



***2018 System Wide Origin and  
Destination Survey  
Summary of Findings  
Presentation***

*Prepared by* ***ETC Institute***

***July 25<sup>th</sup>, 2018***

# Agenda

- ▶ Purpose/Goals
- ▶ Tasks that Were Accomplished
- ▶ Overview of the Survey
- ▶ Number of Useable Surveys Obtained
- ▶ Data Expansion Process
- ▶ Decomposition Analysis
- ▶ What We Learned
- ▶ Summary
- ▶ Questions

# Transit Agencies Surveyed

The survey was completed for regional transit riders in the Northwest Arkansas area on both Ozark Regional Transit (ORT) and Razorback Transit (Razorback) systems.



# Purpose and Goals

- ▶ Compile statistically accurate information about transit customers' use of transit services for planning purposes.
- ▶ Enhance the NWARPC four-step travel demand forecasting model.
- ▶ Provide the understanding of differences in trip characteristics and ridership profiles from previous survey efforts.
- ▶ Assist regional transit agencies in meeting Title VI Civil Rights Requirements and enhance Title VI programs.

# Tasks That Were Accomplished

- ▶ Survey Preparation/Design (February – March 2018)
- ▶ Survey Administration (March 2018)
- ▶ Data Processing (March – April 2018)
- ▶ Data Expansion (May 2018)
- ▶ Survey Documentation & Report (June – July 2018)

# Overview of Survey

Participants were randomly selected using the tablet and interviews were conducted by experienced ETC interviewers

- ▶ Useable surveys were obtained from more than 90% (95.75) of those who agreed to participate
- ▶ Knowing that there were a large number of short campus trips (U of A), the interviewers got off the buses to complete the interview with the rider if it wasn't completed onboard and then board the next bus to continue interviewing

# Usable Surveys Obtained

Goal: Overall 1,000 Interviews

System	SAMPLING RATE	GOAL	COMPLETED	% COLLECTED
Ozark Regional Transit	8% of Daily Ridership	103	132	128%
Razorback Transit	8% of Daily Ridership	887	976	110%
Totals	8% of Daily Ridership	990	1,108	112%

Actual: 1,108 Collected Interview

Overall distribution of the sample was excellent!

# Data Expansion Process

- ▶ Weighting and expansion is used to allow the sample records collected to be representative of the population ridership.
- ▶ The expansion was conducted at the route and time of day level.
- ▶ The Linked Trip Factor =  $[1 / (1 + \# \text{ of transfers})]$ , was created to account for transfers



# Linked Trip Decomposition Analysis

- ▶ The decomposition analysis assesses the sampled distribution in terms of transfer level by summing and the linked and unlinked trip factors at the route levels for the interviews conducted on the buses and routes transferred to and from captured during the interviews.
- ▶ When there is consistency between the two factors it is indicative of a

# Linked Trip Decomposition Analysis

The higher volume Razorback routes (routes over 500 daily boardings) which make up approximately 87% of the project's ridership, once summed, are extremely close to the overall ridership for those routes as seen in the below and on the following slides:

<b>*Higher Volume Routes (Routes over 500 daily boardings)</b>							
Route	Sum of Linked Trips				Ridership	Total Difference	Percentage Difference
	Route Surveyed	Previous Transfers	Next Transfers	Total Summed Linked			
*Higher Volume Routes	8517.9	257.3	238.7	9013.9	9058	44.1	0.5%

# Linked Trip Decomposition Analysis

<b>ALL ROUTES</b>							
Route	Sum of Linked Trips				Ridership	Total Difference	Percentage Difference
	Route Surveyed	Previous Transfers	Next Transfers	Total Summed Linked			
Ozark Rt 1	125.3	16.7	14.4	156.4	154	-2.4	-1.5%
Ozark Rt 2	54.7	11.4	24.6	90.7	83	-7.7	-9.3%
Ozark Rt 3	40.8	5.4	10.0	56.3	58	1.7	3.0%
Ozark Rt 4	111.8	32.6	11.3	155.7	171	15.3	9.0%
Ozark Rt 11	74.5	6.5	4.0	85.0	86	1.0	1.2%
Ozark Rt 51	50.7	9.8	7.8	68.2	63	-5.2	-8.2%
Ozark Rt 52	22.0	0.0	5.8	27.8	28	0.2	0.6%
Ozark Rt 61	66.1	10.0	18.3	94.4	87	-7.4	-8.5%
Ozark Rt 62	67.3	7.8	4.7	79.9	75	-4.9	-6.5%
Ozark Rt 63	41.0	18.5	3.6	63.1	57	-6.1	-10.7%
Ozark Rt 64	9.3	0.0	0.0	9.3	14	4.7	33.3%
Ozark Rt 490	159.1	27.4	23.7	210.1	207	-3.1	-1.5%
Razorback Rt 4	136.6	4.1	11.1	151.8	141	-10.8	-7.7%
Razorback Rt 7	20.0	0.0	6.1	26.1	20	-6.1	-30.3%
Razorback Rt 11*	2247.5	18.1	21.9	2287.5	2378	90.5	3.8%
Razorback Rt 13*	913.2	23.6	11.8	948.5	939	-9.5	-1.0%
Razorback Rt 17	89.2	10.7	35.5	135.4	122	-13.4	-11.0%
Razorback Rt 22*	1727.5	53.8	60.1	1841.3	1794	-47.3	-2.6%
Razorback Rt 26*	1139.8	76.6	46.4	1262.8	1342	79.2	5.9%
Razorback Rt 33*	777.8	29.1	33.7	840.5	834	-6.5	-0.8%
Razorback Rt 35*	566.4	34.7	24.8	625.9	596	-29.9	-5.0%
Razorback Rt 48*	1145.7	21.5	40.1	1207.3	1175	-32.3	-2.8%

\*Higher Volume Routes (Routes over 500 daily boardings)

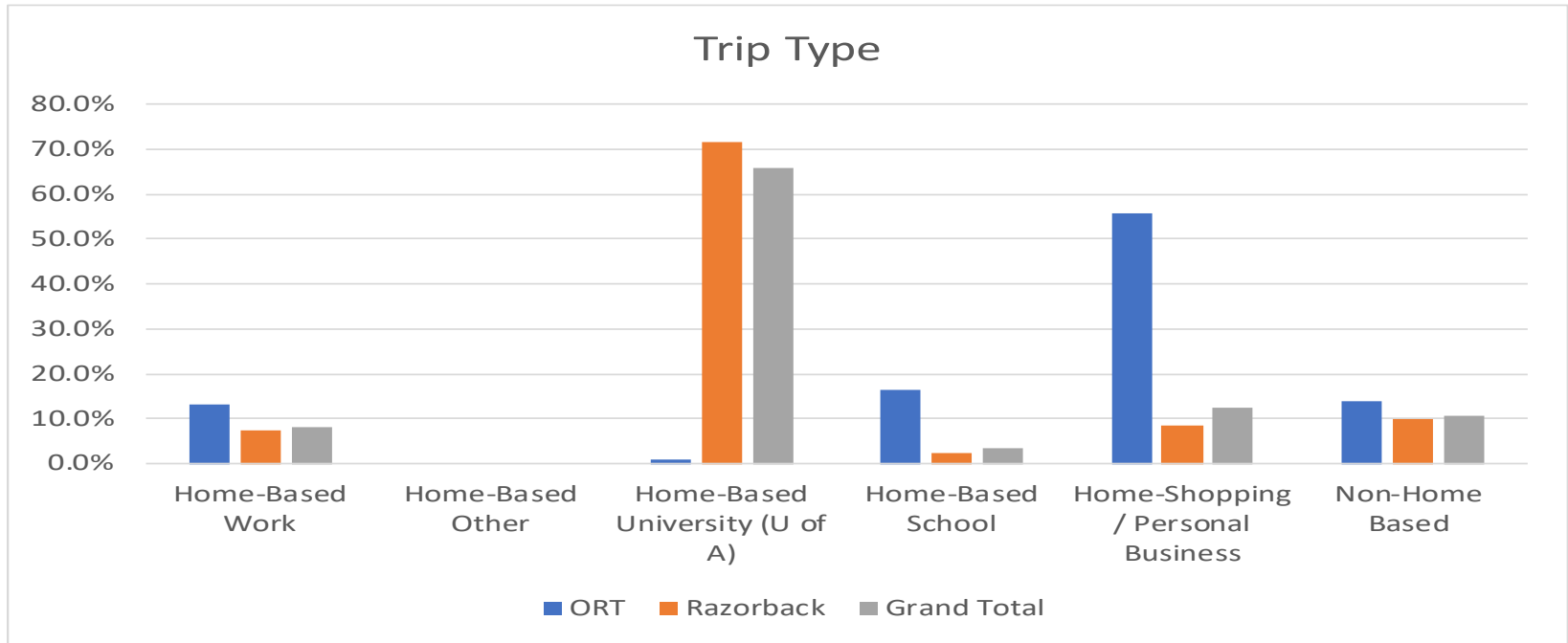
## Razorback and Ozark System Totals

Route	Sum of Linked Trips				Ridership	Total Difference	Percentage Difference
	Route Surveyed	Previous Transfers	Next Transfers	Total Summed Linked			
Ozark Routes	822.6	146.1	128.2	1096.8	1083	-13.8	-1.3%
Razorback Routes	8763.7	272.2	291.4	9327.2	9341	13.8	0.1%
<b>Total</b>	<b>9586.2</b>	<b>418.3</b>	<b>419.5</b>	<b>10424</b>	<b>10424</b>	<b>0.0</b>	<b>0.0%</b>

