

Appendix C  
Stated Preference Survey Executive Summary

## 1.0 EXECUTIVE SUMMARY OVERVIEW

ETC Institute, in association with PBS&J and Wilson & Company, conducted a study to assess market demand for express toll lanes on C-470. The study consisted on two components: (1) a phone survey and (2) a commuter intercept survey. Each survey is briefly described below.

**1.1 PHONE SURVEY.** The purpose of the phone survey was to determine the percentage of residents in the region who were commuters on the C-470 corridor. In order to provide a reasonable estimate of this percentage, the phone survey was administered to a random sample of residents who live in the southwestern portion of the Denver metropolitan area. This area consisted of the following zipcodes:

- 80111
- 80112
- 80121
- 80122
- 80123
- 80124
- 80125
- 80126
- 80127
- 80128
- 80134
- 80228
- 80401
- 80403
- 80465

The goal was to obtain results that had a precision of at least +/- 5% at the 95% level of confidence. The actual precision of the results from the random sample of 413 residents who completed the phone survey was +/-4.9% at the 95% level of confidence.

**1.2 COMMUTER INTERCEPT SURVEY.** The commuter intercept survey was administered to a stratified random sample of persons who used C-470 during “rush hour” on weekdays. “Rush hour” was defined as the hours of 6-9 a.m. and 4-7 p.m.. The purpose of the commuter intercept survey was to assess demand for express toll lanes on the C-470 corridor. Some of the specific types of information that were gathered included the following:

- Travel characteristics of persons who commute in the C-470 corridor
- Awareness of the express toll lane concept
- Where commuters get on and off C-470
- Reasons commuters avoid travel on C-470
- Support for developing express toll lanes on C-470
- The amount commuters were willing to pay to use express toll lanes based on a given time savings

The survey was administered during the week of April 12-16, 2004 between the hours of 6:30 a.m. and 8:00 p.m. at more than 100 employment and shopping locations within a half mile of C-470.

The goal for the commuter intercept survey was to obtain results that would be statistically representative of commuters at each of the 16 interchanges in the corridor and the corridor as whole. In order to achieve this goal the sample was stratified to ensure that a minimum of 65 surveys were completed at destinations near each of the sixteen interchanges along the C-470 corridor. The random sample of 65 completed surveys from each interchange was the minimum sample size necessary to achieve results that would be statistically representative of commuters at each location. The results for each interchange have a precision of at least +/-9.8% at the 95% level of confidence. The overall results of the survey have a precision of at least +/- 2.6% at the 95% level of confidence. The actual number of surveys that were completed at each interchange is shown in the table below.

C470 Commuter Survey Sample Distribution		
Interchange	Number of Completed Surveys	Key Places Where the Survey Was Administered
I-25	81	DSI, XO Comm., Colorado Realtors, Colorado Athletic Club, Wall Street Journal, Polte, HIS Group, Source
YOSEMITE	104	Park Meadows Mall, MSN, Hancock, General Dynamics, Regal, Cattleman's
QUEBEC	102	Walmart
UNIVERSITY	68	Target, RTD Park & Ride, Gas Stations
BROADWAY	177	Qwest, National Distributing Co.
LUCENT	91	Avaya, Lucent
SANTA FE	125	Arapahoe Community College, RTD Light Rail Stop
WADSWORTH	80	Conoco, Colum Hills Elementary, Cool Toys Marine
PLATTE CANYON	66	Corps of Engineers, Chatfield Park Office, Conoco Break Place, King Sooper Mall
KIPLING	101	Johns Manville, Kohls
KENCARYL	107	Seimans, Apria, RTD Park & Ride, TRC, Schield
BOWLES	72	Walmart, Dakota Ridge HS
QUINCY/BELLEVIEW	77	Shamrock Station
US 285	81	Western Gas Station, US Fish & Wildlife, Ludvik Elect., RCT Technologies, Old Chicago
MORRISON	80	Conoco Break Place
I-70	162	Jefferson County Complex
<b>TOTAL</b>	<b>1574</b>	

In order to estimate the number of commuters who would use express toll lanes on different types of trips that could be completed in the C-470 corridor, four versions of the survey were administered.

- **Version 1 - Entire Corridor.** This version of the survey asked respondents how much they would be willing to pay to use express toll lanes to travel the entire length of C-470 between I-25 and I-70.
- **Version 2 - Southern Corridor.** This version of the survey asked respondents how much they would be willing to pay to use express toll lanes to travel through the southern portion of C-470 between Wadsworth and Quebec.
- **Version 3 - Western Corridor.** This version of the survey asked respondents how much they would be willing to pay to use express toll lanes to travel through the western portion of C-470 between Bowles and I-70.

