Ohio River Bridge Users Study

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DRAFT

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Material Accuracy

The intent of this study and this subsequent report is to provide accurate and authoritative information about bridge usage patterns. IQS Research makes reasonable effort to ensure that all data are collected, analyzed, and portrayed in an accurate and factual manner. However, there is no guarantee that this data is without flaws or that the use of this data will prevent differences of opinion or disputes and IQS Research bears no responsibility for its use or consequences.

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Executive Summary

The purpose of this study was to perform comparisons of Ohio River bridge usage patterns between different segments of the population within a 5-county region. For the purpose of this study the population was stratified using two different methods. The first method focused on race and, using the Federal Highway Administration definitions, categorized the population as either being within the EJ Race grouping or outside of the EJ Race grouping. The second methodology was also dictated by the Federal Highway Administration and focused on income levels and categorized the population based on whether the household income was at or below the poverty level or if the household income was above the poverty level.

When we performed the analysis of the population stratified by income we found that there were no statistically significant differences between the bridge usage patterns, either while driving or while using TARC. While numerical differences are present those differences are not statistically different between the two populations.

When we performed the analysis of the population stratified by race we did find statistically significant differences between the bridge usage patterns of the two groups. Specifically we found that those residents in the EJ Race category tended to have higher usage of the bridges with a larger percentage of the EJ Race population being considered high-usage users. These patterns within race were consistent whether viewing usage patterns for driving or for using TARC.

Furthermore, when considering the bridge usage patterns of the EJ Race travelers we find that the bridge usage is similarly distributed among the three bridges and that none of the three bridges went unused by the EJ Race users.

Purpose of Study

The purpose of this study was to delineate the bridge usage patterns of low-income and EJ Race populations in contrast with the rest of the population in a 5-county region including Louisville, KY.

Survey Methodology

As the purpose of this study is to gain a better understanding of residents' use of the Ohio River bridges, a telephone based research study was administered. The instrument was designed to measure usage based on certain demographics related to race and socioeconomic status to determine if differences exist in usage of the bridges between race and income levels.

This study was only designed to provide a statistically valid assessment of the usage patterns of the Ohio River bridges.

The final result of this work was an eleven question survey with specific questions pertaining to usage patterns of the bridges as well as demographic data. The usage questions were as follows:

- Do you own or lease a motor vehicle?
- Thinking about the last year, how often do you normally cross the Ohio River while driving your own vehicle?
- Do you ever use TARC to cross the Ohio River?
- Thinking about the last year, how often do you normally cross the Ohio River using TARC?
- Which bridge do you normally use when crossing the Ohio River?

The following demographic data were collected from respondents for analytical purposes:

- Gender
- Race/Ethnicity
- Number of people in household
- Income level (phrased in poverty terminology and thresholds)
- Age
- Zip code

The counties included were:

- Jefferson, KY
- Bullitt, KY
- Oldham, KY
- Clark, IN
- Floyd, IN

This survey was administered as a telephone study to 500 households. These telephone calls were conducted from Thursday October 6 through Monday October 10. This sample size generates a margin of error of 4.37% at the 95% confidence level.

Calculation Notes

1. Some charts or tables may not total 100% due to rounding.
2. Some charts or tables may total more than 100% if multiple answers were allowed for an individual question.

Summary of Results - Aggregate Results

When we review the results of the interviews in aggregate for all five hundred telephone interviews we find that 87% of the respondents indicated that they own or lease a vehicle. We then further asked these same people about their bridge usage patterns and found the following:

