

# ***C-470 Express Lanes Feasibility Study User Survey***

***Presentation to CTE Board***

***May 20, 2004***

## Agenda

- C-470 Express Lanes Feasibility Study (ELFS)
  - Overview
- User Survey
  - Overview
  - Demographics
  - Results



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# *C-470 Express Lane Feasibility Study Overview*

## Study Objectives

- Define and evaluate system characteristics
- Assess public support for Express Lanes
- Determine preliminary financial feasibility
- Provide input to C-470 Environmental Assessment (EA)



## **Integration of ELFS and EA**

- **ELFS and EA – concurrent but separate studies**
- **ELFS defines express lane alternative and determines economic viability**
- **Alternatives from ELFS carried forward into EA**
- **EA considers Express Lanes equally with other alternatives**

## **C-470 EA Alternatives**

- **No Action**
- **General Purpose Lane widening**
- **Express Lanes**
- **All include Express Bus and Mobility Enhancements**



## Current Status

- Considering separation types
- Evaluating potential access locations
- Evaluating ramp access types
- Evaluating results of User Survey



# C-470 Express Lanes Feasibility Study Overview

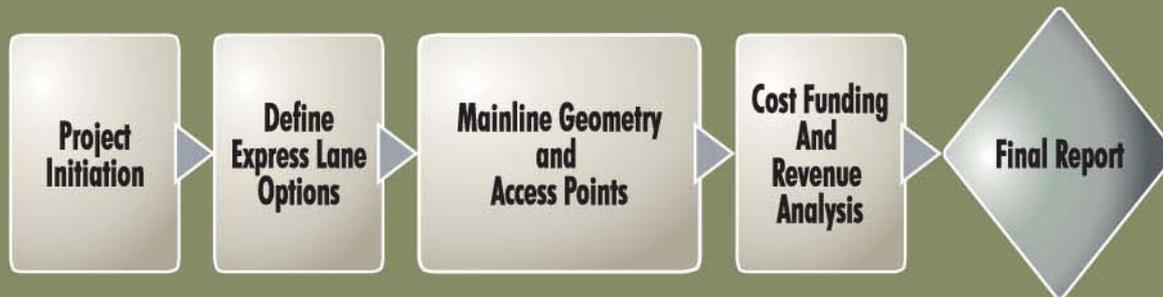


Apr-Jun '03    July-Dec '03    Jan-May '04    June-Aug '04    Sept-Oct '04    Nov '04    Jun '05    Sept '05