- **Version 4 - Short Corridor.** This version of the survey asked respondents how much they would be willing to pay to use express toll lanes to travel through a short section of C-470 between Quebec and I-25.

The pricing data from these four versions of the survey were used to develop price sensitivity curves for estimating demand for express toll lanes as a function of two variables: (1) the amount of time that a person can save by using express toll lanes and (2) the fee that is charged to use express toll lanes. The price sensitivity curves are described at the end of the executive summary. This report contains a summary of the survey methodology and major findings, charts and graphs that show the results of key questions on the commuter intercept survey, a summary of the regression models that were developed to estimate demand for express toll lanes on C-470, crosstabulations that show the results of all questions on the commuter intercept survey for each of the four versions of the survey, the results of the phone survey, and a copy of all survey instruments.

## 2.0 SELECTED FINDINGS

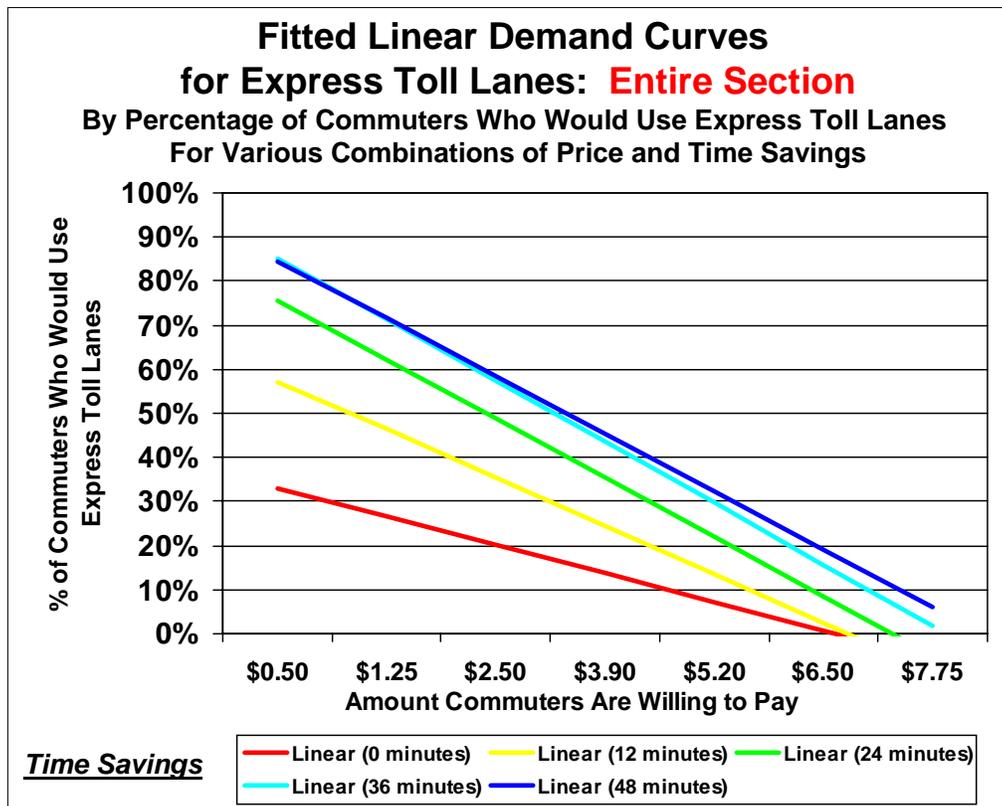
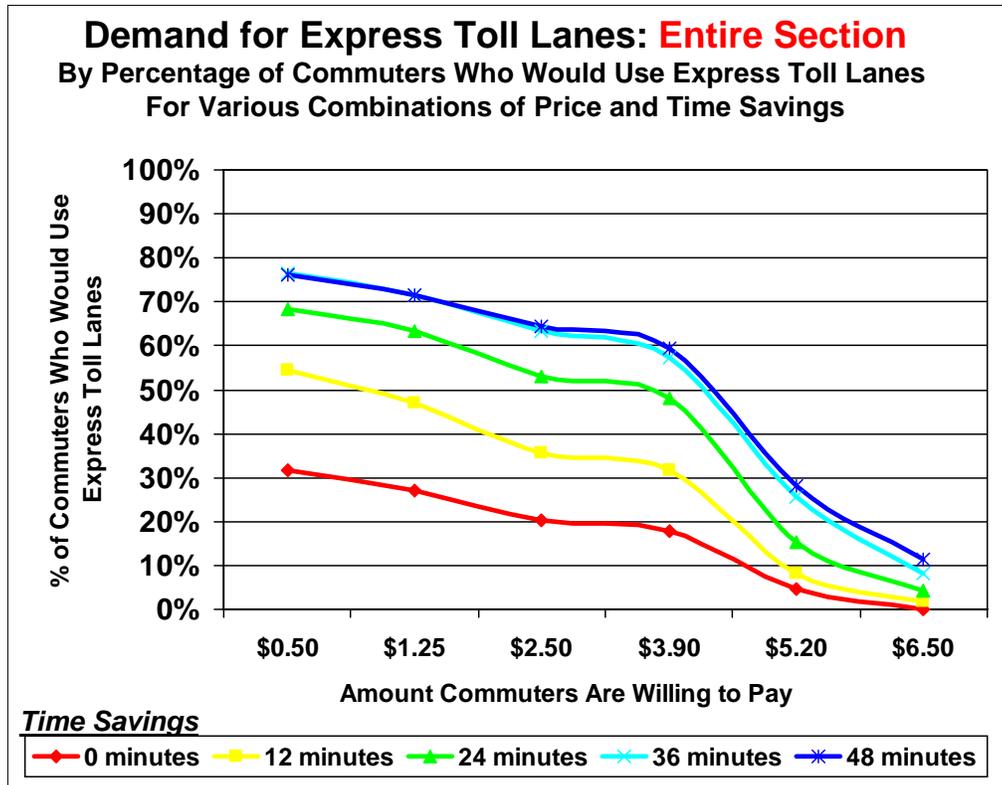
- 67% of the commuters surveyed thought it was an excellent, good, or an okay idea to develop express toll lanes on C-470; 31% thought it was a bad idea, and 2% did not have an opinion.
- 70% of the commuters surveyed indicated they would consider using the express lanes if the general purpose lanes were congested.
- 82% of the commuters surveyed indicated they had used toll highways in other parts of the Denver metropolitan area, such as E-470.
- 11% of the commuters surveyed indicated that they already had a transponder for toll highways in the Denver area; 43% of those surveyed indicated that they did not currently have a transponder, but they would be very or somewhat likely to get one if express toll lanes were developed on C-470; 31% indicated they were not likely to get a transponder, and 15% did not have an opinion.
- 81% of the commuters surveyed indicated they would pay 20-30 cents per mile to use express toll lanes on C-470 in an emergency or if they were late for an appointment.
- 56% of the commuters surveyed indicated they would pay 20-30 cents per mile to use express toll lanes on C-470 if traffic in the free lanes of C-470 was not moving.

