Congestion Pricing on Chicago's Highways: What do Drivers Think?

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Abstract: Reports have shown that traffic congestion causes losses of $7.3 billion per year in wasted fuel, time, and environmental impact in the six county Chicago area. Many efforts are underway to improve existing infrastructure and manage travel demand to reduce the burdens of congestion.

In 2008, the Chicago Travel Options Study stated preference survey was conducted to assess how effectively two types of road pricing would manage demand on the area's highway system. The survey employed a split sample approach: half of respondents completed stated preference experiments that tested likelihood of using managed lanes on the Chicago area's highways, while the other half completed experiments that tested peak period toll increases. All respondents were asked eighteen opinion questions after the stated preference experiments based on what they had learned in the survey. The paper identifies differences in opinion between the two types of road pricing, and profiles those differences by demographics and trip characteristics.

Secondly, tolling, public transit, and concerns for the environment are generally topics in which there is a wide range of public opinion. The Chicago Congestion Pricing stated preference survey asked a set of questions to gauge automobile travelers' attitudes toward tolling, public transit, and environmental concerns. The paper examines how individuals' opinions on these three topics vary by demographics, trip characteristics, and home location. Finally, the paper benchmarks Chicago area travelers' opinions against those of travelers from other parts of the United States.

1.0 RESEARCH QUESTIONS & STUDY INTRODUCTION

As in many parts of the US, congestion is a serious and growing issue for the Chicago area. Congestion concerns were quantified in an August 2008 report by the Metropolitan Planning Council (MPC) called "Moving at the Speed of Congestion: The True Costs of Traffic in the Chicago Metropolitan Area." The report sought to quantify the costs to Northern Illinois from traffic congestion on area roads, including costs from lost time, wasted fuel, and environmental degradation. The MPC report addressed congestion from a cost and policy perspective, but a brief overview of their findings in terms of the cost of congestion to the Chicago area is as follows:[1]

- Chicago and its six surrounding counties (Cook, DuPage, Kane, Lake, McHenry, and Will) lose approximately 7.3 billion dollars per year in wasted time, fuel, and environmental damages as a result of traffic congestion.
- Traffic congestion slows the region's economy by adding 22% to peak period travel times.
- Lost time in congestion costs the average driver approximately 66 minutes per week of wasted time.
- The annual wasted commuting time cost to the Chicago region as a result of traffic congestion is 5.1 billion dollars.
- Overall, the environmental cost of traffic congestion to the Chicago area is estimated to be 33 million dollars per year.
- The Chicago region is estimated to have a burden of 681 million dollars in wasted gasoline due to traffic congestion.
- In 2005, the annual increase in fuel costs per peak period traveler was $81 as a result of congestion. This includes all peak period traffic and is the extra amount of money spent on gas as a result of congestion.

Many efforts are underway to improve existing infrastructure and manage travel demand to reduce the burdens of congestion. These efforts include work by the Illinois Tollway and its partners the Federal Highway Administration, and the Chicago Metropolitan Agency for Planning to research solutions for reducing peak period congestion on interstates throughout the Chicago area. Alternatives being considered by the Illinois Tollway include managed lane and congestion pricing scenarios for the tollways and expressways in the Cook, Lake, and DuPage counties of the greater Chicago area.

To test driver's opinions of the managed lane and congestion pricing scenarios, the Illinois Tollway commissioned the Chicago Travel Options Study, a stated preference survey of automobile users conducted by RSG, in July 2008. The survey identified the travel patterns and preferences of drivers who traveled the tollways and expressways in Lake, DuPage, and Cook counties in the Chicago area. The survey included eighteen attitudinal questions about transit, road pricing, and carbon emissions. The survey used a split sample technique to create two groups of respondents; in the survey, each group responded to one of two different weekday peak period road pricing schemes:

1. Managed lanes, such as HOT/HOV lanes. The weekday peak period managed lanes could either be created from by the construction of new lanes or the conversion of existing lanes to managed lanes, but was not specified to the respondent. The managed lanes could be constructed on existing tollways and/or currently free expressways.

[1] Metropolitan Planning Council. *Moving at the Speed of Congestion: The True Costs of Traffic in the Chicago Metropolitan Area.* Chicago: Metropolitan Planning Council, August 2008.

2. Standard toll roads, or highway pricing. The weekday peak period tolls would be a charged of all travelers on all lanes of various tollways and/or expressways, thereby potentially tolling existing tollways and/or currently free expressways.

This paper presents an analysis of the survey data to answer three primary research questions:

1. What type of road pricing scheme are Chicago travelers are most amenable to?
2. What are the profiles of Chicago travelers in favor of the road pricing scheme shown to them? How do these profiles differ toward road pricing, transit alternatives, and carbon emission reduction?
3. How do Chicago travelers' attitudes compare to other cities toward road pricing, transit alternatives, and carbon emission reduction?

The remainder of the paper is arranged in four sections: descriptions of the survey questionnaire and the survey administration approach, presentation of the analysis of the survey data, and conclusions that can be taken from the analysis.

2.0 SURVEY QUESTIONNAIRE

The Chicago Travel Options Study questionnaire consisted of four parts: questions about each respondent's recent trip, stated preference trade-off questions, debrief questions, and demographic questions.