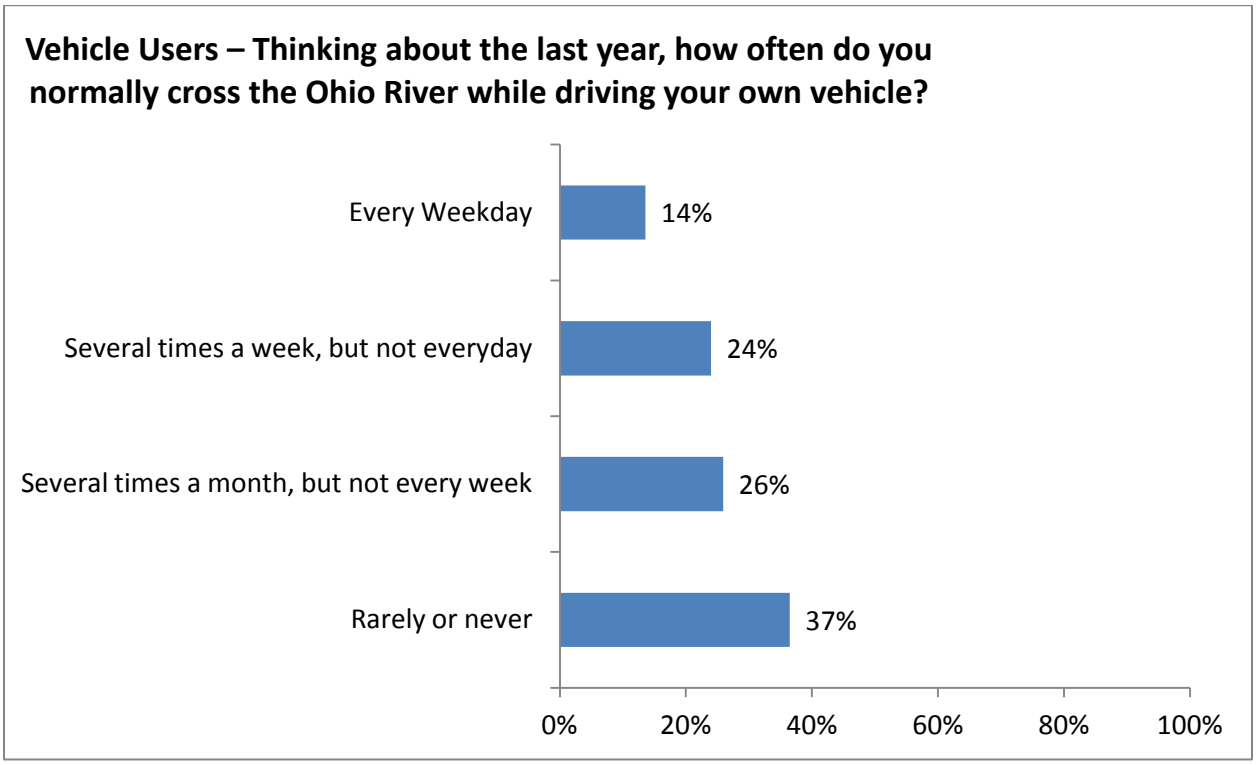

Chart 1 – Aggregate Bridge Usage – Drivers

A total of 38% of those who own or lease a vehicle are considered heavy users of the bridges, meaning that they cross one or more bridges either several times per week (24%) or every weekday (14%). Additionally, slightly more than a third (37%) of the population indicated that they rarely or never cross the bridges.

When we consider the percentage of the population who use TARC to cross the bridge we find that approximately 15% of the respondents indicated that they do use TARC when they cross the bridge.

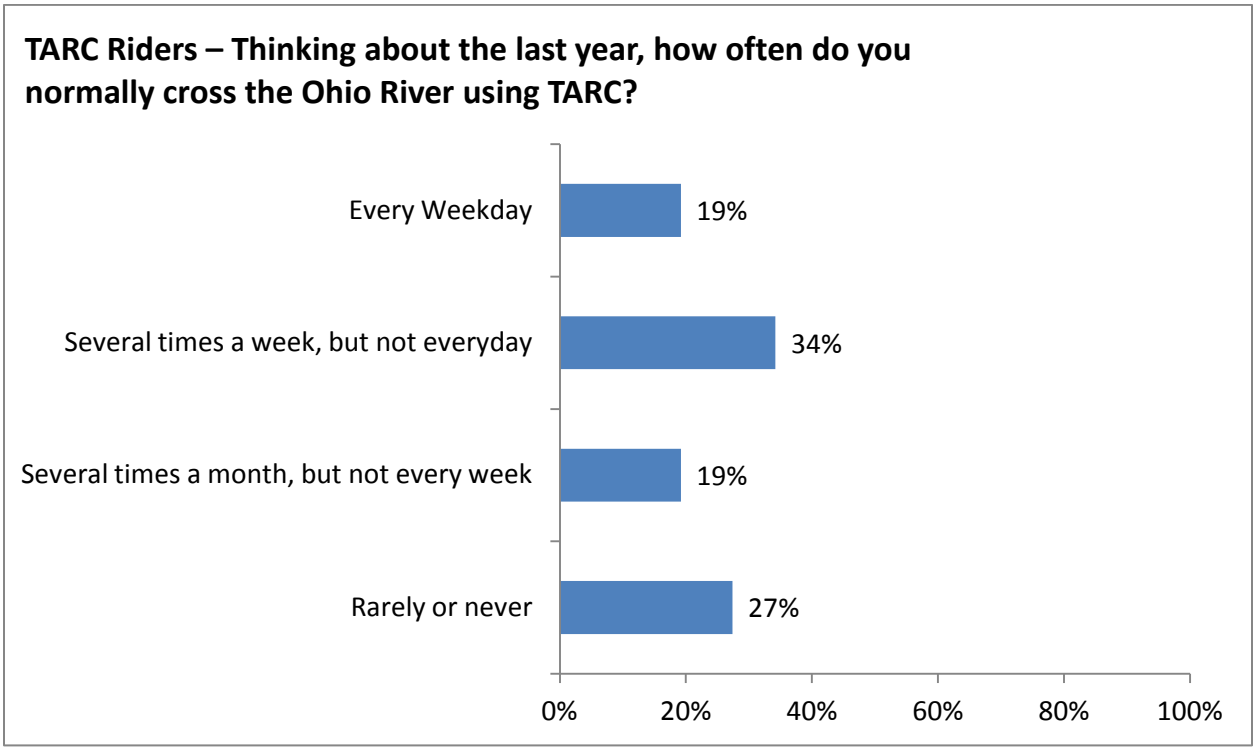

Chart 2 – Aggregate Bridge Users – TARC

Comparing the travel patterns of the TARC users versus the drivers we find that those who do use TARC to cross the bridges cross the bridges more regularly than the drivers. Specifically, we find that 53% of the TARC users cross the bridges several times a week or every weekday.