# *What Did We Learn?*

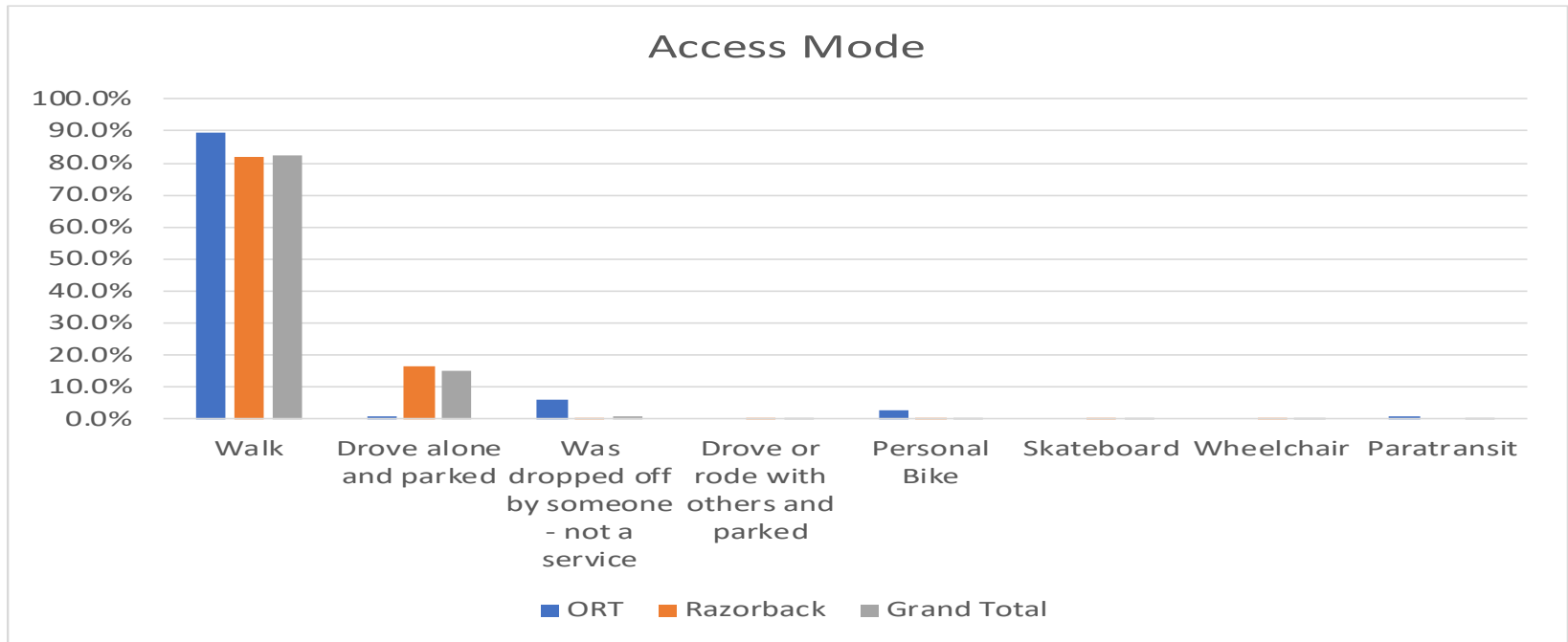
## *From the Intercept Survey*

# Trip Types



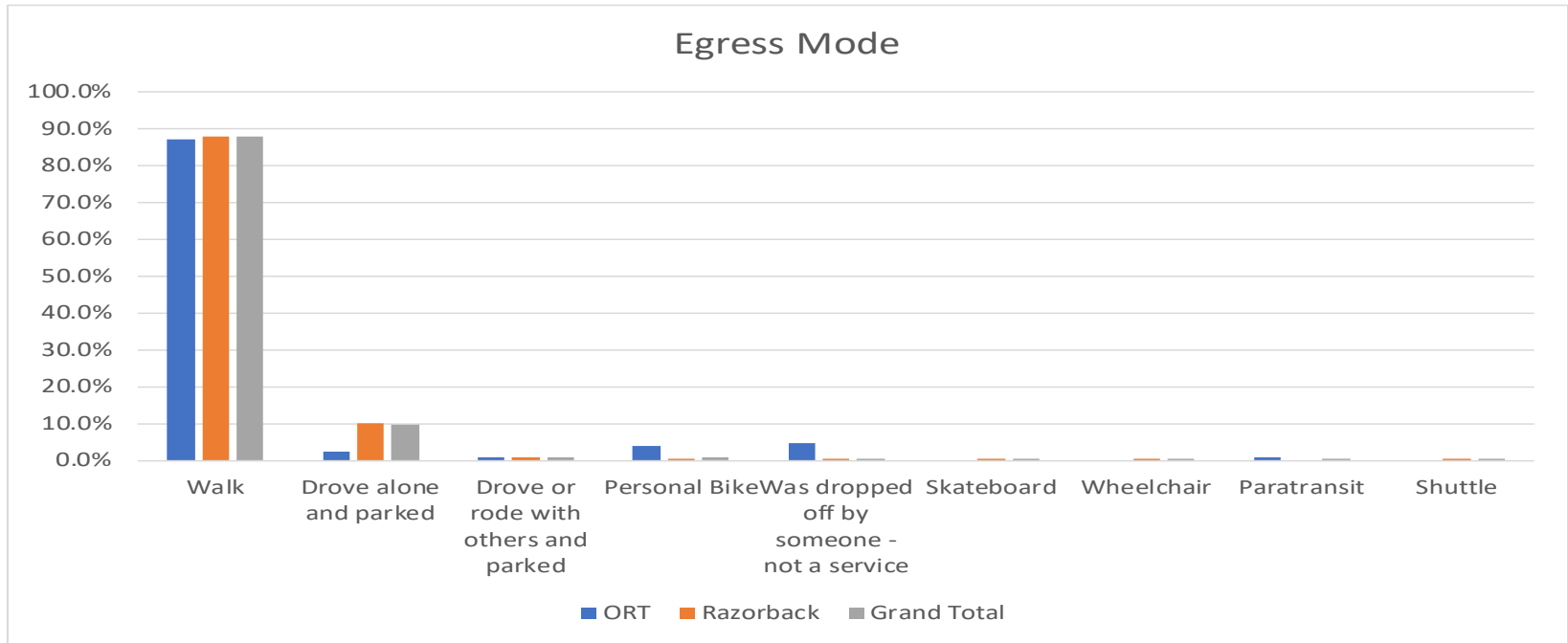
Trip Type	ORT	Razorback	Grand Total
Home-Based Work	13.2%	7.5%	8.0%
Home-Based Other	0.0%	0.0%	0.0%
Home-Based University (U of A)	0.9%	71.8%	65.7%
Home-Based School	16.3%	2.2%	3.4%
Home-Shopping / Personal Business	55.7%	8.4%	12.4%
Non-Home Based	13.9%	10.1%	10.5%

# Mode to Access Public Transit



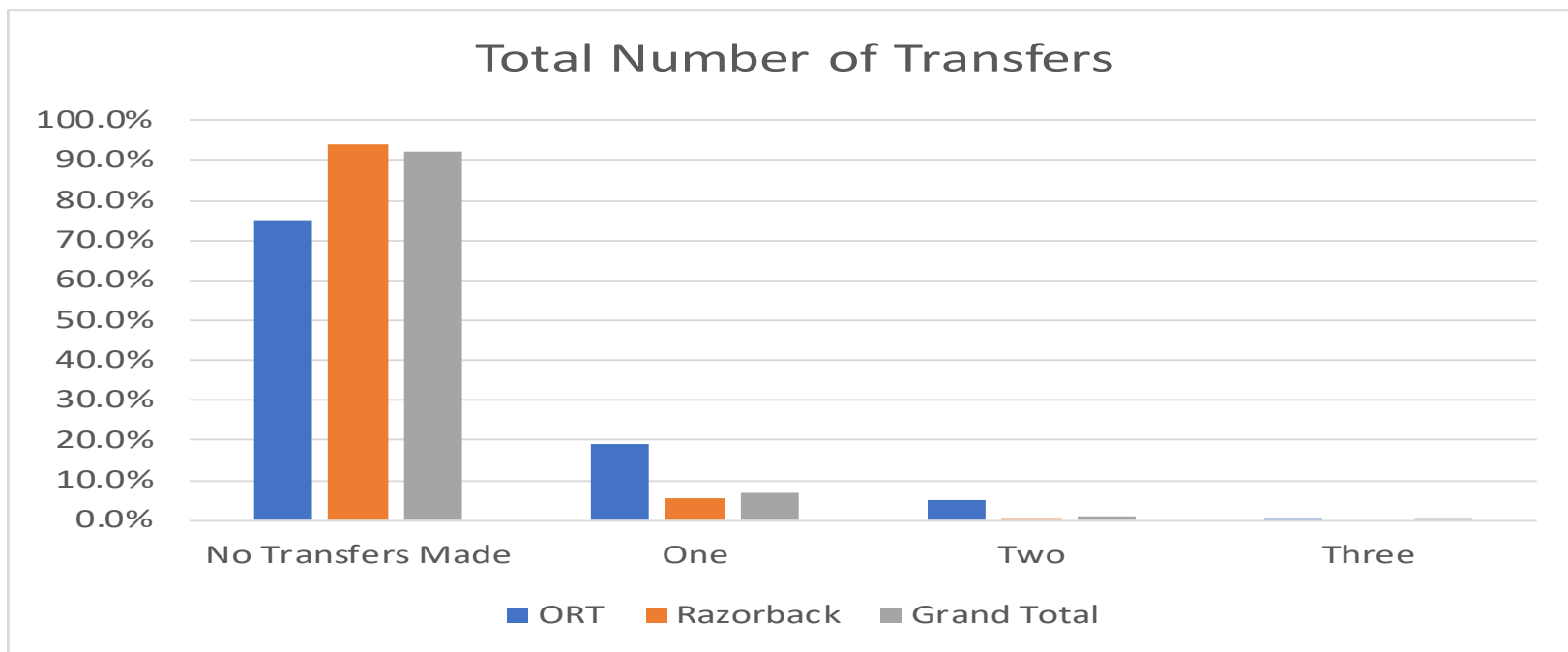
Access Mode	ORT	Razorback	Grand Total
Walk	89.3%	82.0%	82.6%
Drove alone and parked	0.8%	16.4%	15.1%
Was dropped off by someone - not a service	6.2%	0.5%	1.0%
Drove or rode with others and parked	0.0%	0.6%	0.5%
Personal Bike	2.8%	0.3%	0.5%
Skateboard	0.0%	0.1%	0.1%
Wheelchair	0.0%	0.1%	0.1%
Paratransit	0.8%	0.0%	0.1%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# Mode to Egress Public Transit



Egress Mode	ORT	Razorback	Grand Total
Walk	87.2%	88.1%	88.0%
Drove alone and parked	2.3%	10.3%	9.6%
Drove or rode with others and parked	1.0%	0.9%	0.9%
Personal Bike	4.0%	0.4%	0.7%
Was dropped off by someone - not a service	4.8%	0.0%	0.5%
Skateboard	0.0%	0.1%	0.1%
Wheelchair	0.0%	0.1%	0.1%
Paratransit	0.8%	0.0%	0.1%
Shuttle	0.0%	0.0%	0.0%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

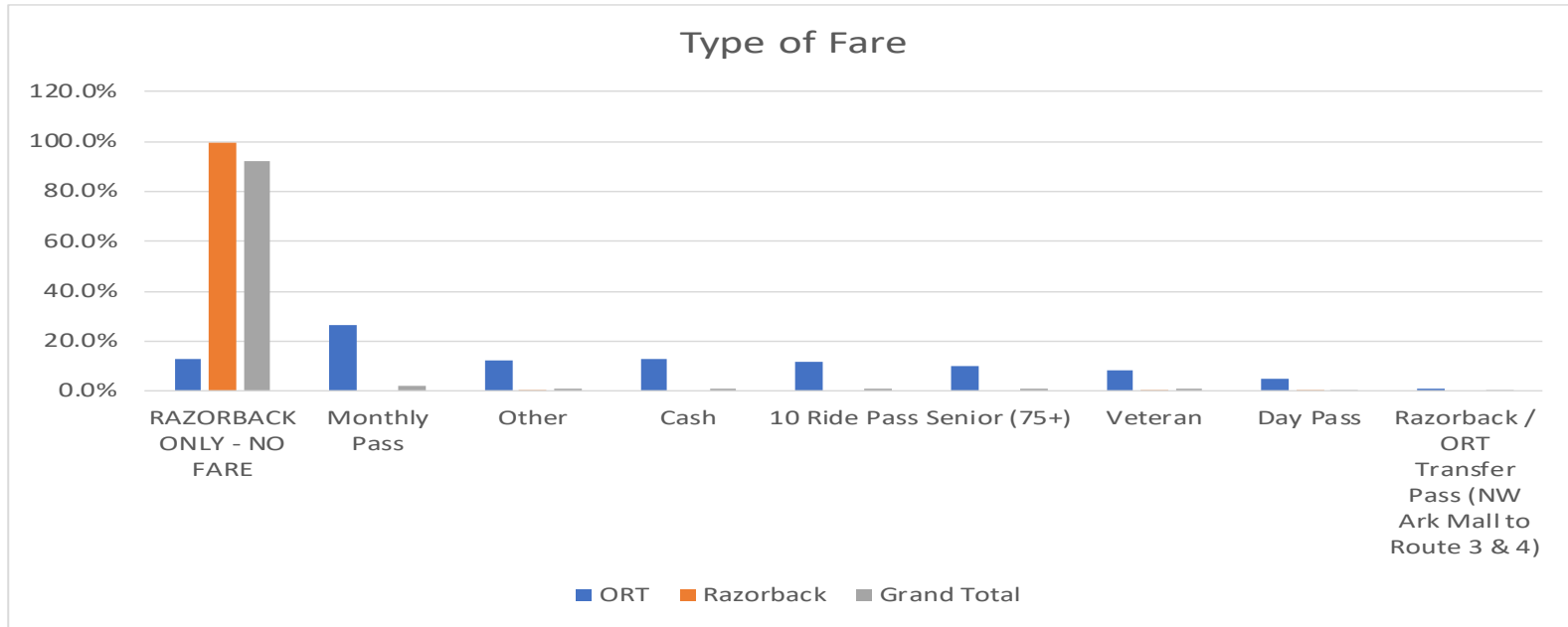
# Number of Transfers



Total Number of Transfers	ORT	Razorback	Grand Total
0	75.0%	93.9%	92.3%
1	19.1%	5.5%	6.7%
2	5.1%	0.5%	0.9%
3	0.8%	0.0%	0.1%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