**EA Study**



**ELFS Study**



Open House 1

Open House 2

Open House 3

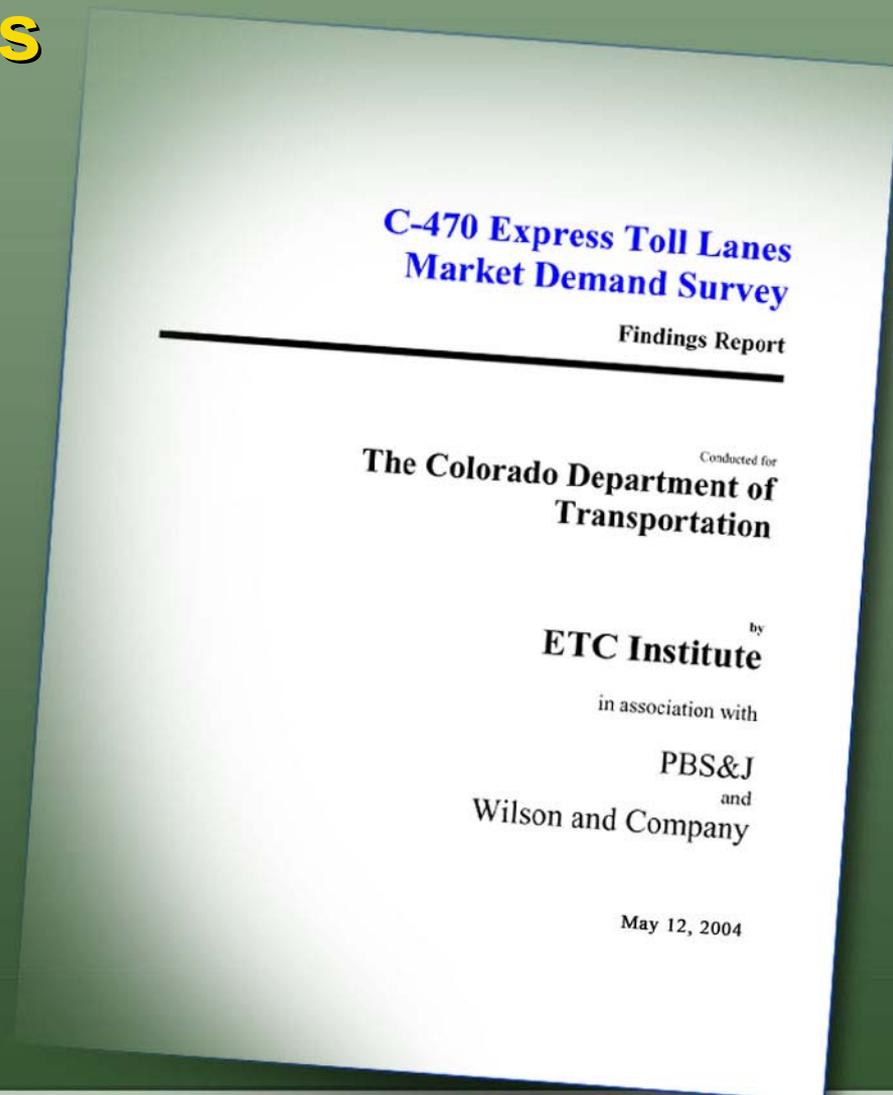
Open House 4

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# *C-470 User Survey Overview*

## User Survey Objectives

- Travel characteristics of C-470 users
- Willingness to pay toll to avoid congestion
- Value of time/Price sensitivity
- Awareness/Support of express toll lane concept on C-470



## Survey Types

- Phone Survey
- Intercept Survey

## Phone Survey

- Phone Survey
  - 413 residents
  - Objective: to determine percentage of residents who were C-470 users
  - 29% of the participants reported using C-470 between 6-9AM or 4-7PM weekdays

## **Intercept Survey Stats**

- April 12-16, 2004
- Over 100 employment and shopping locations within ½ mile of C-470
- 1,574 C-470 users (+/- 2.6% at 95% Confidence Level)

## **Intercept Survey Objectives**

- **Price Sensitivity**
- **Travel characteristics of C-470 users**
- **Awareness of Express Lanes Concept**
- **Where users get on and off**
- **Reasons users avoid C-470**
- **Interest in mode shift – HOVs, Express Bus**
- **Gage support for Express Lanes**

## **Intercept Survey Instruments**

- **Four versions representing differing trip lengths**
  - **Entire Corridor (I-70 to I-25)**
  - **Southern Corridor (Wadsworth-Quebec)**
  - **Western Corridor (Bowles-I-70)**
  - **Short Corridor (Quebec-I-25)**

## **Intercept Survey Highlights**

- **24% knew CDOT was considering toll lanes on C-470; 74% did not**
- **82% have used other tollways in Denver – e.g., E-470**
- **67% 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**
- **70% would consider using ELs if the GPLs were congested**

## **Intercept Survey Highlights**

- **Willingness to pay 20-30 cents per mile:**
  - 81% in an emergency or if they were late for an appointment
  - 56% if the free lanes of C-470 were not moving
  - 43% if there was heavy congestion on C-470
  - 21% if there was moderate congestion on C-470
  - 10% if there was light congestion on C-470
  - 7% every time they drive on C-470

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# *C-470 User Survey Demographics*

## **Distribution of Respondents by Annual Household Income**

<b><u>Total household income</u></b>	<b><u>Number</u></b>	<b><u>Percent</u></b>
<b>Under \$35,000</b>	<b>176</b>	<b>11.2 %</b>
<b>\$35,000-\$59,999</b>	<b>398</b>	<b>25.3 %</b>
<b>\$60,000-\$99,999</b>	<b>473</b>	<b>30.1 %</b>
<b>More than \$100,000</b>	<b>341</b>	<b>21.7 %</b>
<b><u>Refuse</u></b>	<b><u>186</u></b>	<b><u>11.7 %</u></b>
<b>Total</b>	<b>1574</b>	<b>100.0 %</b>

# What was the purpose of this trip?

*Total household income*

	Under \$35,000	\$35,000- \$59,999	\$60,000- \$99,999	Over \$100,000	Refuse	Total
<b>To/from home/work</b>	<b>67.2%</b>	<b>78.6%</b>	<b>82.3%</b>	<b>81.4%</b>	<b>82.6%</b>	<b>79.5%</b>
<b>To/from home/school</b>	<b>12.6%</b>	<b>5.5%</b>	<b>3.2%</b>	<b>3.3%</b>	<b>3.8%</b>	<b>4.9%</b>
<b>Go shopping</b>	<b>5.2%</b>	<b>4.3%</b>	<b>5.1%</b>	<b>5.6%</b>	<b>3.8%</b>	<b>4.9%</b>
<b>Other</b>	<b>20.7%</b>	<b>15.9%</b>	<b>12.6%</b>	<b>13.0%</b>	<b>11.4%</b>	<b>14.3%</b>

