

# Research Findings Final Report

Team 10: Emily Rosenfield, Griffen Schwiesow, Karishma Patel, Rachel Wallace  
Prepared for: Mobility Innovation Center

## Introduction

Our goal is to design an equitable and accessible loyalty program that leverages incentives to reduce barriers and increase ridership among unsubsidized transit riders. This study was motivated by a need to understand the experiences of unsubsidized riders. Through conducting a survey (n = 203) and an interview study (n = 6) we aim to address the following research questions:

- What barriers do unsubsidized riders face when riding transit? What is the perceived “value” of rider barriers?
- What motivates unsubsidized riders to take transit? What rewards are valuable enough to perpetually motivate unsubsidized riders to take transit?
- How do unsubsidized riders view the role of transit in their day-to-day lives?
- How do unsubsidized riders decide to take transit over other modes of transportation?
- What characteristics do our unsubsidized riders have in common?
- How do unsubsidized riders purchase tickets?
- How do households share ORCA cards?

## Methods

We designed and conducted an online survey and a remote interview study. The primary goals of the survey were to build a foundation for our understanding of unsubsidized riders and to recruit participants for the interview portion of the study. The survey was posted on local Seattle Facebook groups, Nextdoor, and local Reddit threads, where we received 203 responses. From our pool of respondents, we recruited six participants for 30 - 60 minute, semi-structured, remote interviews. Respondents were eligible for interviews if they were fully unsubsidized or partially subsidized transit riders.

## Limitations

Some limitations to keep in mind are that we only conducted six interviews. We also found that three out of the six interviewees are from cities that have very robust public transportation systems. This may bias our research findings by increasing the expectations for Seattle's public transportation or by influencing the appreciation of transportation indicated by the interviewees.

Our survey recruitment was solely online which may also bring inherent biases. The survey did not ask the respondents information about their income which could influence how the riders responded about the cost of Seattle's public transportation. The survey also did not ask which specific area in or around Seattle the respondent is from. This could also bring in a type of socioeconomic bias in our research results.

## Survey

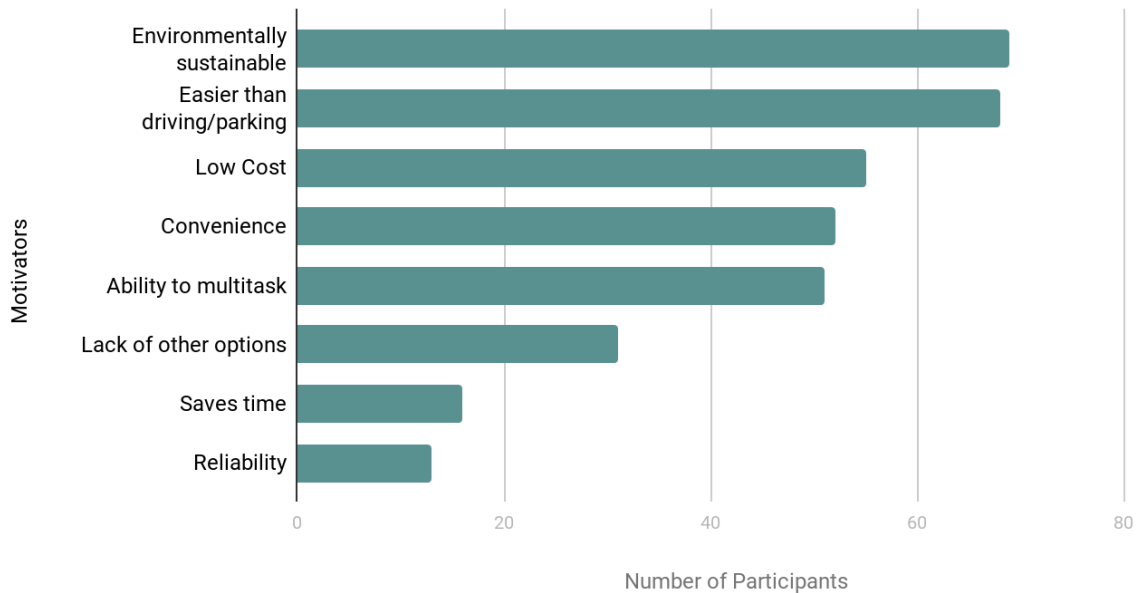
We conducted an online survey with the intention of using the responses to collect preliminary information about rider demographics and motivations and barriers to transit ridership. Additionally, we used the survey responses to screen participants for follow-up interviews.