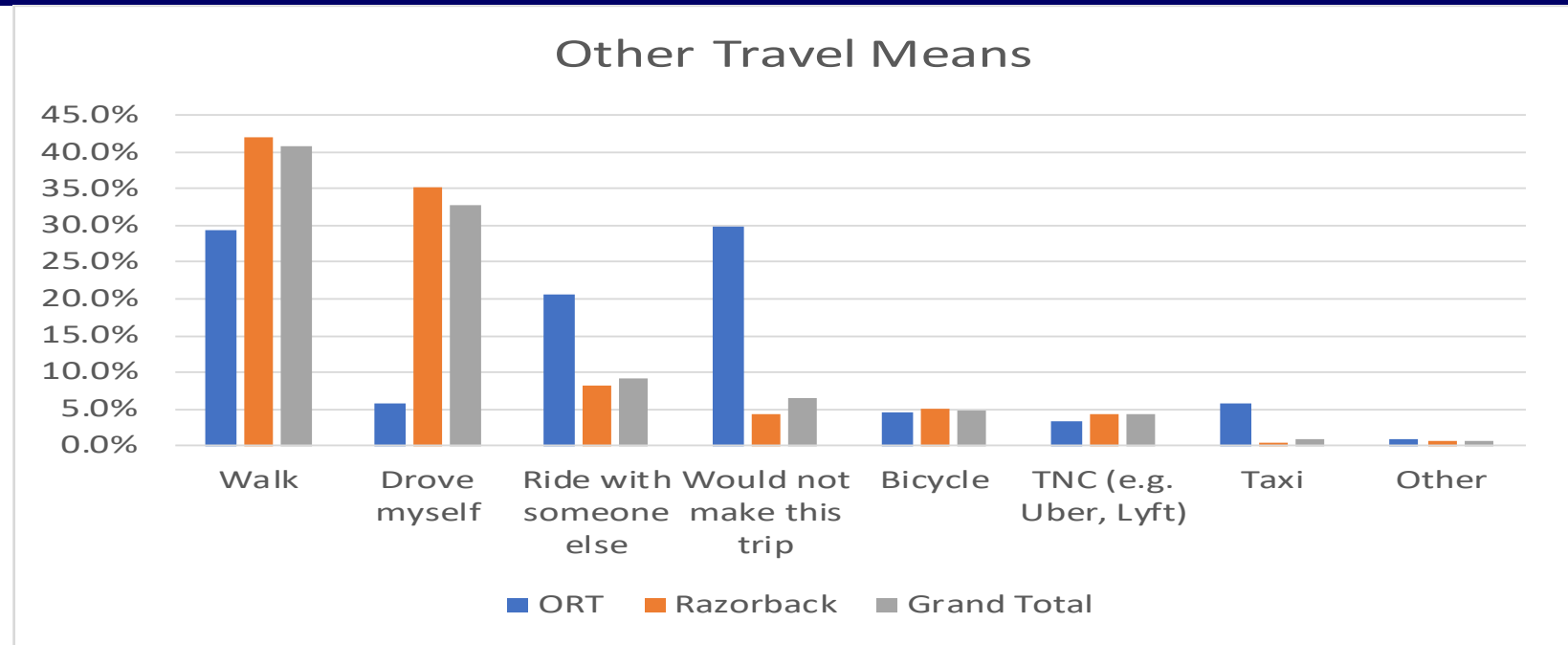


# Type of Fare



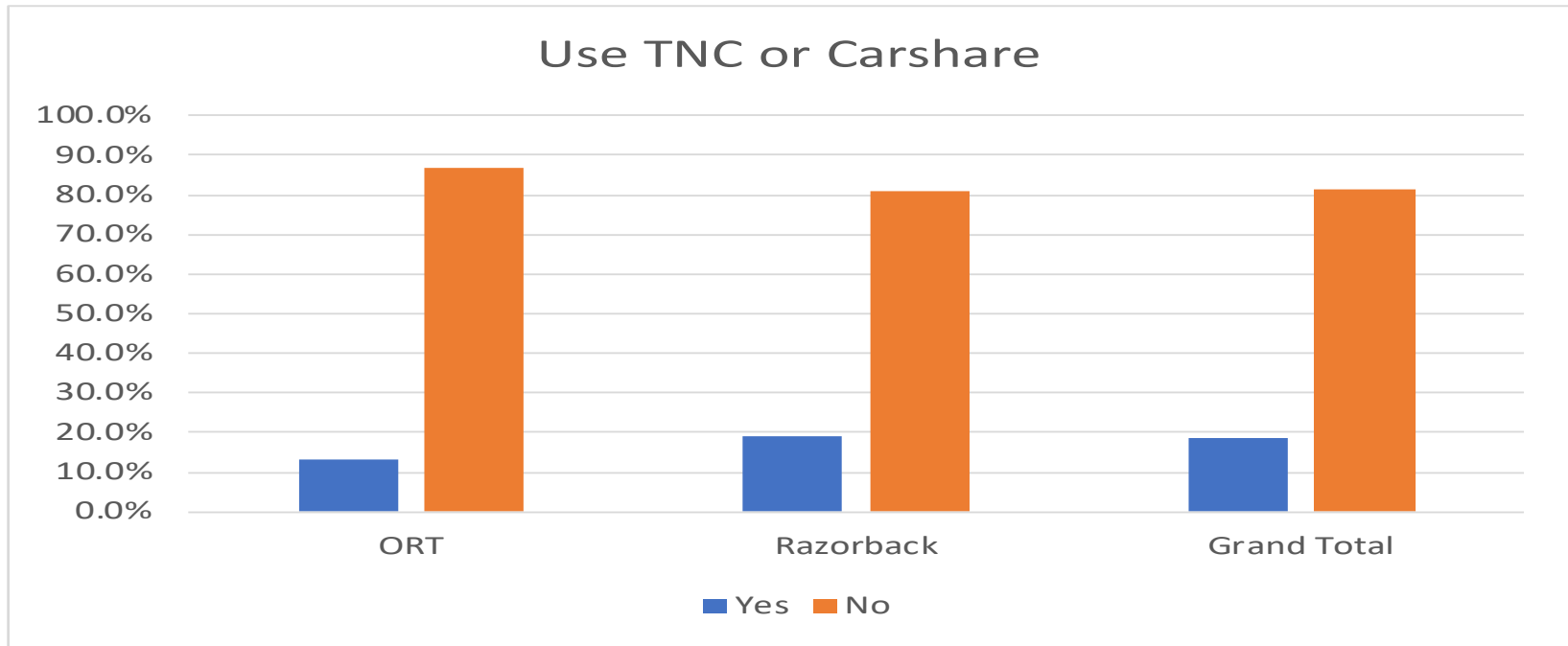
Type of Fare	ORT	Razorback	Grand Total
RAZORBACK ONLY - NO FARE	13.1%	99.7%	92.3%
Monthly Pass	26.6%	0.0%	2.3%
Other	12.0%	0.2%	1.2%
Cash	12.6%	0.0%	1.1%
10 Ride Pass	11.6%	0.0%	1.0%
Senior (75+)	10.0%	0.0%	0.9%
Veteran	8.4%	0.0%	0.8%
Day Pass	4.7%	0.0%	0.4%
Razorback / ORT Transfer Pass (NW Ark Mall to Route 3 & 4)	0.9%	0.0%	0.1%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# Other Means of Travel if Transit Not Available



Other Travel Means	ORT	Razorback	Grand Total
Walk	29.3%	42.0%	40.9%
Drove myself	5.7%	35.3%	32.8%
Ride with someone else	20.5%	8.1%	9.2%
Would not make this trip	29.8%	4.2%	6.4%
Bicycle	4.5%	4.9%	4.9%
TNC (e.g. Uber, Lyft)	3.4%	4.4%	4.3%
Taxi	5.9%	0.4%	0.9%
Other	1.0%	0.6%	0.6%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

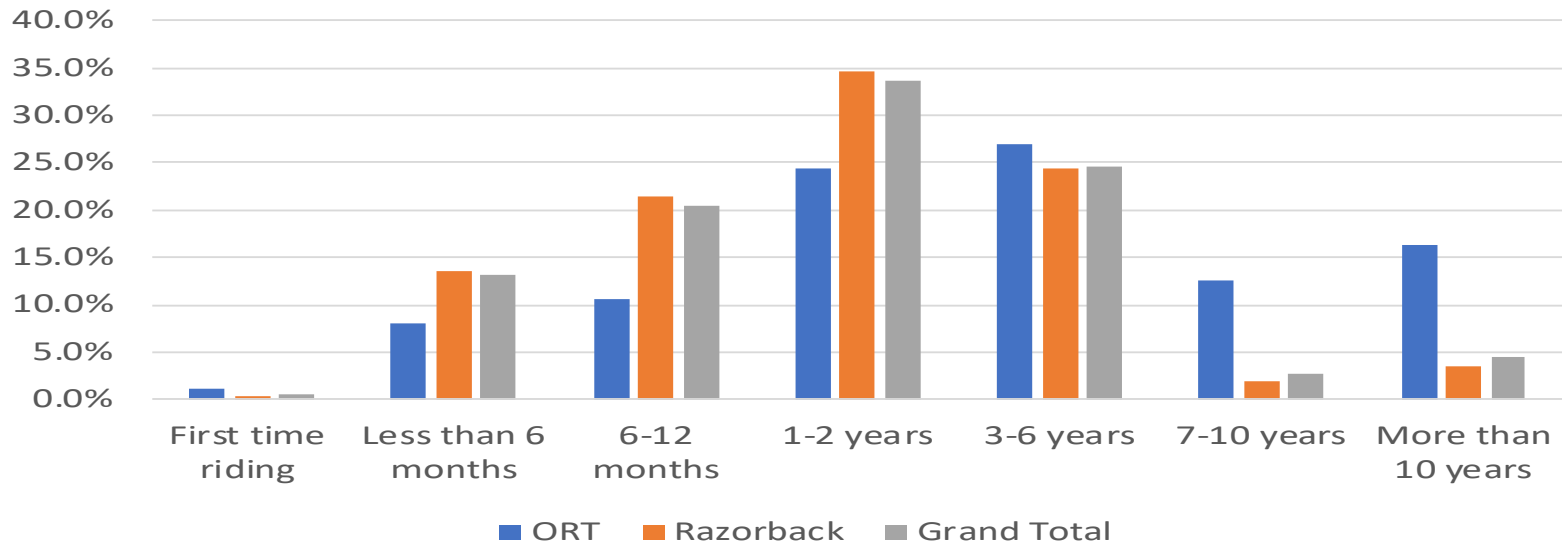
# Use TNC or Carshare Services



Use TNC or Carshare	ORT	Razorback	Grand Total
Yes	13.1%	19.0%	18.5%
No	86.9%	81.0%	81.5%
Grand Total	100.0%	100.0%	100.0%

