



**Sound Transit**  
**Tacoma Link Origin and Destination Study**  
**Draft Report**

*Prepared by:*



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## PROJECT OVERVIEW

The purpose of this study is to help Sound Transit in understanding current travel patterns on the existing transit system serving the Central Puget Sound region. In 2015, Sound Transit began conducting a survey of transit riders, the purpose of which was twofold: to provide data in support of the “Before and After” study, which will investigate the impacts of University Link, a major light rail transit extension that will open for service in early 2016, and to collect information about rider characteristics for use in ridership modeling, equity analyses, and other research and reporting purposed. Rider surveys were conducted on all South Transit services: Central Link light rail, ST Express bus, Tacoma Link, Sounder commuter rail, and select King County Metro bus routes.

This report describes the results of the Tacoma Link light rail surveys conducted February 4<sup>th</sup> through February 6<sup>th</sup>, 2019 with additional shifts conducted March 20<sup>th</sup> and 21<sup>st</sup>. Riders were intercepted by interviewers on-board the trains and were given the opportunity to respond to our questions with a paper survey or take it online.

## METHODOLOGY

### QUESTIONNAIRE DESIGN

Respondents were instructed to record information regarding their current one-way trip. Examples of potential one-way trips were shown on the questionnaire. The questionnaire was printed on one double-sided legal size paper using heavy paper stock to enable respondents to complete the survey on board the services without a clipboard.

Respondents had two options to complete the survey:

1. Fill out and return the survey onboard (this option was encouraged as the most preferable by interviewers)
2. Fill out and return the survey via postage paid business reply mail

### QUESTIONS INCLUDED (IN THE FOLLOWING ORDER)

- Trip origin, including the type of location where the one-way trip started (work, home, airport, school, or other)
- The address, or cross streets, or city, or zip code, or landmark/business name of the trip origin
- Access mode from the trip origin
- Parking information and amount paid at the origin, if applicable
- Trip destination, including the type of location where the one-way trip ended (work, home, airport, school, other)
- The address, or cross streets, or city, or zip code, or landmark/business name of the trip destination
- Parking information and amount paid at the destination, if applicable
- The stops where the respondent got on and off the sampled trip
- All transit vehicles used for the trip in the order they were/would be used
- How the fare was paid for the current trip



- Demographics, including
  - How many children under 14 are traveling in the group
  - Fare category
  - Number of trips made on the route and in the region in the past 30 days
  - If the respondent has a driver's license
  - How many working motorized vehicles are in the household
  - Ethnicity
  - Language spoken at home
  - How many people are in their household
  - Annual household income

## AVAILABLE LANGUAGES

The survey was translated and offered in a printed format in six languages: English, Traditional Chinese, Spanish, Tagalog, Korean, and Vietnamese. When interviewers encountered passengers with a language barrier, they were shown a “Language Handout”: a letter size piece of paper with the survey introduction translated into the five non-English languages listed above. The handout noted that the interviewer could provide a paper copy of the survey in one of those additional languages. The translated survey also included instructions for returning it by mail.

An example of the English questionnaire is found at the end of this report, in the Appendix.

## SAMPLING

In agreement with the sampling plans for the other Sound Transit vehicles, the study team developed a sampling plan for weekday travel on Tacoma Link between 6am and 9pm. Surveying was conducted on Mondays through Thursdays, with Friday surveying only when necessary.

**Table 1: Survey Blackout Dates**

DAY OF WEEK	DATE	HOLIDAY	TYPE OF HOLIDAY
Monday	February 18, 2019	Presidents' Day	Federal Holiday
Thursday (afternoon/evening)	February 14, 2019	Valentine's Day	Observance

For a standard OD, the study team recommended obtaining a sample of roughly 10 percent of average daily boardings to ensure enough data for analysis. Due to the short travel time of Tacoma Link transit vehicles (about 10 minutes) response rates are notably lower than what can be realized on the other Sound Transit services.

**Table 2: Survey Distribution Targets**

<b>Expected Average Daily Ridership</b>	<b>3,169</b>
<b># Completed Surveys Needed</b>	<b>317</b>
<b>Completes + Bad Surveys (discard 25%)</b>	<b>423</b>
<b>Estimated Response Rate</b>	<b>30%</b>
<b># Surveys to Distribute</b>	<b>1,408</b>
<b>Average Passengers per Trip</b>	<b>22</b>
<b>Approximate Number of Trips to Ride</b>	<b>64</b>

## DATA COLLECTION

### TRAINING

Interviewers and supervisors were extensively trained on the survey process for collecting interviews on board Tacoma Link trains. Training included the most effective strategies and best-practice language for approaching passengers, dealing with refusals, dealing with non-English respondents, counting, tallying, and responding to passengers with questions or other issues. Every interviewer and supervisor was provided with a complete training manual for reference during training and while on their shift.

Interviewers were provided an appropriate service apron, a messenger bag with dividers to contain and organize survey materials, and a packet containing interviewing materials prior to the start of their shift. The messenger bag provided an organizational system to keep track of collected and undistributed materials with internal separators, an attached clipboard to facilitate passenger counts and tally dispositions, and pockets for holding and accessing pencils.

Interviewers also received a set of materials that were assembled prior to the start of interviewing for all survey trips. Each interviewer received one set of materials per shift. The materials consisted of:

**Shift Envelope** – This was a large manila envelope with a shift cover sheet taped to the front. The cover sheet listed all materials within the shift envelope and provided information on their arrival time, information about the selected trips such as the run/route number, included materials for the surveyor, identified breaks and meal times, and any special information about the shift like a different ending location. It also included a map of the starting location for the shift. This also included an allotment of all surveys in all languages.

**Trip Sheet Clipboard** – This held the trip sheets and made it easier for the interviewers to record trip numbers, ons, refusals and children.

**Trip Sheet** – This sheet was contained inside the Trip Envelope and indicated where the trip started and ended and where an interviewer recorded ons, refusals, & children for each stop.

## EXECUTION PLAN

Up-to-date schedule data were obtained from Sound Transit along with ridership data to randomly sample trips. Trips were sampled proportional to ridership based on winter of 2018 ridership data. Because total ridership decreased and average daily boardings remained constant between 2017 and 2018, these data were not inflated. Tacoma Link was sampled roughly proportional to actual ridership by time of day, and direction. Each trip consisted of a grouping of stops along the selected routes. Based on the approved execution plan, a master fielding schedule was created. The master schedule contained detailed information for each interviewing team including starting location, ending location, duration of shift, number of trips per shift, route number and any additional special instructions for interviewers or field supervisors.

## INTERCEPTING RESPONDENTS

Every Tacoma Link car has three doors; two of these are double doors, and one is a single door. Three interviewers were assigned to each car and each one was assigned one door.

Counting boarding passengers and distributing surveys consisted of the following steps:

- First, all boarding passengers at each stop were counted. Each interviewer counted Ons from their assigned door.
  - There was one exception to the timing of counting Ons. At the first station of a trip interviewers boarded and counted any passengers who boarded with them as well as those who were already on board. They could begin distributing surveys immediately, however had to wait to record the final On count until AFTER the train had departed the station.
- Second, surveys were distributed in ascending numerical passcode order to all adult passengers (ages 14+). During distribution, refusals (including language barriers and children under the age of 14) were tracked and entered.
  - Surveys were handed out from the top of the interviewer's stack. Interviewers were instructed to accurately record top of stack at the beginning and end of each trip, AND to always hand out the surveys from the top of the stack.
  - In case of a soft initial refusal, interviewers were trained to encourage passengers to take the survey with them and mail it back using the Business Reply Mail stamp printed on each survey.
  - If the service was overcrowded to the point that interviewers could not circulate, every effort was made to distribute surveys to respondents. Interviewers passed survey materials to standing riders and asked that they be distributed to others on board.