We next asked the respondents about their specific bridge usage patterns. For this question we asked about the I64 Bridge prior to its closure. Furthermore, since some people do travel across multiple bridges regularly, more than one answer was allowed. The results are shown on the following chart.

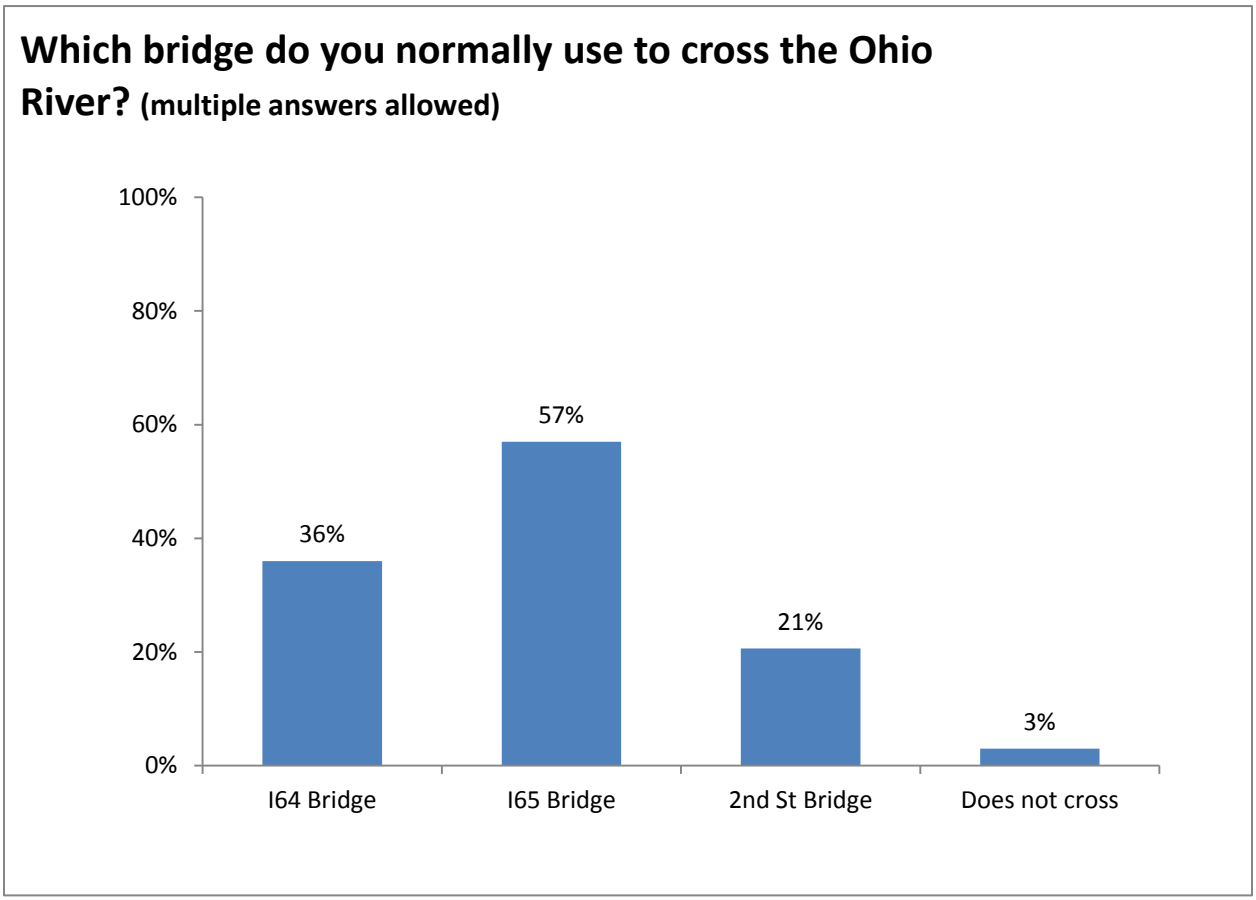

Chart 3 – Bridge Usage - All

Disaggregate Bridge Usage Statistics - Income

One of two primary objectives of this study was to delineate the bridge usage behaviors of the low income population in comparison with the non low income portion of the population. For this analysis, a low income household was specifically defined as having a total annual household income at the poverty level or below. This definition is in keeping with the Federal Highway Administration's definitions and requirements for performing Environmental Justice studies. The poverty level was also dependent on the number of members in the household.