## Survey Findings

The chart below displays the top motivators the survey respondents indicated gave them the most encouragement to choose public transportation over other alternatives.

## Rider Motivations for Taking Transit

*What reasons might encourage you to choose public transportation? Please select all that apply.*



*Figure 1: Chart displays the rider motivations for taking transit. Top motivators are environmental sustainability, easier than driving/parking, and the low cost of transit.*

After synthesizing the rest of the survey data, we came to the following high-level conclusions.

1. Fully subsidized riders had the highest ridership (High ridership is defined as riding transit five or more times a week)
2. A large portion of unsubsidized/partially subsidized riders have high ridership or low ridership, not many in between
3. Almost two-thirds of the people who indicated they fund someone else's transportation costs are unsubsidized/partially subsidized
4. Cost appeared to be more of a motivator for unsubsidized/partially subsidized riders than a barrier (*Figure 1*)

# Interview

Following the survey, we aimed to conduct six semi-structured interviews. The goal of the interview study is to develop a personal understanding of how riders feel about transit and how riders use transit. Interviews also gave us the opportunity to ask follow-up questions from the survey.

## Recruitment

Participants were recruited and screened based on their responses to their survey. The screening was based on the following three criteria.

1. How frequently the rider indicated they used public transport on a weekly basis
  - a. Participants were not invited to the interview study if they rode transit less than one time a week or more than 5 times a week
2. If the rider pays for anyone else's public transportation/manages multiple ORCA cards
  - a. Participants were strategically selected to include at least two participants who manage multiple ORCA cards
3. The level of subsidy, if any, that the rider receives
  - a. Participants were excluded from the interview study if their ORCA was fully subsidized by their employer or school

We chose participants that had varying qualities based on the above three criteria to ensure we spoke to a diverse group of riders.

## Participants

We conducted 30 - 45 minute interviews with a total of six riders (See Appendix 3 for interview protocol). The following table describes our six interview participants (Table 1).

	<b>Neighborhood</b>	<b>Subsidy</b>	<b>Payment</b>	<b>Dependents</b>	<b>Transportation Alternatives</b>
<b>Wendy</b>	Montlake	Unsubsidized	Cash	Husband and kids are fully subsidized	Car, Rideshare
<b>Jasper</b>	Ballard	Unsubsidized	ORCA E-purse	n/a	Shared car, Bicycle
<b>Fay</b>	Capitol Hill	Senior Reduced Fare	ORCA E-purse (Senior)	n/a	Car
<b>Elizabeth</b>	Ravenna	Senior Reduced Fare	ORCA E-purse (Senior)	n/a	Car, Rideshare
<b>Dan</b>	Eastlake	50% subsidy from employer	ORCA Pass	Previously managed daughter's ORCA	Rideshare, Renting car, Wife's car
<b>Rebecca</b>	Wedgewood	Unsubsidized	ORCA E-purse	Kids ride free under age 6	Car

*Table 1: Demographic information describing the transit habits of our interview participants.*

**Primary Use for Transit**

Only one participant used transit to commute to work Mondays through Fridays. The other five participants might use transit to commute to a part-time job, less than five days a week. Instead of taking transit, some participants would drive because the commute on transit would take too long. Additionally, participants used transit ad-hoc to run errands (doctors appointments, grocery shopping), meet up with friends, get to the airport, take kids to school and go downtown.

**Findings**

Following the interviews our team used affinity diagramming to organize our interview data into findings (See Appendix 1 for Affinity Diagrams).

These findings will help us understand what is important to riders and will assist in the ideation of what our loyalty program should use as a reward to Seattle's public transit riders. It will also help us identify what prevents riders from using public transit in certain situations and how a rewards program could potentially compensate for those barriers.

## **Motivations**

Participants mentioned multiple reasons describing why they are motivated to ride transit. We have listed and analyzed the most relevant motivators below.

### ***Reliable***

The reliability of transit is an important motivator for riders to take transit. Our participants trust the transit system to move them around Seattle in a reasonable amount of time. Dan commutes on the bus to work every day because he trusts that he will arrive to work on time. Another participant, Fay, catches the bus from her house without checking the schedule in advance because she is confident in the reliability of the transit system and that a bus will come "soon enough".