- Third, survey materials were collected.

On each trip, interviewers followed a series of four general steps to distribute and collect surveys:

1. **Handed out the survey to all passengers.**
2. **Distributed language handout cards when necessary.** If someone did not speak English, interviewers were instructed to show them laminated language handout cards for them to look at while the interviewers continued distributing. Interviewers were instructed to give them the appropriate questionnaire when they completed distribution, refusals, and counting children under 14 years old.
3. **Kept a count of adults who refuse to take a questionnaire** in the refusal column on their trip sheet. Any children (passengers under age 14, by judgement) were also recorded in the refusal column.
4. **Collected questionnaires** when interviewers had time or if respondents handed them back to the interviewers. Interviewers were permitted to accept questionnaires from anyone on the car, even if the passenger wasn't in that interviewer's assigned section.

## COLLECTING AND TRACKING QUESTIONNAIRES

Unique passcodes were printed on all questionnaires. The first letter of the passcode corresponded to the service and where appropriate, language. The second letter indicated the direction of the train, in this case, north or south. Thus, a passcode beginning with 'TLE' is a Tacoma Link questionnaire in English. A passcode range was assigned to each service and each language within a service. An example of passcodes is shown below:

Tacoma Link English TLE 10000 to 29999

Every trip surveyed was assigned a specific range of English-language questionnaire passcodes. Interviewers received individual envelopes with the assigned questionnaires for every trip. They received a count of English questionnaires between 120% and 130% of expected boardings for the trip to account for trips that may exceed the typical passenger count.

At the end of the trip, interviewers were instructed to write the passcode of the survey on the top of their stack in the box marked "Top of stack survey passcode at end of trip" on the trip sheet of the trip they were ending.

Non-English questionnaire passcodes were handled using a unique process. Language surveys were printed with a perforated receipt which interviewers tore off from the larger survey when distributing and kept it for records. Just like all the other materials, this receipt was returned in the Trip Envelope at the end of each trip thus allowing us to tie each Language survey to the appropriate trip.

## INTERVIEWING OUTCOMES

In total, EMC interviewers approached 1,542 passengers aged 14 or older on the sampled trips. A total of 467 surveys were returned for an overall response rate of 30 percent. We surpassed our goal of surveying 10 percent of ridership. This response rate is lower than that obtained on the other Sound Transit services due to the very short trips taken by riders on Tacoma Link.

**Table 3: Interviewing Outcomes**

	Average Daily Boardings	Sample Target	Percentage of Ridership Targeted	# Approached (all over 14)	# of Surveys Distributed	# Refused	Total Completed Surveys	Percentage of Ridership Surveyed	Response Rate*
<b>Total</b>	3,169	317	10%	1,542	855	687	467	15%	30%
*Response rates are based upon the number of completed surveys divided by the number of respondents approached.									

## DATA CLEANING

Data cleaning was performed for three major categories: geocoding, path cleaning and other data cleaning required for paper data, including recoding and data-entry correction, and open-ended questions.

### GEOCODING

The geocoding process aimed to obtain the latitude and longitude for each location provided in the survey data. The geocoding process was conducted as follows:

- Initial address cleanup
  - Checked for misspelled city names that can be easily corrected
  - Filled in state where not provided
- Ran the addresses through batch geocoder for initial latitude/longitude assignment
  - The batch geocoded addresses were assigned a “match status” to determine the level of accuracy
- Inspected unmatched records, grouping and sorting of data to find consistent issues with the data that could be easily corrected and rerun through the batch geocoder
- Inspected matched records provided by the geocoder, with particular attention to records returning centroid matches or uncertain matches
  - Records with uncertain matches were reviewed to determine whether the match was accurate (based on other survey data, such as route used, business name provided, etc.)
  - Centroid matches at the city or ZIP level were also reviewed to determine if further cleaning of the address would result in a more accurate match
- Iterated on the process above until the majority of records were geocoded
- Once the batch geocoding was exhausted, time was devoted to cleaning and geocoding survey records manually to obtain more geocoded records
- If an origin location was not provided, but a boarding location was and the access mode was “walk,” it was assumed that the origin location was the same as the boarding location for the purpose of analysis
  - The reverse will also be true; if a boarding location was not provided but an origin location was and the access mode was “walk,” then it was assumed that the boarding location was the same as the origin
  - A similar logic was taken using the destination location and alighting locations



- If an origin or destination location was not provided and the location type was indicated as the airport, the location was coded to the Seattle/Tacoma International Airport.

Following this process, surveys with four geocoded locations were moved to the transit path cleaning phase.

## TRANSIT PATH CLEANING

Next, the records were reviewed to determine if the routes/lines reported were feasible given the origin and destination provided. This was done using a web-based cleaning tool that RSG built specifically for this purpose. This tool maps the origin, destination, boarding, and alighting locations along with the path for the reported routes/lines used for the trip and additional pertinent data including surveyed route, direction and access and egress modes.

All records were visually inspected by an analyst and particular attention was paid to records where:

- The origin and destination or the boarding and alighting stop were in the same location
- The origin and boarding stop or the destination and alighting stop were in the same location
- The access and egress distance was unreasonable (more than 1 mile walking or more than 10 miles biking)
- Routes were listed that were not in the list of possible routes in the Seattle/Tacoma areas

The key tasks that were conducted as part of this visual inspection included the following:

- Visually inspected the origin, destination, boarding, and alighting locations with respect to the route used;
- Ensured the route where the survey was received was included in the trip path;
- Visually inspected the direction traveled with regards to the direction recorded by surveyors in the field;
- Visually inspected the sensibility of the origin-to-destination path with respect to the transit routes/lines that were used for the trip and the order they were used in;
- Visually inspected the routes/lines used with regard to the feasibility of transferring between the different routes/lines; and
- Visually inspected the routes reported being used for the trip.

The analyst was able to switch the boarding and alighting locations and the origin and destination locations as well as add and remove routes from the transit path so that the final transit path was a feasible representation of the survey data.

Records were marked as bad when the transit path was determined to be infeasible or, more likely, incomplete based on the survey data.

Finally, each geocoded boarding and alighting location was associated with an actual station/stop on systems. For example, if the respondent took a bus, the boarding location was matched to the closest bus stop on the route and direction used to the provided boarding location. This station/stop assignment played an important role in the weighting/expansion process.

## WEIGHTING

Data were weighted and expanded to ridership data using an iterative proportional fit (IPF) process with the On-to-Off data used as the seed matrix. Survey data were weighted and expanded to match ridership data along the following dimensions:

- Time of day (AM peak, Midday Off-peak PM peak and Evening Off-peak)
- Route
- Direction
- Boarding segment
- Alighting segment

The IPF technique assigns a weight to each cell in a joint distribution so that the sum of each dimension matches the targeted marginal totals. IPF was used for each combination of direction and time of day to estimate boarding and alighting pair totals from the boarding counts and alighting counts in the provided automatic passenger count (APC) data.

## SEGMENTATION

Because certain Tacoma Link stops have lower volumes, particularly in off-peak times, some aggregation of stops into “stop segments” was necessary to ensure sample sizes were adequate in each cell for the weighting process. To that end, the Tacoma Link was segmented by groups of stops in order to accurately reflect ridership and reduce any potential survey response biases. Segments were assigned based on a combination of geography and the surveys that were collected from each route so that there were some boardings and alightings in each segment at each time period.