# What mode of travel (type of vehicle) did you use?

*Total household income*

	Under \$35,000	\$35,000-\$59,999	\$60,000-\$99,999	Over \$100,000	Refuse	Total
<b>Drove car, pickup, SUV</b>	<b>93.7%</b>	<b>90.9%</b>	<b>93.8%</b>	<b>94.4%</b>	<b>94.0%</b>	<b>93.2%</b>
<b>Passenger</b>	<b>5.7%</b>	<b>6.5%</b>	<b>4.9%</b>	<b>4.4%</b>	<b>4.9%</b>	<b>5.3%</b>
<b>Public transportation</b>	<b>0.6%</b>	<b>1.0%</b>	<b>0.6%</b>	<b>0.6%</b>	<b>0.5%</b>	<b>0.7%</b>
<b>Other</b>	<b>0.0%</b>	<b>1.5%</b>	<b>0.6%</b>	<b>0.6%</b>	<b>0.5%</b>	<b>0.8%</b>

# How frequently do you make this trip?

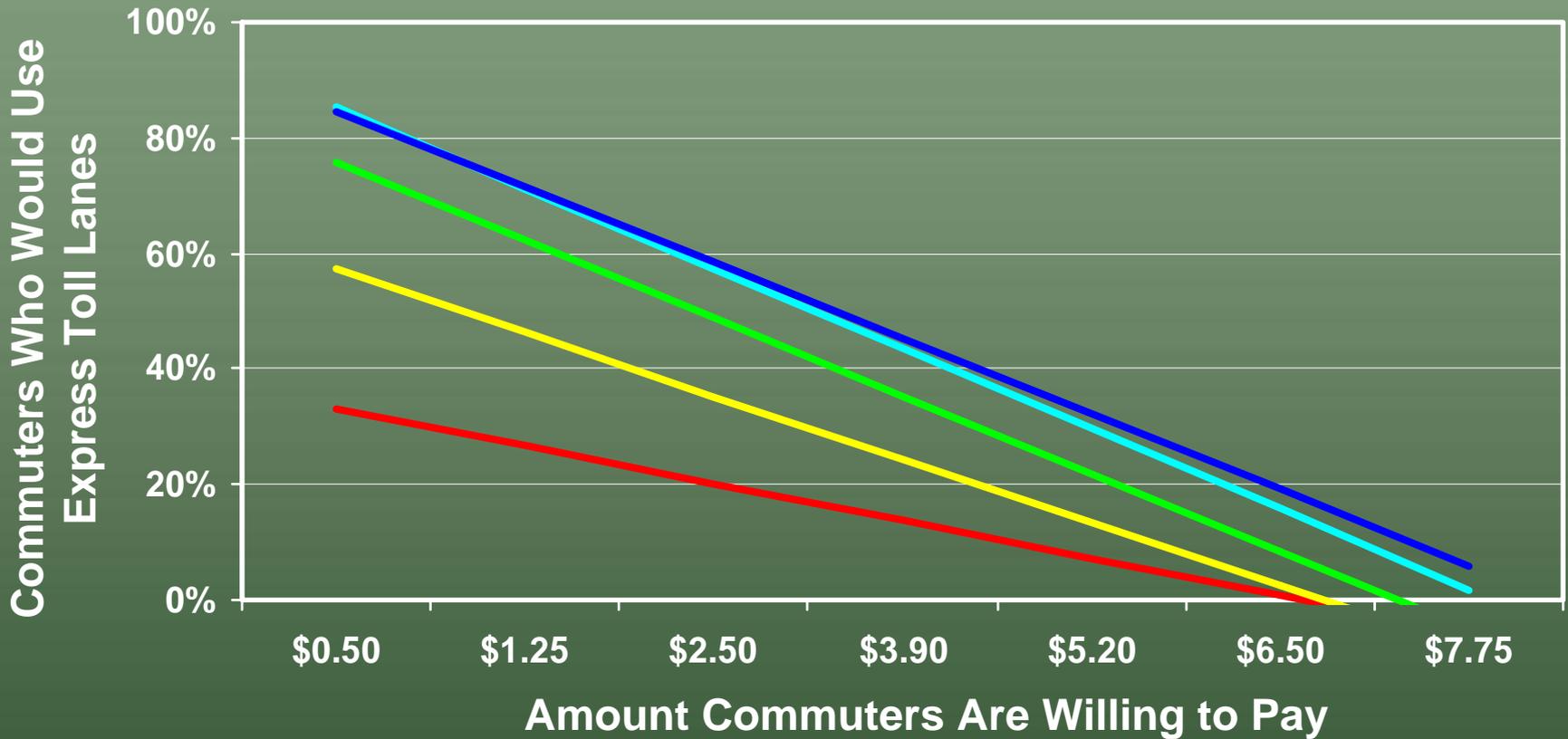
*Total household income*

	Under \$35,000	\$35,000- \$59,999	\$60,000- \$99,999	Over \$100,000	Refuse	Total
<b>5 days a week</b>	<b>44.9%</b>	<b>51.0%</b>	<b>58.1%</b>	<b>51.3%</b>	<b>52.7%</b>	<b>52.7%</b>
<b>2-4 days a week</b>	<b>25.6%</b>	<b>20.4%</b>	<b>18.6%</b>	<b>22.9%</b>	<b>17.2%</b>	<b>20.6%</b>
<b>Once a week</b>	<b>11.9%</b>	<b>6.8%</b>	<b>5.9%</b>	<b>5.3%</b>	<b>6.5%</b>	<b>6.7%</b>
<b>Less than once a week</b>	<b>9.7%</b>	<b>6.8%</b>	<b>4.7%</b>	<b>6.7%</b>	<b>6.5%</b>	<b>6.4%</b>
<b>Varies/Don't know</b>	<b>8.0%</b>	<b>15.1%</b>	<b>12.7%</b>	<b>13.8%</b>	<b>17.2%</b>	<b>13.5%</b>

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# *C-470 User Survey Results*