2.1 Context Questions

To start the survey, respondents selected from a list of four Chicago tollways and ten toll-free expressways which they had used on a weekday between the hours of 5–10AM or 3–8PM within the last month (Figure 1). The four tollways shown were the:

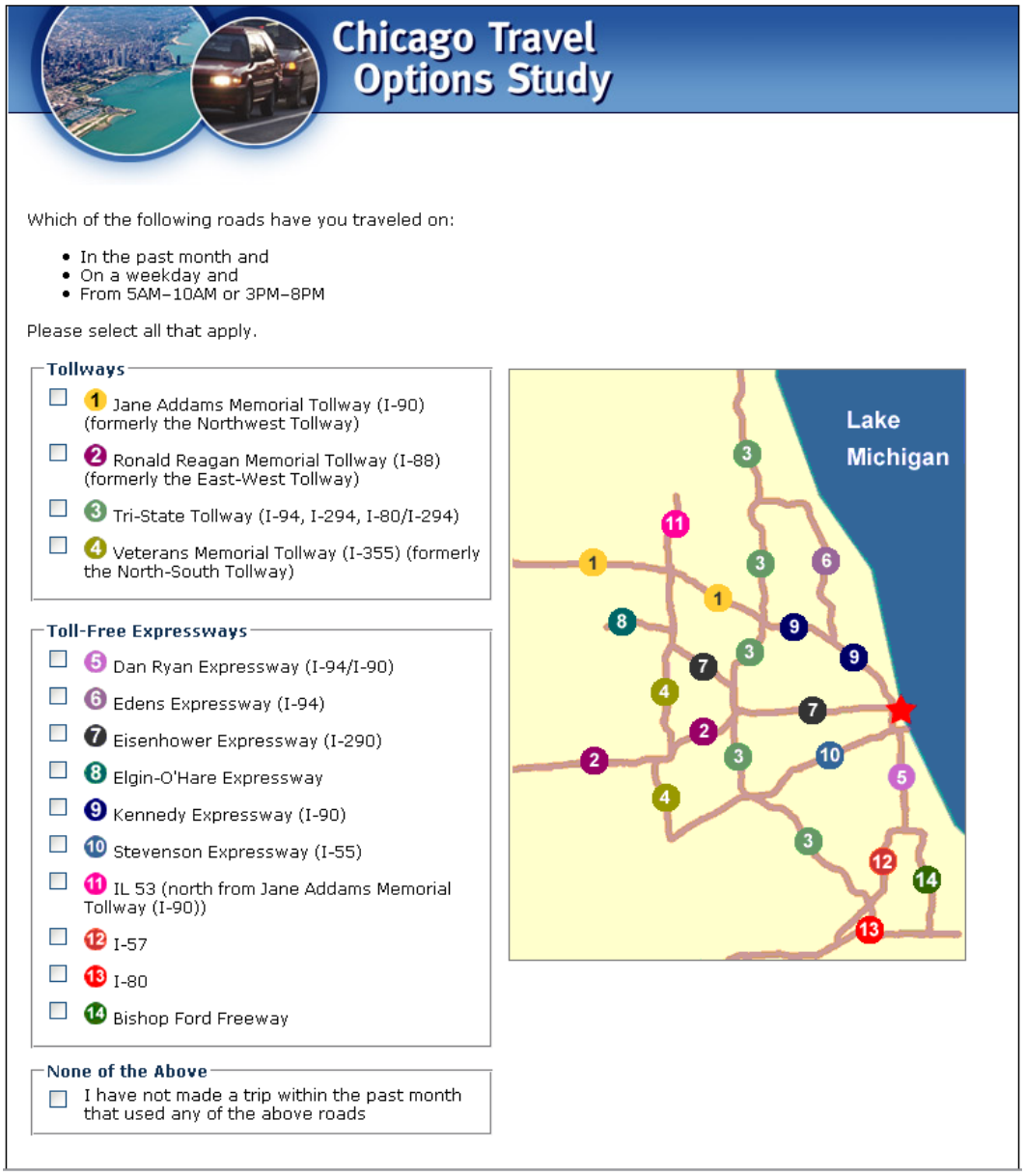
- Jane Addams Memorial Tollway, Ronald Reagan Memorial Tollway, Tri-State Tollway, and Veterans Memorial Tollway

The ten toll-free expressways listed were the:

- Dan Ryan Expressway, Edens Expressway, Eisenhower Expressway, Elgin-O'Hare Expressway, Kennedy Expressway, Stevenson Expressway, IL 53, I-57, I-80, and the Bishop Ford Freeway

Respondents who had not traveled on any of the fourteen highways in the past month were screened out of the survey.

Figure 1: Screener Question



Having met the screening criteria, respondents were directed to answer the remainder of questions in the survey while thinking about their most recent trip that was at least 15 minutes long on their most frequently traveled road. Respondents reported details of their trip including the direction of their trip, roads used, trip purpose, day of week, and time of day. Additionally, airport travelers provided the direction of their trip (to or from the airport) and if applicable, the purpose of their flight.

Next, respondents answered if they experienced a delay on their trip, how frequently they made their trip, and the number of passengers in the vehicle. Respondents who paid a toll on their trip reported the toll amount paid by tollway traveled. All respondents also reported if they owned an electronic toll collection transponder. Lastly, each respondent completed four questions about their transit use.

2.2 Stated Preference Questions and the Split Sample

At this point in the survey, respondents were split into one of two groups; either seeing stated preference questions about the addition of a managed lane or seeing stated preference questions about a change in highway pricing. Furthermore, within the split sample, respondents were categorized into one of three groups. Based on the details of their trip, respondents could have either made a trip only using tollways, a trip using both tollways and expressways, or a trip only using expressways (Figure 2).

Figure 2: Seven Stated Preference Segments (Based Upon Trip Type)

Trip Type	Stated Preference Segment	
Tollway Only Trip	1	Price Highways - Tollways
	2	Managed Lane
Tollway & Expressway Trip	3	Price Highways - Tollways
	4	Price Highways - Tollways & Expressways
	5	Managed Lane
Expressway Only Trip	6	Price Highways - Expressways
	7	Managed Lane

Before beginning the stated preference trade-off questions, all respondents were presented with introductory information and the travel alternatives that would be shown on the next screen of the survey. Questionnaire wording was customized for each segment according to the trip type (tollway trip, tollway and expressway trip, or expressway trip) and according to the stated preference type (highway toll pricing or managed lane).