## FINAL WEIGHTS AND EXPANSION

Following the IPF procedure described above, the expanded weights were attached to each useable record in the dataset. Table 4 shows a summary of the number of useable surveys, average weekday ridership on the surveyed portion of the route and average weight.

**Table 4: Average Weights of Rail Routes**

DIRECTION	NUMBER OF USABLE SURVEYS COLLECTED	AVERAGE WEEKDAY RIDERSHIP	AVERAGE EXPANDED WEIGHT
Northbound	168	1,627	9.68
Southbound	92	1,441	15.67
All Directions	260	3,068	11.8

### LINKED TRIP WEIGHT

A linked trip weight was calculated for all Sound Transit routes surveyed in Spring of 2019. This includes Sounder and Express Bus routes in addition to the Tacoma Link to account for transfers being made among this collection of routes. This weight is based on the number of transfers made using one of the sampled Sounder routes, Express Bus routes and Tacoma Link. A respondent making no transfers to another sampled route would receive a linked trip weight of 1, while a respondent who transferred to one other sampled route would have a weight of 0.5, and so on. This weight was then multiplied by the final unlinked trip weight to obtain a final linked trip weight. When reporting and interpreting data using this weight, one is reporting linked trips among the sampled routes instead of individual boardings.

Analyses conducted using the linked trip weight represent individual passengers among the sampled routes and account for transfer activity between the routes. This weight should be applied when analyzing markets so that riders making transfers are not counted multiple times, but should not be applied when analyzing a single route, as would be the case with Tacoma Link only analysis.

Those using the data should carefully consider which weight to use depending on the analysis they are conducting and how they will use the data. The tables and charts included in this report provide an initial look at the data using the unlinked weight.

**Table 5: Final Tacoma Link Sample Sizes – Weighted And Unweighted\***

		AM Peak Northbound	AM Peak Southbound	PM Peak Northbound	PM Peak Southbound	Midday Off-Peak Northbound	Midday Off-Peak Southbound	Evening Off-Peak Northbound	Evening Off-Peak Southbound	Total
<b>Tacoma Link</b>	Valid Unweighted n	50	19	51	37	55	28	12	8	260
	Unlinked Weight n	307	162	417	510	790	661	112	107	3,068
	Linked Weight n	293	142	352	478	756	611	93	98	2,824
		<i>*Weighted values vary up to 0.01 percent from table to table due to slightly different rounding methods.</i>								

## ALL TACOMA LINK TRIPS

### RIDER DEMOGRAPHICS

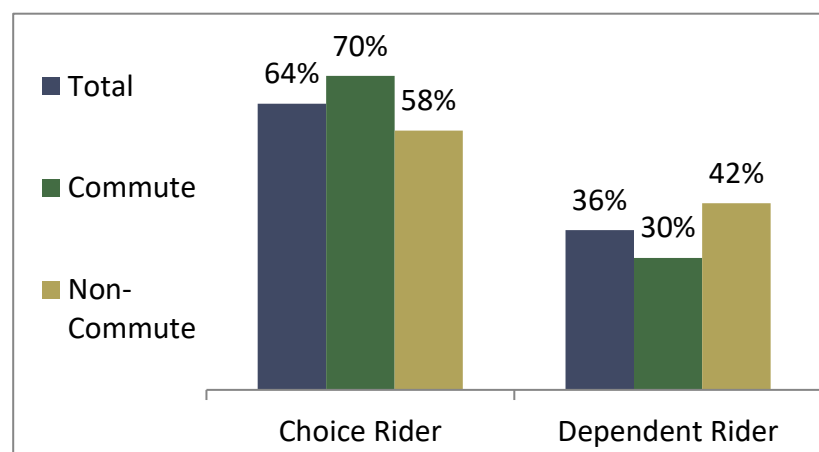
Over one third of Tacoma Link riders are not choice riders (36%). This large minority of riders includes those who do not have driver's licenses, those with no vehicle access, and those with neither a driver's license nor vehicle access.

- Commuters are much more likely to be choice riders than non-commuters. Most commuters have both a driver's license and vehicle access (78%). By contrast, over a third of non-commuters do not have either a driver's license or access to a vehicle (36%).
- Northbound riders are less likely to be choice riders, with only 68 percent of northbound riders having access to both a license and vehicle compared to 73 percent of southbound riders.
- Riders during the AM and PM peak periods are more likely than average to be choice riders, with eight out of ten having both a license and vehicle access (81% of AM peak riders, 82% of PM peak riders). Off-peak riders are the most likely to be dependent on public transit, with only 59 percent of evening off peak riders and 62 of midday off peak riders having both a license and vehicle access.

**TABLE 6: RIDER DEMOGRAPHICS BY TRIP PURPOSE, DIRECTION, AND TIME PERIOD**

	<i>Trip Purpose</i>			<i>Direction</i>		<i>Time Period</i>			
	Total	Commute	Non-Commute	Southbound	Northbound	AM Peak	PM Peak	Midday Off Peak	Evening Off Peak
<b>Annual Household Income</b>	<b>N=2,401</b>	<b>1,220</b>	<b>1,182</b>	<b>1,197</b>	<b>1,203</b>	<b>388</b>	<b>722</b>	<b>1,114</b>	<b>177</b>
Less than \$50,000	47%	39%	56%	49%	46%	45%	47%	51%	33%
\$50,000 to \$74,999	12%	15%	9%	15%	10%	16%	15%	7%	28%
\$75,000 to \$99,999	18%	22%	15%	16%	21%	8%	15%	23%	28%
\$100,000 or more	22%	24%	20%	21%	23%	31%	23%	19%	11%
<b>Driver's License</b>	<b>N=2,875</b>	<b>1,407</b>	<b>1,469</b>	<b>1,398</b>	<b>1,477</b>	<b>458</b>	<b>845</b>	<b>1,381</b>	<b>191</b>
% with Current Driver's License	82%	93%	72%	82%	83%	86%	87%	78%	84%
<b>Vehicles in Household</b>	<b>N=2,811</b>	<b>1,370</b>	<b>1,441</b>	<b>1,375</b>	<b>1,436</b>	<b>439</b>	<b>844</b>	<b>1,329</b>	<b>199</b>
% with Vehicle in Household	77%	82%	72%	76%	78%	86%	82%	73%	65%
<b>Choice Riders</b>	<b>N=2,778</b>	<b>1,367</b>	<b>1,411</b>	<b>1,374</b>	<b>1,403</b>	<b>439</b>	<b>825</b>	<b>1,329</b>	<b>185</b>
Has Driver's License & Vehicle Access	71%	78%	64%	73%	68%	81%	82%	62%	59%
Has Driver's License, No Vehicle Access	12%	15%	10%	10%	15%	7%	6%	16%	28%
No Driver's License, Has Vehicle Access	7%	4%	9%	2%	11%	4%	2%	11%	3%
No Driver's License & No Vehicle Access	10%	3%	17%	14%	6%	8%	10%	11%	10%

**Figure 1: Commuter by Choice Rider Status**



The figure to the left illustrates the difference in commuter status by an ability to choose rather than depend on public transportation. Seven-in-ten commuters are choice riders (70%) compared to just over half of non-commuters (58%). Note: percentages of Choice riders differ between Table 6 and Figure 1 due to differences in total number of trips calculated.

## TRIP PURPOSE

Half of Tacoma Link riders are commuters (49%). Table 7 below shows that the ratio holds among both southbound and northbound riders.