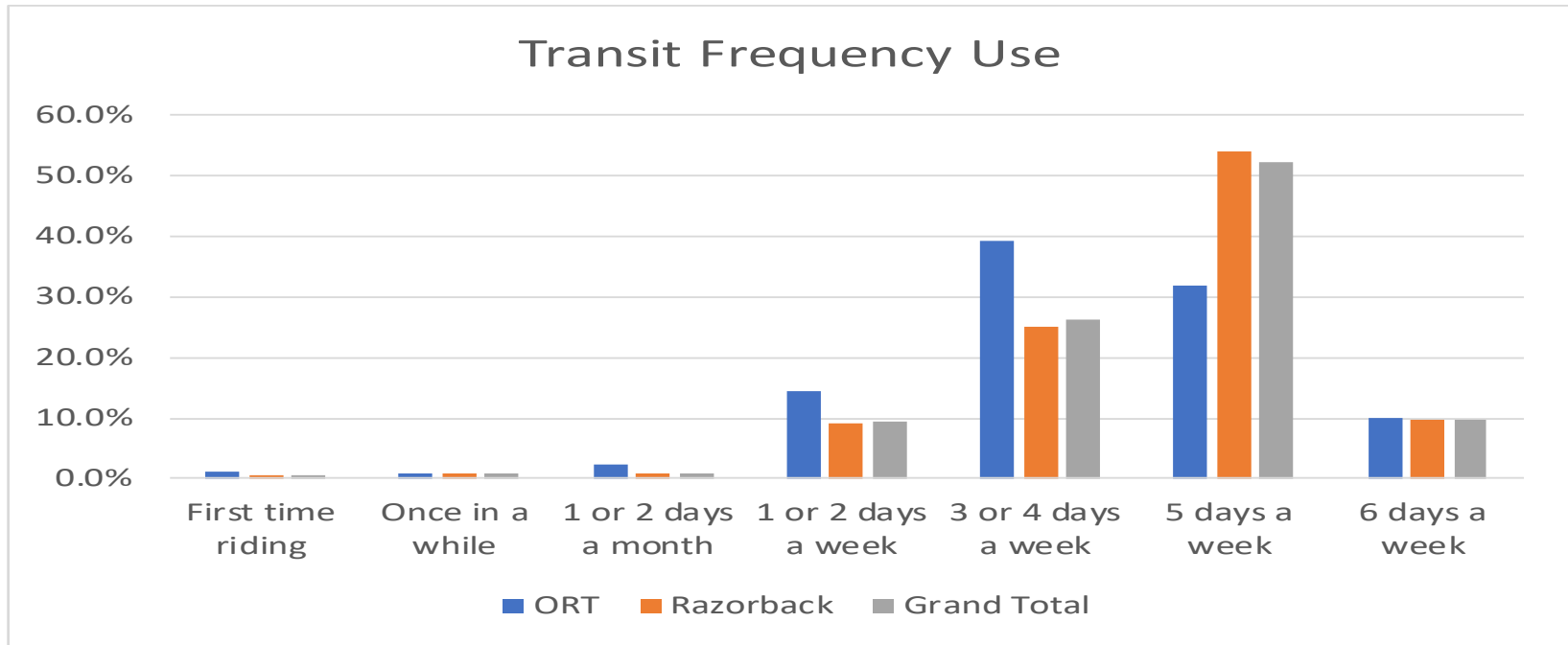
# How Long Have Riders Used Transit

Length of Transit Use



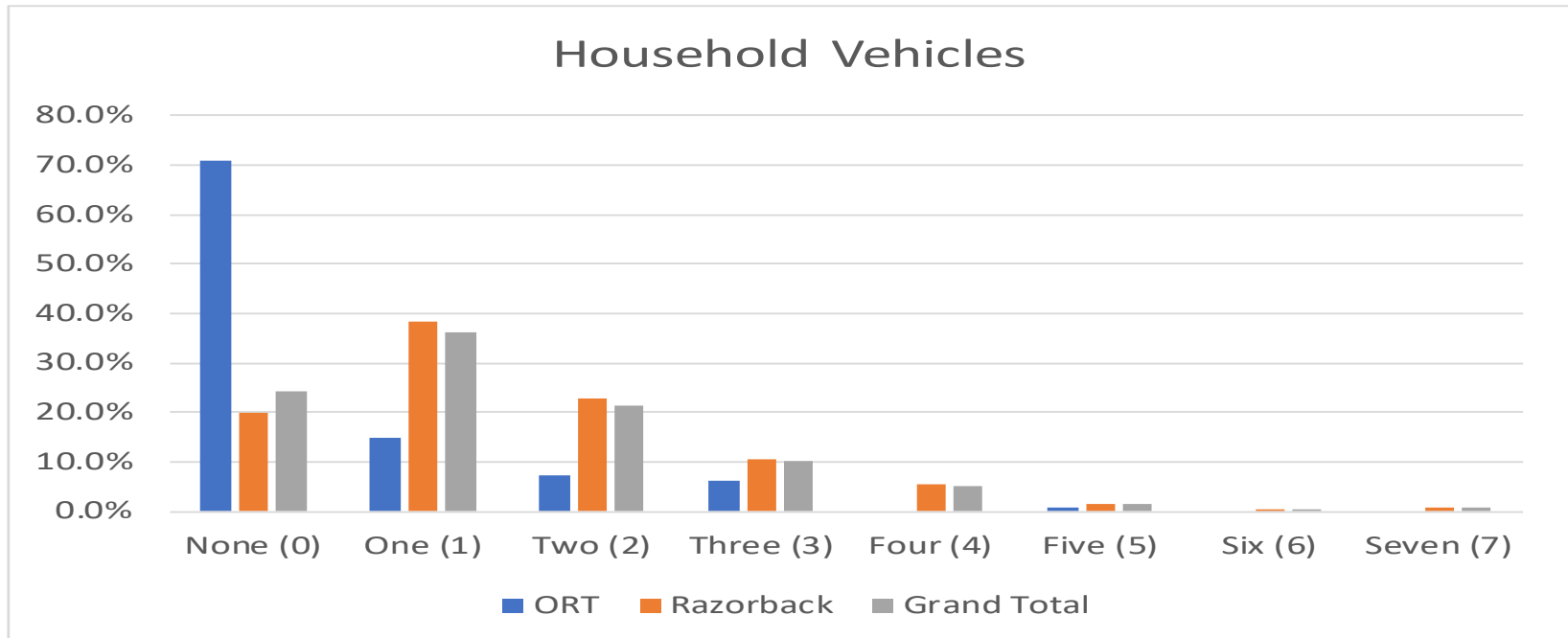
Length of Transit Use	ORT	Razorback	Grand Total
First time riding	1.1%	0.5%	0.5%
Less than 6 months	8.1%	13.6%	13.1%
6-12 months	10.6%	21.5%	20.5%
1-2 years	24.4%	34.6%	33.7%
3-6 years	27.1%	24.5%	24.7%
7-10 years	12.5%	1.9%	2.8%
More than 10 years	16.3%	3.5%	4.6%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# How Many Days a Week Riders Use Transit



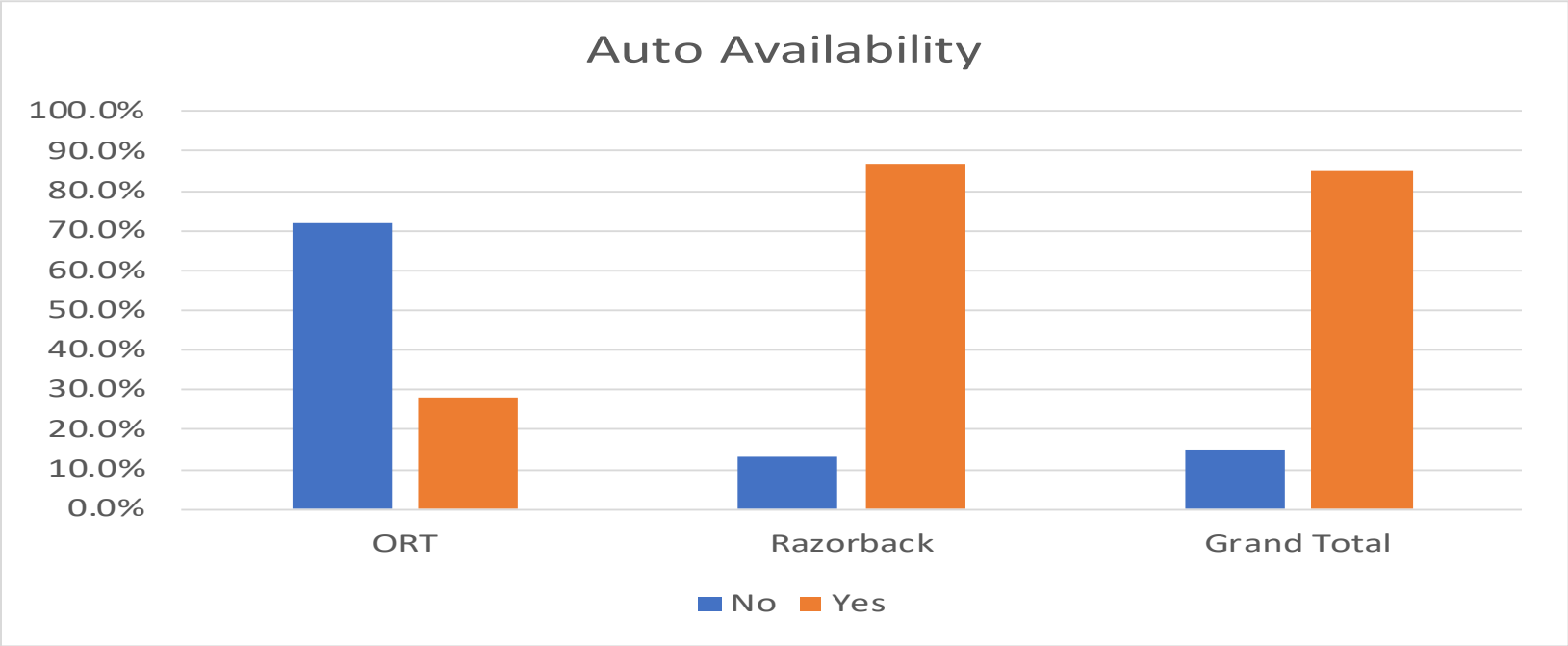
Transit Use Frequency	ORT	Razorback	Grand Total
First time riding	1.1%	0.4%	0.5%
Once in a while	0.9%	0.9%	0.9%
1 or 2 days a month	2.4%	0.7%	0.9%
1 or 2 days a week	14.4%	9.1%	9.6%
3 or 4 days a week	39.1%	25.0%	26.2%
5 days a week	31.9%	54.1%	52.2%
6 days a week	10.1%	9.7%	9.8%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# Number of Vehicles Owned by Household



Household Vehicles	ORT	Razorback	Grand Total
None (0)	70.8%	19.8%	24.2%
One (1)	14.7%	38.3%	36.3%
Two (2)	7.5%	22.9%	21.5%
Three (3)	6.1%	10.7%	10.3%
Four (4)	0.0%	5.6%	5.1%
Five (5)	0.8%	1.5%	1.5%
Six (6)	0.0%	0.5%	0.5%
Seven (7)	0.0%	0.7%	0.6%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# Could respondent use a vehicle for this trip?