- 43% of the commuters surveyed indicated they would pay 20-30 cents per mile to use express toll lanes on C-470 if there was heavy congestion on C-470.
- 21% of the commuters surveyed indicated they would pay 20-30 cents per mile to use express toll lanes on C-470 if there was moderate congestion on C-470.
- 10% of the commuters surveyed indicated they would pay 20-30 cents per mile to use express toll lanes on C-470 if there was light congestion on C-470.
- 7% of the commuters surveyed indicated they would pay 20-30 cents per mile to use express toll lanes every time they drive on C-470.
- 29% of the residents who participated in the phone survey indicated that they commuted on C-470 between the hours of 6-9 a.m. or 4-7 p.m. on weekdays.
- 24% of the commuters surveyed knew that the Colorado Department of Transportation was considering the development of express toll lanes in the C-470 corridor; 74% were not aware of the study, and 2% were not sure.

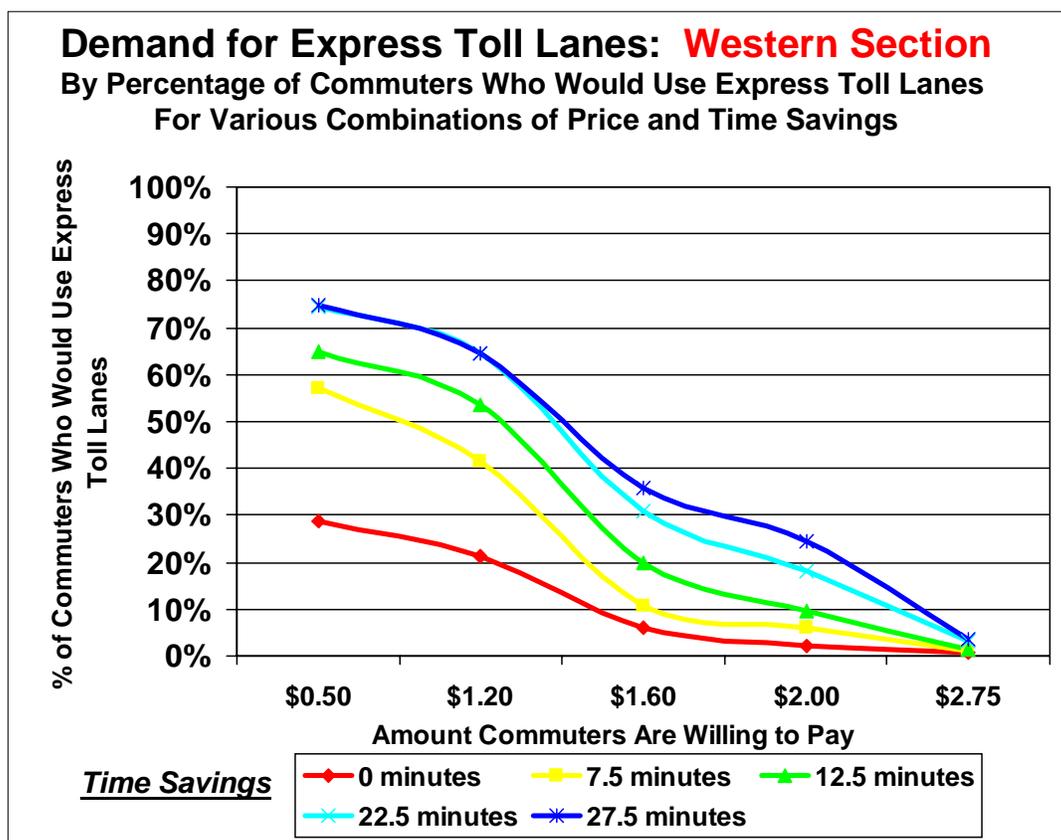
### 3.0 PRICE SENSITIVITY CURVES

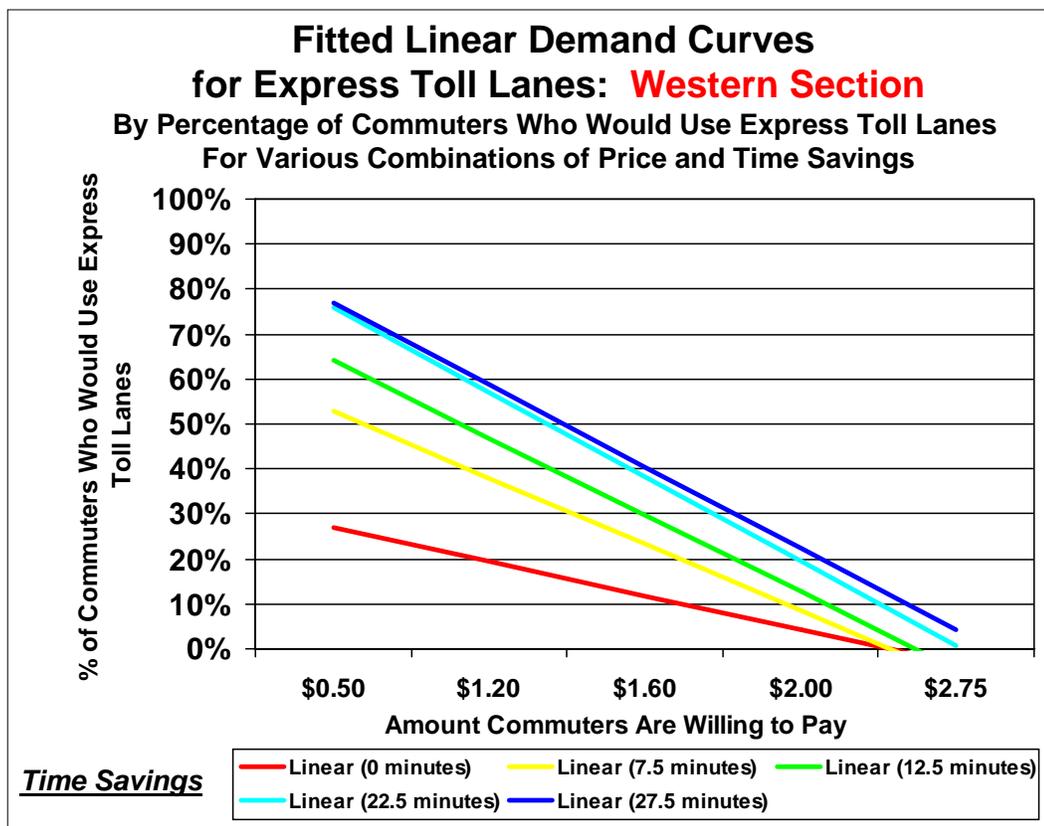
Two sets of demand curves were generated from the survey results for each of the four sections that were included in the survey. The first set contains the demand curves for each section based on the actual results of the survey. The second set shows the "fitted linear demand curves" for each section. The "fitted" curves adjust for the bias that may have been introduced by giving respondents a set of known values for the price of the express toll lanes. When a value was provided, respondents tended to cluster their responses around that value. The fitted curves correct for this issue.