**Table 7: Trip Purpose by Direction**

		All Trips	Southbound	Northbound
<b>Commute</b>	%	49%	45%	53%
	N	1,510	646	864
<b>Non-commute</b>	%	51%	55%	47%
	N	1,558	795	763
<b>TOTAL</b>	N	3,068	1,441	1,627

Although overall daily ridership is fairly evenly distributed across southbound and northbound Tacoma Link trips, Table 9, reflecting a commuting pattern, shows different ridership levels during peak periods.

As expected, ridership during peak periods is dominated by commuters. Over seven in ten AM peak riders are commuters (71%), and slightly fewer PM peak riders are commuters (60%). A much smaller number of off peak riders are commuters (37% midday off peak, 41% evening off peak).

**Table 8: Trip Purpose by Time Period**

		All Trips	AM Peak	PM Peak	Midday Off Peak	Evening Off Peak
<b>Commute</b>	%	49%	71%	60%	37%	41%
	N	1,510	332	558	530	90
<b>Non-commute</b>	%	51%	29%	40%	63%	59%
	N	1,558	137	369	922	130
<b>TOTAL</b>	N	3,068	469	927	1,452	220

The table below illustrates that during the morning peak period, the large majority rides in the northbound direction (65%). During the evening peak period, the majority of riders are going southbound toward the Tacoma Dome Station (55%).

**Table 9: Direction by Time Period**

		All Trips	AM Peak	PM Peak	Midday Off Peak	Evening Off Peak
<b>Southbound</b>	%	47%	35%	55%	46%	49%
	N	1,440	162	510	661	107
<b>Northbound</b>	%	53%	65%	45%	54%	51%
	N	1,626	307	417	790	112
<b>TOTAL</b>	N	3,066	469	927	1,451	219



## ORIGIN AND DESTINATION

A majority of Tacoma Link trips originate at home (35%) or at work (28%). One-fifth of Tacoma Link riders begin their trip at school (20%).

**Table 10: Origin by Direction**

		All Trips	Southbound	Northbound
<b>Home</b>	%	35%	23%	45%
	N	1,038	319	719
<b>Work</b>	%	28%	36%	22%
	N	847	502	345
<b>School</b>	%	20%	21%	19%
	N	601	296	305
<b>Shopping</b>	%	1%	0%	2%
	N	44	6	38
<b>Other</b>	%	16%	20%	12%
	N	469	281	188
<b>TOTAL</b>	N	2,999	1,404	1,595

A much higher proportion of trips in the northbound direction than in the southbound direction are started from home. In the southbound direction, a plurality of trips (36%) begin at the rider's workplace, and another quarter of trips begin at the rider's home (23%). For riders traveling northbound on Tacoma Link, almost half of trips begin at home (45%) and two in ten trips begin at work (22%).

**Table 11: Origin by Time Period**

		All Trips	AM Peak	PM Peak	Midday Off Peak	Evening Off Peak
<b>Home</b>	%	35%	70%	20%	32%	35%
	N	1,038	326	185	458	69
<b>Work</b>	%	28%	8%	47%	23%	24%
	N	847	39	431	330	47
<b>School</b>	%	20%	11%	21%	22%	26%
	N	601	49	196	306	50
<b>Shopping</b>	%	1%	1%	2%	2%	1%
	N	43	4	16	22	1
<b>Other</b>	%	16%	10%	10%	21%	15%
	N	469	45	92	303	29
<b>TOTAL</b>	N	2,998	463	920	1,419	196

Origin patterns unsurprisingly diverge by time of day. During the AM peak period, the vast majority of riders begin their journey at home (70%), and only 8 percent of trips start at work. By contrast, a plurality of riders during the PM peak period begin their journey at work (47%), although another 20 percent start from home during the PM peak period as well.

The proportion of riders starting their trips at school is higher during the midday off peak period (22%) and evening off peak period (26%) than during the AM peak period (11%).

**Table 12: Destination by Direction**

		All Trips	Southbound	Northbound
<b>Home</b>	%	30%	37%	23%
	N	881	518	363
<b>Work</b>	%	27%	19%	34%
	N	790	257	533
<b>School</b>	%	18%	9%	25%
	N	517	129	388
<b>Shopping</b>	%	7%	10%	5%
	N	216	134	82
<b>Other</b>	%	19%	25%	13%
	N	548	347	201
<b>TOTAL</b>	N	2,952	1,385	1,567

The most frequent destination of Tacoma Link riders is home, with three in ten headed home (30%). The second most frequent destination is work (27%).

There are differences in destination patterns by direction. A plurality of southbound riders are headed home (37%), with another two out of ten headed to work (19%). By contrast, a plurality of northbound riders are headed to work (34%). Another quarter of riders headed north are on their way to school (25%), and 23 percent are headed home.

**Table 13: Destination by Time Period**

		All Trips	AM Peak	PM Peak	Midday Off Peak	Evening Off Peak
<b>Home</b>	%	30%	10%	58%	15%	49%
	N	881	49	536	206	90
<b>Work</b>	%	27%	67%	14%	24%	10%
	N	790	314	130	328	18
<b>School</b>	%	18%	15%	6%	27%	10%
	N	518	71	51	378	18
<b>Shopping</b>	%	7%	0%	3%	11%	19%
	N	216	0	31	151	34
<b>Other</b>	%	19%	7%	19%	23%	12%
	N	548	35	176	315	22
<b>TOTAL</b>	N	2,953	469	924	1,378	182

Ridership patterns differ by time period as well. The overwhelming majority of AM peak riders are commuters, with over two thirds headed to work (67%) and another 15 percent headed to school.

Riders during the PM peak period, by comparison, are much less likely to be headed to work, with only 14 percent destined for their workplace. A majority of PM peak riders are on their way home (58%).

## COMBINED ORIGIN AND DESTINATION

Table 14 below illustrates both origins and destinations in one table, so that each cell represents the proportion of trips within a given origin type that end at a given destination type. The table demonstrates that a large majority of Tacoma Link riders who start their trip from home are commuters. More than three out of four riders who start at home are riding to work (60%) or school (18%). Yet, the ridership patterns show that Tacoma Link is by no means exclusively serving commuters. Nearly a quarter of all riders who start at home are headed to some destination other than work or school.

A plurality of people who are commuting from work or school are headed directly home. Among those who begin their trip at work, over half are headed home (56%). Similarly, just under half of riders who start their journey at school are headed directly home (49%). Many of the riders coming from school are heading to another school activity or location (33%).

**Table 14: Combined Origins and Destinations – All Trips**

Started Trip at:		Ended Trip at:					Total Known*
		Home	Work	School	Shopping	Other	
<b>Home</b>	%	4%	60%	18%	8%	10%	33%
	#	39	575	173	76	101	964
<b>Work</b>	%	56%	9%	2%	8%	25%	29%
	#	475	73	17	69	213	847
<b>School</b>	%	49%	2%	33%	6%	9%	20%
	#	287	14	191	35	53	580
<b>Shopping</b>	%	14%	61%	0%	0%	25%	2%
	#	6	27	0	0	11	44
<b>Other</b>	%	16%	16%	27%	7%	34%	16%
	#	74	76	127	35	158	470
* Excluded unknown trip origins where respondent gave no answer or an address location rather than a type of origination point.							

Among southbound trips, the majority of riders who start their trip at home are commuters. Six of ten trips that begin at home end at work (57%). However, a substantial minority of riders who start at home are riding to go shopping (25%).

The table below also demonstrates that, among southbound riders, many commuters coming from work or school are taking the Tacoma Link directly home. Just over half of commuters from work are headed home (55%), and 72 percent of riders from school head directly home.

