



Sound Transit
Sounder Origin & 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 Sounder commuter rail surveys conducted February 19th through March 21st, 2019. Riders on both the Sounder North and South lines were intercepted by interviewers on board the trains and were given the opportunity to respond to our questions with a paper survey or mail the survey back.

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-language questionnaire is found at the end of this report, in the Appendix.

Sampling

The study team developed a sampling plan for weekday travel between 5am and 9pm. Most surveying was conducted on Mondays through Thursdays, with Friday surveying only when necessary due to schedule constraints.

The study team recommends obtaining a sample of roughly 10% of average daily boardings for each route/line to ensure enough data for analysis. This is consistent with FTA best practices.

The sampling plans will be constructed around the following three time periods:

- AM Peak (5:00 a.m. – 8:29 a.m.)
- Midday Off-Peak (8:30 a.m. – 2:59 p.m.)
- PM Peak (3:00 p.m. – 6:29 p.m.)
- Evening Off-Peak (6:30 p.m. – 9:00 p.m.)

Sounder commuter rail has two services, the Sounder North running between Seattle and Everett, and the Sounder South running between Seattle and Tacoma with several trains continuing on to Lakewood. The commuter nature of this service means there are enough trips that depart before 6:00 a.m. making it possible to extend the AM Peak to include all trips that start from 5:00 a.m. to 8:29 a.m. Sounder North trips were only surveyed in the morning because it is assumed that ridership behavior on evening trips would mostly mirror the morning trips.

There are approximately 16,855 average daily boardings on the Sounder South Line and approximately 1,812 average daily boardings on the Sounder North Line. A total of 1,866 usable completes (approximately 10% of daily boardings; 1,685 for Sounder South and 181 for Sounder North) were targeted for this effort. Based on experience with similar OD studies, it was assumed that 25% of returned surveys will not be usable due to incomplete information provided by the respondent (typically because there is not enough information to geocode an origin and destination for the respondent). Thus, we obtained over 2,489 surveys (2,247 for Sounder South, 242 for Sounder North) that were rigorously cleaned and still ensuring a large enough sample size for analysis once some surveys are discarded. A response rate of 62% was assumed for this effort based on the rates from the 2015 OD study on Sounder.

Table 1: Sounder Sampling Targets

	Average Daily Boardings	# Completed Surveys Needed	Completes + Bad Surveys	Estimated Response Rate	# Surveys to Distribute	Avg. # Passengers per Trip	Approx. # of Trips to Ride
Sounder South	16,855	1,685	2,247	62%	3,625	674	18
Sounder North	1,812	181	242	62%	390	227	4
Total	18,667	1,866	2,489	62%	4,015	901	22

Table 2 is based on sampling 2 cars per train (of 7 on the Sounder South and 2 or 3 on the Sounder North). Even though we could have met the sampling targets by surveying just two trips for Sounder North, we surveyed each of the four trips operating in one direction in order to get a good range of behavior.

Table 2: Sounder Survey Distribution Plan

	Direction	AM Peak	Midday Off Peak	PM Peak	Evening Off Peak	Total
Sounder North	Inbound	390	0	0	0	390
Sounder North	Outbound	0	0	0	0	0
Sounder South	Inbound	1,480	39	78	0	1,596
Sounder South	Outbound	66	109	1,719	134	2,028
Total	-	1,936	148	1,797	134	4,014

Data Collection

Training

Interviewers and supervisors were extensively trained on the survey process for collecting interviews on board Sounder 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. Each interviewer and supervisor was provided with a complete training manual for reference during training and while on their shift.

Interviewers also received interview packets that were assembled prior to the start of interviewing for all survey shifts. Each interviewer received one packet per shift. The packets consisted of:

- **Shift Cover Sheet:** On shifts where there is more than one trip, interviewers were provided a cover sheet to tell them where to check in. On single trips, the trip cover sheet provided interviewers the same information.
- **Trip Cover Sheet:** This tells interviewers what trip the survey materials in the packet are for, as well as the beginning and ending locations, and what car they were on.
- **Trip Sheets:** Interviewers had a trip sheet for every station they counted, distributed, and recorded refusals for.
- **Surveys:** Surveys were assigned by trip. Interviewers were instructed to not hand out surveys on any trips other than the trip indicated on the envelope the survey came from. If interviewers ran out of surveys for a specific trip, they could borrow from fellow interviewers during the same trip, from the envelope for that trip. Interviewers were not permitted to use surveys from a previous trip on a following or future trip.
 - Surveys in English were given out to use only on the current trip. We used a passcode system to keep track of surveys (see “Collecting and Tracking Questionnaires” section below). Any English surveys that came out of a particular survey packet were placed back in to the same packet when done so they were not get handed out on another Sounder trip.
- **Language Handout and Language Surveys:** Interviewers were also given surveys in alternate languages, and a sheet that allows someone to pick which one they want. If someone didn’t speak English, interviewers were instructed to give them this sheet so they could tell the interviewer which of the language surveys they preferred.

Execution Plan

Using Fall 2018 ridership data and Winter 2019 route information provided by Sound Transit, the study team developed a plan to execute surveys on selected trips on Sounder during the study (see the above section for more information on the selection of trips). 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

On the Lakewood-Tacoma-Seattle line, we surveyed 2 train cars per trip, with 3 interviewers in each car. On the Seattle-Everett line, we surveyed 1 train car per trip, with 3 interviewers in the car. Interviewers were assigned to a car as either a door interviewer or an upstairs interviewer.

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. The language card told them to ask you for a color-coded questionnaire in their language (if we had it). Interviewers were instructed to give them the appropriate questionnaire when they completed distribution, refusals, and kids counting.
3. **Kept a count of adults who refuse to take a questionnaire** in the refusal column on their trip sheet. Any kids (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 in. Interviewers were permitted to accept questionnaires from anyone on the car, even if the passenger wasn't in that interviewers assigned section.

The specific procedures for counting passengers and distributing/collecting questionnaires on Sounder was different depending on the interviewer's assigned location in the car (door versus upstairs) and station (first station of the trips versus every other station).

Every first station was treated differently from the other stations. To give interviewers ample time to distribute and get an accurate count of boardings for the first stop, interviewers always distributed and recorded refusals and kids in their section first, and then count all passengers once the train leaves the station. This way, interviewers were less likely to double count or miss counting someone who boards at the last moment, or changes seats out of the section.

Each door interviewer was responsible for half of the downstairs car, including the vestibule. At a door interviewer's first station, they boarded the train and began distributing questionnaires and recording refusals and kids for every passenger in the assigned section. Door interviewers did this until the train doors closed and the train departed the first station. As soon as the doors closed, door interviewers took a count of passengers in their assigned section. Interviewers used the count sheet to record hash marks to help with totaling counts. When interviewers reached the final total, they circled that number and recorded it in the total "Ons" column for that stop. If needed, interviewers resumed distributing and recording refusals and kids, and collecting surveys until they reached the next stop. Once door interviewers reached the next station (and for every station until the end of the current trip), interviewers were instructed to flip to the "Ons" count sheet that corresponds to the station. At this point, door interviewers counted passengers as they board the train. Once the count was completed, door interviewers began distributing questionnaires, and recording refusals and kids for every passenger in their assigned section. Then interviewers collected completed questionnaires.

Each upstairs interviewer was responsible for the entire upstairs part of the car. At the first station, upstairs interviewers boarded the train and began distributing questionnaires and recording refusals and kids for every passenger in their assigned section. Upstairs interviewers did this until the train doors closed. As soon as the doors closed, upstairs interviewers took a count of passengers for the entire upstairs part of the car. Interviewers used the count sheet to record hash marks to help with totaling counts. When interviewers reached the final total, they circled that number and recorded it in the total "Ons" column for that stop. If needed, interviewers resumed distributing and recording refusals and kids, and collecting surveys until they reached the next stop. As opposed to downstairs interviewers, upstairs interviewers did not count ons at any station after the first one. Once upstairs interviewers reached the next station (and for every station until the end of the current trip), upstairs interviewers only distributed questionnaires, recorded refusals and kids, and collected completed questionnaires.

Collecting and Tracking Questionnaires

Unique passcodes were printed on all questionnaires. The first letter of the passcode corresponds 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 'SSE' is a Sounder questionnaire heading South in English. A passcode range was assigned to each service and each language within a service. An example of passcodes is shown below:

Sounder South English	SSE	10000 to	29999
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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 approximately 125% 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 place all materials, including completed and uncompleted questionnaires in the envelope corresponding to that trip. Thus, questionnaires with passcodes designated for one trip were not used on any other trip. When an interviewer ran out of questionnaires, they were provided with an emergency supply of materials, each containing 25 questionnaires and a corresponding passcode range. The interviewer then tied these questionnaires to the trip they used them on by manually recording the RangeID number on the emergency envelope.

Non-English questionnaire passcodes were handled using a unique process. When an interviewer passed out a non-English-language questionnaire, they tore off the language receipt and kept it with the rest of the materials for that trip. Like the English questionnaires, this method allowed that passcode to be tied to a specific trip.

Interviewing Outcomes

In total, EMC interviewers approached 5,052 passengers aged 14 or older on the sampled trips. A total of 2,244 surveys were returned for an overall response rate of 44 percent. We exceeded our goal of surveying 10 percent of ridership on both Sounder South and North lines. The following table documents the data collection outcomes for each Sounder route.