*"I know I can get there, it's a reliable time to get from a to b." - Dan*

### ***More stress-free than driving***

Many of our participants with access to a personal vehicle are still motivated to take transit because they enjoy not having to think about driving in a congested city or parking. All of our participants said they will nearly always take transit to travel downtown in order to avoid traffic and parking.

*"Well the main reason is to avoid parking, either because it's too hard or too expensive, so I take it [transit] when I think I'd run into parking problems... I'm encouraged to take transit to avoid parking anxiety" - Elizabeth*

*"I don't like driving or sitting in traffic, parking has gotten worse, I would rather sit in the bus and read or listen to a podcast rather than the stress of driving, "seems to be a win-win" - Rebecca*

### ***Cheaper than alternatives***

For all of our participants, the cost of transit was not a barrier that prevented them from riding more frequently, rather it served as a motivator because it was often cheaper than their alternatives. Alternative transportation for our participants included driving, biking, rideshare, and walking. Prior to taking a trip on transit, most of our participants would compare how much time and money it would be to take transit relative to their alternatives. Participants feel good about taking transit when they know they are saving money.

*"Riding transit one way is \$1.00 [for senior fare], parking at UW for the day can easily get up to \$8.00, so the decision is easy"* - Fay

*"Our family has a huge feeling of satisfaction when we don't have to fill up our gas tank"* - Rebecca

*"Why would I pay for rideshare when transit gets me there around the same time for way cheaper?"* - Elizabeth

### **Environmental Cost**

Many of our participants were conscious of the environmental impact of their transportation decisions. For these participants it seemed like managing their environmental impact was an important value. They felt motivated to take transit to avoid putting more cars on the road.

[Takes transit because] *"It's the right thing to do"* - Dan

*"Any time I consider driving instead of taking transit, my kids remind me that the bus is better for the environment, it's become a really big value for our whole family now."* - Rebecca

### **Extra time to read/listen to a podcast**

One participant spoke about how she enjoys transit because it makes her appreciate getting somewhere without rushing. It also gives her the opportunity to set aside time in her day to exercise or read a book.

*"Transit makes you appreciate taking your time and not rushing, it makes you carve out a time to read a book or get exercise (bike) and I've liked getting to know new places between point A and point B"* - Rebecca

### ***Sense of Community***

One participant described how she feels motivated to take transit because of the sense of community she gains from her interactions with bus drivers and other transit riders. She enjoys seeing the familiar faces on her route.

*"It feels like a community, like getting on the bus and recognizing the driver, or seeing neighbors or people you know on the bus and having a conversation with them."* - Rebecca

### **Barriers**

Participants mentioned multiple barriers that discourage them to ride transit. The most relevant barriers are listed below.

#### ***'Last Mile'***

The 'last mile' is being used to describe the distance a rider must go to get to the nearest transit stop for their trip. A handful of interviewees indicated that under certain circumstances, such as grocery shopping, where they have to carry a lot of things, they are more reluctant to take public transit because they do not want to make the trek to or from the bus stop. For Fay, the transit stop is a bit far, so when she is getting groceries or at other times when she has many bags, she does not take the bus because she does not want to walk with her hands full. Other factors, such as inclement weather, also play into the 'last mile.' Wendy will walk about a mile to the Link when it is sunny, but not when there is inclement weather.

*"Most bus stops I wait at don't have cover or shelter, it's way less disruptive and discouraging when I'm covered. When it's gross out and I don't know how long it's going to take I don't want to stand there getting wet and cold"* - Rebecca

*[Decision to ride depends on] what I'm taking with me, if I have a lot of stuff or I'm traveling during rush hour when the busses are packed then I'll take my car"* - Rebecca

*"Most bus stops I wait at don't have cover or shelter, it's way less disruptive and discouraging when I'm covered. When it's gross out and I don't know how long it's going to take I don't want to stand there getting wet and cold"* - Rebecca



### **Time**

The timing of public transportation was also brought up as a barrier for some of the riders we interviewed. They indicated that if they themselves or the buses were running late, they would opt into taking more direct transportation. This also questioned the reliability of public transportation even though some riders indicated previously that they feel Seattle's public transportation is pretty reliable as a whole.