**Table 15: Combined Origins and Destinations – Southbound**

Started Trip at:		Ended Trip at:					Total Known*
		Home	Work	School	Shopping	Other	
<b>Home</b>	%	0%	57%	0%	25%	18%	22%
	#	0	170	0	76	53	299
<b>Work</b>	%	55%	5%	0%	12%	28%	37%
	#	277	27	0	58	140	502
<b>School</b>	%	72%	0%	19%	0%	9%	20%
	#	200	0	52	0	25	277
<b>Shopping</b>	%	100%	0%	0%	0%	0%	0%
	#	6	0	0	0	0	6
<b>Other</b>	%	13%	15%	27%	0%	46%	21%
	#	36	41	76	0	129	282
* Excluded unknown trip origins where respondent gave no answer or an address location rather than a type of origination point.							

As with southbound riders, we see that a large majority of riders starting their trip from home are commuters to work (61%), however the next largest destination is school (26%). The ridership data also shows that a majority of riders starting from work are headed home (58%).

**Table 16: Combined Origins and Destinations – Northbound**

Started Trip at:		Ended Trip at:					Known Total
		Home	Work	School	Shopping	Other	
Home	%	6%	61%	26%	0%	7%	43%
	#	39	405	173	0	48	665
Work	%	58%	13%	5%	3%	21%	22%
	#	199	46	17	11	72	345
School	%	29%	5%	46%	11%	10%	20%
	#	88	14	139	35	29	305
Shopping	%	0%	71%	0%	0%	29%	2%
	#	0	27	0	0	11	38
Other	%	20%	19%	27%	19%	15%	12%
	#	38	35	51	35	29	188
* Excluded unknown trip origins where respondent gave no answer or an address location rather than a type of origination point.							

## ORIGIN AND DESTINATION STOP PAIRS

The table below shows the distribution of daily ridership for each origin and destination stop pair. Each cell represents the number of daily trips travelling between a given origin and destination stop pair or the total overall percentage of trips that pair makes up. Overall, the plurality of trips start at the Tacoma Dome station (33%). The second most popular origin is Union Station (22%), followed by Theater District (13%). The Tacoma Dome station is also the most popular destination, with a plurality of trips ending there (28%). Among trips that start at the Tacoma Dome station, the most popular destination is Commerce Street, with 44 percent of trips starting at Tacoma Dome and ending at Commerce Street.

**Table 17: Origin and Destination Stop Pairs – All Trips**

Started Trip at:		Ended Trip at:						
		Theater District	Commerce Street	Convention Center	Union Station	S. 25th Street	Tacoma Dome	Total Known*
Theater District	%	0%	0%	0%	39%	23%	38%	13%
	#	0	0	0	157	93	154	404
Commerce St.	%	0%	0%	0%	0%	37%	63%	12%
	#	0	0	0	0	133	224	357
Convention Center	%	2%	0%	0%	0%	54%	44%	10%
	#	5	0	0	0	164	133	302
Union Station	%	24%	15%	4%	0%	4%	53%	22%
	#	160	103	28	0	25	357	673
S. 25 <sup>th</sup> Street	%	56%	22%	22%	0%	0%	0%	11%
	#	184	73	74	0	0	0	331
Tacoma Dome	%	16%	44%	12%	28%	0%	0%	33%
	#	163	437	121	276	0	0	997
Total	%	17%	20%	7%	14%	14%	28%	100%
	#	512	613	223	433	415	868	3,064
*Excluded unknown trips where respondent gave no alighting station.								

## ORIGIN AND DESTINATION STOP PAIRS - SOUTHBOUND

The table below shows origin and destination stop pairs for Southbound riders. In the morning, Theater District is the most popular starting station (28% of riders start here), closely followed by Union Station (27%) and Commerce Street (25%). Six in ten Southbound trips end at Tacoma Dome station (60%). Over a quarter of trips ends at S. 25<sup>th</sup> Street (29%), and another 11 percent of trips end at Union Station.

**Table 18: Origin and Destination Stop Pairs – Southbound**

Started Trip at:	Ended Trip at:							
		Theater District	Commerce Street	Convention Center	Union Station	S. 25th Street	Tacoma Dome	Total Known*
Theater District	%	0%	0%	0%	39%	23%	38%	28%
	#	0	0	0	157	93	154	404
Commerce St.	%	0%	0%	0%	0%	37%	63%	25%
	#	0	0	0	0	133	224	357
Convention Center	%	0%	0%	0%	0%	55%	45%	21%
	#	0	0	0	0	164	133	297
Union Station	%	0%	0%	0%	0%	7%	93%	27%
	#	0	0	0	0	25	357	382
S. 25 <sup>th</sup> Street	%	0%	0%	0%	0%	0%	0%	0%
	#	0	0	0	0	0	0	0
Tacoma Dome	%	0%	0%	0%	0%	0%	0%	0%
	#	0	0	0	0	0	0	0
Total	%	0%	0%	0%	11%	29%	60%	100%
	#	0	0	0	157	415	868	1440
*Excluded unknown trips where respondent gave no alighting station.								

## ORIGIN AND DESTINATION STOP PAIRS - NORTHBOUND

The table below shows origin and destination stop pairs for all Northbound riders. Northbound patterns reflect a reversal of the Southbound trips. About six in ten Northbound trips start at Tacoma Dome (61%). A majority of the remaining trips begin at either S. 25<sup>th</sup> Street (20%) or Union station (18%). A plurality of northbound trips end at Commerce Street (38%), and 32 percent end at Theater District.

**Table 19: Origin and Destination Stop Pairs – Northbound**

Started Trip at:		Ended Trip at:						
		Theater District	Commerce Street	Convention Center	Union Station	S. 25th Street	Tacoma Dome	Total Known*
Theater District	%	0%	0%	0%	0%	0%	0%	0%
	#	0	0	0	0	0	0	0
Commerce St.	%	0%	0%	0%	0%	0%	0%	0%
	#	0	0	0	0	0	0	0
Convention Center	%	100%	0%	0%	0%	0%	0%	0%
	#	5	0	0	0	0	0	5
Union Station	%	55%	35%	10%	0%	0%	0%	18%
	#	160	103	28	0	0	0	291
S. 25 <sup>th</sup> Street	%	56%	22%	22%	0%	0%	0%	20%
	#	184	73	74	0	0	0	331
Tacoma Dome	%	16%	44%	12%	28%	0%	0%	61%
	#	163	437	121	276	0	0	997
Total	%	32%	38%	14%	17%	0%	0%	100%
	#	512	613	223	276	0	0	1,624
*Excluded unknown trips where respondent gave no alighting station.								



## ACCESS AND EGRESS MODE

**Table 20: Access Mode**

Access Mode	Started Trip at:					
	Total	Home	Work	School	Shopping	Other
Walked	66%	42%	87%	67%	70%	77%
Drove alone	25%	47%	5%	21%	30%	20%
Dropped off (friend/family)	3%	5%	3%	2%	0%	1%
Dropped off (Uber/Lyft/Taxi)	1%	1%	2%	0%	0%	0%
Carpool	2%	1%	0%	7%	0%	0%
Bicycle	1%	1%	1%	0%	0%	0%
Other	2%	2%	1%	2%	0%	3%
	100%	100%	100%	100%	100%	100%
Total	(2,888)	(946)	(847)	(581)	(44)	(470)

The table above shows that about two thirds of Tacoma Link riders get to their first stop by walking (66%), with another one quarter driving themselves (25%).