Table 5: Interviewing Outcomes

	Average Daily Boardings	Sample Target	Percentage of Ridership Targeted	# Approached	# of Surveys Distributed	# Refused	Total Completed Surveys	Percentage of Ridership Surveyed	Response Rate*
Sounder South	16,855	1,686	10%	4,671	3,295	1,376	2,029	12%	43%
Sounder North	1,812	181	10%	381	274	107	215	12%	56%
Total									
<i>*Response rates are based upon number of completed surveys divided by the number of respondents approached.</i>									

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 clean up
 - 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 was 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 is the same as the boarding location for the purposes 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 inspecting 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 a modified version of the On-to-Off data used as the seed matrix. The On-to-Off counts, which were only conducted at certain stops, were augmented by APC data to arrive at full On-to-Off matrices. Survey data were weighted and expanded to match ridership data along the following dimension:

- 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

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 two Sounder routes were 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.

Completion of the On-to-Off Dataset

Because On-to-Off data was only collected at intermediate stops along the Sounder, APC counts were integrated with these counts to create a full On-to-Off dataset. On-to-Off counts were not performed at King St. Station because it was assumed that any traffic not traveling between the intermediate stops would begin or end at King St. Station. For outbound trains, the final On-to-Off counts (with boardings at King St. Station) were set as the number of alightings counted at each station subtracted from the number of alightings at each station in the APC data. This difference results in the assumed number of people traveling from King St. to each station. For inbound trains, the final On-to-Off counts were set as the number of boardings counted at each station subtracted from the number of boardings in the APC data for that station. This difference results in the assumed number of people traveling from each station to King St. This final On-to-Off dataset was then used as the seed for the IPF weighting procedure.

Final Weights And Expansion

Following the IPF procedure described above, the expanded weights were attached to each useable record in the dataset. Table 11 shows a summary of the number of useable surveys, average weekday ridership on the surveyed portion of the route and average weight for each route.

Table 3: Average Weights of Rail Routes

LINE	NUMBER OF USABLE SURVEYS COLLECTED	AVERAGE WEEKDAY RIDERSHIP	AVERAGE EXPANDED WEIGHT
Sounder North (Everett)	215	750	3.49
Sounder South (Seattle-Lakewood)	1,037	8,330	8.06
Sounder South (Lakewood-Seattle)	992	6,667	6.72
All rail routes	2,244	15,746	7.03
<i>*PM Peak outbound ridership only</i>			

Linked Trip Weight

A linked trip weight was calculated for all Sound Transit routes surveyed in Spring of 2019. This includes Tacoma Link, Sounder and Express Bus routes and accounts 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 accounts 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.

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 primarily the unlinked trip weight. When the linked trip weight is used instead, it is noted in the table/chart.

Table 4: Final Sample Sizes – Weighted and Unweighted

		AM Peak Inbound	PM Peak Inbound	Midday Off-Peak Outbound	Evening Off-Peak Inbound	Total
<i>Sounder Everett- Seattle (Inbound)</i>	Valid Unweighted n	215	0	0	0	215
	Unlinked Weight n	750	0	0	0	750
	Linked Weight n	736	0	0	0	736
<i>Sounder Lakewood- Seattle (Inbound)</i>	Valid Unweighted n	928	34	30	0	992
	Unlinked Weight n	6,164	317	185	0	6,667
	Linked Weight n	5766	296	180	0	6,242
<i>Sounder Seattle – Lakewood (Outbound)</i>	Valid Unweighted n	40	861	71	65	1,037
	Unlinked Weight n	360	6,908	535	527	8,330
	Linked Weight n	337	6,481	503	512	7,832
		<i>*Weighted values vary up to 0.01 percent from table to table due to slightly different rounding methods.</i>				

SOUNDER SOUTH - DEMOGRAPHICS

Table 5: Sounder South Rider Demographics by Trip Purpose and Time Period

	Trip Purpose			Time Period			
	Total	Commute	Non-Commute	AM Peak	PM Peak	Midday Off Peak	Evening Off Peak
Annual Household Income	N=11,241	10,430	811	4,958	5,284	568	430
Less than \$50,000	17%	17%	24%	16%	18%	17%	17%
\$50,000 to \$74,999	17%	17%	22%	16%	18%	9%	28%
\$75,000 to 99,999	16%	16%	17%	18%	14%	22%	10%
\$100,000 or more	50%	51%	38%	50%	51%	52%	45%
Driver's License	N=14,402	13,334	1,067	6,344	6,854	706	499
% with Current Driver's License	95%	95%	92%	95%	95%	94%	95%
Vehicles in Household	N=11,632	10,793	838	6,315	4,626	676	15
% with Vehicle in Household	97%	97%	92%	97%	97%	88%	100%
Choice Riders	N=11,319	10,485	833	6,191	4,451	662	15
Has Driver's License & Vehicle Access	93%	94%	89%	95%	93%	85%	100%
Has Driver's License, No Vehicle Access	2%	2%	3%	1%	2%	8%	0%
No Driver's License, Has Vehicle Access	3%	3%	3%	3%	4%	3%	0%
No Driver's License & No Vehicle Access	2%	1%	6%	2%	1%	4%	0%

- The overwhelming majority of Sounder South riders are choice riders; they have access to a vehicle and a driver's license. They can travel without the aid of public transit, but choose to do so anyway.
- Just about every rider (93%) has both a driver's license and access to a vehicle. An additional 2 percent have a driver's license but no access to a vehicle. Another 3 percent have no driver's licenses, but report having access to a vehicle.
- Non-commuters are less likely to be choice riders and less likely to have access to a vehicle or license in their household; 89 percent of non-commuting riders have a current driver's license and access to a vehicle, compared to 94% of commuters.
- About 2 percent of all Sounder South riders surveyed report having no vehicle access and no driver's license. These riders tend to be non-commuters.

While there are clear differences between commuters and non-commuters, the vast majority of Sounder South riders are commuters, which drives the average demographic indicators. Out of an estimated daily ridership of 14,996 riders on the Sounder South routes per day, only 1,081 or seven percent (7%) of riders report that their trip neither starts at home and ends at work or school, or vice versa. Ninety-three percent (93%) of riders claim a starting point of home and ending point of work or school (or vice versa) during their one-way-trip, making them commuters.

Table 6: South Trip Purpose by Time Period

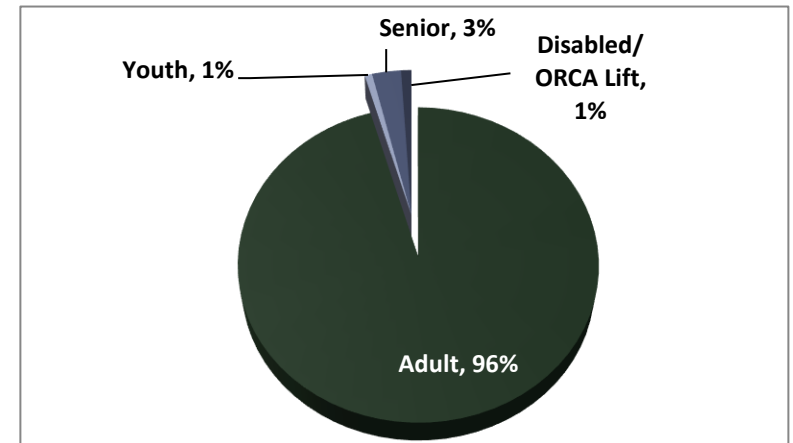
		All Trips	AM Peak	PM Peak	Midday Off Peak	Evening Off Peak
Commute	%	93%	96%	91%	78%	98%
	N	13,915	6,242	6,595	564	514
Non-commute	%	7%	4%	9%	22%	2%
	N	1,081	282	631	156	12
TOTAL	N	14,996	6,524	7,226	720	526

Table 7: South Fare Category

	All Trips	Commute	Non-Commute
Adult (Age 19-64)	96%	96%	90%
Youth (Age 6-18)*	1%	-	4%
Senior (Over 65)	3%	3%	6%
Disabled	1%	1%	1%
ORCA Lift	-	-	-

**The Youth category only includes surveyed children aged 14 or older*

As would be expected among a commuter population, the overwhelming majority of riders are between the ages of 19 and 65. There are also very few riders under 19 regularly riding Sounder South. Younger and older riders do not appear to have the need to ride the Sounder since they work and commute in much smaller proportions.

Figure 1: South Fare Category

Souder South Trips

Data for Souder South was collected from riders traveling in both directions during all time periods, so we are able to analyze the data by direction and by time period. The unlinked weight was used to analyze the following data, because we are only analyzing this one particular route and not a broader system. We estimate that there are 14,997 average daily boardings on Souder South.

Table 8 below illustrates direction by trip purpose and by time of day. Commute trips, as can be expected, are divided fairly evenly by direction, with just under half (45%) of commute trips coming into Seattle and a little over half (55%) leaving Seattle. Substantially more than half (64%) of trips for non-commute purposes are directed out of Seattle.

The direction of trips diverges greatly by time of day. The vast majority of trips in the AM Peak (94%) are headed into Seattle, and a similar percentage (96%) of trips are directed out of Seattle in the PM Peak.