Figure 3: Stated Preference Alternatives

Stated Preference Type	Stated Preference Alternatives	
Price Highways	1	Current Route
	2	Current Route at a Different Time of Day
	3	City Streets/Local Roads only
	4	Preferred Form of Transit*
Managed Lane	1	Managed Lane
	2	Regular Lanes
	3	City Streets/Local Roads only
	4	Preferred Form of Transit*

* Note: Respondents with no available form of transit did not see this alternative

Figure 4: Example Stated Preference Screen (Highway Pricing Segment for a Trip That Used Tollways & Expressways)

Figure 5: Example Stated Preference Screen (Managed Lane Segment for a Trip That Used Tollways & Expressways)

2.3 Debrief Questions

The final set of debrief questions addressed respondents' opinions. First, respondents were asked to provide their overall support or opposition to the road pricing scheme (either managed lane or highway pricing) seen in the stated preference section.

Secondly, respondents answered eighteen opinion questions related to their general opinion of travel behavior, toll rates, public transit, and vehicle carbon emissions. These statements are important to help gauge a respondent's potential bias toward paying tolls or changing their travel behavior.

2.4 Demographic Questions

To conclude the Chicago Travel Options Study survey, several demographics questions were asked to verify that the sample contained a diverse cross section of the population. Respondents were assured that their responses would be kept confidential and that any personal information they recorded would not be shared or sold to a third party.

Respondents answered a series of questions about their county or state of residence, household size, number of household vehicles, gender, age, employment status, and annual income in order to attain information about the sample and to determine differences in responses among different traveler segments.

3.0 Survey Administration

Data collection was conducted in July of 2008. Travelers who had traveled on one of the four tollways and/or on one of ten toll-free expressways on a weekday from 5–10AM or 3–8PM in the past month were recruited in one of three ways:

1. Online administration of the survey to recipients of the Illinois Tollway's monthly e-newsletter which is sent to I-PASS holders.
2. Online administration of the survey to travelers who stopped to pay a cash toll at one of six toll plazas across the four tollways. The six toll plazas were: Waukegan, 163rd Street, Meyers Road, Army Trail Road, Devon Avenue, and River Road. These travelers were given an invitation postcard with a unique password inviting them to take the stated preference survey online.
3. Online administration of the survey to recipients of the Metropolitan Planning Council's bi-weekly *Talking Transit* e-newsletter.

A total of 1,976 respondents completed the Chicago Travel Options Study survey, with 824 respondents seeing the managed lanes stated preference section and 1152 respondents seeing the highway pricing stated preference section.

4.0 Survey Results

4.1 Split Sample Comparison

The demographic profiles and revealed preference trip information of the two groups in the sample were compared to evaluate any statistical differences between the two groups. As shown in Figure 6 and Figure 8 below, the groups were comparable with no statistically significant demographic or trip detail differences between the group of respondents who saw a managed lanes stated preference section and the group of respondents who saw a stated preference section testing a change in tolls on the highways.

Figure 6: Selected Demographics by Road Pricing Scheme Concept Shown to Respondent