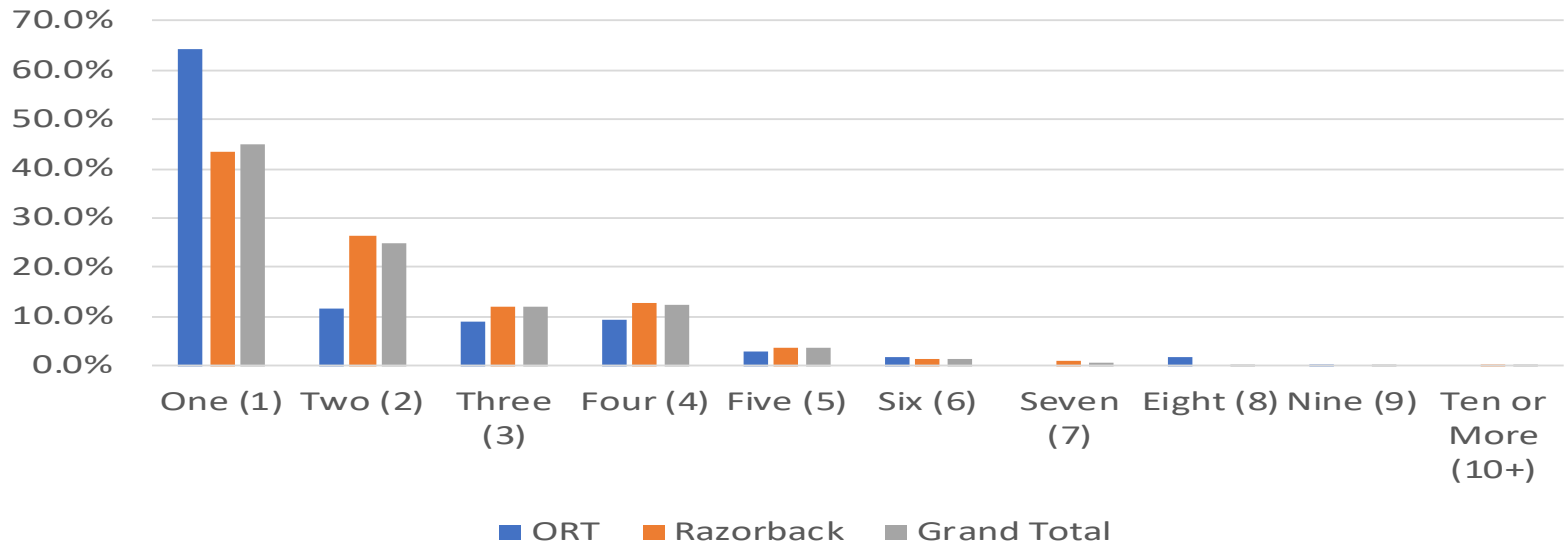
Auto Availability	ORT	Razorback	Grand Total
Yes	27.9%	86.9%	84.9%
No	72.1%	13.1%	15.1%
Grand Total	100.0%	100.0%	100.0%

*Overall, 85% of riders could use their vehicle for their current trip but only 28% on ORT; ORT highly transit dependent*

**SNAP SHOT...**

# Number of People Living in Household

## Household Residents



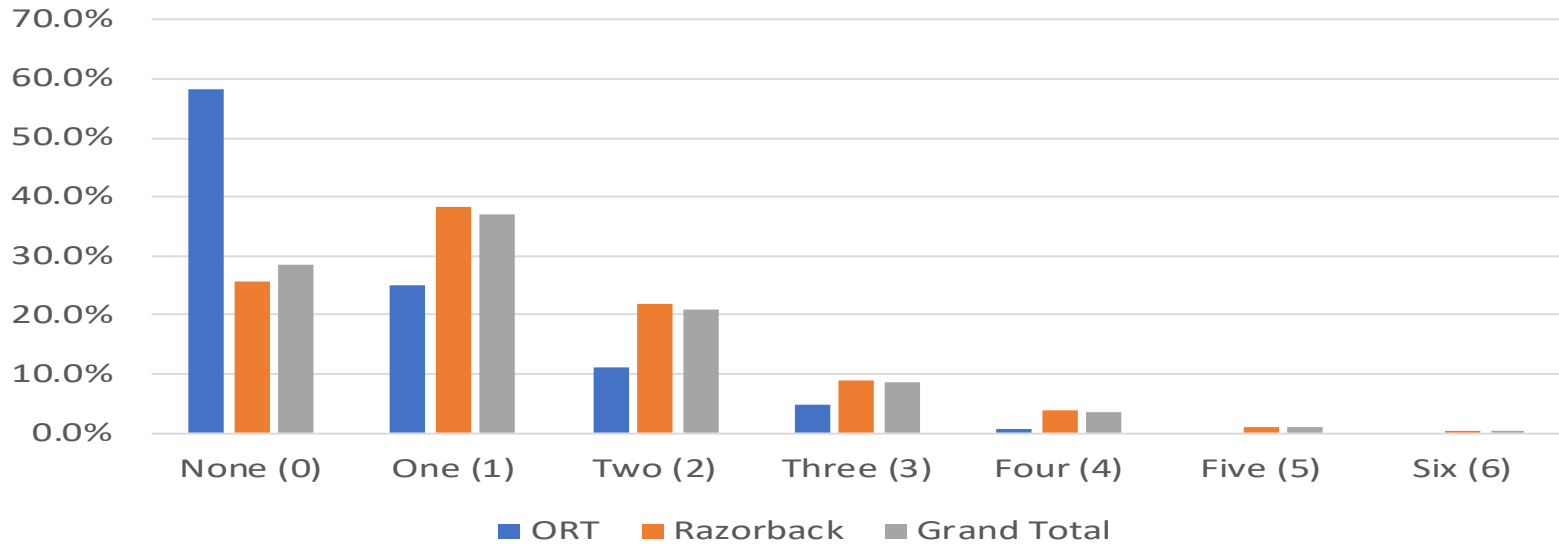
Household Residents	ORT	Razorback	Grand Total
One (1)	64.1%	43.3%	45.1%
Two (2)	11.5%	26.2%	24.9%
Three (3)	8.9%	12.1%	11.8%
Four (4)	9.2%	12.6%	12.3%
Five (5)	2.8%	3.5%	3.5%
Six (6)	1.6%	1.4%	1.4%
Seven (7)	0.0%	0.8%	0.8%
Eight (8)	1.7%	0.0%	0.1%
Nine (9)	0.2%	0.0%	0.0%
Ten or More (10+)	0.0%	0.1%	0.1%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

70% of All riders live in household with 1-2 people;  
64% of ORT riders live alone compared to only 43% Razorback



# Number of Employed Adults in Household

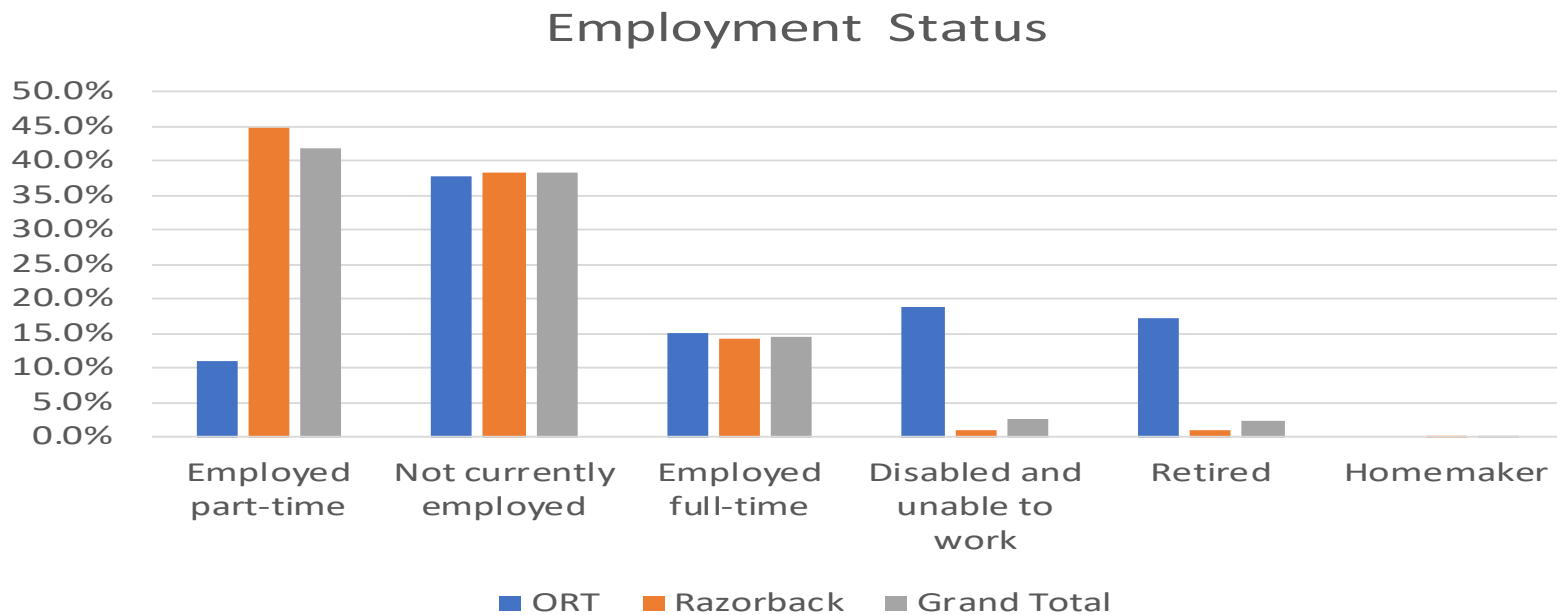
## Employed Household Members



Employed Household Members	ORT	Razorback	Grand Total
None (0)	58.1%	25.8%	28.6%
One (1)	25.1%	38.3%	37.2%
Two (2)	11.2%	21.9%	21.0%
Three (3)	4.8%	9.1%	8.7%
Four (4)	0.8%	3.8%	3.5%
Five (5)	0.0%	1.1%	1.0%
Six (6)	0.0%	0.1%	0.1%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