Table 8: Direction by Purpose and Time of Day – Souder South Trips

		Total	Trip Purpose		Time of Day			
			Commute	Non-commute	AM Peak	PM Peak	Midday Off Peak	Evening Off Peak
Inbound	%	44%	45%	36%	94%	4%	26%	0%
	#	6,667	6,278	389	6,164	317	185	0
Outbound	%	56%	55%	64%	6%	96%	74%	100%
	#	8,330	7,637	693	360	6,908	535	527
Total	%	100%	100%	100%	100%	100%	100%	100%
	#	14,997	13,915	1,082	6,524	7,225	720	527

Origin and Destination

Origins

The overwhelming majority of morning trips (97%) on Sounder South begin at home. By contrast, the vast majority (93%) of evening peak trips on Sounder South begin at work, with an additional three percent of evening trips originating at home and two at school.

Table 9: Origin by Time Period – Sounder South Trips

Started trip at:		All Trips	AM Peak	PM Peak	Midday Off Peak	Evening Off Peak
Work	%	52%	2%	93%	63%	89%
	N	7,779	158	6,702	449	470
Home	%	45%	97%	3%	25%	6%
	N	6,753	6,299	249	174	31
School	%	2%	0%	2%	10%	4%
	N	252	14	145	71	22
Shopping	%	0%	0%	0%	0%	0%
	N	19	0	19	0	0
Other	%	1%	0%	1%	2%	1%
	N	111	10	81	16	4
TOTAL	%	100%	100%	100%	100%	100%
	N	14,914	6,481	7,196	710	527

The table below shows a clear contrast in trip origin by direction. Nearly nine out of ten trips (89%) going from Seattle to Tacoma originate at the passenger's workplace. And seven percent heading to Tacoma originate at the passenger's home. By contrast, more than nine out of ten (93%) trips from Tacoma to Seattle originate at the passenger's home, and another six percent (6%) start at their workplace. It is evident that the vast majority of passengers riding Sounder South live outside of Seattle.

Table 10: Origin by Direction – Sounder South Trips

Started trip at:		All Trips	Inbound	Outbound
Work	%	52%	6%	89%
	N	7,779	419	7,360
Home	%	45%	93%	7%
	N	6,753	6,163	590
School	%	2%	0%	3%
	N	251	20	231
Shopping	%	0%	0%	0%
	N	19	5	14
Other	%	1%	0%	1%
	N	111	16	95
TOTAL	%	100%	100%	100%
	N	14,913	6,623	8,290

Destinations

Reflecting the commuting pattern that riders report, over nine out of ten trips (94%) in the morning terminate at work. The second most prevalent destination in the morning is school, which represents five percent (5%) of the total morning trips. Evening trips also show this commuting pattern. More than nine out of ten (92%) passengers riding Sounder South in the evening peak are traveling home.

Table 11: Destination by Time Period – Sounder South Trips

Ended trip at:		All Trips	AM Peak	PM Peak	Midday Off Peak	Evening Off Peak
Work	%	43%	94%	3%	15%	4%
	N	6,396	6,068	200	105	23
Home	%	51%	1%	92%	68%	96%
	N	7,645	59	6,607	483	496
Airport	%	0%	0%	0%	0%	0%
	N	6	6	0	0	0
School	%	2%	5%	1%	3%	0%
	N	358	298	41	19	0
Shopping	%	0%	0%	0%	4%	0%
	N	61	0	32	29	0
Other	%	3%	1%	4%	11%	0%
	N	402	52	271	79	0
TOTAL	%	100%	100%	100%	100%	100%
	N	14,868	6,483	7,151	715	519

Table 12: Destination by Direction – Sounder South Trips

Ended trip at:		All Trips	Inbound	Outbound
Work	%	43%	89%	6%
	N	6,396	5,918	478
Home	%	51%	4%	89%
	N	7,644	294	7,350
Airport	%	0%	0%	0%
	N	6	6	0
School	%	2%	4%	1%
	N	358	249	109
Shopping	%	0%	0%	1%
	N	61	18	43
Other	%	3%	2%	3%
	N	402	130	272
TOTAL	%	100%	100%	100%
	N	14,867	6,615	8,252

Destination patterns are also very different depending on the direction of the train. Just less than nine out of ten trips (89%) on the route toward Tacoma end at home. On the other hand, the same amount of trips en route to Seattle terminate at work.

Combined Origins and Destinations

The table below illustrates both origin and destination in one table, so that each cell represents the proportion of trips in a given destination type that begin at a given origin type. These origin-destination pairs demonstrate that the vast majority of passengers are using Sounder South to commute to and from work and school. Almost all trips that end at a passenger's work begin at home (97%). Conversely, almost all trips that end at a passenger's home begin at their workplace (95%) or school (3%).

Table 13: Combined Origins and Destinations – Sounder South Trips

Started Trip at:		Ended Trip at:					Total Known
		Work	Home	School	Shopping	Other	
Work	%	3%	95%	6%	54%	66%	52%
	N	179	7,211	22	33	266	7,711
Home	%	97%	1%	89%	38%	25%	45%
	N	6,176	105	317	23	99	6,720
School	%	0%	3%	5%	0%	3%	2%
	N	9	211	19	0	13	252
Shopping	%	0%	0%	0%	8%	0%	0%
	N	0	14	0	5	0	19
Other	%	0%	1%	0%	0%	6%	1%
	N	19	68	0	0	24	111
Total	%	100%	100%	100%	100%	100%	100%
	N	6,383	7,609	358	61	402	14,813

Combined Origins and Destinations – AM Peak

The table below includes origin-destination data for trips occurring only in the morning. As noted above, most people riding Sounder South in the morning are leaving home. Almost everyone riding Sounder South in the morning is headed to their workplace or school. Although the typical morning rider travels from home to work, small minorities start at a workplace or school and head to another work-related or school-related destination.

Table 14: Combined Origins and Destinations – Morning – Sounder South Trips

Started Trip at:		Ended Trip at:				
		Work	Home	School	Other	Total Known
Work	%	2%	61%	4%	0%	2%
	N	109	36	13	0	158
Home	%	98%	39%	94%	100%	97%
	N	5,926	23	280	52	6,281
School	%	0%	0%	2%	0%	0%
	N	9	0	5	0	14
Other	%	0%	0%	0%	0%	0%
	N	10	0	0	0	10
Total	%	100%	100%	100%	100%	100%
	N	6,054	59	298	52	6,463

Combined Origins and Destinations – PM Peak

Just as morning riders on Sounder South are typically commuting to work, it is evident that the typical evening rider is commuting home. Almost all afternoon and evening riders that depart from work and school are headed home.

Table 15: Combined Origins and Destinations – Afternoon/Evening – Sounder South Trips

Started Trip at:		Ended Trip at:					Total Known
		Work	Home	School	Shopping	Other	
Work	%	30%	96%	21%	84%	85%	93%
	N	60	6,307	9	27	230	6,633
Home	%	66%	1%	60%	0%	6%	3%
	N	132	76	25	0	15	248
School	%	0%	2%	19%	0%	2%	2%
	N	0	131	8	0	6	145
Shopping	%	0%	0%	0%	16%	0%	0%
	N	0	14	0	5	0	19
Other	%	4%	1%	0%	0%	7%	1%
	N	9	54	0	0	19	82
Total	%	100%	100%	100%	100%	100%	100%
	N	201	6,582	42	32	270	7,127

Access and Egress

The table below illustrates modes of access and egress within each origin and destination type. Notably, more people get to their access point by walking than driving. However, among those who start their trip at home, most riders (60%) drive alone to get to the train. Sizeable minorities that start at home also get to the train by walking (15%) and by getting dropped off (14%). By contrast, those who start their trip at work or school are much more likely to walk. About two percent (2%) of passengers get to their trip's origin by bike and about six percent (6%) carpool to their origin point, across all origin types.

The modes of egress are distributed similarly to the modes of access, both overall and across destination type. Overall, a plurality (41%) of passengers walk after they exit the train. However, again we see that a healthy majority (64%) of passengers who are destined for home finish their trip by driving alone. Among those who are headed to work or school, large majorities walk to their final destination, and, unlike those headed home, very few of these riders drive alone from the train to the destination of their trip.

Table 16: Access and Egress Modes at Trip Origin/Destination – Sounder South Trips

Access / Egress Mode	Started Trip at:						Ended Trip at:					
	Total	Work	Home	School	Shop	Other	Total	Work	Home	School	Shop	Other
Walked	45%	70%	15%	62%	74%	45%	41%	72%	14%	61%	46%	33%
Drove Alone	31%	6%	60%	2%	26%	20%	37%	6%	64%	6%	18%	28%
Dropped off/picked up (friend/family)	8%	4%	13%	13%	0%	9%	8%	1%	12%	5%	36%	26%
Dropped off/picked up (Uber/Lyft/Taxi)	1%	1%	1%	7%	0%	15%	1%	1%	1%	7%	0%	5%
Carpool	6%	4%	8%	0%	0%	0%	6%	7%	5%	1%	0%	3%
Bicycle	2%	3%	1%	0%	0%	0%	2%	2%	2%	0%	0%	0%
Bus	2%	2%	1%	4%	0%	0%	3%	7%	1%	3%	0%	4%
Shuttle	2%	4%	0%	0%	0%	0%	1%	2%	0%	0%	0%	0%
Other	3%	5%	1%	12%	0%	12%	2%	3%	0%	16%	0%	3%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	(14,629)	(7,552)	(6,720)	(244)	(19)	(94)	(14,501)	(6,184)	(7,508)	(352)	(61)	(396)

Origin and Destination Stop Pairs

The table below shows the distribution of daily ridership for each origin and destination stop pair. Overall, the plurality of trips start at the Seattle station (45%). The second most popular origin is Kent (13%), followed by Puyallup (10%). The Seattle station is also the most popular destination, with a plurality of trips ending there (36%). Among trips that start at the Seattle station, the most popular destination is Kent, with one quarter of trips that start at Seattle ending at Kent (27%). The Seattle station is the most popular destination across all other origins. The Seattle to Auburn trip is also relatively popular.