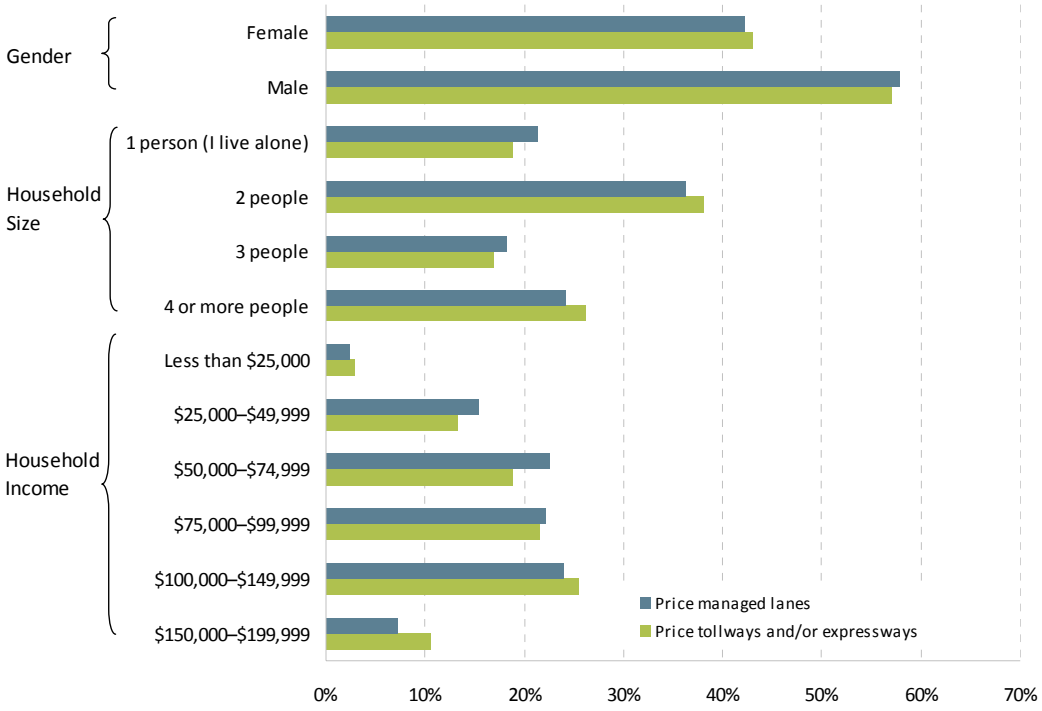
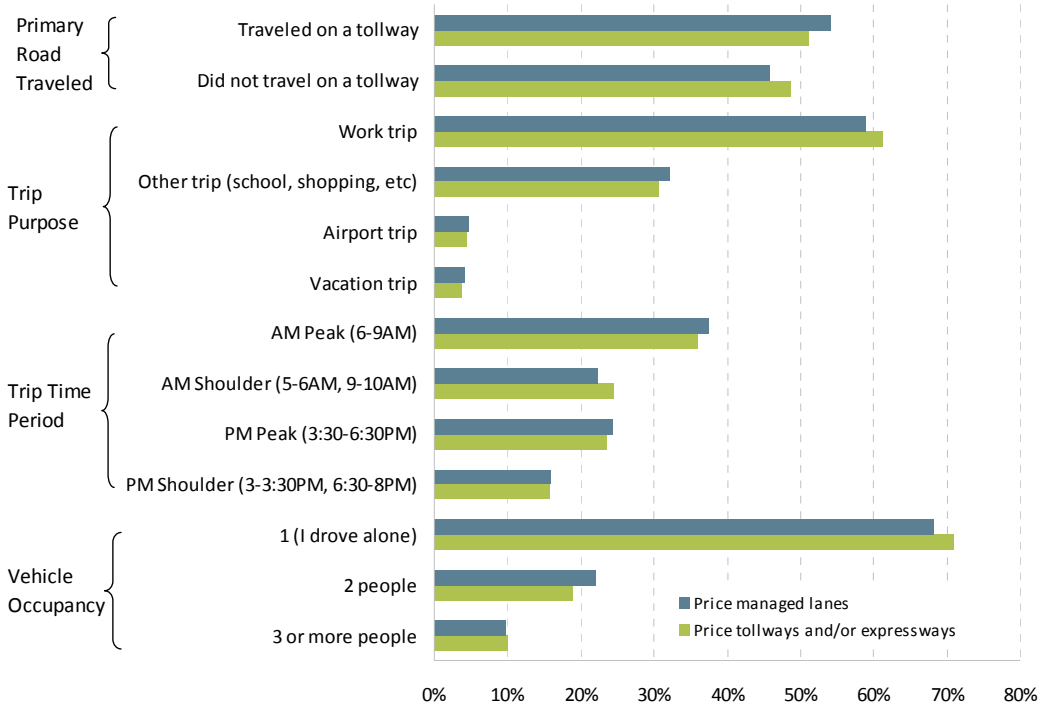


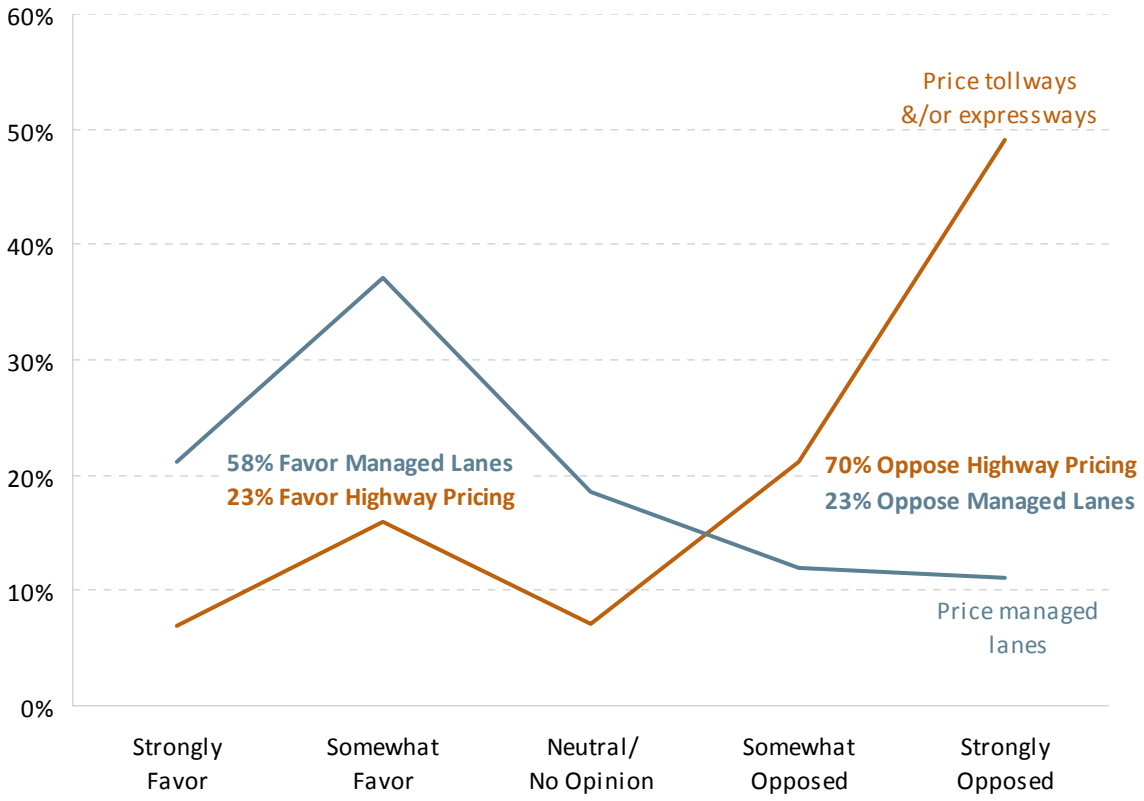
Figure 7: Selected Revealed Preference Trip Details by Road Pricing Scheme Concept Shown to Respondent



4.2 Respondent Opinion of the Road Pricing Concept Shown to Them

However, despite the similarity of the two groups' demographics and trips, they did have different opinions about the road pricing scheme that was shown to them, indicating differences in how the population feels towards these different tolling methods. As shown in Figure 8, the two groups of respondents had statistically significant differences in opinion. Respondents clearly favored a managed lane approach to reducing rush-hour congestion over an approach that increases or places tolls on all lanes of tollways and/or expressways in the Chicago area.