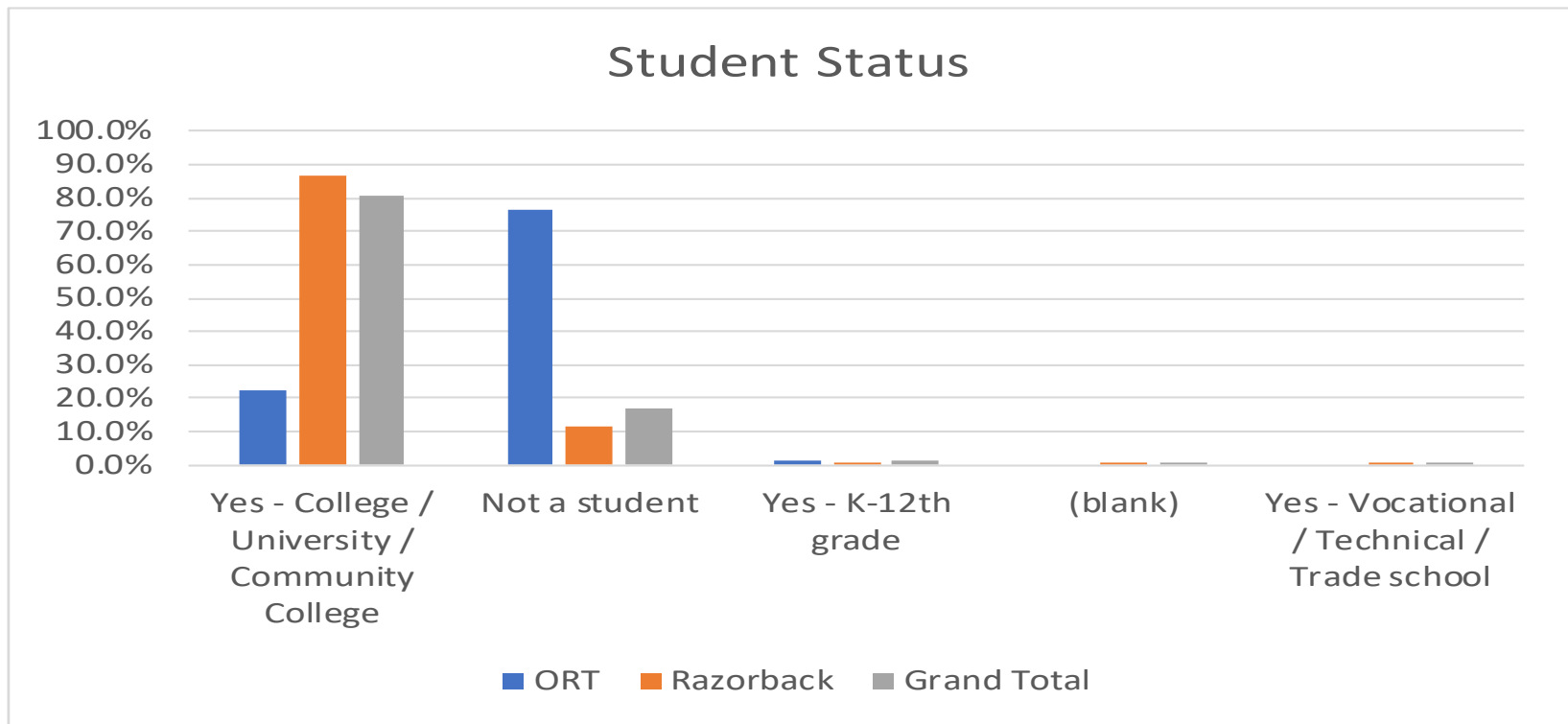
71% of all riders live in households with 1 or more employed HH members, 58% of ORT riders don't have any employed household members.

# Employment Status of Transit Riders



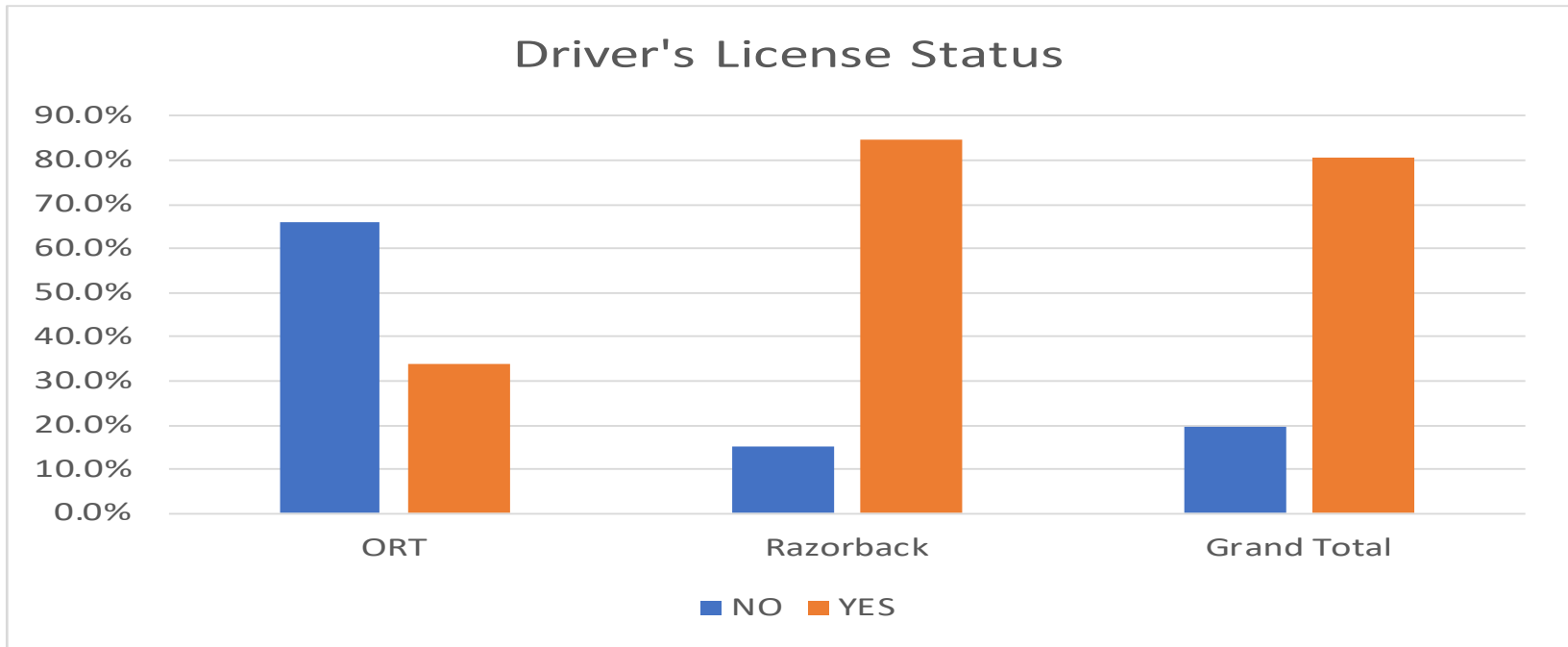
Employment Status	ORT	Razorback	Grand Total
Employed part-time	11.1%	44.9%	41.9%
Not currently employed	37.8%	38.4%	38.3%
Employed full-time	15.1%	14.4%	14.4%
Disabled and unable to work	18.9%	1.1%	2.6%
Retired	17.2%	1.1%	2.4%
Homemaker	0.0%	0.3%	0.3%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# Student Status of Transit Boardings



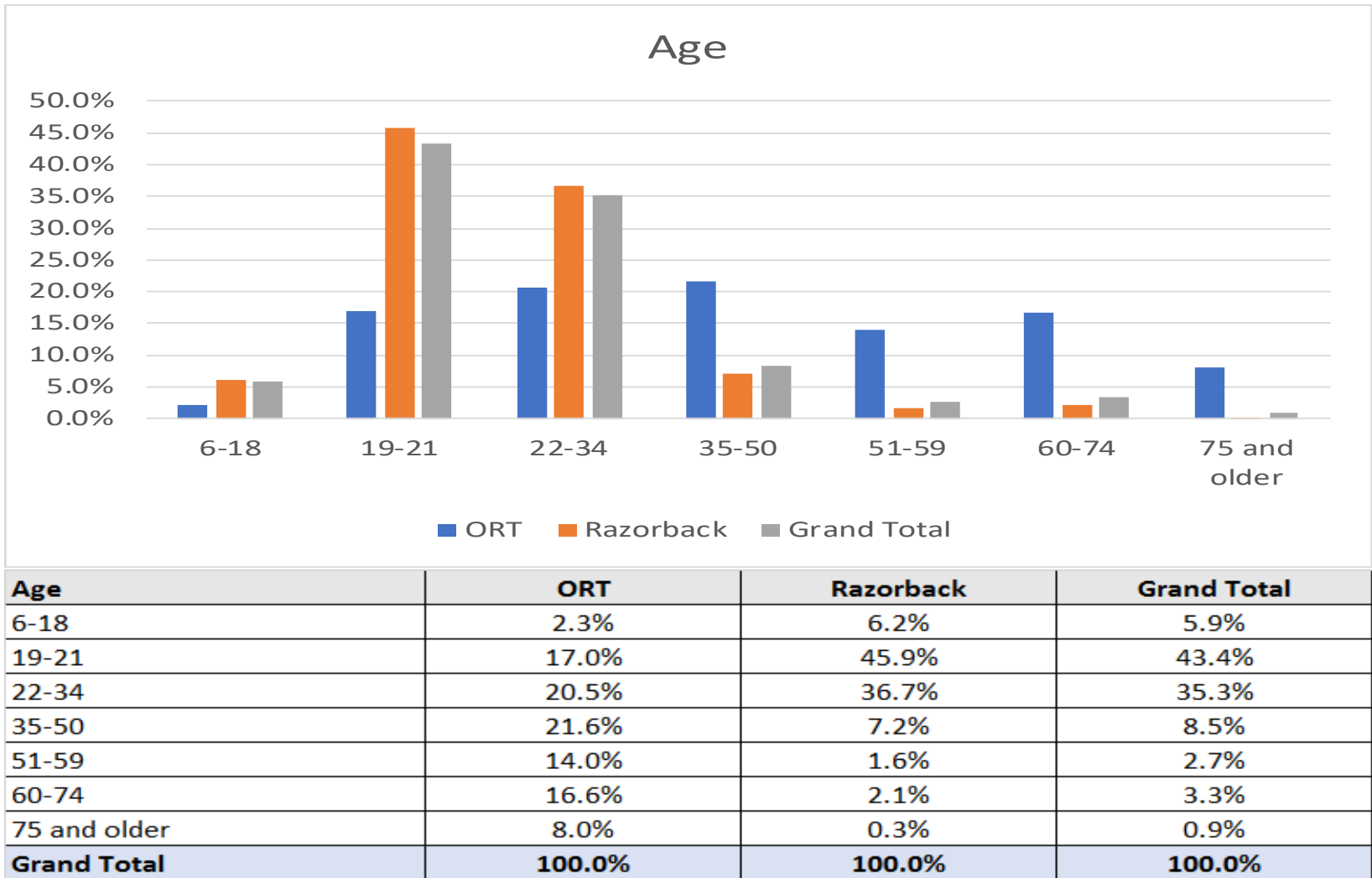
Student Status	ORT	Razorback	Grand Total
Yes - College / University / Community College	22.4%	87.0%	81.4%
Not a student	76.3%	11.8%	17.3%
Yes - K-12th grade	1.3%	1.1%	1.1%
Yes - Vocational / Technical / Trade school	0.0%	0.2%	0.1%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# Valid Driver's License

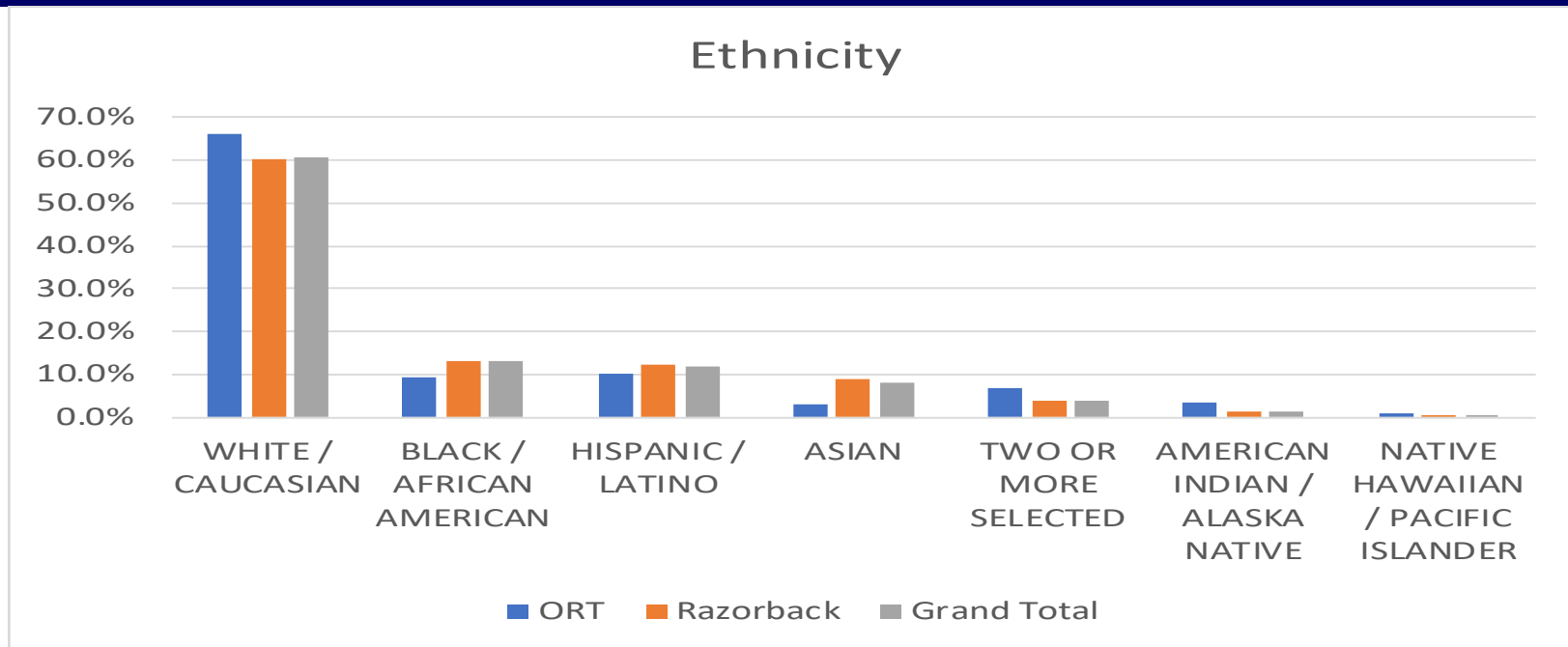


Driver's License Status	ORT	Razorback	Grand Total
Yes	33.9%	84.5%	80.2%
No	66.1%	15.2%	19.6%
Don't Know/Refuse	0.0%	0.2%	0.2%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# Age of Transit Riders