Table 17: Origin and Destination Stop Pairs – All Trips

Started Trip at:	Ended Trip at:										Total Known*
	Seattle		Tukwila	Kent	Auburn	Sumner	Puyallup	Tacoma	S. Tacoma	Lakewood	
Seattle	%	0%	7%	27%	20%	15%	14%	13%	1%	4%	45%
	#	0	501	1,803	1,362	999	927	874	41	280	6,787
Tukwila	%	40%	0%	3%	6%	13%	17%	16%	1%	4%	6%
	#	372	0	26	54	117	159	144	9	38	919
Kent	%	72%	0%	0%	3%	6%	9%	8%	2%	0%	13%
	#	1,350	0	0	58	114	178	151	36	0	1,887
Auburn	%	79%	3%	3%	0%	1%	6%	7%	1%	1%	9%
	#	1,043	45	39	0	13	76	89	7	15	1,327
Sumner	%	75%	10%	8%	2%	0%	0%	5%	0%	0%	6%
	#	711	95	76	17	0	0	46	0	0	945
Puyallup	%	64%	10%	9%	3%	0%	0%	6%	9%	0%	10%
	#	926	150	124	38	0	0	81	132	0	1,451
Tacoma	%	65%	8%	9%	6%	6%	5%	0%	0%	0%	7%
	#	712	92	97	70	68	59	0	0	0	1,098
S. Tacoma	%	52%	20%	28%	0%	0%	0%	0%	0%	0%	1%
	#	111	43	59	0	0	0	0	0	0	213
Lakewood	%	61%	11%	7%	8%	0%	0%	13%	0%	0%	2%
	#	226	40	26	30	0	0	49	0	0	371
Total	%	36%	6%	15%	11%	9%	9%	10%	2%	2%	100%
	#	5,451	966	2,250	1,629	1,311	1,399	1,434	225	333	14,998
*Excluded unknown trips where respondent gave no alighting station.											

Origin And Destination Stop Pairs - Mornings

The table below shows origin and destination stop pairs for morning riders. In the morning, Kent is the most popular starting station (20% of riders start here), followed by Puyallup (18%) and Auburn (17%). Morning trip destinations are concentrated in Seattle, with three quarters of trips ending in Seattle (78%). Almost one in ten trips ends at Tukwila (8%), and another seven percent (7%) of trips end at Kent. Across all origin locations, the vast majority of morning trips end in Seattle.

Table 18: Origin and Destination Stop Pairs – Mornings

Started Trip at:	Ended Trip at:										Total Known*
		Seattle	Tukwila	Kent	Auburn	Sumner	Puyallup	Tacoma	S. Tacoma	Lakewood	
Seattle	%	0%	30%	35%	23%	3%	3%	2%	0%	4%	4%
	#	0	80	95	61	9	9	6	0	11	271
Tukwila	%	95%	0%	0%	0%	0%	1%	3%	0%	0%	5%
	#	332	0	0	0	0	4	12	0	0	348
Kent	%	97%	0%	0%	0%	1%	0%	2%	0%	0%	20%
	#	1,263	0	0	0	17	0	21	0	0	1,301
Auburn	%	90%	4%	4%	0%	1%	0%	1%	0%	0%	17%
	#	988	45	39	0	13	0	9	0	0	1,094
Sumner	%	78%	11%	8%	2%	0%	0%	1%	0%	0%	13%
	#	679	95	68	17	0	0	9	0	0	868
Puyallup	%	74%	12%	10%	3%	0%	0%	0%	0%	0%	18%
	#	878	144	119	38	0	0	5	0	0	1,184
Tacoma	%	68%	8%	8%	6%	5%	5%	0%	0%	0%	14%
	#	619	72	73	53	48	50	0	0	0	915
S. Tacoma	%	50%	21%	29%	0%	0%	0%	0%	0%	0%	3%
	#	101	43	59	0	0	0	0	0	0	203
Lakewood	%	59%	12%	6%	9%	0%	0%	14%	0%	0%	5%
	#	203	40	20	30	0	0	49	0	0	342
Total	%	78%	8%	7%	3%	1%	1%	2%	0%	0%	100%
	#	5,063	519	473	199	87	63	111	0	11	6,526
*Excluded unknown trips where respondent gave no alighting station.											

Origin And Destination Stop Pairs - Afternoons/Evenings

The table below shows origin and destination stop pairs for all evening riders. Evening patterns reflect a reversal of the morning trips. About three quarters of evening trips start in Seattle (78%). Most of the rest of the trips begin at either Tukwila (7%) or Kent (7%). Only three percent (3%) of evening trips are destined for Seattle. Evening destinations are distributed fairly evenly among the other stations, with about one in five trips ending at each of Kent (21%), Auburn (17%), Tacoma (16%), and Puyallup (16%).

Table 19: Origin and Destination Stop Pairs – Afternoons/Evenings

Started Trip at:	Ended Trip at:										Total Known*
		Seattle	Tukwila	Kent	Auburn	Sumner	Puyallup	Tacoma	S. Tacoma	Lakewood	
Seattle	%	0%	7%	26%	20%	14%	14%	14%	0%	4%	78%
	#	0	390	1,471	1,107	806	802	759	27	249	5,611
Tukwila	%	7%	0%	4%	11%	21%	29%	19%	2%	7%	7%
	#	37	0	20	54	108	148	99	9	38	513
Kent	%	11%	0%	0%	12%	18%	27%	26%	6%	0%	7%
	#	55	0	0	58	89	131	130	28	0	491
Auburn	%	15%	0%	0%	0%	0%	36%	38%	3%	7%	3%
	#	32	0	0	0	0	76	80	7	15	210
Sumner	%	60%	0%	40%	0%	0%	0%	0%	0%	0%	0%
	#	12	0	8	0	0	0	0	0	0	20
Puyallup	%	8%	2%	0%	0%	0%	0%	33%	57%	0%	3%
	#	19	5	0	0	0	0	77	132	0	233
Tacoma	%	50%	8%	13%	11%	13%	4%	0%	0%	0%	2%
	#	75	12	20	17	19	6	0	0	0	149
S. Tacoma	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	#	-	-	-	-	-	-	-	-	-	-
Lakewood	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	#	-	-	-	-	-	-	-	-	-	-
Total	%	3%	6%	21%	17%	14%	16%	16%	3%	4%	100%
	#	230	407	1,519	1,236	1,022	1,163	1,145	203	302	7,227
*Excluded unknown trips where respondent gave no alighting station.											

Transfers – Throughout the Entire System

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 Sounder currently make to complete their trip.

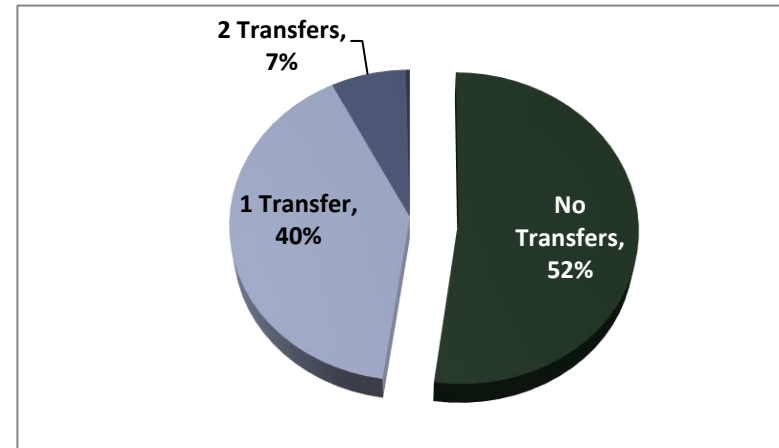
Table 20: Transfers by Sounder South Time Period & Trip Purpose

	Total	Time Period		Trip Purpose	
		AM Peak	Evening Peak	Commute	Non-commute
No Transfers	52%	49%	55%	51%	62%
1 Transfer	40%	43%	38%	41%	30%
2+ Transfers	7%	8%	7%	7%	8%
Total	100%	100%	100%	100%	100%
	(14,996)	(6,524)	(7,225)	(13,915)	(1,082)

On average, half (52%) of riders only ride one transit vehicle to get from their origin point to their destination. Commuters on Sounder South are more likely to transfer than non-commuters, with about six in ten (62%) of all non-commuters that ride Sounder South not needing to transfer compared to 51 percent of commuters.

As shown in Table 20, riders rarely transfer two or more times per one-way trip. The overwhelming majority of riders that transfer only transfer once.

Figure 2: Percentage of Transferring Sounder South Riders



Fare Payment

Respondents were asked to indicate how they paid their fare for each segment of their one-way trip.