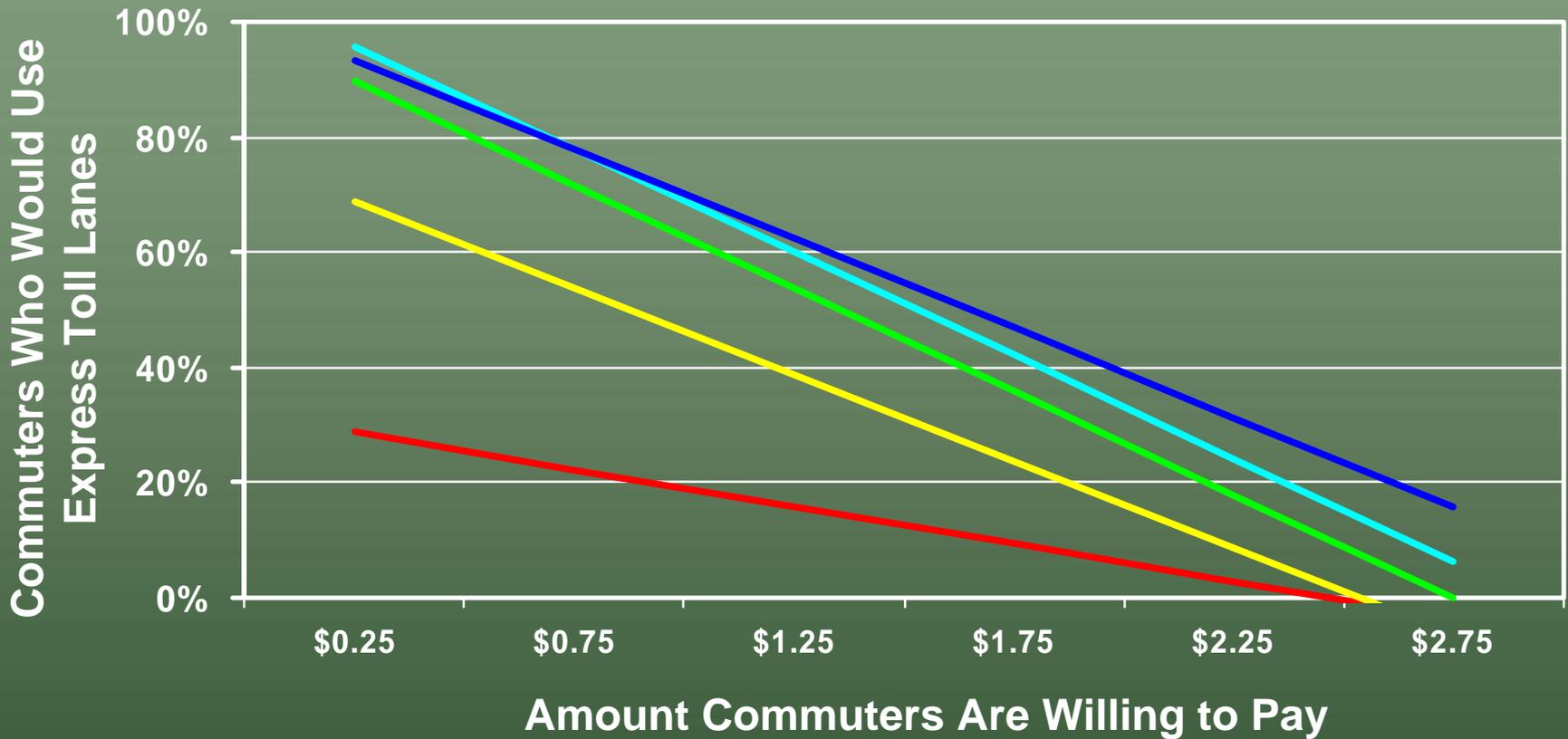
# Demand Curves - Entire Section



**Time Savings**