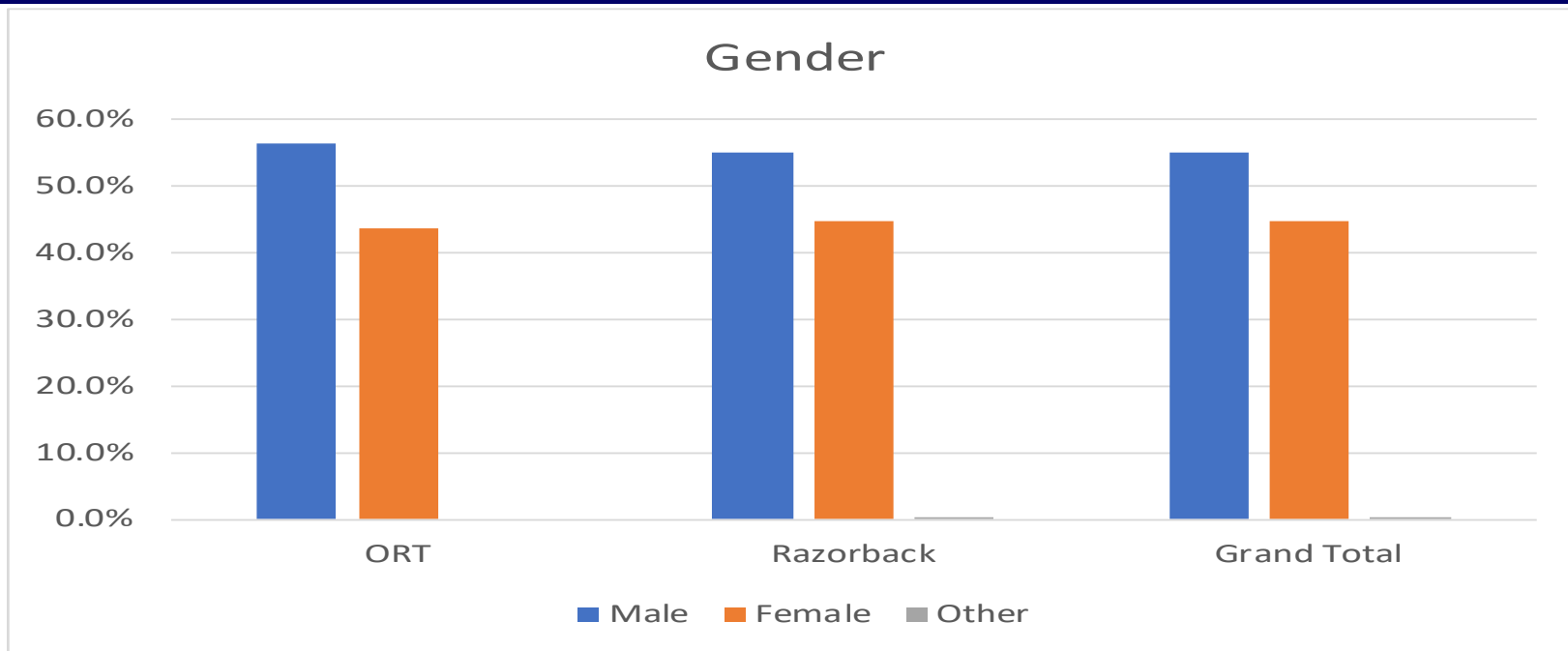
# Race/Ethnicity of Transit Riders



Ethnicity	ORT	Razorback	Grand Total
WHITE / CAUCASIAN	66.2%	60.4%	60.9%
BLACK / AFRICAN AMERICAN	9.4%	13.3%	13.0%
HISPANIC / LATINO	10.0%	12.2%	12.0%
ASIAN	3.1%	8.8%	8.3%
TWO OR MORE SELECTED	6.7%	3.8%	4.0%
AMERICAN INDIAN / ALASKA NATIVE	3.5%	1.4%	1.6%
NATIVE HAWAIIAN / PACIFIC ISLANDER	1.1%	0.2%	0.3%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

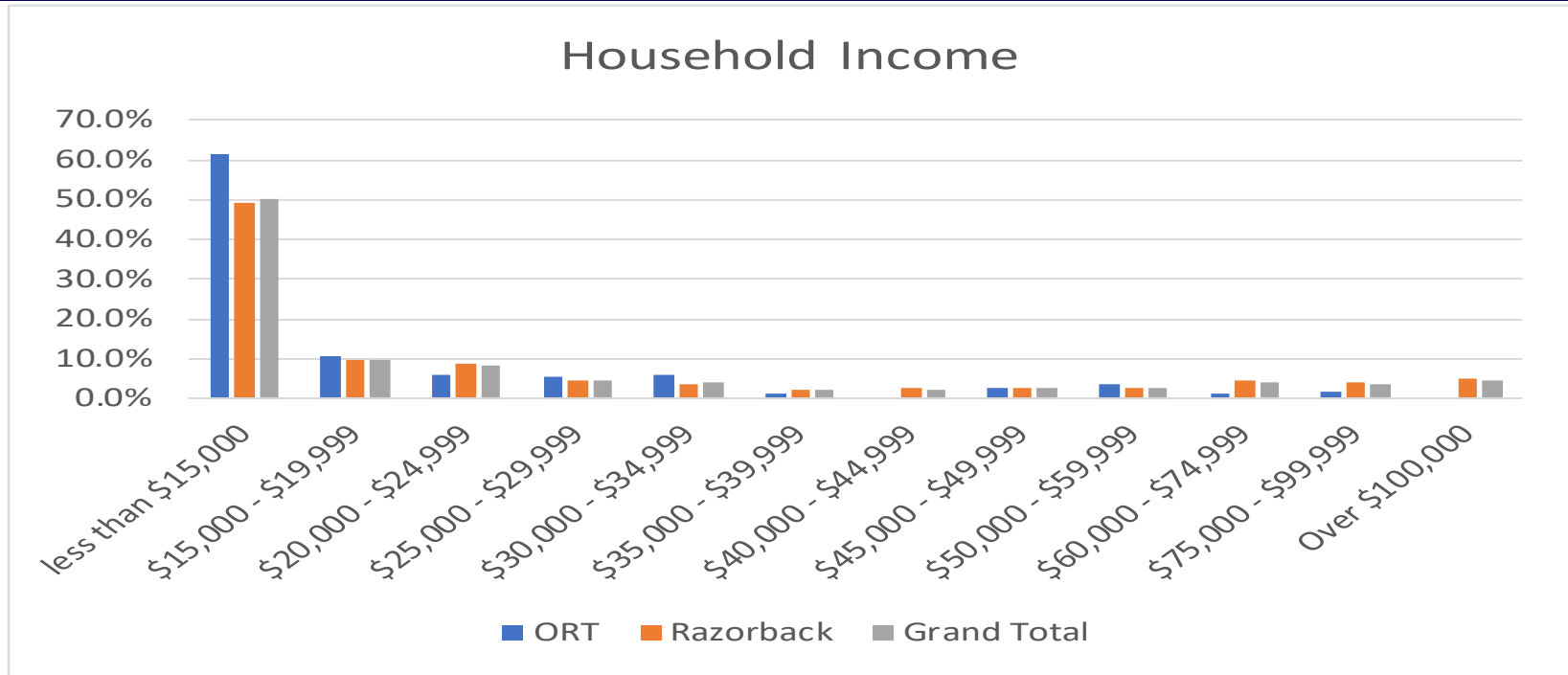
61% of riders are White / Caucasian, more Asian riders on Razorback

# Gender of Transit Riders



Gender	ORT	Razorback	Grand Total
Male	56.4%	55.1%	55.2%
Female	43.6%	44.8%	44.7%
Other	0.0%	0.1%	0.1%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

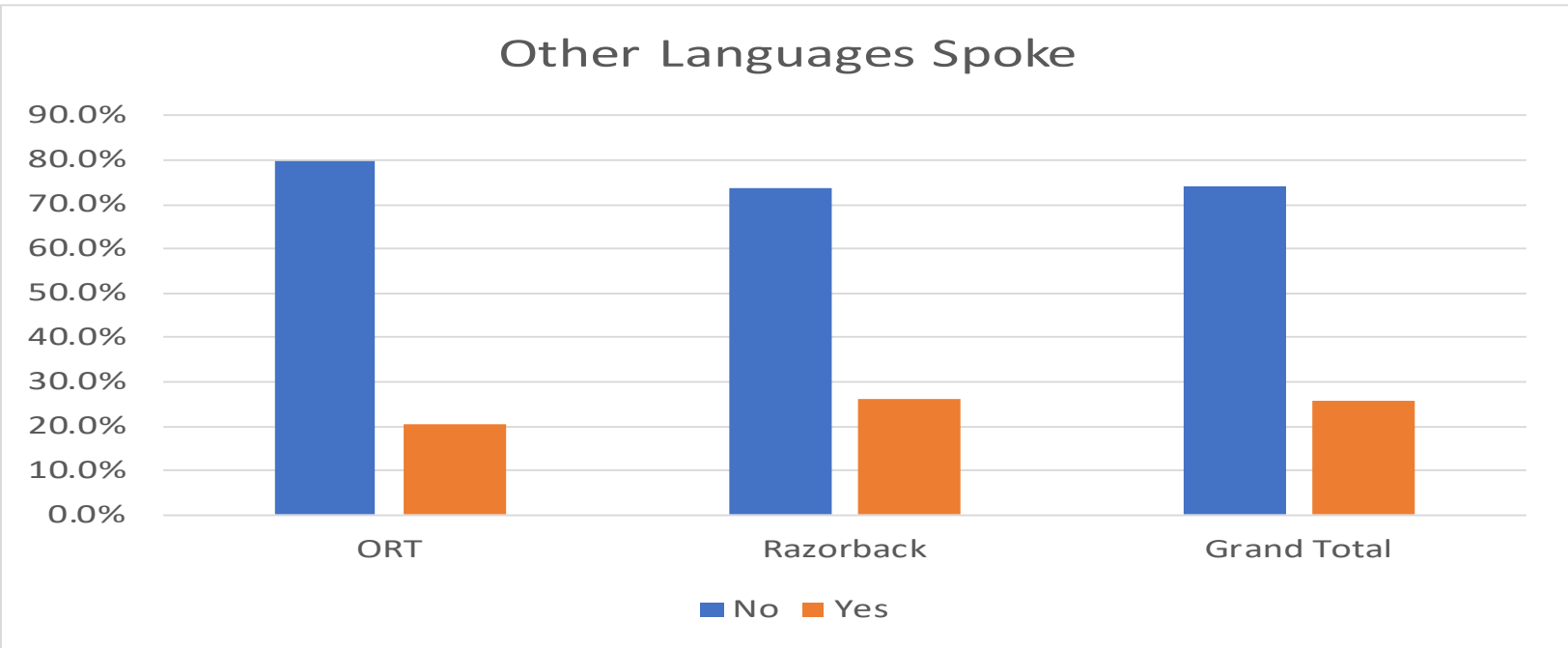
# Annual Household Income of Transit Riders