The following cutoff points were used for this determination:

Persons in household	Poverty guideline
1	$10,830
2	14,570
3	18,310
4	22,050
5	25,790
6	29,530
7	33,270
8	37,010
For families with more than 8 persons, add $3,740 for each additional person.	

Table 1 – Poverty Threshold Table

When we compare the vehicle usage statistics between the two income groups we find that 75% of the respondents with incomes at or below the poverty level indicate owning or leasing a vehicle, compared to 89% of the respondents with incomes above the poverty level. Continuing our analysis we turn our attention to the bridge usage patterns of the low-income population.

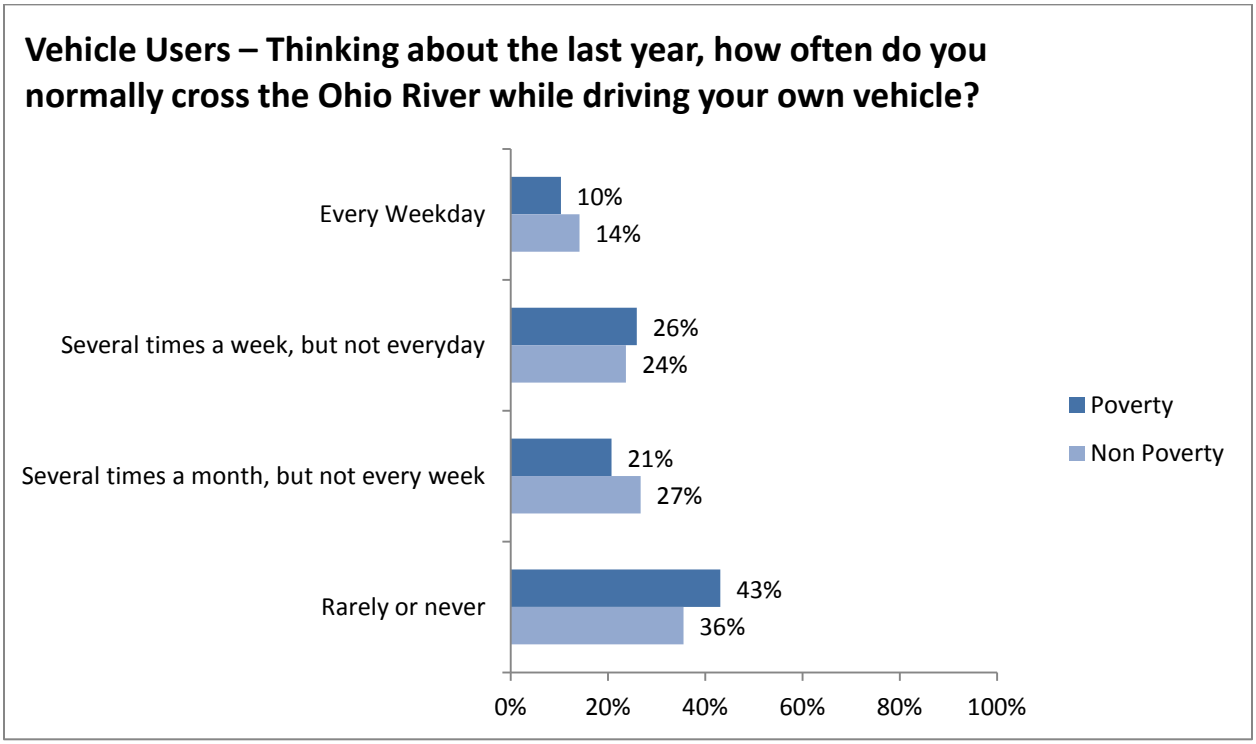

Chart 4 – Bridge Usage – Driving – Income

When we compare the bridge usage statistics between drivers at the poverty income level or below and those who are not at that level we find that there are no statistical differences between the groups. While numerical differences do exist, when compared using a T-test, we find these results are not statistically different.

Continuing our analysis to include the TARC users at the poverty income level or below we find that 13% of the people living at the poverty level or below indicate using TARC to cross the bridges compared to 15% of the non poverty population.