**3.1 ENTIRE SECTION (BETWEEN I-25 & I-70).** If commuters could save 12 minutes by using express toll lanes to travel the full distance of C-470 between I-70 and I-25, 8% indicated they would pay at least \$5.20 to use express toll lanes. If commuters could save 24 minutes traveling between I-70 and I-25 on C-470, 15% indicated they would pay at least \$5.20 to use express toll lanes. Three-fourths (75%) of the commuters surveyed were willing to pay at least \$1.00 to save 36 minutes on a trip between I-70 and I-25. The chart at the top of the following page shows the demand for express toll lanes based on the actual results of the survey. The chart at the bottom of the following page shows the fitted linear demand curves that were generated from the results of the survey. Each curve reflects demand for express toll lanes based on the amount of time that commuters would save when traveling between I-25 and I-70 on express toll lanes.

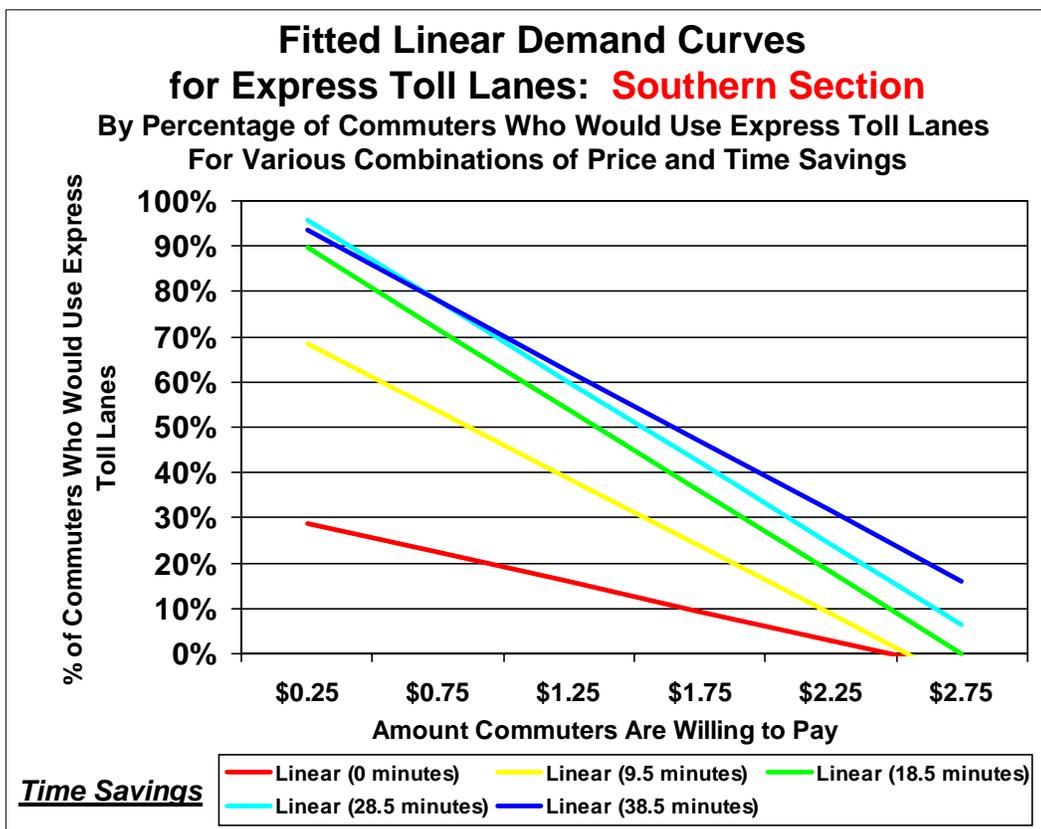
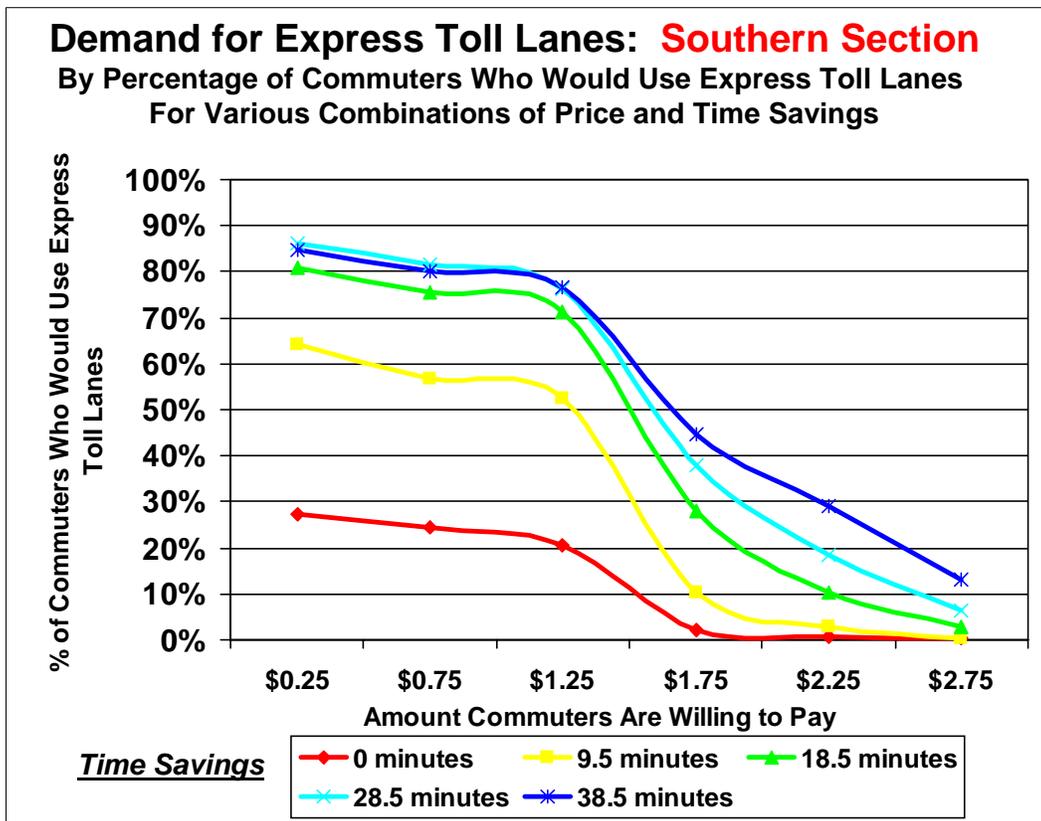