Figure 8: Opinion by Road Pricing Scheme Concept Shown to Respondent



4.3 Comparison of Respondents in Favor of Either Highway Pricing or Managed Lanes Pricing

Respondents who were in favor of either road pricing scheme shown to them in the stated preference section of the Chicago Travel Options Survey have been compared to each other to determine what differences exist. The results in a sample size of 262 respondents who were in favor of adding or increasing tolls on highways during peak periods and a sample size of 480 respondents who were in favor of implementing managed lanes during peak periods (Figure 9).

Figure 9: Opinion of Road Pricing Scheme Concept Shown to Respondent. Respondents in Favor are Highlighted.

Stated Preference Type	Favor		Neutral		Oppose	
	Count	%	Count	%	Count	%
Price tollways &/or expressways	262	23%	82	7%	808	70%
Price managed lanes	480	58%	153	19%	191	23%

These two groups of respondents who were in favor of the concept had no statistically significant differences demographically, showing comparable household size, number of household vehicles, gender, age, and employment distributions. It does appear that the respondents in favor of highway pricing had slightly higher household incomes with 51% having a household income of greater than $100,000, while only 42% of respondents in favor of managed lanes had a household income of greater than $100,000.

A further review of the eighteen travel, transit, and environmental opinion and attitude questions indicates differences between the two groups of respondents in favor of the road pricing concept shown to them. While there were no statistically significant differences in trip purpose, vehicle occupancy, travel time, or travel distance, respondents in favor of the increasing or adding tolls to highways during peak periods more strongly agreed with all eighteen questions. Moreover, there was a statistically significant difference between the two groups for thirteen of the eighteen opinion questions (Figure 10).

Figure 10: Percent of Respondents Who Agree with the Shown Opinion Statement by Road Pricing Scheme Shown

Opinion Statement	Respondents in Favor of Pricing Tollways &/or Expressways n = 262	Respondents in Favor of Pricing Managed Lanes n = 480	Difference Between Segments
I would change the time I travel to pay a lower toll amount than I normally do	51%*	29%*	22%
I'm willing to pay higher tolls if they are used to reduce air pollution & carbon emissions	58%*	37%*	21%
I support increased or new taxes to pay for highway improvements that relieve congestion	53%*	35%*	18%
I support using tolls to pay for public transportation improvements in the Chicago area	61%*	46%*	16%
Current Northern Illinois toll rates are reasonable	61%*	46%*	14%
I will pay an extra toll if it assures me my travel won't be slowed by traffic conditions	85%*	73%*	12%
I'm able to access a sufficient number of transit routes from my neighborhood	40%*	28%*	12%
Having different toll rates for I-PASS & cash paying travelers is fair	68%*	57%*	11%
To improve air quality, I'm willing to pay a little more to use an electric or clean-fuel vehicle	70%*	60%*	10%
Carbon emissions from my vehicle contribute to climate change	71%*	63%*	8%
The frequency of transit running in my neighborhood is sufficient for my travel needs	32%*	24%*	8%
I support using tolls to pay for highway improvements that relieve congestion	82%*	75%*	7%
I would use public transit to travel to other locations outside downtown Chicago	54%	46%	7%
I'll use a toll route if the tolls are reasonable & I save time	97%*	93%*	4%
I'm willing to carpool or take public transit more frequently to reduce carbon emissions from my vehicle	52%	49%	4%
I would use public transit to travel to downtown Chicago	79%	77%	3%
Current Chicago area public transit fares are reasonable	50%	49%	2%
I understand what vehicle carbon emissions are	93%	92%	1%

* Indicates that the two segments are statistically different at the 95% confidence level.

As shown in Figure 10, of the two groups of respondents who favored the concept shown to them, respondents who saw and are in favor of the road pricing concept of increasing or adding tolls to highways during peak periods agreed much more strongly with the eighteen opinion statements shown to them. Therefore, not only did this group of respondents favor increased or new tolls on the tollways and expressways in the greater Chicago area, but they more strongly favored a broad use of the additional toll revenue to reduce environmental impacts, to improve transit, and to improve highways in order to reduce congestion. Similarly, these respondents more strongly agreed that they were willing to change their own travel behavior than respondents who favored the managed lanes concept such that they more strongly agreed that they would change the time they normally travel, would use an electric or clean-fuel vehicle to improve air quality, and would use a toll route in order to save time.

4.4 Cluster Analysis of Respondents in Favor of Managed Lane Pricing

Having determined that the respondents in favor of the road pricing concept of increasing or adding tolls to highways during peak periods more strongly agreed with all eighteen opinion questions than those respondents in favor of managed lanes, a question arises. Is there a subset of respondents within the group of respondents in favor of managed lanes who are similar to the respondents in favor of highway pricing such that they are also strongly in favor of tolling to reduce congestion, transit options, and environmental measures?

To evaluate this question, K-means cluster analysis was conducted for the 480 respondents who were in favor of the managed lanes road pricing scheme. The K-means cluster analysis was used to group respondents into clusters based on their demographics and their answers to the eighteen opinion statements. K-means cluster analysis is opportunistic, meaning that it tries to form groups that differ based on the number of groups specified.