Souder South riders overwhelmingly use a pass (ORCA, e-purse, and/or U-PASS). Almost all (96%) riders reported using a pass on one of the transit vehicles they rode on their one-way trip. Riders in the morning and evening use passes and tickets in the same proportions.

Table 21: Fare Payment on Souder South by Time Period

	All Trips	AM Peak	Evening Peak
ORCA/U-Pass	72%	73%	72%
ORCA Day Pass	18%	17%	18%
ORCA E-Purse	6%	6%	6%
Cash	0%	0%	0%
Train Ticket – One Way	1%	1%	1%
Train Ticket – Day Pass	1%	0%	1%
Other	2%	2%	2%
Total	100% (14,687)	100% (6,389)	100% (7,077)

Non-commuters are less likely to use a pass than commuters. Nevertheless, a majority of non-commuting Souder South riders use passes, suggesting that the ORCA pass has excellent adoption rates across all ridership segments.

Table 22: Fare Payment on Souder South by Trip Purpose

	All Trips	Commute	Non-Commute
ORCA/U-Pass	72%	73%	55%
ORCA Day Pass	18%	18%	20%
ORCA E-Purse	6%	6%	9%
Cash	0%	0%	1%
Train Ticket – One Way	1%	1%	6%
Train Ticket – Day Pass	1%	1%	4%
Other	2%	2%	6%
Total	100% (14,688)	100% (13,652)	100% (1,036)

Lower income riders are less likely to use a pass on at least one of their transit trip legs, compared to individuals with moderate and higher incomes. However, they use cash and train tickets in slightly higher proportions.

Table 23: Fare Payment by Household Income

	<\$50,000	\$50,000- \$74,999	\$75,000- \$99,999	\$100,000+
ORCA/U-Pass	45%	71%	67%	81%
ORCA Day Pass	29%	16%	24%	14%
ORCA E-Purse	17%	6%	6%	3%
Cash	1%	0%	0%	0%
Train Ticket – One Way	3%	1%	1%	0%
Train Ticket – Day Pass	2%	1%	1%	0%
Other	3%	5%	2%	1%
Total	100% (1,871)	100% (1,886)	100% (1,751)	100% (5,547)

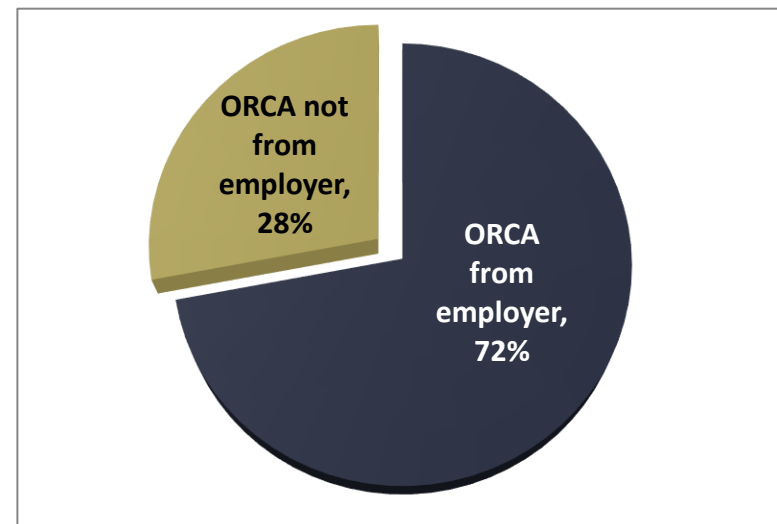
Six percent (6%) of riders with household incomes below \$50,000 claim that they use cash or a ticket on at least one of the transit vehicles they ride on their trip. This compares to almost no cash usage across other income brackets. Some of the difference in fare use between these groups is explained by the higher proportion of lower income riders that are non-commuters.

Table 24: ORCA Pass Provided by Employer

	All Trips	Commute	Non-Commute
Yes	72%	73%	57%
No	28%	27%	43%
Total	100% (13,593)	100% (12,756)	100% (837)

Respondents using passes were asked about their procurement of an ORCA pass. Table 24 shows that, among those who have an ORCA pass (96% of all Sounder South riders), about seven in ten passengers receive their pass from their employer (72%).

Figure 3: ORCA Pass Provided by Employer



SOUNDER NORTH - DEMOGRAPHICS

Sounder North was only sampled in one direction during the morning period. The overwhelming majority of Sounder North riders are choice riders; they have access to a vehicle and a driver's license. They can travel without the aid of public transit but choose to do so anyway. Just about every rider (96%) has both a driver's license and access to a vehicle.

Table 25: Sounder North Rider Demographics by Trip Purpose

	<i>Trip Purpose</i>		
	Total	Commute	Non-Commute
Annual Household Income	N=596	533	63
Less than \$50,000	8%	8%	13%
\$50,000 to \$74,999	15%	14%	25%
\$75,000 to 99,999	8%	8%	8%
\$100,000 or more	68%	69%	54%
Driver's License	N=747	682	65
% with Current Driver's License	97%	96%	100%
Vehicles in Household	N=722	663	59
% with Vehicle in Household	99%	99%	100%
Choice Riders	N=719	660	59
Has Driver's License & Vehicle Access	96%	96%	100%
Has Driver's License, No Vehicle Access	1%	1%	0%
No Driver's License, Has Vehicle Access	3%	3%	0%
No Driver's License & No Vehicle Access	0%	0%	0%

While there are clear differences between commuters and non-commuters, the vast majority of Sounder North riders are commuters, which drives the average demographic indicators. Out of an estimated daily ridership of 750 riders on Sounder North in just one-direction per day, only 65, or 9 percent (9%) of, riders report that their trip neither starts nor ends at work or school. Ninety-one percent (91%) of riders claim a starting point of home and ending point of work or school (or vice versa) during their one-way-trip, which makes these riders commuters. Keep in mind, the number of non-commuters is so small, that reported data and figures have an extremely large margin of error.

Table 26: North Trip Purpose		
All Trips		
Commute	%	91%
	N	685
Non-commute	%	9%
	N	65
TOTAL	N	750

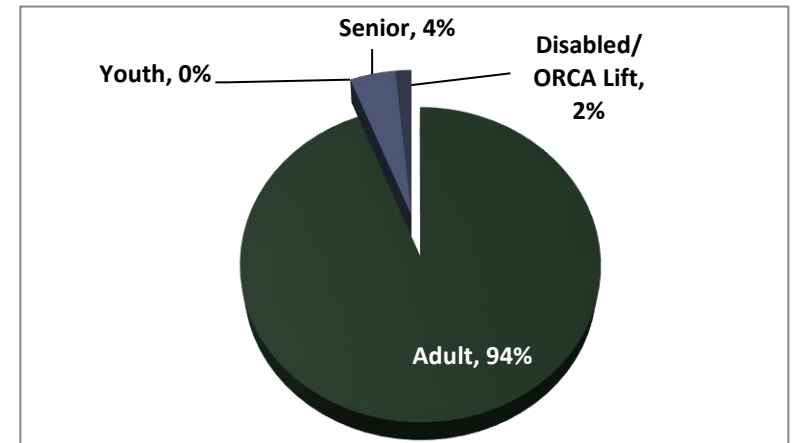
Table 27: North Fare Category

	All Trips	Commute	Non-Commute
Adult (Age 19-64)	94%	96%	77%
Youth (Age 6-18)*	-	-	-
Senior (Over 65)	4%	3%	18%
Disabled	0%	0%	0%
ORCA Lift	1%	1%	5%
Total	100%	100%	100%
	(711)	(646)	(65)

**The Youth category only includes surveyed children aged 14 or older*

As would be expected among a commuter population, the overwhelming majority of riders on Sounder North are between the ages of 19 and 65.

Figure 4: North Fare Category



Combined Origins and Destinations

Sounder North was only sampled in one direction during the morning period. Thus, nearly all the passengers sampled were travelling to work.

Table 28 below illustrates both origin and destination in one table, so each cell represents the proportion of trips of a given destination that begin at a given origin. The table illustrates that the Sounder North train is ridden in the morning almost exclusively by commuters who are travelling from home to work.

Table 28: Combined Origins and Destinations – Sounder North Trips

Started Trip at:	Ended Trip at:						Total Known*
		Home	Work	Airport	School	Other	
Home	%	0%	97%	0%	100%	55%	94%
	#	0	676	0	5	16	697
Work	%	100%	3%	0%	0%	45%	5%
	#	5	18	0	0	13	36
Other	%	0%	1%	100%	0%	0%	1%
	#	0	6	3	0	0	9
* Excluded unknown trip origins or destinations where respondent gave no answer or an address location rather than a type of origination point.							

Access and Egress

Table 29 illustrates mode of access and egress for each origin and destination among morning riders of Sounder North. A majority (67%) of passengers arrive at their stop by driving alone. When they get to their destination stop, a majority (79%) walk to their final destination, which is more often than not the passenger's workplace.