Household Income	ORT	Razorback	Grand Total
less than \$15,000	61.5%	49.2%	50.3%
\$15,000 - \$19,999	10.5%	9.9%	10.0%
\$20,000 - \$24,999	6.0%	8.6%	8.4%
\$25,000 - \$29,999	5.4%	4.6%	4.7%
\$30,000 - \$34,999	6.2%	3.8%	4.0%
\$35,000 - \$39,999	1.4%	2.2%	2.2%
\$40,000 - \$44,999	0.0%	2.7%	2.4%
\$45,000 - \$49,999	2.6%	2.8%	2.7%
\$50,000 - \$59,999	3.4%	2.7%	2.7%
\$60,000 - \$74,999	1.4%	4.6%	4.3%
\$75,000 - \$99,999	1.6%	4.0%	3.8%
Over \$100,000	0.0%	4.9%	4.5%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

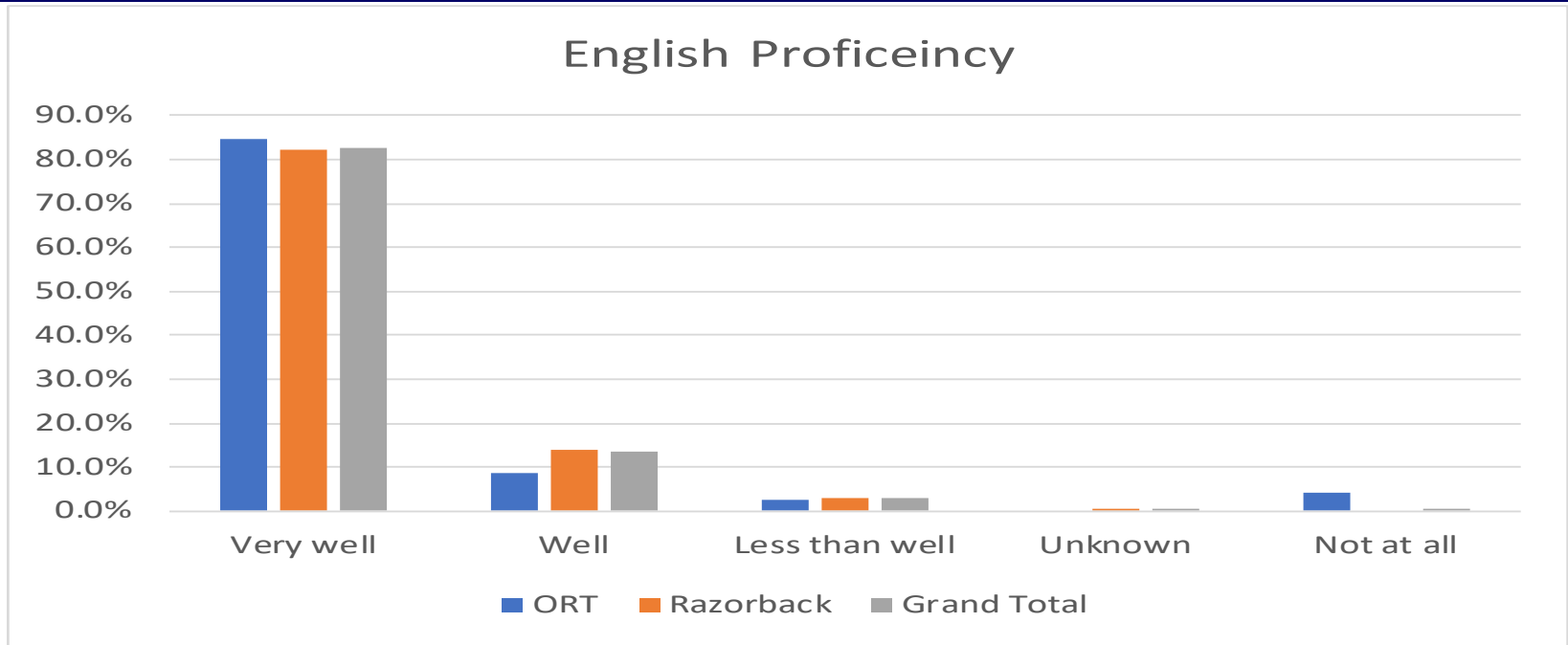


# Rider Speak Language Other Than English at Home?



Other Languages Spoke	ORT	Razorback	Grand Total
No	79.8%	73.7%	74.2%
Yes	20.2%	26.3%	25.8%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# How well does Rider Speak English?



English Proficiency	ORT	Razorback	Grand Total
Very well	84.5%	82.3%	82.5%
Well	8.8%	13.9%	13.6%
Less than well	2.4%	3.1%	3.1%
Unknown	0.0%	0.6%	0.6%
Not at all	4.3%	0.0%	0.3%
<b>Grand Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# Demographic Summary

## WHERE ARE RIDERS COMING FROM?

### ORT

- ▶ 47% of riders are coming from home
- ▶ 15% of riders are coming from school
- ▶ 11% of riders surveyed are coming from shopping
  - 73% of the rider trips start from home, school and shopping
- ▶ Only 4% of riders are coming from work

### Razorback

- ▶ 50% of riders are coming from home/dorm
- ▶ 39% of riders are coming from school
  - 89% of riders start their trip from home and school
- ▶ Only 4% of riders are coming from work

# Demographic Summary

## WHERE ARE BUS RIDERS GOING TO?

### ORT

- ▶ 39% of riders are going to home
- ▶ 25% of riders are going shopping
- ▶ Only 11% of riders are going to work related locations

### Razorback

- ▶ 44% of Razorback riders are going to school
- ▶ 40% of Razorback riders are going home/dorm
  - 84% of riders trips are going t to home and school
- ▶ Only 6% of riders are going to work related locations

# Demographic Summary

## HOW DO RIDERS GET TO THE BUS?

### ORT

- ▶ 89% of riders walk to the bus
- ▶ 3% of riders use a bike to get to the bus

### Razorback

- ▶ 83% of riders walk to the bus
- ▶ 17% of riders drive to the bus

## HOW DO RIDERS GET FROM THE BUS?

### ORT

- ▶ 87% of riders walk from the bus
- ▶ 4% of riders bike from the bus

### Razorback

- ▶ 88% of riders walk from the bus
- ▶ 11% of riders drive from the bus

# Demographic Summary

## IF TRANSIT IS NOT AVAILABLE, HOW DO RIDERS MAKE THIS TRIP?

### ORT

- 30% of riders would not make the trip
- 29% of riders would walk
- 21% of riders would ride with someone else

### Razorback

- 42% of riders would walk
- 35% of riders would drive
- 8% of riders would ride with someone else

# Demographic Summary

## HOW OFTEN DO RIDERS USE THE BUS?

### ORT

- ▶ 81% of riders use the bus three or more times a week
- ▶ 95% of riders use the bus at least once a week

### Razorback

- ▶ 89% of riders use the bus three or more times a week
- ▶ 96% of riders use the bus at least once a week

# Demographic Summary

## EMPLOYMENT STATUS

### ORT

- ▶ 58% of riders have zero employed household members
- ▶ 25% of riders have one employed household member

### Razorback

- ▶ 26% of riders have zero employed household members
- ▶ 38% of riders have one employed household member



# Demographic Summary

## NUMBER OF HOUSEHOLD VEHICLES

### ORT

- ▶ 71% of riders have no vehicles in their household
- ▶ 15% of riders have one vehicle in their household

### Razorback

- 20% of riders have no vehicles in their household
- 38% of riders have one vehicle in their household
- 23% of riders have two vehicles in their household

# Demographic Summary

## Income

### ORT

- ▶ 62% of riders HH income is less than \$15K
- ▶ 78% of riders HH income is less than \$25K

### Razorback

- ▶ 49% of riders HH income is less than \$15K
- ▶ 68% of riders HH income is less than \$25K

# City to City Trip Distribution

## ▶ Trips for ORT only

Origin\Destination City	Bella Vista	Bentonville	Fayetteville	Rogers	Springdale	West Fork	Destination Total
Bentonville	0.7%	5.1%	10.5%	5.8%	1.7%	1.2%	<b>25.0%</b>
Fayetteville		6.3%	37.0%		5.3%		<b>48.6%</b>
Rogers		2.5%		2.2%			<b>4.7%</b>
Springdale		0.6%	5.8%		14.6%		<b>21.0%</b>
West Fork		0.6%					<b>0.6%</b>
Origin Total	<b>0.7%</b>	<b>15.2%</b>	<b>53.3%</b>	<b>8.0%</b>	<b>21.6%</b>	<b>1.2%</b>	<b>100.0%</b>

- ▶ **88% of trips for Razorback Transit begin and end in Fayetteville.**

# Trip Distances

## Trip Distance from Origin to Destination

### Overall

- ▶ The average trip distance from origin to destination is 3.7 mi

### ORT

- ▶ The average ORT trip from origin to destination is 6.6 mi

### Razorback

- ▶ The average RB trip from origin to destination is 3.4 mi

# Trip Distances

## Distance from first Boarding to last Alighting

### Overall

- ▶ The average trip distance from boarding to alighting is 2.0 mi

### ORT

- ▶ The average ORT trip from boarding to alighting is 6.0 mi

### Razorback

- ▶ The average RB trip from boarding to alighting is 1.5 mi

# Trip Distances

## Trip Distance from Origin to Boarding (Access mode)

### Overall

- ▶ The average trip distance from origin to first boarding is 1.2 mi
  - Walk trips 0.2 mi
  - Bike trips 0.8 mi
  - Drive alone trips 7.8 mi

### ORT

- ▶ The average ORT trip from origin to first boarding is 0.5 mi
  - Walk trips 0.2 mi
  - Bike trips 0.7 mi
  - Drive alone trips 14.7 mi

### Razorback

- ▶ The average RB trip from origin to first boarding is 1.3 mi
  - Walk trips 0.2 mi
  - Bike trips 0.9 mi
  - Drive alone trips 7.7 mi

# Trip Distances

## Trip Distance Alighting to Destination (Egress mode)

### Overall

- ▶ The average trip distance from last alighting to destination is 0.9 mi
  - Walk trips 0.2 mi
  - Bike trips 0.6 mi
  - Drive alone trips 3.2 mi

### ORT

- ▶ The average ORT trip from last alighting to destination is 0.6 mi
  - Walk trips 0.2 mi
  - Bike trips 0.7 mi
  - Drive alone trips 1.3 mi

### Razorback

- ▶ The average RB trip from last alighting to destination is 0.9 mi
  - Walk trips 0.2 mi
  - Bike trips 0.5 mi
  - Drive alone trips 7.3 mi

# Questions?