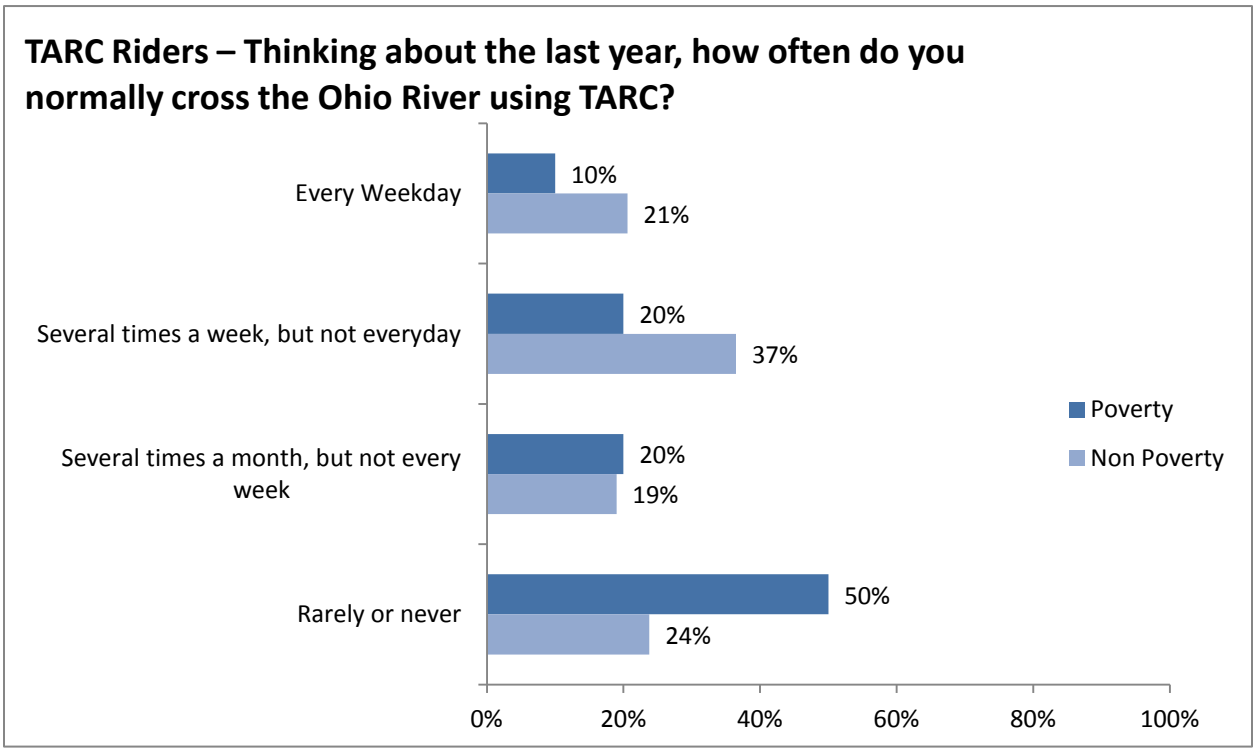

Chart 5 – Bridge Usage –TARC – Income

As with the previous chart focusing on drivers this chart compares the bridge usage patterns of those who use TARC to cross the bridge. Here again we find that there are not statistical differences in the travel patterns based on the two income categories.

Disaggregate Bridge Usage Statistics - Race

To perform the race calculations we stratified the population based on their answer to the question about self-selected race categories. For this question there were six choices offered to the respondents as follows:

- Black
- Hispanic
- Asian
- American Indian and Alaska Native
- White
- Other

If a respondent indicated she or he was Black, Hispanic, Asian or American Indian, or Alaska Native then that person was included in the EJ Race category. This definition is in keeping with the Federal Highway Administration's definitions and requirements for performing Environmental Justice studies. If a person indicated White or Other then he or she was not included in the EJ Race category.

When we consider the different race groups we find that 71% of the EJ Race respondents indicated that they owned or leased a vehicle compared with 89% of the non EJ Race respondents. When we compared the bridge usage behavior of the EJ Race respondents to the non EJ Race respondents we find there are statistically significant differences ($p<.05$) in the patterns.