*"I will always budget an hour even if it only says 30 mins; you could miss the bus or the bus could be late; even if it's not an hour, I can walk around for 10mins rather than be late" - Jasper*

*"The bus can be unpredictable and I don't want my kids to be late to school" - Rebecca*

### **Route planning**

Route planning can be a barrier, even for frequent transit riders. Our participants expressed frustration at the tools and resources available for route planning. Participants found it difficult to feel confident in what the 'best route' somewhere would be, due to inadequate merging of route planning mapping tools with real-time schedule and traffic updates. Nearly all of our participants mentioned the difficulty of planning an East-West route across Seattle. They expressed frustration at the length of time and amount of transfers it can take to cross the city in this direction. For many participants, these barriers made it no longer worth it to take transit and they would seek alternatives for these routes.

*"...there is no single app that takes into account both the actual live bus schedules and the planning of a trip or route." - Dan*

*"I don't understand how to use the apps so I just wait at the stop until a bus comes" - Fay*

### **Payment confusion**

Payment seemed to be a barrier for about half of our participants. Some participants had no trouble loading the ORCA card online or at a kiosk. Other participants expressed confusion around how to reload their ORCA card online, how to know what the balance was, and how to know what they were being charged. For Wendy, these barriers prevented her from owning an ORCA card and she prefers cash.

# Discussion / Implication to Project

These research results are crucial for our team because they will allow us to understand what matters most to public transportation riders in Seattle and what kinds of barriers they face when using the transportation system.

## Research Applied to a Rewards Program

This section describes the responses we got from our interviewees about how rewards programs have taken part in their lives and how they see these types of structures being applied to Seattle's public transportation system.

### **What does a loyalty program mean to you?**

Upon asking this question in our six interviews, we received responses that varied from preferred service, additional comfort, less waiting time in lines, money back, or savings/discounts. Our participants had experience with rewards/loyalty programs ranging from airline, grocery, hotel, coffee shop punch cards, beauty subscriptions, and credit card rewards.

### **How would you envision a loyalty program for transit?**

We found two common themes in discussions around how riders would envision a loyalty program for public transportation in Seattle. The first involves time and comfort level and the second covers rewards that are more monetary. Below we have pulled some supporting research from our interviews that fall into these two categories.

#### 1. Time / Preferred Treatment

- *"Time is the most important commodity."* - Dan
- Elizabeth mentioned offering rideshare discounts as the reward for the program to help with the 'last mile' factor

#### 2. Monetary Rewards

- Envisions a loyalty program could help her save money on passes or free trips (Jasper, Wendy)
- NYC metro \$20 for \$25 dollars of rides (Rebecca)
- Buddy passes to take friends and family on transit

## Opportunities for a Rewards Program

With these findings in mind, we have come up with some early ideas on how we might think a rewards program should be structured to meet the needs of the riders that surfaced in this research phase.

- “Last mile” Opportunity
  - Encouraging riders to take public transit to places they normally would not
  - Have rideshare promotions to cover the first or last mile of their trip
  
- Fare Capping / Discounted Passes
  - Relieves the conscious decision-making of paying per ride
  - Reduces burden of upfront cost for monthly pass
  
- Mindfulness Approach
  - Display environmental impact of taking public transit
  - Rewards to donate to local charities based on ridership

## Next Steps

With this report being the last part of the research phase for this project, we will now move onto the ideation phase. This phase will take our findings and initial ideas about how to create a rewards program and formulate more detailed solutions to our research question.

# Appendix 1: Affinity Diagram Interview Analysis



[https://app.lucidchart.com/documents/edit/2516ffa8-a4d2-4e3f-97f0-2d4968878d67/0\\_0?shared=true&token=e62a727729dc1d3be114b3f06c3e200a462f0b26-emi%3D1586905818978%26uid%3D142069456](https://app.lucidchart.com/documents/edit/2516ffa8-a4d2-4e3f-97f0-2d4968878d67/0_0?shared=true&token=e62a727729dc1d3be114b3f06c3e200a462f0b26-emi%3D1586905818978%26uid%3D142069456)

# Appendix 2: Survey Materials

## Survey Questions

Hello! We are a team of University of Washington (UW) undergraduate students studying Human Centered Design and Engineering. For our capstone project, we are partnering with King County Metro, Sound Transit, and the UW Mobility Innovation Center to learn about motivations and barriers to public transportation ridership.