**3.2 WESTERN SECTION (BETWEEN BOWLES & I-70).** If commuters could save 7.5 minutes by using express toll lanes to travel on C-470 between Bowles and I-70, 11% indicated they would pay at least \$1.60 to use express toll lanes. If commuters could save 12.5 minutes traveling on C-470 between Bowles and I-70, 20% indicated they would pay at least \$1.60 to use express toll lanes. If commuters could save 22.5 minutes on this trip, 31% indicated they would pay at least \$1.60 to use express toll Lanes. Almost three-fourths (74%) of the commuters surveyed were willing to pay at least \$0.50 to save 27.5 minutes on a trip between Bowles and I-70. The chart below shows the demand for express toll lanes based on the actual results of the survey. The chart at the top of the following page shows the fitted linear demand curves that were generated from the results of the survey. Each curve reflects demand for express toll lanes based on the amount of time that commuters would save when traveling between Bowles and I-70 on express toll lanes.

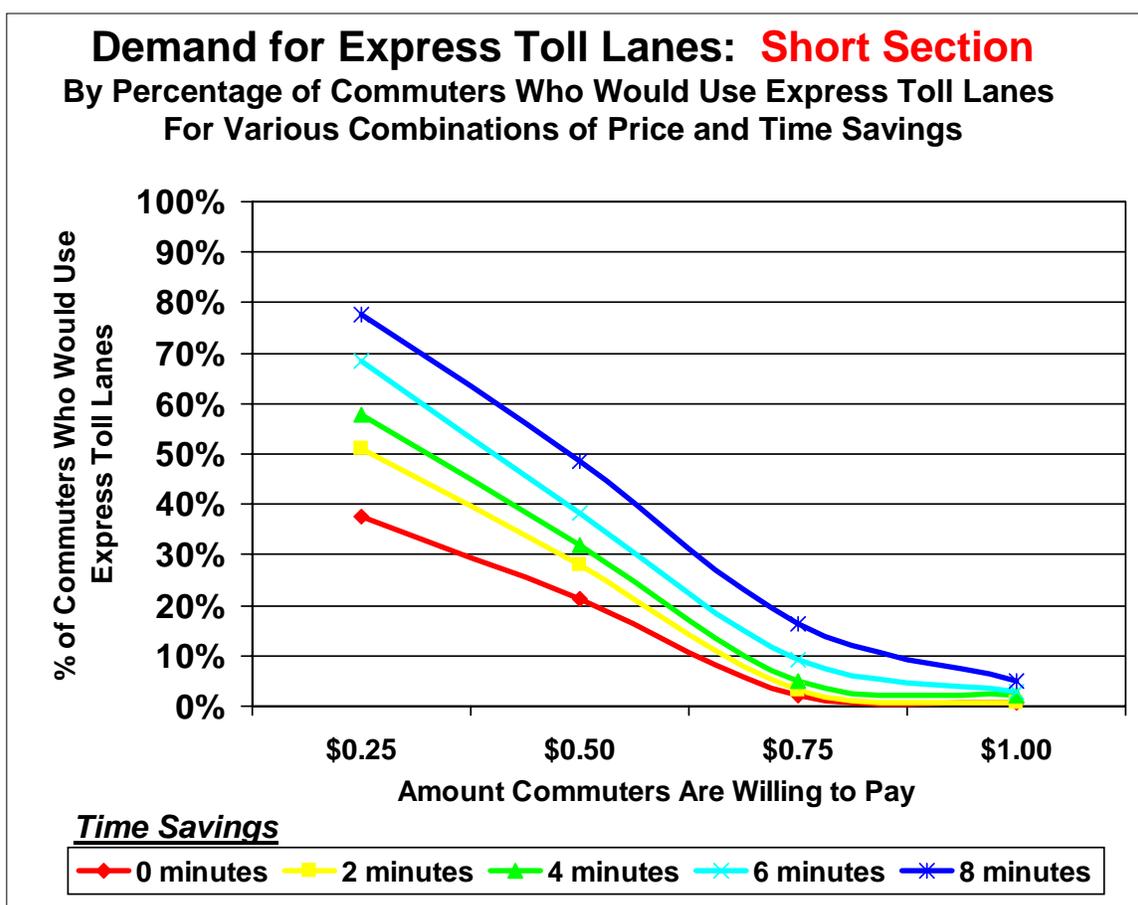


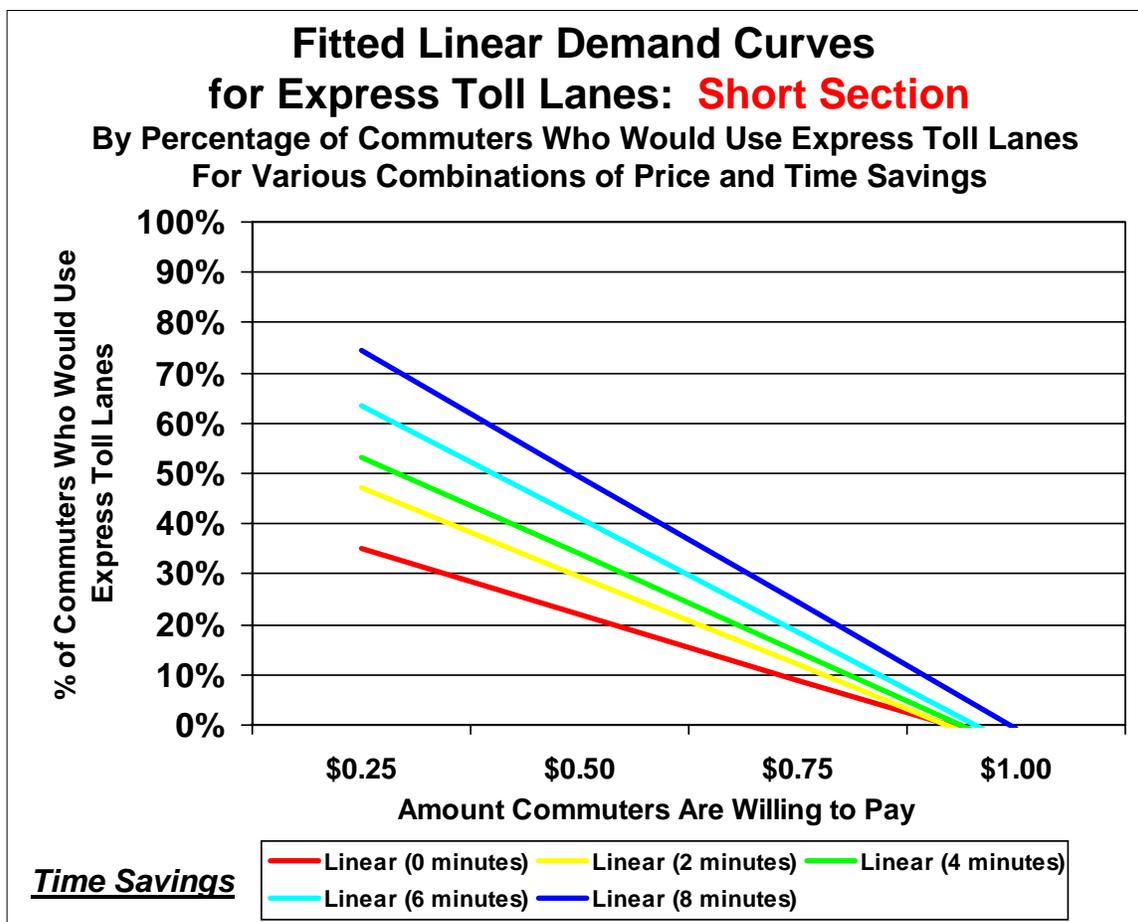


**3.3 SOUTHERN SECTION (BETWEEN QUEBEC & WADSWORTH).** If commuters could save 9.5 minutes by using express toll lanes to travel on C-470 between Wadsworth and Quebec, 10% indicated they would pay at least \$1.75 to use express toll lanes. If commuters could save 18.5 minutes traveling on C-470 between Wadsworth and Quebec, 28% indicated they would pay at least \$1.75 to use express toll lanes. If commuters could save 28.5 minutes on this trip, 38% indicated they would pay at least \$1.75 to use express toll Lanes. Most (85%) of the commuters surveyed were willing to pay at least \$0.50 to save 28.5 minutes on a trip between Wadsworth and Quebec. The chart at the top of the following page shows the demand for express toll lanes based on the actual results of the survey. The chart at the bottom of the following page shows the fitted linear demand curves that were generated from the results of the survey. Each curve reflects demand for express toll lanes based on the amount of time that commuters would save when traveling between Wadsworth and Quebec on express toll lanes.



**3.4 SHORT SECTION (BETWEEN QUEBEC & I-25).