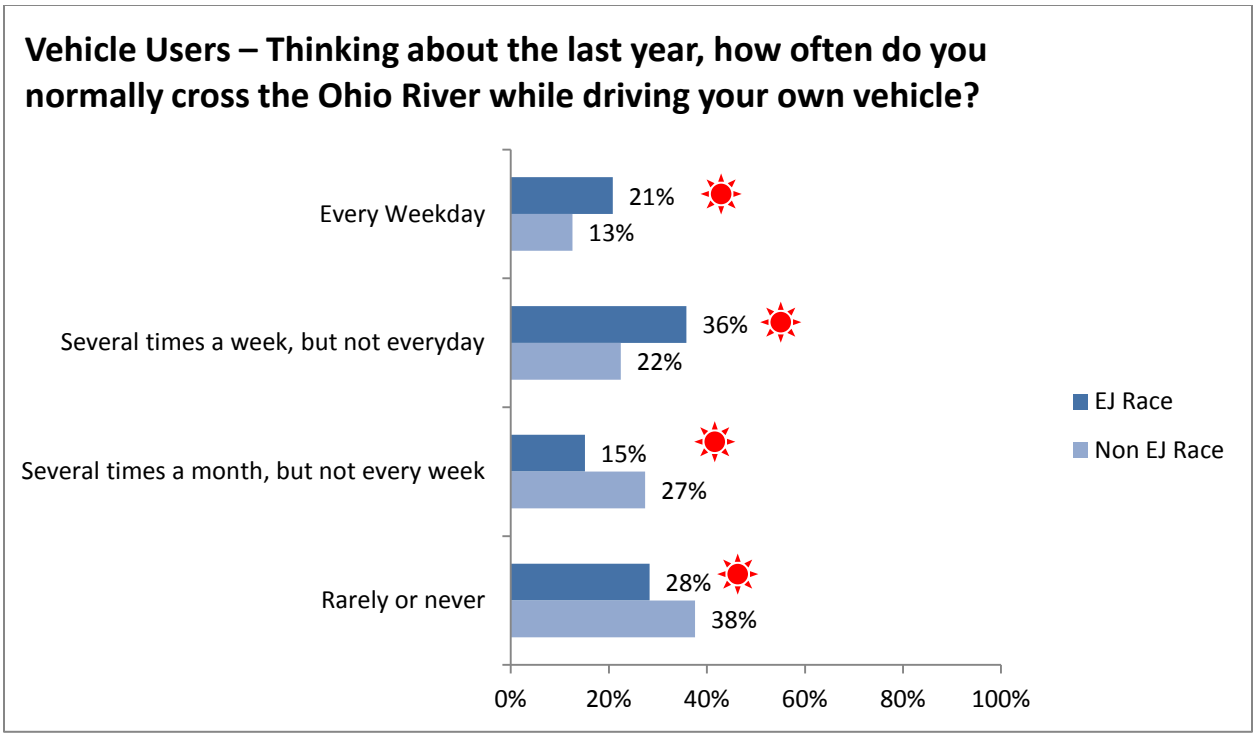

Chart 6 – Bridge Usage – Driving – Race

Significant p<.05

When comparing the various usage frequencies between the portion of the population in the EJ Race category and those who are not, we find statistically significant differences for all usage frequencies. In this case we find that the EJ Race members are crossing the bridge more frequently than those not in the EJ Race category.

Continuing our analysis we wish to identify the area from which the high frequency EJ Race travelers originate. To perform this analysis we specifically look at the county and, when present, predominant zip codes where the frequent travelers reside. For this analysis, frequent travelers are defined as those who cross the bridge several times a week or every weekday. Based on the following table we see that the majority of the EJ Race high usage population (70%) resides in Jefferson County. Furthermore, those individuals within Jefferson County primarily reside within the 40211, 40214, 40216 and 40272 zip codes.

		Race Category		
		Non EJ Race	EJ Race	EJ Race Major Zip Code
Kentucky	Bullitt	6%	3%	
	Jefferson	41%	70%	40211, 40214, 40216, 40272
	Oldham	6%	3%	
Indiana	Clark	23%	17%	
	Floyd	25%	7%	

Table 2 – High Usage Origins – EJ Race

Continuing our analysis in this area we wanted to understand if the patterns in the high usage, EJ Race population are associated with income or if they are independent of income category.

		Race Category	
		Non EJ Race	EJ Race
Every weekday	Poverty	8%	22%
	Above	13%	21%
Several times a week, but not everyday	Poverty	22%	44%
	Above	22%	34%
Several times a month, but not every week	Poverty	20%	22%
	Above	28%	14%
Rarely or never	Poverty	49%	11%
	Above	36%	32%

Table 3 –EJ Race, High Usage – Income

When we view the different bridge usage frequencies and compare between the two race categories we find a consistent pattern where the EJ Race respondents indicate higher bridge usage regardless of income level.

While the preceding race comparisons have all focused on drivers we now turn our attention to the EJ Race TARC users. Here we find a similar pattern where there are statistically significant differences between the EJ Race and the non EJ Race respondents when we consider TARC usage to cross the bridge.