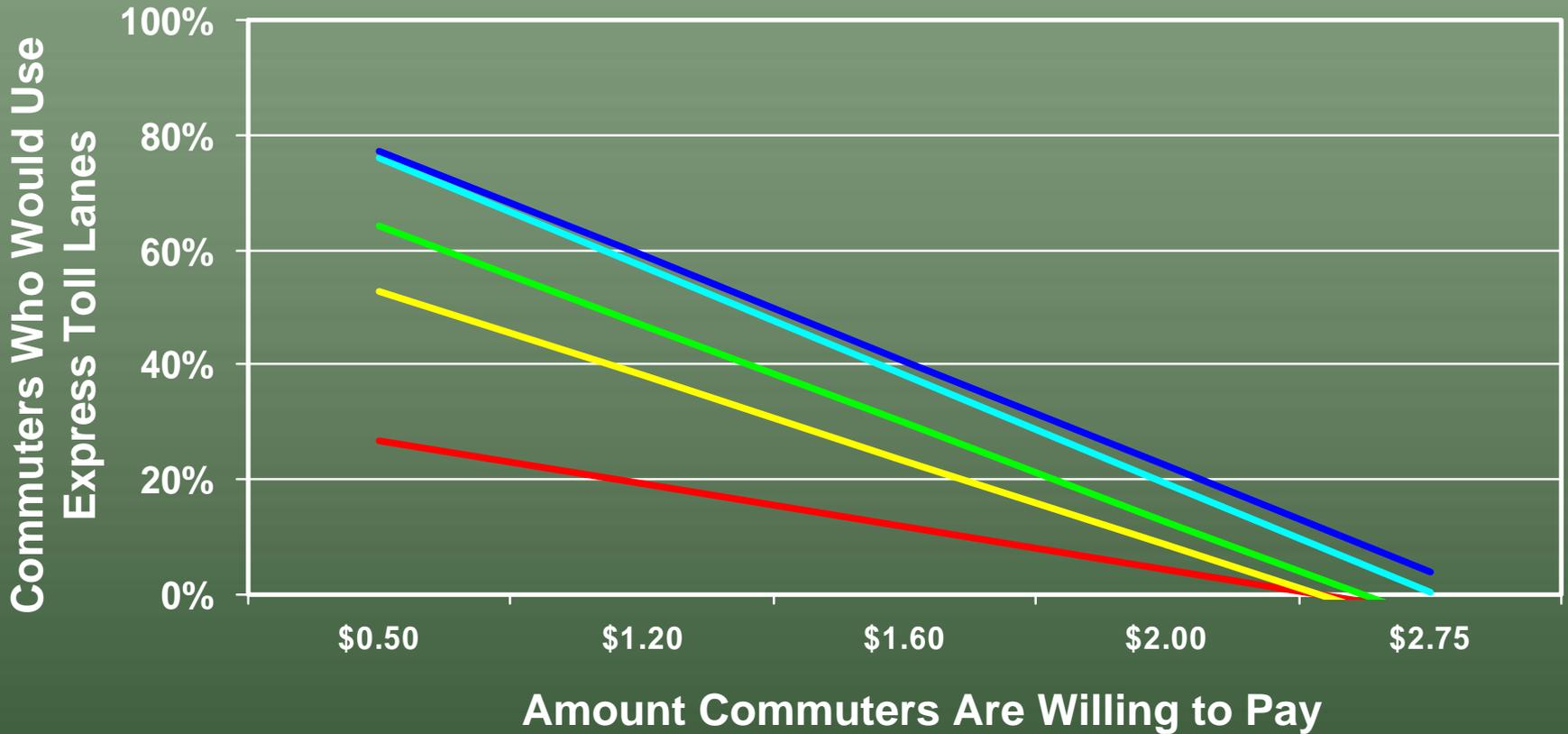
- 0 minutes
- 12 minutes
- 24 minutes
- 36 minutes
- 48 minutes