Table 29: Access and Egress Modes at Trip Origin/Destination – Sounder North Trips

Access / Egress Mode	Started Trip at:				Ended Trip at:				
	Total	Work	Home	Other	Total	Work	Home	School	Other
Walked	12%	0%	12%	67%	79%	81%	100%	100%	30%
Drove Alone	67%	64%	68%	0%	5%	5%	0%	0%	17%
Dropped off/picked up	13%	36%	11%	33%	-	-	-	-	-
Carpool	5%	0%	5%	0%	3%	3%	0%	0%	0%
Bicycle	3%	0%	3%	0%	2%	2%	0%	0%	0%
Bus	1%	0%	1%	0%	0%	0%	0%	0%	0%
Shuttle	-	-	-	-	4%	5%	0%	0%	0%
Other	-	-	-	-	6%	4%	0%	0%	53%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
	(747)	(36)	(702)	(9)	(731)	(691)	(5)	(5)	(30)

Origin and Destination Stop Pairs

The table below shows the distribution of origin and destination pairs among morning Sounder North trips. Sounder North trips were only surveyed in the morning. The largest portion of morning Sounder North trips end in Seattle (95%). Close to half (41%) of morning Sounder North trips begin at Edmonds station. Another four-in-ten (39%) begin at Everett, and about one fifth (19%) start at Mukilteo.

Table 30: Origin and Destination Stop Pairs

Started Trip at:	Ended Trip at:		Total Known*	
	Seattle	Edmonds		
Edmonds	%	100%	0%	41%
	#	310	0	310
Mukilteo	%	91%	9%	19%
	#	131	13	144
Everett	%	93%	7%	39%
	#	274	22	296
All Trips	%	95%	5%	100%
	#	715	35	750
<i>*Excluded unknown trips where respondent gave no alighting station.</i>				

Transfers – Throughout the Entire System

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 Sounder currently make to complete their trip.

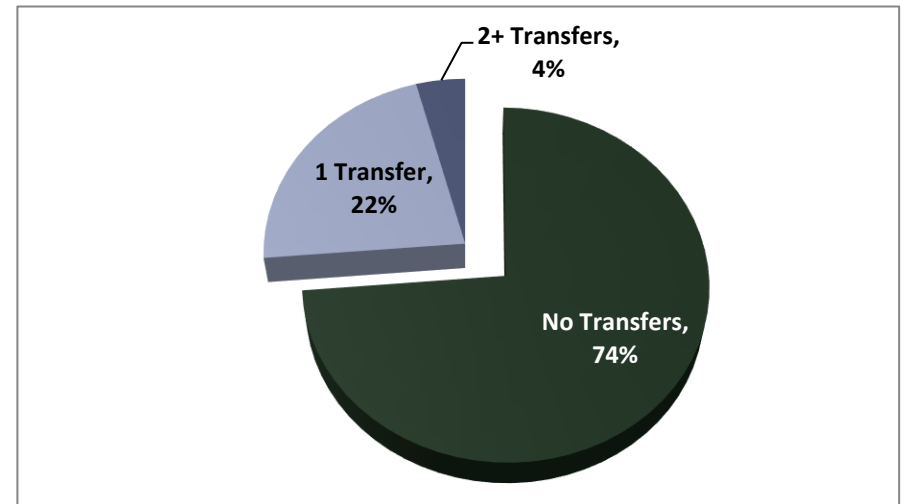
Table 31: Transfers by Sounder Line and by Trip Purpose

	All	Trip Purpose	
		Commute	Non-commute
No Transfers	74%	76%	48%
1 Transfer	22%	21%	32%
2+ Transfers	4%	3%	20%
Total	100% (749)	100% (684)	100% (65)

On average, nearly three quarters (74%) of riders on Sounder North only ride one transit vehicle to get from their origin point to their destination. About half (52%) of non-commuters transfer at least once.

As shown in Table 31, riders rarely transfer two or more times per one-way trip. The majority of riders that transfer only transfer once, on average.

Figure 5: Percentage of Transferring Sounder Riders



Fare Payment

Respondents were asked to indicate how they paid their fare for each segment of their one-way trip.

Sounder North riders overwhelmingly use a pass (ORCA, e-purse, and/or U-PASS). Almost all (96%) riders reported using a pass on one of the transit vehicles they rode on their one-way trip.

Table 32: Fare Payment On Sounder North by Trip Purpose

	All trips	Commute	Non-Commute
ORCA/U-Pass	82%	83%	68%
ORCA Day Pass	12%	11%	27%
ORCA E-Purse	2%	2%	5%
Cash	0%	0%	-
Train Ticket – One Way	-	-	-
Train Ticket – Day Pass	2%	2%	-
Other	2%	2%	-
Total	100%	100%	100%
	(729)	(667)	(62)

Table 33: Fare Payment on Sounder North by Household Income

	<\$50,000	\$50,000-\$74,999	\$75,000-\$99,999	\$100,000+
ORCA/U-Pass	57%	71%	88%	85%
ORCA Day Pass	37%	9%	12%	10%
ORCA E-Purse	6%	0%	0%	3%
Cash	0%	0%	0%	1%
Train Ticket – One Way	-	-	-	-
Train Ticket – Day Pass	0%	14%	0%	0%
Other	0%	6%	0%	2%
Total	100%	100%	100%	100%
	(49)	(80)	(50)	(395)

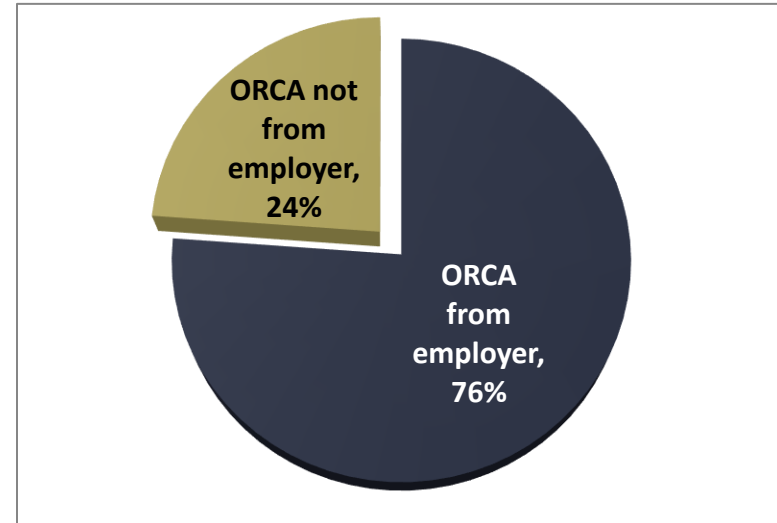
Nearly all riders in all income categories use a pass to pay their fare, though riders with incomes are more likely to use a day pass.

Table 34: North ORCA Pass Provided by Employer

	All Trips	Commute	Non-Commute
Yes	76%	76%	76%
No	24%	24%	24%
Total	100%	100%	100%
	(692)	(630)	(62)

Respondents using passes were asked about their procurement of an ORCA pass. Table 34 shows that, among those who have an ORCA pass (96% of all Sounder North riders), about three quarters of passengers receive their pass from their employer (76%).

Figure 6: ORCA Pass Provided by Employer



ORIGIN AND DESTINATION SURVEY ANALYSIS ZONE PAIRS

Overview

A key objective of this study is to provide a reliable measure of the percentage of transit riders traveling to major origin and destination zones.

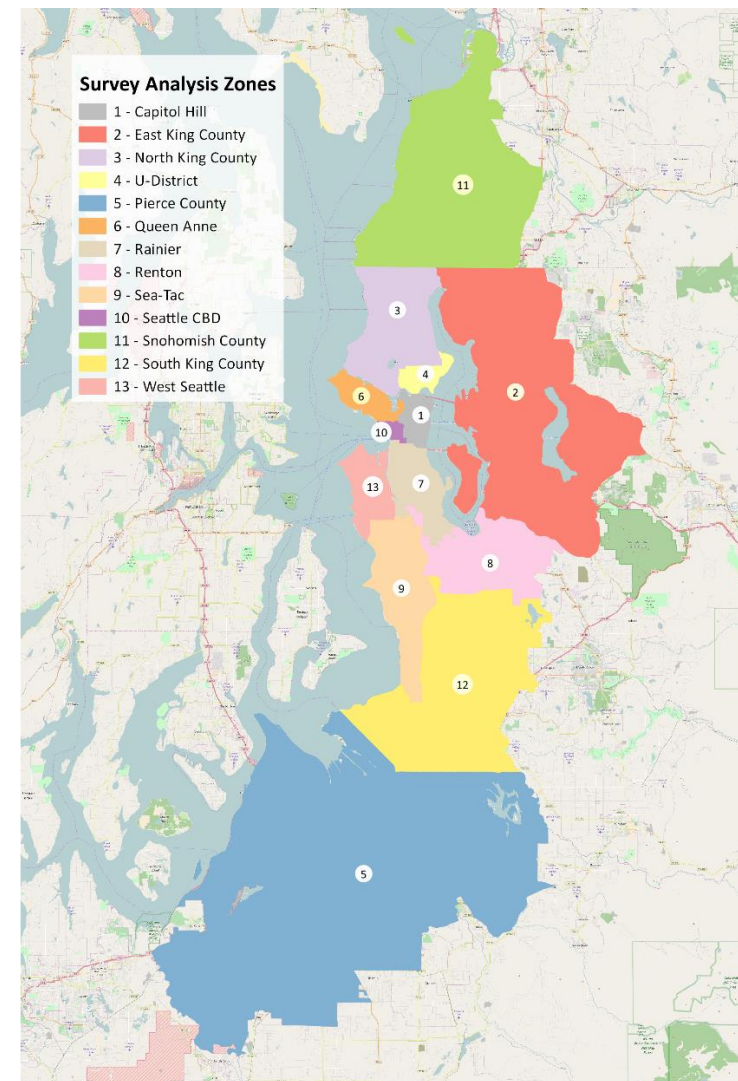
For the purposes of this research, the Central Puget Sound region was divided into 13 zones, and those outside of the 13 zones classified as External. To differentiate these zones from other transportation terminology, these zones are called Survey Analysis Zones (SAZ).