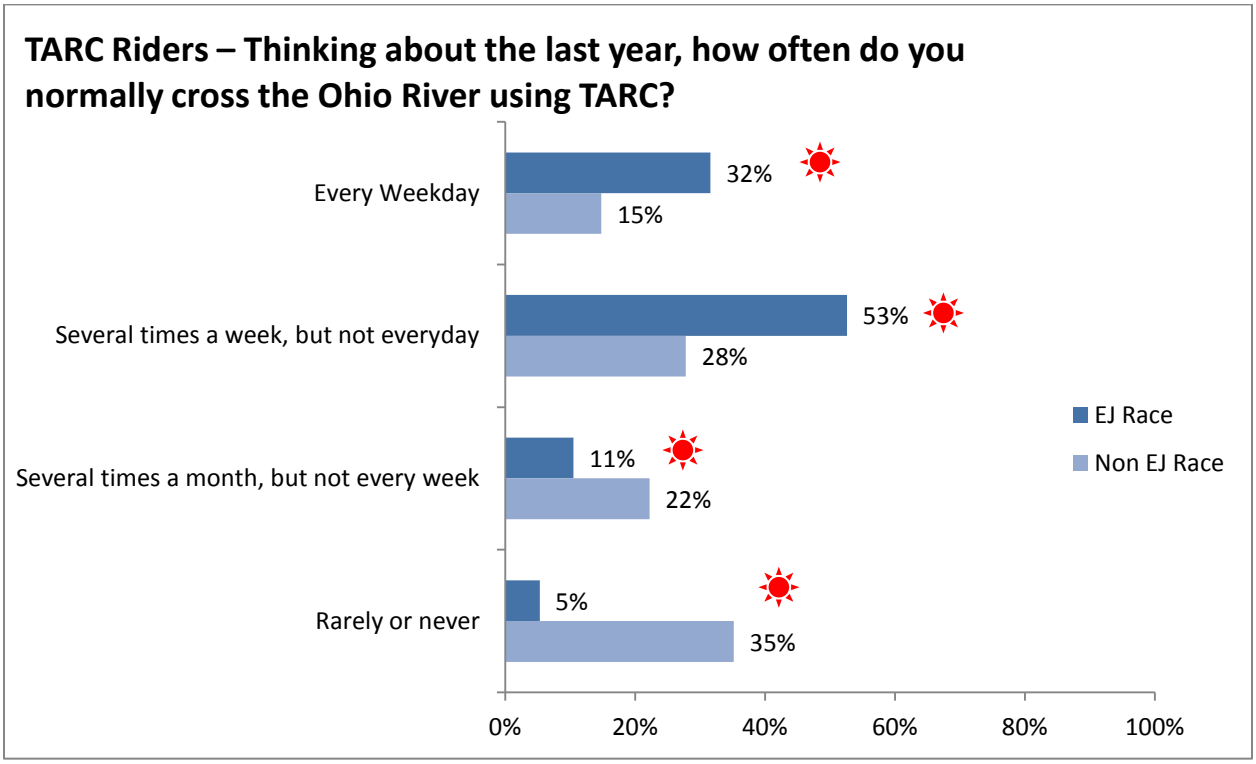

Chart 7 – Bridge Usage – TARC Users – Race

Significant p<.05

As mentioned previously, the usage patterns of EJ Race respondents who use TARC to cross the bridge are statistically different than the patterns of non EJ Race respondents who also use TARC to cross the bridge. In this case as well, the EJ Race respondents cross the bridge more frequently.

Considering the specific bridge that is used by those in the EJ Race category we find that the usage of bridges is similarly divided between the three bridges when we consider the higher margin of error within this calculation. None of the three bridges shows as not being used by the EJ Race population. It should be noted that analyses that stratify the EJ Race will have a significantly higher margin of error due to the limited sample size of that group.

	EJ Race (% mentions)
I64	26%
I65	42%
2nd Street	32%

Table 4 – Bridge Usage – EJ Race

Aggregate Frequency Tables

How many people live in your home including yourself?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	103	20.6	20.6	20.6
	2	198	39.6	39.6	60.2
	3	73	14.6	14.6	74.8
	4	73	14.6	14.6	89.4
	5	32	6.4	6.4	95.8
	6	12	2.4	2.4	98.2
	7	4	.8	.8	99.0
	8	3	.6	.6	99.6
	11	1	.2	.2	99.8
	15	1	.2	.2	100.0
	Total	500	100.0	100.0	

Is the combined income of everyone in the home LESS than poverty level?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	77	15.4	15.4	15.4
	No	423	84.6	84.6	100.0
	Total	500	100.0	100.0	

Race Base

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Caucasian	402	80.4	80.4	80.4
	EJ Race	75	15.0	15.0	95.4
	Other	23	4.6	4.6	100.0
	Total	500	100.0	100.0	

Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White	402	80.4	80.4	80.4
	Black	61	12.2	12.2	92.6
	Hispanic	5	1.0	1.0	93.6
	Asian	3	.6	.6	94.2
	American Indian or Alaska Native	6	1.2	1.2	95.4
	Other	23	4.6	4.6	100.0
	Total	500	100.0	100.0	

Do you own or lease a car or motor vehicle

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	433	86.6	86.6	86.6
	No	67	13.4	13.4	100.0
	Total	500	100.0	100.0	

Thinking about the last year, how often do you normally cross the Ohio River while driving your own vehicle?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Every weekday	59	11.8	13.6	13.6
	Several times a week, but not every day	104	20.8	24.0	37.6
	Several times a month, but not every week	112	22.4	25.9	63.5
	Rarely or never	158	31.6	36.5	100.0
	Total	433	86.6	100.0	

Do you ever use TARC to cross the Ohio River?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	73	14.6	14.6	14.6
	No	427	85.4	85.4	100.0
	Total	500	100.0	100.0	

Thinking about the last year, how often do you normally cross the Ohio River using TARC?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Every weekday	14	2.8	19.2	19.2
	Several times a week, but not every day	25	5.0	34.2	53.4
	Several times a month, but not every week	14	2.8	19.2	72.6
	Rarely or never	20	4.0	27.4	100.0
	Total	73	14.6	100.0	

Which bridge do you normally use when crossing the Ohio River?