** If commuters could save 2 minutes by using express toll lanes to travel on C-470 between Quebec and I-25, 28% indicated they would pay at least \$0.50 to use express toll lanes. If commuters could save 4 minutes traveling on C-470 between Quebec and I-25, 33% indicated they would pay at least \$0.50 to use express toll lanes. If commuters could save 6 minutes on this trip, 38% indicated they would pay at least \$0.50 to use express toll Lanes. More than two-thirds (68%) of the commuters surveyed were willing to pay at least \$0.25 to save 6 minutes on a trip between Quebec and I-25. The chart below shows the demand for express toll lanes based on the actual results of the survey. The chart at the top of the following page shows the fitted linear demand curves that were generated from the results of the survey. Each curve reflects demand for express toll lanes based on the amount of time that commuters would save when traveling between Quebec and I-25 on express toll lanes.





## 4.0 CONTENTS OF THIS REPORT

This report contains eight supporting sections of data and analysis. Each of these sections is briefly described below.

- Section 1 contains charts and graphs that show the overall results to selected questions on the survey.
- Section 2 contains a description of the regression models that were developed to estimate demand for express toll lanes under various conditions.
- Appendix 1 contains the results for each of the four types of surveys (Western, Southern, Short, and Entire) that were administered.
- Appendix 2 contains the results of the phone survey.

- Appendix 3 contains unweighted crosstabs of the data based on the respondents' annual household income.
- Appendix 4 contains unweighted crosstabs based on the location (interchange) where the surveys were administered.
- Appendix 5 contains weighted crosstabs based on the location (interchange) where the surveys were administered. The survey data was weighted to reflect a uniform distribution of the survey among the 16 interchanges where the survey was administered. Although weighting did not significantly affect the results, the section has been provided to facilitate additional analysis of the data.
- Appendix 6 contains copies of the four commuter intercept survey instruments (Western, Southern, Short, and Entire) and the phone survey.