The origins and destinations of riders' trips were assigned to these zones. A new zone was subdivided from the North King County SAZ, named "U-District". This area contains the University District light rail station and the University of Washington and is in the University Link Extension corridor (U-Link). The remaining area is named "North King County". The other zone of significant interest is "Capitol Hill", which contains the Capitol Hill light rail station in the University Link corridor.

In addition to the 13 primary zones, an External zone is included that captures all trips starting or ending in a location outside of these 13 primary zones. These zones are comparable to those used in the 2008 and 2011 origin and destination reports.

This report includes a variety of origin and destination pairs tables, using these survey analysis zones. These tables show the percentage of trips out of all trips that each origin and destination pair account for. Additional tables are included to show the percentage of trips that each pair accounts for when only PM Peak Trips, Commute Trips, or other types of trips are selected in the data. The primary pairs of interest, as well as the totals of interest, are highlighted in each of these tables.

Figure 7: Survey Analysis Zones



All Sounder South Trips

An estimated 14,997 trips occur daily on Sounder South. About two-thirds of Sounder South trips (65%) originate in the three major Survey Analysis Zones: Pierce County, Seattle CBD, and South King County. A similar amount (71%) of trips end in these three zones.

- Pierce County accounts for the largest share of trip originations (26%) and the largest share of trip destinations (29%).
- The Seattle CBD Zone accounts for the second largest share of trip originations (22%) and the third largest share of trip destinations (20%).

Not surprisingly, the most frequent origin and destination pairs involve these three zones.

- About 10 percent of all trips occur from Seattle CBD to Pierce County and 9 percent of trips occur from Pierce County to Seattle CBD, the two most frequent trip pairs.
- Trips from Seattle CBD to South King County make up 8 percent of all trips and trips going the other direction, South King County to Seattle CBD, make up 7 percent of all trips.

The proportion of trips originating within each Survey Analysis Zone is similar to the proportion of trips ending within the same Survey Analysis Zone.

Figure 8: % of All Trips Starting in SAZ

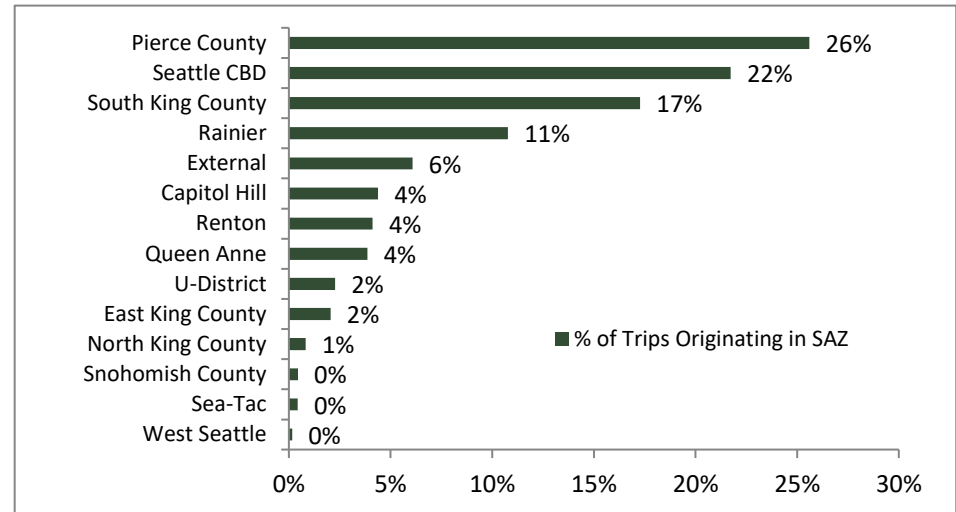


Figure 9: % of All Trips Ending in SAZ

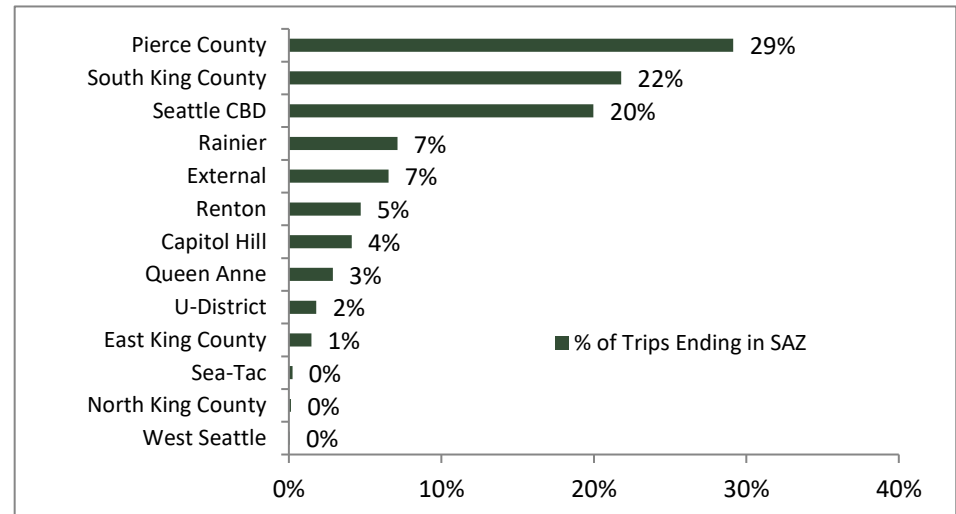


Table 35: Origin – Destination Survey Analysis Zone Pairs – All Trips

Trip Origin	Trip Destination															Total
	Trips	Capitol Hill	East King County	North King County	U-District	Pierce County	Queen Anne	Rainier	Renton	Sea-Tac	Seattle CBD	Snohomish County	South King County	West Seattle	External	
Capitol Hill	#	0	0	0	0	333	0	0	42	0	0	0	238	0	46	659
	%	0.0%	0.0%	0.0%	0.0%	2.2%	0.0%	0.0%	.3%	0.0%	0.0%	0.0%	1.6%	0.0%	.3%	4.4%
East King County	#	0	0	0	0	212	0	0	0	0	0	0	15	0	80	307
	%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.1%	0.0%	.5%	2.0%
North King County	#	0	0	0	0	46	0	0	30	0	0	0	40	0	7	123
	%	0.0%	0.0%	0.0%	0.0%	.3%	0.0%	0.0%	.2%	0.0%	0.0%	0.0%	.3%	0.0%	.0%	.8%
U-District	#	0	0	0	0	170	0	0	10	0	0	0	105	0	56	341
	%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	.1%	0.0%	0.0%	0.0%	.7%	0.0%	.4%	2.3%
Pierce County	#	367	163	0	116	448	207	448	318	29	1,357	0	384	0	4	3,841
	%	2.4%	1.1%	0.0%	.8%	3.0%	1.4%	3.0%	2.1%	.2%	9.0%	0.0%	2.6%	0.0%	.0%	25.6%
Queen Anne	#	0	16	0	0	196	0	0	16	0	0	0	272	0	79	579
	%	0.0%	.1%	0.0%	0.0%	1.3%	0.0%	0.0%	.1%	0.0%	0.0%	0.0%	1.8%	0.0%	.5%	3.9%
Rainier	#	0	0	0	0	641	0	0	84	0	0	0	772	0	119	1,616
	%	0.0%	0.0%	0.0%	0.0%	4.3%	0.0%	0.0%	.6%	0.0%	0.0%	0.0%	5.1%	0.0%	.8%	10.8%
Renton	#	15	0	0	7	304	0	14	0	0	126	0	37	0	114	617
	%	.1%	0.0%	0.0%	.0%	2.0%	0.0%	.1%	0.0%	0.0%	.8%	0.0%	.2%	0.0%	.8%	4.1%
Sea-Tac	#	0	0	0	0	39	0	0	0	0	14	0	11	0	0	64
	%	0.0%	0.0%	0.0%	0.0%	.3%	0.0%	0.0%	0.0%	0.0%	.1%	0.0%	.1%	0.0%	0.0%	.4%
Seattle CBD	#	0	0	0	0	1,526	0	0	106	6	0	0	1,196	0	423	3,257
	%	0.0%	0.0%	0.0%	0.0%	10.2%	0.0%	0.0%	.7%	.0%	0.0%	0.0%	8.0%	0.0%	2.8%	21.7%
Snohomish County	#	0	0	0	0	0	0	0	10	0	0	0	48	0	9	67
	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.1%	0.0%	0.0%	0.0%	.3%	0.0%	.1%	.4%
South King County	#	194	32	13	99	456	169	425	43	0	1,053	0	84	0	22	2,590
	%	1.3%	.2%	.1%	.7%	3.0%	1.1%	2.8%	.3%	0.0%	7.0%	0.0%	.6%	0.0%	.1%	17.3%
West Seattle	#	0	0	0	0	0	0	0	0	0	0	0	24	0	0	24
	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.2%	0.0%	0.0%	.2%
External	#	42	12	9	48	0	56	180	48	0	445	0	42	8	22	912
	%	.3%	.1%	.1%	.3%	0.0%	.4%	1.2%	.3%	0.0%	3.0%	0.0%	.3%	.1%	.1%	6.1%
Total	#	618	223	22	270	4,371	432	1,067	707	35	2,995	0	3,268	8	981	14,997
	%	4.1%	1.5%	.1%	1.8%	29.1%	2.9%	7.1%	4.7%	.2%	20.0%	0.0%	21.8%	.1%	6.5%	100.0%

Origin And Destination Zone Pairs – Sounder South Mornings

An estimated 6,523 morning trips occur daily on Sounder. Riders originating from the Pierce County and South King County zones, which together make up four out of five morning trips (80%), dominate morning ridership.