	Frequency	Percent	Valid Percent	Cumulative Percent
I64 Bridge	180	36.0	36.0	Multiple Answers allowed
I65 Bridge	285	57.0	57.0	
2nd St Bridge	103	20.6	20.6	
Does not cross	15	3.0	3.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	206	41.2	41.2	41.2
	Female	294	58.8	58.8	100.0
	Total	500	100.0	100.0	

What is your age currently?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 18	4	.8	.8	.8
	18 to 25	14	2.8	2.8	3.6
	26 to 35	38	7.6	7.6	11.2
	36 to 45	85	17.0	17.0	28.2
	46 to 55	127	25.4	25.4	53.6
	56 to 65	110	22.0	22.0	75.6
	66 or older	122	24.4	24.4	100.0
	Total	500	100.0	100.0	

County of Residence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BULLITT	41	8.2	8.2	8.2
	CLARK	77	15.4	15.4	23.6
	FLOYD	60	12.0	12.0	35.6
	JEFFERSON	288	57.6	57.6	93.2
	OLDHAM	34	6.8	6.8	100.0
	Total	500	100.0	100.0	

Zip Codes by County

			Total
BULLITT	40047	Count	9
		Percent	1.8%
	40150	Count	1
		Percent	.2%
	40165	Count	15
		Percent	3.0%
	40229	Count	16
		Percent	3.2%
	Total	**Count**	**41**
		Percent Bullitt	**8.2%**

CLARK	47111	Count	13
		Percent	2.6%
	47126	Count	7
		Percent	1.4%
	47130	Count	37
		Percent	7.4%
	47141	Count	4
		Percent	.8%
	47172	Count	16
		Percent	3.2%
	Total	**Count**	**77**
		Percent Clark	**15.4%**
FLOYD	47119	Count	17
		Percent	3.4%
	47122	Count	4
		Percent	.8%
	47150	Count	39
		Percent	7.8%
	Total	**Count**	**60**
		Percent Floyd	**12.0%**

JEFFERSON	40059	Count	11
		Percent	2.2%
	40203	Count	1
		Percent	.2%
	40205	Count	21
		Percent	4.2%
	40207	Count	15
		Percent	3.0%
	40211	Count	9
		Percent	1.8%
	40214	Count	85
		Percent	17.0%
	40216	Count	16
		Percent	3.2%
	40217	Count	5
		Percent	1.0%
	40219	Count	18
		Percent	3.6%
	40220	Count	7
		Percent	1.4%
	40222	Count	11
		Percent	2.2%
	40223	Count	13
		Percent	2.6%
	40241	Count	10
		Percent	2.0%
	40258	Count	1
		Percent	.2%
	40272	Count	30
		Percent	6.0%
	40291	Count	22
		Percent	4.4%
	40299	Count	13
		Percent	2.6%
	Total	**Count**	**288**
		Percent Jefferson	**57.6%**

OLDHAM	40014	Count	22
		Percent	4.4%
	40031	Count	12
		Percent	2.4%
	Total	**Count**	**34**
		Percent Oldham	**6.8%**
Total	***Total***	***Count***	***500***
		Percent Total	***100.0%***

Ohio River Bridge Users Questionnaire

Hello, this is *(interviewer's name)* calling from IQS Research. We are conducting a brief survey about the Ohio River bridges. The survey is strictly for research purposes and will only take about 5 minutes to complete. Do you have a few minutes to take part in this survey?

1. How many people live in your home including yourself?
   - ☐ 1
   - ☐ 2
   - ☐ 3
   - ☐ 4
   - ☐ 5
   - ☐ 6
   - ☐ 7
   - ☐ 8
   - ☐ More than 8

2. Is the combined income of everyone in the home less than ____? The number in household will determine which question is asked about income level by using chart below.

Persons in household	Poverty guideline
1	$10,830
2	14,570
3	18,310
4	22,050
5	25,790
6	29,530
7	33,270
8	37,010
For families with more than 8 persons, add $3,740 for each additional person.	

3. Do you own or lease a car or motor vehicle?

- ☐ Yes
- ☐ No (go to 5)

4. **Thinking about the last year, how often do you normally cross the Ohio River while driving your own vehicle?**

- ☐ Every weekday
- ☐ Several times a week, but not everyday
- ☐ Several times a month, but not every week.
- ☐ Rarely or never

5. **Do you ever use TARC to cross the Ohio River?**

- ☐ Yes
- ☐ No (go to 7)

6. **Thinking about the last year, how often do you normally cross the Ohio River using TARC?**

- ☐ Every weekday
- ☐ Several times a week, but not everyday
- ☐ Several times a month, but not every week.
- ☐ Rarely or never

7. **Which bridge do you normally use when crossing the Ohio River? (check all that apply)**

- ☐ I-64 Sherman Minton Bridge before it was closed
- ☐ I-65 Kennedy Bridge
- ☐ 2nd Street Clark Memorial Bridge
- ☐ Do not cross the bridges

Demographic data

8. What is your gender?
    - ☐ Male
    - ☐ Female

9. Race
    - ☐ Black
    - ☐ Hispanic
    - ☐ Asian
    - ☐ American Indian and Alaska Native
    - ☐ White
    - ☐ Other

10. What is your age currently?
    - ☐ Less than 18
    - ☐ 18 to 25
    - ☐ 26 to 35
    - ☐ 36 to 45
    - ☐ 46 to 55
    - ☐ 56 to 65
    - ☐ 66 or older

What is your ZIP Code?