Those starting their trip at home disproportionately drive alone, with half of home-origin trips relying on single-person driving (47%). On the other hand, walking accounts for a disproportionately large share of trips started from non-home origins, including almost nine in ten trips starting from work (87%) and seven in ten from shopping (70%).

**Figure 2: Access Parking Fees**

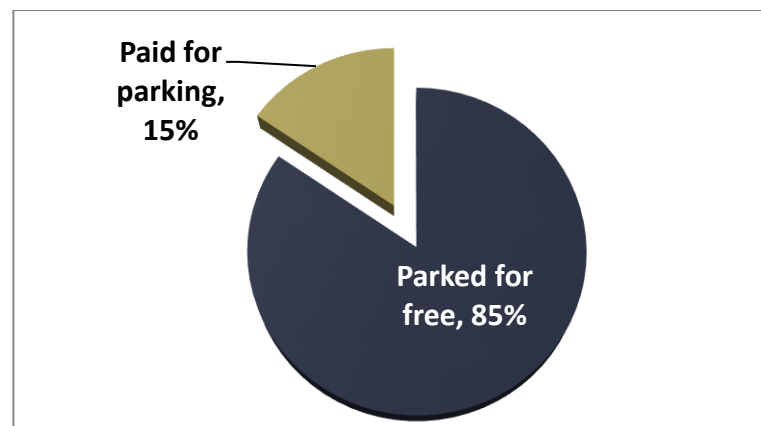


Figure 2 illustrates that, among those who parked at their point of access, 15 percent paid for parking.

**Table 21: Egress Mode**

Egress Mode	Ended Trip at:					
	Total	Home	Work	School	Shopping	Other
Walked	71%	57%	76%	75%	95%	77%
Drove alone	18%	34%	7%	21%	0%	13%
Picked up (friend/family)	2%	2%	3%	0%	0%	4%
Picked up (Uber/Lyft/Taxi)	1%	2%	1%	0%	0%	1%
Carpool	4%	3%	10%	2%	0%	0%
Bicycle	1%	1%	1%	0%	0%	0%
Other	3%	2%	2%	1%	5%	6%
	100%	100%	100%	100%	100%	100%
Total	(2,901)	(822)	(790)	(510)	(185)	(534)

Table 21 provides data on the distribution of mode of egress overall and by destination type. The vast majority of riders walk to their destination across all destination types. Seven in ten riders walk from their final stop to their destination (71%). Another large minority (18%) drives alone to their destination. Relatively small minorities arrive at their destinations by modes other than walking or driving alone.

Generally, most Tacoma Link riders drive alone or walk both to their origin stop and final destination. Slightly more riders walk to their destination (71%) than walk from their origin (66%).

**Figure 3: Egress Parking Fees**

Figure 3 shows that, among those who parked at their point of egress, less than one in ten reported paying for parking.

## TRANSFERRING

Respondents were asked to list the numbers of all buses and trains taken on the sampled one-way trip. Data from these questions were used to determine the number of transfers riders traveling on Tacoma Link currently make to complete their trip.

**Figure 4: Percentage of Transferring Tacoma Link Riders**

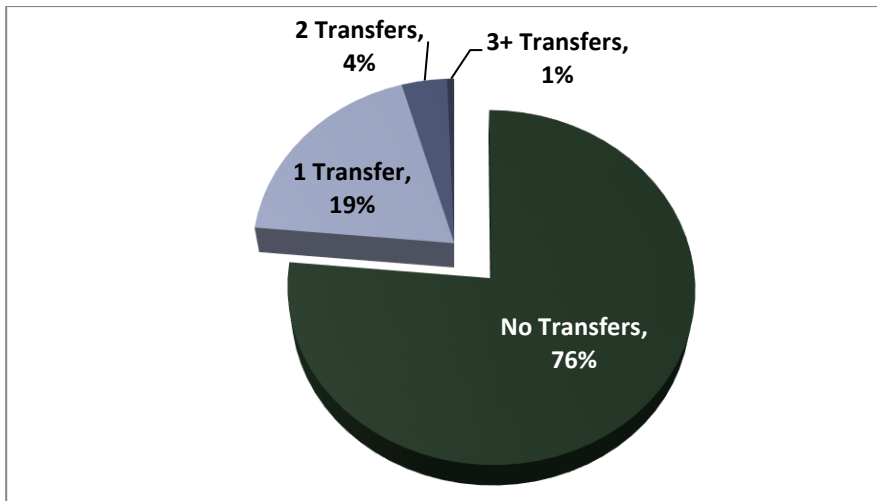


Figure 4 shows that, on average, three quarters (76%) of Tacoma Link riders make no transfers to get from their origin point to their destination point.

There are significant differences in transfer trends between commuters and non-commuters. Almost nine in ten non-commuters (89%) make no transfers, compared to only 64% of commuters who do not have to make a transfer

**Table 22: Transfers by Trip Purpose**

	Total	Commute	Non-Commute
No Transfers	76%	64%	89%
1 Transfer	19%	29%	9%
2 Transfers	4%	6%	1%
3+ Transfers	1%	0%	1%
Total	100% (3,067)	100% (1,510)	100% (1,557)

Transfers are fairly evenly distributed by direction. Northbound riders reported riding slightly more Sound Transit services than southbound riders.

**Table 23: Transfers by Direction**

	Total	Southbound	Northbound
No Transfers	76%	80%	73%
1 Transfer	19%	16%	22%
2 Transfers	4%	3%	4%
3+ Transfers	1%	1%	0%
Total	100% (3,068)	100% (1,441)	100% (1,627)

**Table 24: Transfers by Time Period**

	<b>Total</b>	<b>AM Peak</b>	<b>PM Peak</b>	<b>Midday Off Peak</b>	<b>Evening Off Peak</b>
<b>No Transfers</b>	76%	82%	66%	82%	73%
<b>1 Transfer</b>	19%	11%	26%	17%	21%
<b>2 Transfers</b>	4%	7%	8%	0%	3%
<b>3+ Transfers</b>	1%	0%	0%	1%	3%
<b>Total</b>	100%	100%	100%	100%	100%
	(3,067)	(469)	(928)	(1,451)	(219)

Over eight in ten Tacoma Link riders during the AM peak and midday off peak periods make no transfers (82%).

Lower income passengers appear in Table 25 to be more likely to make at least one transfer. Almost a third of passengers with incomes below \$50,000 make at least one transfer (30%). By contrast, only 18 percent of respondents earning over \$100,000 make at least one transfer.

**Table 25: Transfers by Income**

	<b>All Trips</b>	<b>Less than \$50,000</b>	<b>\$50,000 to \$74,999</b>	<b>\$75,000 to \$99,999</b>	<b>\$100,000 or more</b>
<b>No Transfers</b>	76%	70%	72%	78%	82%
<b>1 Transfer</b>	19%	23%	23%	16%	14%
<b>2 Transfers</b>	4%	5%	5%	5%	4%
<b>3+ Transfers</b>	1%	2%	0%	0%	0%
<b>Total</b>	100%	100%	100%	100%	100%
	(2,400)	(1,139)	(294)	(444)	(523)

## APPENDIX

### QUESTIONNAIRE EXAMPLE

-----fold here if mailing-----

**Sound Transit needs your help** to understand how people are using transit.  
Please help by taking this survey.



**If you can't take the survey now, you can return it by mail.**

**Passcode: TLE**

#### INSTRUCTIONS

Please answer only about this particular **ONE-WAY TRIP**. Examples of a **ONE-WAY TRIP** are:

	<u>START (Question 1)</u>		<u>END (Question 4)</u>
Example 1:	Home	to	Work
Example 2:	Shopping	to	Home
Example 3:	Work	to	Appointment