For this paper, a two cluster solution was estimated in an attempt to segregate the 480 respondents who were in favor of the managed lanes road pricing scheme into two groups of respondents who shared similar attitudes: a group who were similar to those who favor highway pricing and a group who were not.

Figure 11: Two Group Cluster Analysis of Respondents in Favor of Managed Lanes

Cluster Number	Number of Respondents	% of Respondents in Favor of Managed Lane Pricing	% of all Managed Lane Pricing Respondents
1: Willing to pay tolls & willing to change behavior to decrease congestion and improve transit and environment	156	33%	19%
2: Open to measures to decrease congestion, but unsure about changing own behavior	324	68%	39%

As shown in Figure 11, cluster analysis resulted in a group of respondents who comprised 19% of all managed lane respondents. This group (Cluster #1) shows strong willingness to pay tolls and to change their behavior to decrease congestion and improve transit and the environment. Their levels of agreement with the eighteen opinion statements are comparable to those of the group of respondents in favor of adding or increasing tolls on the highway (23% of highway pricing respondents).

The second group (Cluster #2) of respondents in favor of managed lane pricing had lower levels of agreement with the eighteen opinion statements, particularly statements about transit and the environment. For instance, only 35% of Cluster #2 respondents were in favor of using tolls to pay for public transportation improvements, whereas 67% of Cluster #1 respondents and 61% of respondents in

favor of highway pricing agree that they are in favor of using tolls to pay for public transportation improvements. Cluster #2 respondents agree that they are open to a road pricing scheme such as managed lanes to reduce congestion, but are less willing to change their behavior by taking transit or driving less frequently.

Figure 12: Percent of Respondents Who Agree with the Shown Opinion Statement

Opinion Statement	Managed Lanes Cluster #1 n = 156	Managed Lanes Cluster #2 n=324	Difference Between Clusters
I support using tolls to pay for public transportation improvements in the Chicago area	67%	35%	32%
I'm willing to carpool or take public transit more frequently to reduce carbon emissions from my vehicle	69%	39%	30%
I'm able to access a sufficient number of transit routes from my neighborhood	46%	20%	26%
Current Northern Illinois toll rates are reasonable	63%	38%	25%
I'm willing to pay higher tolls if they are used to reduce air pollution & carbon emissions	53%	29%	25%
I would change the time I travel to pay a lower toll amount than I normally do	44%	21%	23%
The frequency of transit running in my neighborhood is sufficient for my travel needs	39%	17%	22%
I would use public transit to travel to other locations outside downtown Chicago	58%	41%	18%
Carbon emissions from my vehicle contribute to climate change	74%	58%	17%
To improve air quality, I'm willing to pay a little more to use an electric or clean-fuel vehicle	72%	54%	17%
Current Chicago area public transit fares are reasonable	58%	41%	14%
I will pay an extra toll if it assures me my travel won't be slowed by traffic conditions	81%	69%	13%
I would use public transit to travel to downtown Chicago	83%	73%	10%
I support increased or new taxes to pay for highway improvements that relieve congestion	42%	32%	10%
Having different toll rates for I-PASS & cash paying travelers is fair	53%	59%	8%
I support using tolls to pay for highway improvements that relieve congestion	77%	74%	3%
I'll use a toll route if the tolls are reasonable & I save time	94%	92%	2%
I understand what vehicle carbon emissions are	92%	91%	1%

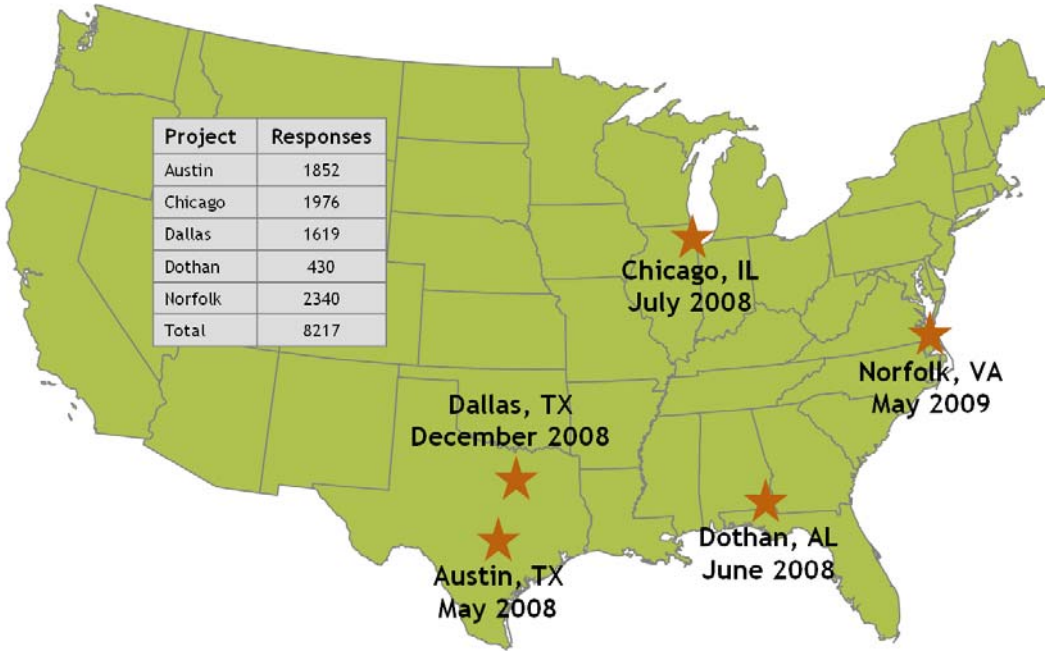
In sum, it appears that only those who very strongly support paying tolls and supporting the use of them to help transit and the environment favor a highway pricing concept. Similarly, the same proportion of the population supports both managed lanes and support the use of toll revenue to help transit and the environment, but there is a second segment of the population who don't necessarily support changing their behavior or making a personal sacrifice, but who support managed lanes as a potential way to reduce congestion and improve travel for all Chicago travelers.

