2018 System Wide Origin and Destination Survey
Summary of Findings
Presentation

Prepared by ETC Institute
July 25th, 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
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

<table>
<thead>
<tr>
<th>System</th>
<th>SAMPLING RATE</th>
<th>GOAL</th>
<th>COMPLETED</th>
<th>% COLLECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozark Regional Transit</td>
<td>8% of Daily Ridership</td>
<td>103</td>
<td>132</td>
<td>128%</td>
</tr>
<tr>
<td>Razorback Transit</td>
<td>8% of Daily Ridership</td>
<td>887</td>
<td>976</td>
<td>110%</td>
</tr>
<tr>
<td>Totals</td>
<td>8% of Daily Ridership</td>
<td>990</td>
<td>1,108</td>
<td>112%</td>
</tr>
</tbody>
</table>

Actual: 1,108 Collected Interview

Overall distribution of the sample was excellent!
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 = \[\frac{1}{1 + \# \text{ of transfers}}\], was created to account for transfers.
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
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:

![Higher Volume Routes Table](image-url)

<table>
<thead>
<tr>
<th>Route</th>
<th>Route Surveyed</th>
<th>Previous Transfers</th>
<th>Next Transfers</th>
<th>Total Summed Linked</th>
<th>Total Ridership</th>
<th>Total Difference</th>
<th>Percentage Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Higher Volume Routes</td>
<td>8517.9</td>
<td>257.3</td>
<td>238.7</td>
<td>9013.9</td>
<td>9058</td>
<td>44.1</td>
<td>0.5%</td>
</tr>
</tbody>
</table>
## Linked Trip Decomposition Analysis

### ALL ROUTES

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

*Higher Volume Routes (Routes over 500 daily boardings)

### Razorback and Ozark System Totals

<table>
<thead>
<tr>
<th>Route</th>
<th>Route Surveyed</th>
<th>Previous Transfers</th>
<th>Next Transfers</th>
<th>Total Summed Linked</th>
<th>Ridership</th>
<th>Total Difference</th>
<th>Percentage Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozark Routes</td>
<td>822.6</td>
<td>146.1</td>
<td>128.2</td>
<td>1096.8</td>
<td>1083</td>
<td>-13.8</td>
<td>-1.3%</td>
</tr>
<tr>
<td>Razorback Routes</td>
<td>8763.7</td>
<td>272.2</td>
<td>291.4</td>
<td>9327.2</td>
<td>9341</td>
<td>13.8</td>
<td>0.1%</td>
</tr>
<tr>
<td>Total</td>
<td>9586.2</td>
<td>418.3</td>
<td>419.5</td>
<td>10424</td>
<td>10424</td>
<td>0.0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
What Did We Learn?
From the Intercept Survey
Overall, 66% of Trips (Origins and Destinations) are Home-based to/from University of Arkansas
Overall, 83% of transit riders walk to Access.
Overall, 88% of transit riders walk to Egress.
Overall, only 8% of trips make at least one transfer; 25% of ORT riders make at least one transfer.
### Type of Fare

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

#### Observations
- **27% of ORT Transit riders used a 30 Day pass; all Razorback riders ride for free.**

[Diagram showing the distribution of fare types for ORT and Razorback.]
Other Means of Travel if Transit Not Available

41% of riders stated they would walk from their Origin to Destination if transit service wasn’t available.
19% of riders stated they have used TNC or other rideshare services; 13% for ORT.
67% of riders stated they have been riding transit for one year or more; 80% for ORT
How Many Days a Week Riders Use Transit

SURVEY FINDINGS

88% of riders use transit at least three days a week and 98% at least one day a week

<table>
<thead>
<tr>
<th>Transit Use Frequency</th>
<th>ORT</th>
<th>Razorback</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First time riding</td>
<td>1.1%</td>
<td>0.4%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Once in a while</td>
<td>0.9%</td>
<td>0.9%</td>
<td>0.9%</td>
</tr>
<tr>
<td>1 or 2 days a month</td>
<td>2.4%</td>
<td>0.7%</td>
<td>0.9%</td>
</tr>
<tr>
<td>1 or 2 days a week</td>
<td>14.4%</td>
<td>9.1%</td>
<td>9.6%</td>
</tr>
<tr>
<td>3 or 4 days a week</td>
<td>39.1%</td>
<td>25.0%</td>
<td>26.2%</td>
</tr>
<tr>
<td>5 days a week</td>
<td>31.9%</td>
<td>54.1%</td>
<td>52.2%</td>
</tr>
<tr>
<td>6 days a week</td>
<td>10.1%</td>
<td>9.7%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
76% of all Transit riders own at least one vehicle, however 71% of ORT riders do not have a vehicle; ORT highly transit dependent.
Could respondent use a vehicle for this trip?

Overall, 85% of riders could of used their vehicle for their current trip but only 28% on ORT; ORT highly transit dependent.
### Survey Findings

#### Number of People Living in Household

**Bar Chart:**
- **Oil Ridge Transportation (ORT):**
- **Razorback:**
- **Grand Total:**

**Table:**

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

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

Overall, more than half (56%) of riders are employed either full or part time, but only 26% on ORT.
81% of riders are full or part time college students with only 22% of ORT riders being college students.
80% of All Transit riders have a driver's license, but only 24% of ORT riders; ORT transit dependent
Over three quarters (79%) of riders are between the ages of 19 and 34, however only 40% of ORT riders in this range; ORT has older ridership.
61% of riders are White / Caucasian, more Asian riders on Razorback
## Gender of Transit Riders

55% of riders are Male

<table>
<thead>
<tr>
<th>Gender</th>
<th>ORT</th>
<th>Razorback</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>56.4%</td>
<td>55.1%</td>
<td>55.2%</td>
</tr>
<tr>
<td>Female</td>
<td>43.6%</td>
<td>44.8%</td>
<td>44.7%</td>
</tr>
<tr>
<td>Other</td>
<td>0.0%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
60% of riders reported Household Incomes BELOW $20K, lower income levels are shown overall for ORT; this is a difficult question for Razorback riders and is respondent dependent.
Rider Speak Language Other Than English at Home?

26% of riders indicated they spoke a language other than English at home.
96% of riders who indicated they spoke a language other than English at home, indicated they spoke English at least *Well*. Very limited linguistic isolation (didn’t encounter Marshallese on ORT).
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
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 to home and school
- Only 6% of riders are going to work related locations
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
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
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
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
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
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

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

- 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?