**NOTE:** your **ONE-WAY TRIP** may be different from these examples.

#### START of this ONE-WAY TRIP

**1. Where did you first START your ONE-WAY TRIP? Are you coming from:** *(Check only one)*

- ☐ Work ☐ Home ☐ Airport *(for travel/passenger pick-up, not work)*  
☐ School/College *(as a student)* ☐ Shopping ☐ Other: \_\_\_\_\_

**2. What is the address of your STARTING location from Question 1?**

*(Address OR Cross Streets, ex: 123 Main St NE OR 5th Ave & Pine St)*

Street Address **OR** Cross Streets: \_\_\_\_\_

City: \_\_\_\_\_ ZIP Code: \_\_\_\_\_

Landmark/Business Name (if applicable): \_\_\_\_\_

**3A. How did you get from your STARTING location to the very FIRST transit vehicle on this ONE-WAY TRIP?**

- ☐ Walked/wheelchair (# of blocks: \_\_\_\_\_)  
☐ Dropped off by friend or family member  
☐ Dropped off by Uber/Lyft/Taxi  
☐ Drove alone (Parking location: ☐ Transit parking lot/Garage ☐ On Street ☐ Other: \_\_\_\_\_)  
☐ Carpool/Vanpool and parked (Location: ☐ Transit parking lot/Garage ☐ On Street ☐ Other: \_\_\_\_\_)  
☐ Bicycled (# of miles: \_\_\_\_\_)  
☐ Other: \_\_\_\_\_

**3B. If you parked a car, how much did you/will you pay for parking?** \$ \_\_\_\_ . \_\_\_\_ ☐ Per day **OR** ☐ Per month

**CONTINUE ON BACK**

## END of this ONE-WAY TRIP

4. Where will you finally END this ONE-WAY TRIP? This should NOT be the same place as your trip START.

Are you going to: (Check one) ☐ Work ☐ Home ☐ Airport (for travel/passenger pick-up, not work)  
☐ School/College (as a student) ☐ Shopping ☐ Other: \_\_\_\_\_

5. What is the address of your ENDING location in Question 4? (Address OR Cross Streets, ex: 123 Main St NE OR 5th Ave & Pine St)

Street Address OR Cross Streets: \_\_\_\_\_

City: \_\_\_\_\_ ZIP Code: \_\_\_\_\_

Landmark/Business Name (if applicable): \_\_\_\_\_

6A. How will you get from your very LAST transit vehicle to your ENDING location for this ONE-WAY TRIP?

☐ Walk/wheelchair (# of blocks): \_\_\_\_\_  
☐ Get picked up by friend or family member  
☐ Get picked up Uber/Lyft/Taxi  
☐ Drive alone (Parking location: ☐ Transit parking lot/Garage ☐ On Street ☐ Other: \_\_\_\_\_)  
☐ Carpool/Vanpool from parked vehicle (Location: ☐ Transit parking lot/Garage ☐ On Street ☐ Other: \_\_\_\_\_)  
☐ Bicycle (# of miles: \_\_\_\_\_) ☐ Other: \_\_\_\_\_

6B. If you parked a car, how much will you pay for parking? \$ \_\_\_\_\_. ☐ Per day OR ☐ Per month

## ROUTES AND FARES

7 & 8. What station did you get ON this train, and what station will you get OFF this train?

	I got ON Link at	I got/will get OFF Link at
Tacoma Dome Station	<input type="checkbox"/>	<input type="checkbox"/>
S. 25 <sup>th</sup> Station	<input type="checkbox"/>	<input type="checkbox"/>
Union Station/ S. 19 <sup>th</sup>	<input type="checkbox"/>	<input type="checkbox"/>
Convention Ctr Station/ S. 15 <sup>th</sup>	<input type="checkbox"/>	<input type="checkbox"/>
Commerce St Station/ S. 11 <sup>th</sup>	<input type="checkbox"/>	<input type="checkbox"/>
Theater District Station/ S. 9 <sup>th</sup>	<input type="checkbox"/>	<input type="checkbox"/>

9. List all transit vehicles in the exact order that you will use (or are using them) to make this ONE-WAY TRIP, including this train

First I used:	Second, (transfer) I used:	Third, (transfer) I used:
<input type="checkbox"/> Bus Rt # _____	<input type="checkbox"/> Bus Rt # _____	<input type="checkbox"/> Bus Rt# _____
<input type="checkbox"/> Link light rail	<input type="checkbox"/> Link light rail	<input type="checkbox"/> Link light rail
<input type="checkbox"/> Sounder	<input type="checkbox"/> Sounder	<input type="checkbox"/> Sounder
<input type="checkbox"/> Paratransit/Access	<input type="checkbox"/> Paratransit/Access	<input type="checkbox"/> Paratransit/Access
<input type="checkbox"/> Ferry (WSF)	<input type="checkbox"/> Ferry (WSF)	<input type="checkbox"/> Ferry (WSF)
<input type="checkbox"/> First Hill Streetcar	<input type="checkbox"/> First Hill Streetcar	<input type="checkbox"/> First Hill Streetcar
<input type="checkbox"/> Tacoma Link	<input type="checkbox"/> Tacoma Link	<input type="checkbox"/> Tacoma Link
<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____

10A. If you have an ORCA card, was it provided by your employer? ☐ Yes ☐ No ☐ Don't have ORCA

10B. Have you already taken this survey on Tacoma Link? ☐ Yes ☐ No

## ABOUT YOU

**11A. Are you traveling with any children who are not filling out the survey?**

(If several people are traveling together please only one person per group answer this question.)

☐ No (Skip to Question 12)

☐ Yes, Continue →→→ **11B. Number of children in your group ages 0 to 5:** \_\_\_\_\_

**11C. Number of children in your group ages 6 to 13:** \_\_\_\_\_

**12. What is your rider category?** ☐ Adult (Age 19-64) ☐ Youth (Age 6-18) ☐ Senior (Over 65) ☐ Disabled ☐ ORCA LIFT

**13. During the last 30 days, how many ONE-WAY TRIPS did you make on:**

☐ Tacoma Link: \_\_\_\_\_ ☐ Any transit route in the region: \_\_\_\_\_ ☐ First time riding transit in this region

**14. Do you have a current driver's license?** ☐ Yes ☐ No

**15. How many working motorized vehicles are there in your household?** \_\_\_\_\_

**16. Do you identify yourself as a member of any of the following ethnic groups? (Check all that apply)**

☐ Caucasian/White ☐ Black or African American ☐ Middle Eastern or North African ☐ Hispanic or Latino/a

☐ Asian Indian ☐ Asian/Asian American ☐ Native Hawaiian or Pacific Islander

☐ American Indian or Alaskan Native ☐ Other: \_\_\_\_\_ ☐ None

**17. What languages are regularly spoken in your home?** ☐ English ☐ Spanish ☐ Vietnamese

☐ Cantonese ☐ Mandarin ☐ Russian ☐ Somali ☐ Korean ☐ Tagalog ☐ Other: \_\_\_\_\_

**18. How many people live in your household, including yourself?**

☐ One (I live alone) ☐ Two ☐ Three ☐ Four ☐ Five ☐ Six or more

**19. What was your total annual household income before taxes in 2018? (Please check only one)**

☐ Under \$12,000 ☐ \$12,000-15,999 ☐ \$16,000-19,999 ☐ \$20,000-23,999 ☐ \$24,000-32,999

☐ \$33,000-41,999 ☐ \$42,000-49,999 ☐ \$50,000-57,999 ☐ \$58,000-65,999 ☐ \$66,000-74,999