4.5 Comparison of Chicago Traveler Opinions to Travelers in Other Cities

Over the past year, RSG has included opinion and attitude questions in stated preference surveys in different areas of the United States (Figure 13). Projects in Texas, Virginia, and Alabama have all included some, but not all, of the same opinion and attitude questions that were included in the Chicago Travel

Options Study. The opinion statements asked for each project have been included (or excluded) for various project-specific reasons. Acknowledging that this is preliminary work and that the stated preference survey samples are not necessarily population-proportional, this section of the paper will examine the differences in opinion of respondents to the Chicago Travel Options Study when compared with respondents in Texas, Virginia, and Alabama.

Figure 13: Five Stated Preference Survey Projects by Location, Date, and Sample Size



There are seven opinion statements that can be compared across geographies. These statements are shown below in Figure 14. Three of the opinion statements were not asked in all projects, while the other four opinion statements were asked for all five projects.

Figure 14: Opinion Statements Shown to Respondents By Project

Opinion Statement	Chicago n= 1976	Austin n=1852	Dallas n=1619	Dothan n=430	Norfolk n=2340
I will use a toll route if the tolls are reasonable and I save time	X	X	X	X	X
I support using tolls to pay for highway improvements that relieve congestion	X	X	X	X	X
I understand what vehicle carbon emissions are	X	X	X	--	--
Carbon emissions from my vehicle contribute to climate change	X	X	X	X	X
I'm willing to carpool or take public transit more frequently to reduce carbon emissions from my vehicle	X	X	X	X	X
I'm willing to pay higher tolls if they are used to reduce air pollution & carbon emissions	X	X	X	X	--
I support using tolls to pay for public transportation improvements	X	X	X	--	X

Figure 15 compares all 1,976 of the Chicago Travel Options Study respondents to all respondents in the other four cities for the two opinion statements that asked about willingness to use a toll route and to pay tolls. Figure 16 subsequently compares the travelers based on their answers to environmental opinion questions. These two figures demonstrate Chicago travelers' higher willingness to use toll roads and their higher acceptance of the tolling than travelers in other cities, particularly in Austin, Dallas, and Norfolk.

However, while Chicago travelers are more open to tolls, they have comparable environmental attitudes to travelers in the other cities studied and do not display a higher willingness to pay or to change their behavior to benefit something less tangible, such as reducing vehicular emissions. In this way, Chicago travelers are still focused on the cost of congestion to their travel times and are willing as a whole to pay more in order to receive increased travel time reliability.

Figure 15: Comparison of Chicago Travelers Toll Attitudes with Travelers in Other Cities

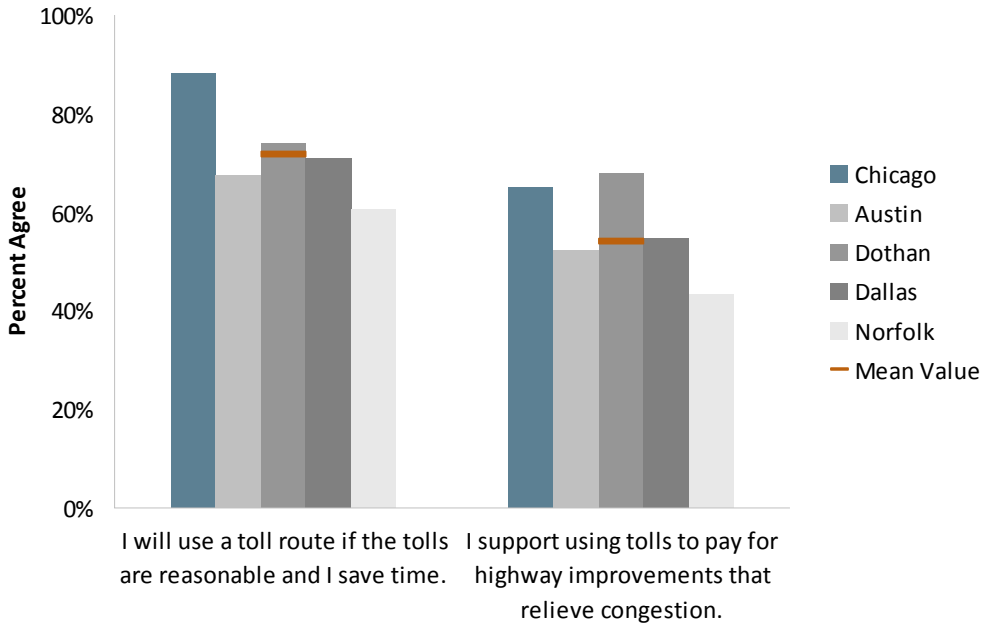
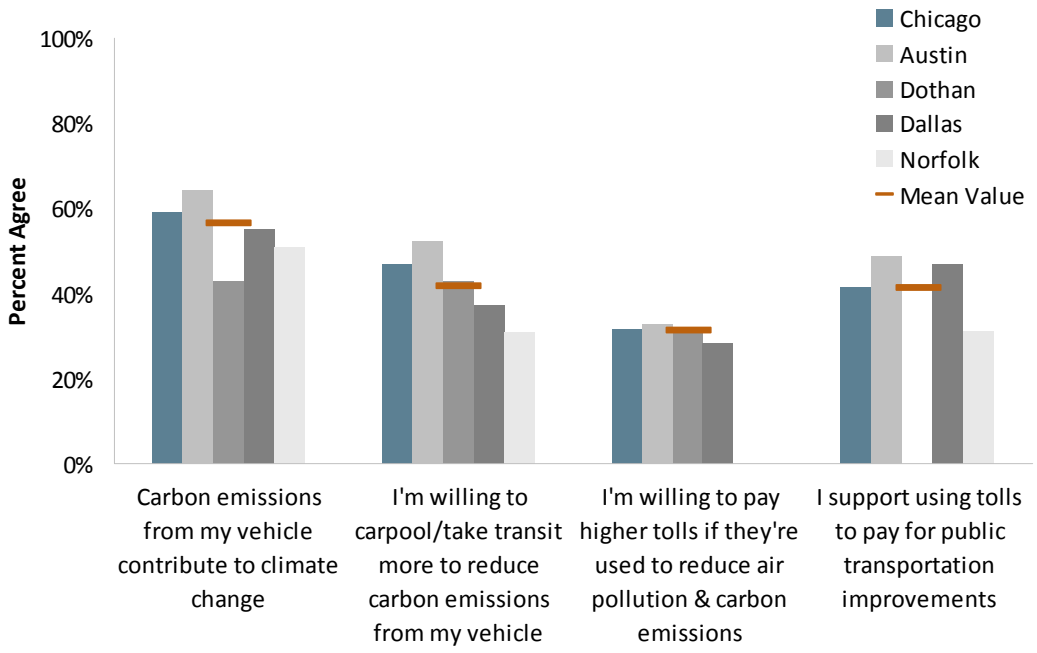