# Demand Curves - Southern Section



Time Savings	0 minutes	12 minutes	24 minutes
	36 minutes	48 minutes	

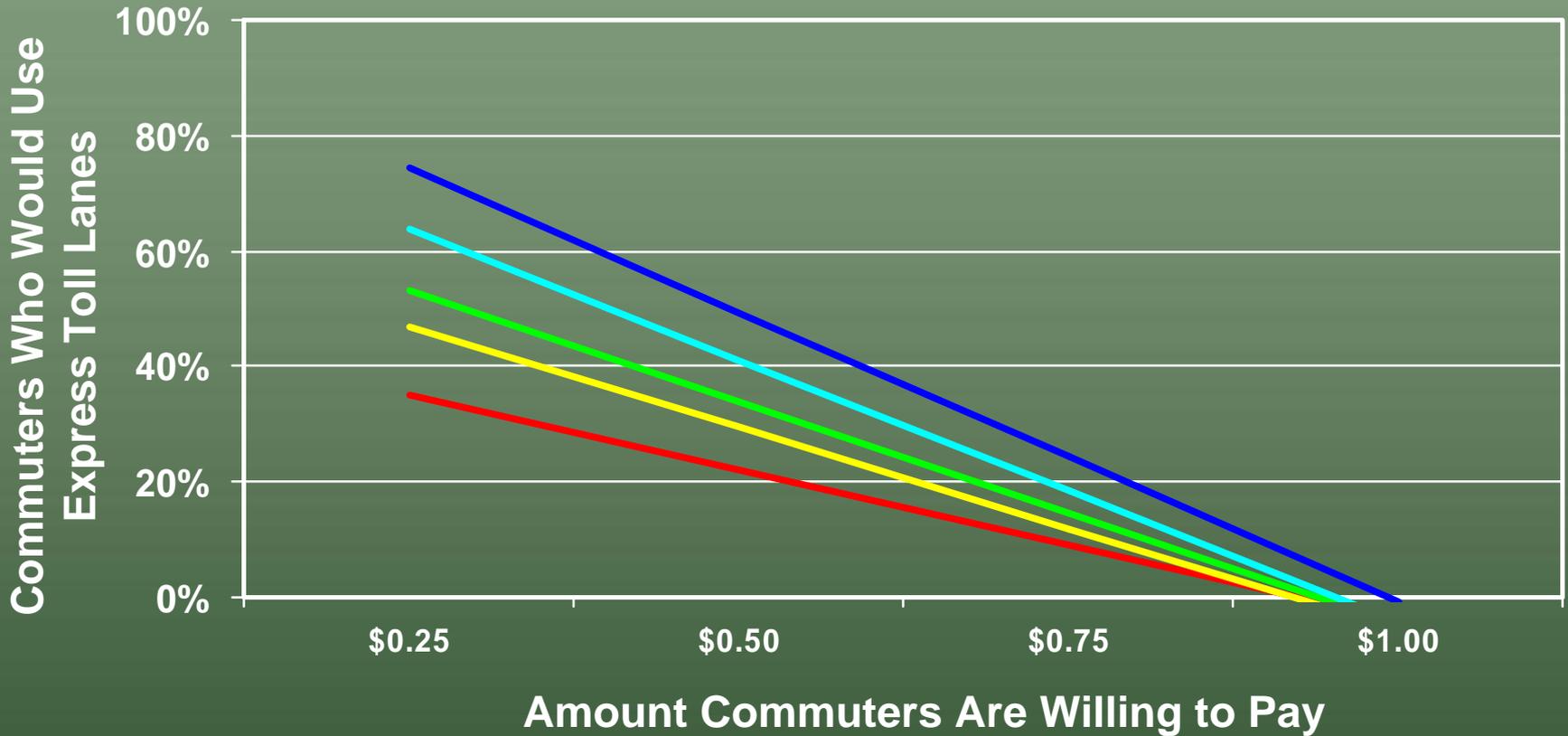
# Demand Curves - Western Section



**Time Savings**

- 0 minutes (Red line)
- 12 minutes (Yellow line)
- 24 minutes (Green line)
- 36 minutes (Cyan line)
- 48 minutes (Blue line)

