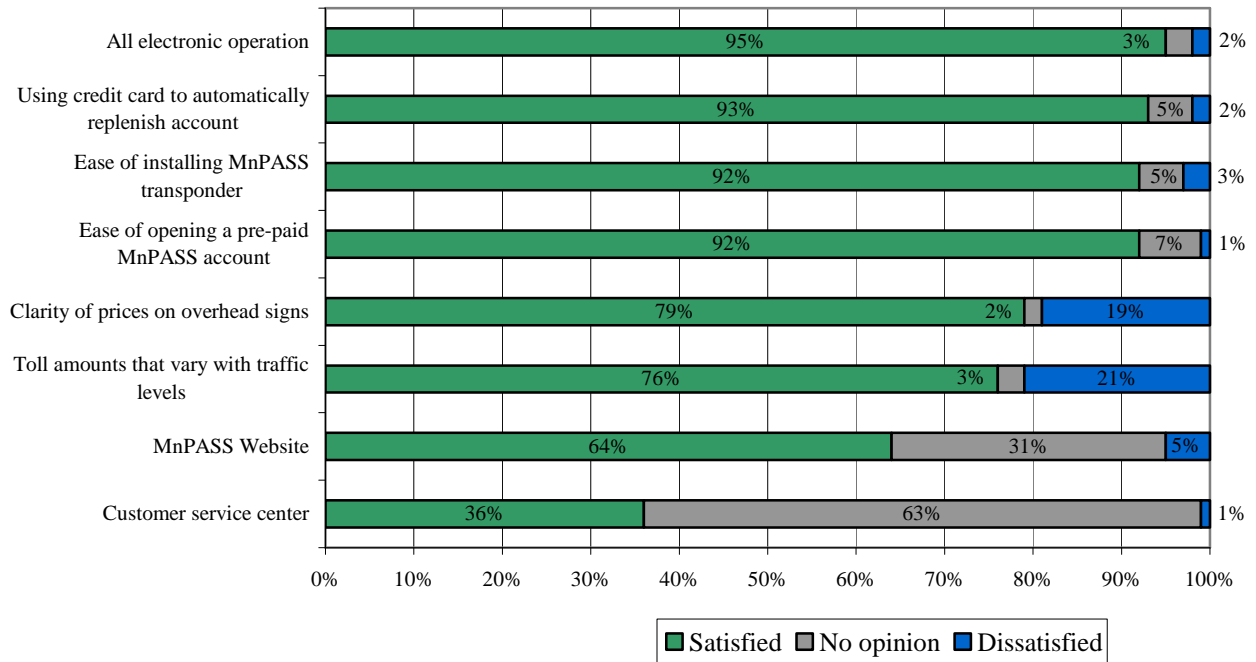
FIGURE 5 Merging Problems on Reference Trips (I-394 Respondents Who Used MnPASS Lanes).
Did you experience any problems in merging into the MnPASS lane from the general traffic lane?



High Satisfaction Reported with the Details of Having an MnPASS Subscription and MnPASS Communications

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 (93%), 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.

FIGURE 6 Comparison of Satisfaction Levels for Various MnPASS Aspects (Among MnPASS Users).

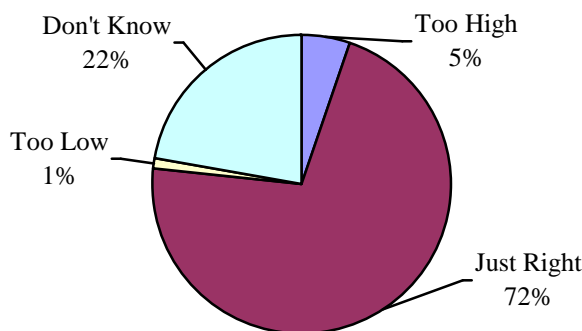


MnPASS Lane Users Considered the MnPASS Toll a Good Value

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 7 Perceived Value of MnPASS Toll (I-394 Respondents who Used MnPASS Lanes).

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



People Are More Willing to Pay a Higher Toll to Avoid Congestion

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

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3 started, supporting the MnPASS concept, and, finally, persons who are aged 35-44 and have higher-
4 incomes.
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6 **CONCLUSIONS AND NEXT STEPS**

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

15 The third wave of the Attitudinal Panel Survey was completed in May and June of 2006. Eighty-
16 nine percent of the 950 Wave 2 respondents agreed to be interviewed in the third wave. These
17 respondents received a postcard thanking them for their participation. The sample was refreshed with a
18 larger sample of randomly sampled users of the I-394 and I-35W corridors. Finally, the survey team
19 identified ways to increase the efficiency of the Wave 3 survey instrument to maximize survey
20 participation.
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