Figure 16: Comparison of Chicago Travelers Environmental Attitudes with Travelers in Other Cities



There may be many reasons why Chicago travelers appear more favorable toward road pricing than other cities and have comparable levels of agreement toward transit improvements and carbon emissions reductions. Chicago has a robust transportation system, many transit alternatives (Metra, Pace, CTA), and many road alternatives, including both tolled tollways and free expressways. In addition, the tollways in Chicago have been tolled for more than 50 years, whereas in other parts of the United States, travelers are unfamiliar with toll roads and road pricing concepts.

5.0 CONCLUSION

The goal of this paper has been to answer the following three research questions:

1. What type of road pricing scheme are Chicago travelers are most amenable to?
2. What are the profiles of Chicago travelers in favor of the road pricing scheme shown to them? How do these profiles differ toward road pricing, transit alternatives, and carbon emission reduction?
3. How do Chicago travelers' attitudes compare to other cities toward road pricing, transit alternatives, and carbon emission reduction?

Firstly, Chicago travelers appear to favor a congestion-reducing option of managed lanes over increasing or placing tolls on the tollways and expressways to reduce congestion. There may be multiple reasons for this. Managed lanes preserve for travelers the choice of deciding to pay to drive in the managed lane or to not drive in the managed lane, whereas adding or increases tolls across all lanes of a highway requires that travelers pay (or pay more) to travel the road. Additionally, Chicago travelers are more familiar with the concept of managed lanes in a broad sense of lanes segregated from other general purpose lanes, including the Dan Ryan express lanes and the Kennedy Expressway reversible lanes, than they are with congestion pricing. Finally, given that the goal of peak-period congestion pricing is to induce peak-period travelers to change their time of travel to another time of day and thereby reduce congestion, it may be that the Chicago travelers are more amenable to changing their route or to changing their mode to transit than to changing their time of travel

Secondly, the results of the Chicago Travel Options Study indicate that the respondents in favor of increasing or placing tolls on the tollways and expressways to reduce congestion agree much more strongly with all of the opinion statements than the respondents in favor of managed lanes. The respondents in favor of managed lanes have lower levels of agreement for tolling, transit alternatives, and carbon emission reduction.

However, a K-means cluster analysis of the respondents in favor of managed lanes results in a cluster of respondents who hold similarly strong opinions and have a strong willingness to pay tolls and to change their behavior to benefit transit and the environment. This cluster of respondents demonstrating strong levels of agreement with the eighteen opinion statements is 19% of all managed lane respondents. This compares to the 23% of highway pricing respondents who favored the concept and also demonstrated strong levels of agreement with the eighteen opinion statements. In sum, approximately 20% of the population favorably views tolling as a means to reduce congestion and are also amenable to using tolling measures to benefit transit alternatives and the environment.

K-means cluster analysis also resulted in a second cluster of respondents who are open to managed lanes as a means to reduce congestion, but showed lower levels of agreement with the opinion statements, particularly the transit and environment statements. In this way, this group appears open to measures to reduce congestion and improve their travel time, but are not yet willing to pay tolls for something less tangibly beneficial, such as reducing emissions or improving transit.

Lastly, Chicago travelers' opinions were compared to those of travelers who completed stated preference surveys in Texas (Dallas and Austin), Virginia (Norfolk), and Alabama (Dothan). The same seven statements were included in the five studies around the United States. This comparison indicated that

Chicago travelers have a higher willingness to pay tolls and to use toll roads than travelers in Dallas, Austin, Norfolk, and Dothan. This may be because Chicago has a robust transportation system and has had toll roads for more than 50 years, and therefore Chicago travelers have more travel options and are more familiar with toll roads. However, Chicago travelers are similar in terms of their environmental attitudes and have comparable opinions to travelers in the other cities. In all the cities, almost all respondents indicated awareness that their vehicle emits carbon, but many fewer indicate willingness to change their behavior or to pay to reduce emissions. Generally speaking support for something intangible decreases as personal sacrifice increases.