# Demand Curves - Short Section



Time Savings	0 minutes	12 minutes	24 minutes
	36 minutes	48 minutes	

## C-470 User Survey Results

# If traffic were congested, would you consider using Express Toll lanes to avoid congestion?

### Total household income

	Under \$35,000	\$35,000-\$59,999	\$60,000-\$99,999	Over \$100,000	Refuse	Total
Yes	23.3%	22.9%	27.3%	44.0%	22.6%	28.8%
Maybe	43.2%	43.7%	42.9%	35.8%	39.8%	41.2%
Not under any conditions	31.8%	30.7%	27.9%	17.9%	32.3%	27.4%
Don't know	1.7%	2.8%	1.9%	2.3%	5.4%	2.6%

**If Express Lanes had been available today, what is the most you would have been willing to pay to avoid congestion?**

<b>Under \$35,000</b>	<b>\$0.94</b>
<b>35,000-\$59,999</b>	<b>\$1.10</b>
<b>\$60,000-\$99,999</b>	<b>\$1.01</b>
<b>More than \$100,000</b>	<b>\$1.23</b>
<b>Refuse</b>	<b>\$0.72</b>

## *C-470 User Survey Results*

# Have you used toll highways in other parts of the Denver metropolitan area, such as E-470?

### *Total household income*

	Under \$35,000	\$35,000- \$59,999	\$60,000- \$99,999	Over \$100,000	Refuse	Total
Yes	67.6%	77.8%	84.2%	92.2%	78.3%	81.7%
No	32.4%	22.2%	15.8%	7.8%	21.7%	18.3%

## *C-470 User Survey Results*

# How frequently would you use the Express Toll lanes on C-470 if it cost approximately 20-30 cents per mile?

	<i>Total household income</i>					Total
	Under \$35,000	\$35,000-\$59,999	\$60,000-\$99,999	Over \$100,000	Refuse	
Every time	10.2%	4.3%	6.8%	10.0%	4.8%	7.0%
Light congestion	4.5%	1.3%	2.7%	5.0%	1.6%	2.9%
Moderate congestion	5.1%	8.5%	10.4%	17.3%	10.2%	10.8%
Heavy congestion	18.2%	24.1%	20.5%	24.9%	17.7%	21.8%
Free lanes barely moving	13.6%	11.1%	15.6%	13.8%	14.5%	13.7%
Late for appointment	28.4%	26.9%	26.8%	19.4%	25.3%	25.2%
Never	17.6%	21.6%	15.4%	7.3%	18.3%	15.8%
Don't know	2.3%	2.3%	1.7%	2.3%	7.5%	2.7%

**If tolls were WAIVED and/or DISCOUNTED, how often would you use the following modes:**

- Express Bus**
- Carpooling with 1 passenger**
- Carpooling with 2 passengers**

# Express bus on C470

*Total household income*

	Under \$35,000	\$35,000- \$59,999	\$60,000- \$99,999	Over \$100,000	Refuse	Total
<b>Every time</b>	5.1%	2.3%	3.0%	2.1%	1.1%	2.6%
<b>Most of the time</b>	5.1%	2.0%	2.3%	2.3%	2.7%	2.6%
<b>Some of the time</b>	7.4%	6.0%	5.7%	4.7%	5.4%	5.7%
<b>Rarely</b>	6.8%	11.1%	11.4%	9.1%	7.5%	9.8%
<b>Never</b>	45.5%	48.5%	52.4%	57.8%	48.9%	51.4%
<b>Don't know</b>	30.1%	30.2%	25.2%	24.0%	34.4%	27.8%