If you are a resident of King, Pierce, Snohomish, or Kitsap County, we would love to hear from you! The following survey is expected to take less than 5 minutes.

Thank you for your participation!

1. Do you live in King, Pierce, Snohomish, or Kitsap County?
  - a. Yes
  - b. No
  - c. Not sure
2. In a typical week, how many days do you ride public transportation? (Please think of your typical transit habits, not considering the current COVID-19 outbreak.)
  - a. 0
  - b. 1-2
  - c. 3-4
  - d. 5-6
  - e. 7
3. Do you pay or help pay for anyone else's public transportation? (Family members, etc.) Please select all that may apply.
  - a. Yes, I pay for their ORCA card
  - b. Yes, I pay for them ride by ride
  - c. No
4. What reasons might encourage you to choose public transportation? Please select all that apply.

- a. Cost
  - b. It's convenient
  - c. Lack of alternative transportation
  - d. Environmental sustainability
  - e. It's time saving
  - f. I can multitask while riding transit
  - g. Easier than driving and/or parking
  - h. Reliability
  - i. Other: \_\_\_\_\_
5. What reasons might prevent you from choosing public transportation? Please select all that apply.
- a. Cost
  - b. It's inconvenient
  - c. Prefer other modes of transportation
  - d. It's intimidating or I don't know how to use it
  - e. Too many transfers
  - f. Doesn't go where I need to go
  - g. Safety concerns
  - h. It's unreliable
  - i. Other: \_\_\_\_\_
6. Does your employer or school cover ALL of your public transportation costs?
- a. Yes, they cover ALL my public transportation costs
  - b. No, they cover PART of my public transportation costs
  - c. No, they cover NONE of my public transportation costs
7. Thank you! Would you be willing to participate in a follow-up interview? If so, please provide your email address or phone number.

## Appendix 3: Interview Materials

### Interview Questions

1. Can you tell me about your transit schedule in a typical week?
  - a. Where in Washington do you live?
  - b. How close is the nearest transit stop?
  - c. How do you get there? (walk, drive to park and ride...)
  - d. Where do you typically ride transit to and from?

- e. Do you take transit to run errands, such as groceries?
  - f. What transit systems do you use? (bus, light rail, monorail, ferry, etc)
  - g. What are your transportation options other than public transit?
    - i. How do you decide when to take transit instead of other transportation options?
  - h. (Probe into any differences that come up between days...)
    - i. What encourages you to ride on these specific days?
    - ii. What prevents you from riding transit more frequently?
    - iii. Would you ride transit more frequently if it were at a lower cost to you?
      - 1. Why?
    - iv. What might motivate you to ride transit more often?
    - v. Does the cost of other alternatives (such as cost of parking, cost of gas, car ownership costs, etc) affect your decision to ride transit?
2. How do you plan your trips on transit?
- a. What apps or other resources have you used to plan your trips?
    - i. Do you have any experience with transit apps such as King County Metro Trip Planner, TransitGo, City Mapper?
      - 1. How was this experience?
3. How do you pay for your trips on transit?
- a. Why do you pay this way?
    - i. Have you used other payment methods as well?
  - b. If ORCA card
    - i. How do you typically load your ORCA card?
    - ii. How is this experience?
4. *\*In your survey responses you noted that you pay for another person's transit, can you tell me about how ridership is different amongst members of your household?*
- a. *How many people are in your household?*
  - b. *How do you pay for transit for others in your household?*
    - i. *How many ORCA cards are in your household?*
      - 1. *How do you manage multiple ORCAs?*
5. (Remind we aren't affiliated, please be honest!) Can you describe your overall feelings toward Seattle's public transportation system?

- a. What could make it better?
6. Now we're going to be switching gears a little bit. Can you describe to me what a loyalty program means to you?
- a. What loyalty or rewards programs do you take part in?
    - i. What motivates you to take part?
  - b. How would you envision a loyalty program for transit?
    - i. How would you expect to earn rewards through transit?
      - 1. (number of trips, number of transfers, days, etc.)
    - ii. What would you expect to be rewarded with?
    - iii. *\*How would you expect your household to be rewarded?*
    - iv. Would a rewards system motivate you to ride transit more often?
7. Considering the current world events, what would you as a transit rider need or like to see to help you adjust back to your normal ridership?

Thank you so much for your time! We will be following up with your compensation. Do you have any questions, or further comments, for us at this time?