☐ \$75,000-99,999 ☐ \$100,000 or more ☐ I prefer not to say

## CROSSTABS

**Trip Purpose by Time Period**

			Time period				Total
			AM Peak	Midday Off Peak	PM Peak	Evening Off Peak	
Purpose	Commute	n	332	530	558	90	1510
		%	71%	37%	60%	41%	49%
	Non-Commute	n	137	922	369	130	1558
		%	29%	63%	40%	59%	51%
Total		n	469	1452	927	220	3068
		%	100%	100%	100%	100%	100%

**Fare Category by Purpose**

			Purpose		Total
			Commute	Non-Commute	
What is your fare category?	Adult (Age 19-64)	n	1186	1152	2338
		%	96%	84%	90%
	Youth (Age 6-18)	n	17	98	115
		%	1%	7%	4%
	Senior (Over 65)	n	28	87	115
		%	2%	6%	4%
	Disabled	n	0	27	27
		%	0%	2%	1%
	ORCA Lift	n	0	4	4
		%	0%	0%	0%
Total		n	1231	1368	2599
		%	100%	100%	100%



### Direction by Purpose

			Purpose		Total
			Commute	Non-Commute	
Direction surveyed	Outbound	n	864	763	1627
		%	57%	49%	53%
	Inbound	n	646	795	1441
		%	43%	51%	47%
Total		n	1510	1558	3068
		%	100%	100%	100%

### Direction by Time Period

			Time period				Total
			AM Peak	Midday Off Peak	PM Peak	Evening Off Peak	
Direction surveyed	Outbound	n	307	790	417	112	1626
		%	65%	54%	45%	51%	53%
	Inbound	n	162	661	510	107	1440
		%	35%	46%	55%	49%	47%
Total		n	469	1451	927	219	3066
		%	100%	100%	100%	100%	100%

### Origin by Time Period

			Time period				Total
			AM Peak	Midday Off Peak	PM Peak	Evening Off Peak	
Origin	Work	n	39	330	431	47	847
location		%	8%	23%	47%	24%	28%
type	Home	n	326	458	185	69	1038
		%	70%	32%	20%	35%	35%
	School or	n	49	306	196	50	601
	College	%	11%	22%	21%	26%	20%
	Shopping	n	4	22	16	1	43
		%	1%	2%	2%	1%	1%
	Other	n	45	303	92	29	469
		%	10%	21%	10%	15%	16%
Total		n	463	1419	920	196	2998
		%	100%	100%	100%	100%	100%

### Origin by Direction

			Direction surveyed		Total
			Outbound	Inbound	
Origin	Work	n	345	502	847
location		%	22%	36%	28%
type	Home	n	719	319	1038
		%	45%	23%	35%
	School or	n	305	296	601
	College	%	19%	21%	20%
	Shopping	n	38	6	44
		%	2%	0%	1%
	Other	n	188	281	469
		%	12%	20%	16%
Total		n	1595	1404	2999
		%	100%	100%	100%

### Destination by Time Period

			Time period				Total
			AM Peak	Midday Off Peak	PM Peak	Evening Off Peak	
Destination	Work	n	314	328	130	18	790
location		%	67%	24%	14%	10%	27%
type	Home	n	49	206	536	90	881
		%	10%	15%	58%	49%	30%
	School or	n	71	378	51	18	518
	College	%	15%	27%	6%	10%	18%
	Shopping	n	0	151	31	34	216
		%	0%	11%	3%	19%	7%
	Other	n	35	315	176	22	548
		%	7%	23%	19%	12%	19%
Total		n	469	1378	924	182	2953
		%	100%	100%	100%	100%	100%

### Destination by Direction

			Direction surveyed		Total
			Outbound	Inbound	
Destination	Work	n	533	257	790
location		%	34%	19%	27%
type	Home	n	363	518	881
		%	23%	37%	30%
	School or	n	388	129	517
	College	%	25%	9%	18%
	Shopping	n	82	134	216
		%	5%	10%	7%
	Other	n	201	347	548
		%	13%	25%	19%
Total		n	1567	1385	2952
		%	100%	100%	100%

### Origin by Destination

			Destination location type					Total
			Work	Home	School or College	Shopping	Other	
Origin location type	Work	n	73	475	17	69	213	847
		%	10%	54%	3%	32%	40%	29%
	Home	n	575	39	173	76	101	964
		%	75%	4%	34%	35%	19%	33%
	School or College	n	14	287	191	35	53	580
		%	2%	33%	38%	16%	10%	20%
	Shopping	n	27	6	0	0	11	44
		%	4%	1%	0%	0%	2%	2%
	Other	n	76	74	127	35	158	470
		%	10%	8%	25%	16%	29%	16%
Total	n	765	881	508	215	536	2905	
	%	100%	100%	100%	100%	100%	100%	

### Origin by Destination (AM Peak)

			Destination location type				Total
			Work	Home	School or College (as a student)	Other	
Origin location type	Work	n	6	26	6	0	38
		%	2%	54%	8%	0%	8%
	Home	n	293	14	9	10	326
		%	95%	29%	13%	29%	71%
	School or College	n	0	4	45	0	49
		%	0%	8%	63%	0%	11%
	Shopping	n	0	4	0	0	4
		%	0%	8%	0%	0%	1%
	Other	n	9	0	11	25	45
		%	3%	0%	15%	71%	10%
Total	n	308	48	71	35	462	
	%	100%	100%	100%	100%	100%	

**Origin by Destination (PM Peak)**

			Destination location type					Total
			Work	Home	School or College	Shopping	Other	
Origin location type	Work	n	42	317	0	0	72	431
		%	32%	59%	0%	0%	41%	47%
	Home	n	73	8	8	31	61	181
		%	56%	1%	19%	100%	35%	20%
	School or College	n	0	161	21	0	14	196
		%	0%	30%	49%	0%	8%	21%
	Shopping	n	16	0	0	0	0	16
		%	12%	0%	0%	0%	0%	2%
	Other	n	0	50	14	0	29	93
		%	0%	9%	33%	0%	16%	10%
Total		n	131	536	43	31	176	917
		%	100%	100%	100%	100%	100%	100%

**Transfers by Time Period**

			Time period				Total
			AM Peak	Midday Off Peak	PM Peak	Evening Off Peak	
Total number of transfers	0	n	383	1191	611	160	2345
		%	82%	82%	66%	73%	76%
	1	n	51	249	242	45	587
		%	11%	17%	26%	21%	19%
	2	n	35	0	75	7	117
		%	7%	0%	8%	3%	4%
	3	n	0	11	0	7	18
		%	0%	1%	0%	3%	1%
	Total	n	469	1451	928	219	3067
		%	100%	100%	100%	100%	100%

**Transfers by Purpose**

			Purpose		Total
			Commute	Non-Commute	
Total	0	n	965	1380	2345
number		%	64%	89%	76%
of	1	n	440	146	586
transfers		%	29%	9%	19%
	2	n	98	20	118
		%	6%	1%	4%
	3	n	7	11	18
		%	0%	1%	1%
Total		n	1510	1557	3067
		%	100%	100%	100%

**ORCA Pass by Purpose**

			Purpose		Total
			Commute	Non-Commute	
If you	Yes	n	551	424	975
selected		%	38%	31%	35%
ORCA,	No	n	519	521	1040
was it		%	36%	38%	37%
provided	Didn't	n	365	417	782
by your	Use	%	25%	31%	28%
employer?	ORCA				
Total		n	1435	1362	2797
		%	100%	100%	100%