# Carpool with 1 other passenger

*Total household income*

	Under \$35,000	\$35,000- \$59,999	\$60,000- \$99,999	Over \$100,000	Refuse	Total
<b>Every time</b>	<b>11.4%</b>	<b>5.3%</b>	<b>5.3%</b>	<b>6.5%</b>	<b>3.8%</b>	<b>6.0%</b>
<b>Most of the time</b>	<b>10.2%</b>	<b>5.0%</b>	<b>8.2%</b>	<b>4.7%</b>	<b>4.3%</b>	<b>6.4%</b>
<b>Some of the time</b>	<b>13.6%</b>	<b>14.1%</b>	<b>16.9%</b>	<b>16.1%</b>	<b>14.5%</b>	<b>15.4%</b>
<b>Rarely</b>	<b>16.5%</b>	<b>18.6%</b>	<b>16.3%</b>	<b>18.5%</b>	<b>16.1%</b>	<b>17.3%</b>
<b>Never</b>	<b>22.7%</b>	<b>31.2%</b>	<b>32.6%</b>	<b>39.6%</b>	<b>29.0%</b>	<b>32.2%</b>
<b>Don't know</b>	<b>25.6%</b>	<b>25.9%</b>	<b>20.7%</b>	<b>14.7%</b>	<b>32.3%</b>	<b>22.6%</b>

# Carpool with 2 other passengers

*Total household income*

	Under \$35,000	\$35,000- \$59,999	\$60,000- \$99,999	Over \$100,000	Refuse	Total
<b>Every time</b>	<b>8.5%</b>	<b>3.0%</b>	<b>3.4%</b>	<b>2.1%</b>	<b>3.2%</b>	<b>3.6%</b>
<b>Most of the time</b>	<b>6.3%</b>	<b>1.3%</b>	<b>3.4%</b>	<b>2.3%</b>	<b>0.5%</b>	<b>2.6%</b>
<b>Some of the time</b>	<b>8.0%</b>	<b>7.3%</b>	<b>7.4%</b>	<b>6.7%</b>	<b>9.7%</b>	<b>7.6%</b>
<b>Rarely</b>	<b>14.2%</b>	<b>18.3%</b>	<b>16.1%</b>	<b>17.6%</b>	<b>12.4%</b>	<b>16.3%</b>
<b>Never</b>	<b>31.8%</b>	<b>36.7%</b>	<b>42.3%</b>	<b>48.7%</b>	<b>37.1%</b>	<b>40.5%</b>
<b>Don't know</b>	<b>31.3%</b>	<b>33.4%</b>	<b>27.5%</b>	<b>22.6%</b>	<b>37.1%</b>	<b>29.5%</b>

## *C-470 User Survey Results*

**Based on your understanding of the concept, how supportive would you be of having the CDOT Develop Express Toll Lanes on C-470?**

*Total household income*

	Under \$35,000	\$35,000- \$59,999	\$60,000- \$99,999	Over \$100,000	Refuse	Total
<b>Very supportive</b>	<b>14.8%</b>	<b>13.3%</b>	<b>17.0%</b>	<b>32.2%</b>	<b>12.9%</b>	<b>18.7%</b>
<b>Somewhat supportive</b>	<b>29.0%</b>	<b>34.4%</b>	<b>27.0%</b>	<b>33.4%</b>	<b>25.8%</b>	<b>30.4%</b>
<b>Not sure</b>	<b>27.3%</b>	<b>19.8%</b>	<b>21.9%</b>	<b>11.2%</b>	<b>28.7%</b>	<b>20.4%</b>
<b>Not supportive</b>	<b>29.0%</b>	<b>32.4%</b>	<b>34.0%</b>	<b>23.1%</b>	<b>32.6%</b>	<b>30.5%</b>

## C-470 User Survey Results

**If you were required to get a transponder, how likely would you be to get a transponder?**

*Total household income*

	Under \$35,000	\$35,000- \$59,999	\$60,000- \$99,999	Over \$100,000	Refuse	Total
<b>Very likely</b>	<b>12.1%</b>	<b>21.0%</b>	<b>24.7%</b>	<b>36.9%</b>	<b>15.8%</b>	<b>24.0%</b>
<b>Somewhat</b>	<b>22.4%</b>	<b>19.4%</b>	<b>19.1%</b>	<b>17.4%</b>	<b>15.8%</b>	<b>18.8%</b>
<b>Not sure</b>	<b>19.5%</b>	<b>15.9%</b>	<b>12.8%</b>	<b>9.7%</b>	<b>19.2%</b>	<b>14.4%</b>
<b>Not likely</b>	<b>37.9%</b>	<b>36.4%</b>	<b>32.6%</b>	<b>19.2%</b>	<b>33.9%</b>	<b>31.4%</b>
<b>Already have one</b>	<b>8.0%</b>	<b>7.3%</b>	<b>10.9%</b>	<b>16.8%</b>	<b>15.3%</b>	<b>11.4%</b>

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*Presentation to CTE Board*

*May 20, 2004*