- The Pierce County zone is the most frequent zone of origin in the morning, representing half of all morning trips (50%).
- South King County is the second most frequent zone of origin in the morning, representing almost a third of all morning trips (30%).
- The External Survey Analysis Zone is the third most frequent zone of origin in the morning (13%) and no other Survey Analysis Zone includes more than two percent of trip originations.

Morning trip destinations are distributed more broadly across several Survey Analysis Zones.

- The Seattle CBD Zone is the most frequent destination (45%), followed by Rainier with 16%.
- Another 8% end in South King County, and 7% end in Renton and Capitol Hill.

The most frequent trip pairs occur between South King County, Pierce County and Seattle CBD.

- Just under 16 percent of all trips are from South King County to Seattle CBD.
- About 20 percent of all trips are from Pierce County to Seattle CBD.

Figure 10: % of AM Peak Trips Starting in SAZ

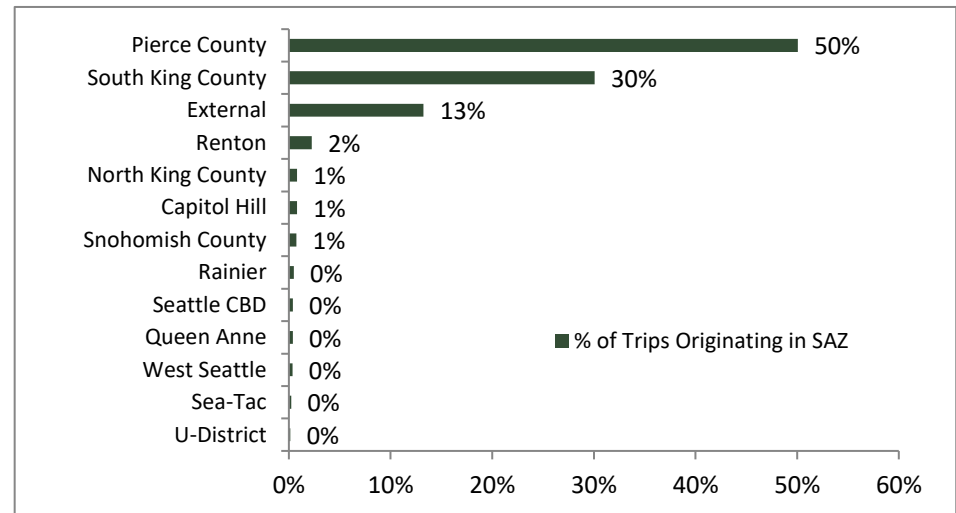


Figure 11: % of AM Peak Trips Ending in SAZ

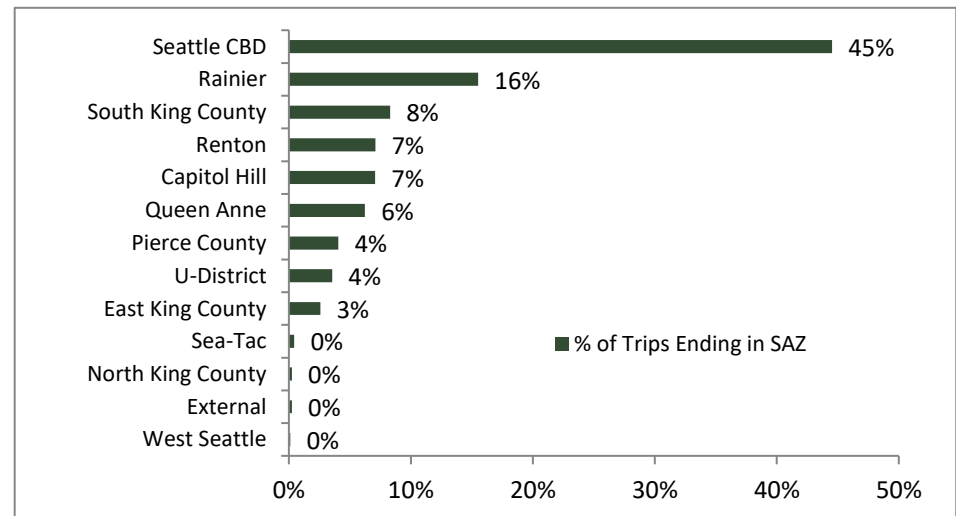


Table 36: Origin – Destination Survey Analysis Zone Pairs – Sounder South AM Peak

Trip Origin	Trip Destination															Total
	Trips	Capitol Hill	East King County	North King County	U-District	Pierce County	Queen Anne	Rainier	Renton	Sea-Tac	Seattle CBD	Snohomish County	South King County	West Seattle	External	
Capitol Hill	#	0	0	0	0	1	0	0	20	0	0	0	30	0	0	51
	%	0.0%	0.0%	0.0%	0.0%	.0%	0.0%	0.0%	.3%	0.0%	0.0%	0.0%	.5%	0.0%	0.0%	.8%
East King County	#	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
North King County	#	0	0	0	0	7	0	0	30	0	0	0	15	0	0	52
	%	0.0%	0.0%	0.0%	0.0%	.1%	0.0%	0.0%	.5%	0.0%	0.0%	0.0%	.2%	0.0%	0.0%	.8%
U-District	#	0	0	0	0	0	0	0	10	0	0	0	0	0	0	10
	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.2%
Pierce County	#	247	157	0	99	170	193	433	302	29	1,309	0	325	0	4	3,268
	%	3.8%	2.4%	0.0%	1.5%	2.6%	3.0%	6.6%	4.6%	.4%	20.1%	0.0%	5.0%	0.0%	.1%	50.1%
Queen Anne	#	0	0	0	0	1	0	0	0	0	0	0	24	0	0	25
	%	0.0%	0.0%	0.0%	0.0%	.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.4%	0.0%	0.0%	.4%
Rainier	#	0	0	0	0	9	0	0	0	0	0	0	24	0	0	33
	%	0.0%	0.0%	0.0%	0.0%	.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.4%	0.0%	0.0%	.5%
Renton	#	0	0	0	0	16	0	14	0	0	115	0	0	0	0	145
	%	0.0%	0.0%	0.0%	0.0%	.2%	0.0%	.2%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	2.2%
Sea-Tac	#	0	0	0	0	0	0	0	0	0	14	0	0	0	0	14
	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.2%	0.0%	0.0%	0.0%	0.0%	.2%
Seattle CBD	#	0	0	0	0	16	0	0	0	0	0	0	10	0	0	26
	%	0.0%	0.0%	0.0%	0.0%	.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.2%	0.0%	0.0%	.4%
Snohomish County	#	0	0	0	0	0	0	0	10	0	0	0	39	0	0	49
	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.2%	0.0%	0.0%	0.0%	.6%	0.0%	0.0%	.8%
South King County	#	172	0	8	90	44	158	385	43	0	1,029	0	26	0	7	1,962
	%	2.6%	0.0%	.1%	1.4%	.7%	2.4%	5.9%	.7%	0.0%	15.8%	0.0%	.4%	0.0%	.1%	30.1%
West Seattle	#	0	0	0	0	0	0	0	0	0	0	0	24	0	0	24
	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.4%	0.0%	0.0%	.4%
External	#	42	12	9	42	0	56	180	48	0	438	0	24	8	5	864
	%	.6%	.2%	.1%	.6%	0.0%	.9%	2.8%	.7%	0.0%	6.7%	0.0%	.4%	.1%	.1%	13.2%
Total	#	461	169	17	231	264	407	1,012	463	29	2,905	0	541	8	16	6,523
	%	7.1%	2.6%	.3%	3.5%	4.0%	6.2%	15.5%	7.1%	.4%	44.5%	0.0%	8.3%	.1%	.2%	100.0%

Origin And Destination Zone Pairs – Sounder South Evenings

About 7,224 trips occur daily during the evening peak hours. As expected, we see that PM Peak origin-destination patterns largely mirror the AM Peak patterns.

- Four-in-ten evening peak trips originate in the Seattle CBD zone (40%), compared to the 45 percent of morning trips that end in the Seattle CBD zone.
- The second most frequent zone of origin is the Rainier zone. About 19 percent of trips originate in the Rainier zone during the evening compared to the 16 percent of trips that end in the Rainier zone in the morning.

Trip destinations are concentrated in the Pierce County, South King County, and External zones, which collectively include 93 percent of all evening destinations.

- Pierce County is the most frequent destination zone in the evening (49%), with a proportion of destinations similar to the proportion of trips that originate there in the morning (50%).
- South King County is the second most frequent destination zone in the PM Peak (32%), with a proportion of destinations that is also close to the proportion of trips that originate there in the morning (30%).

Figure 12: % of PM Peak Trips Starting in SAZ

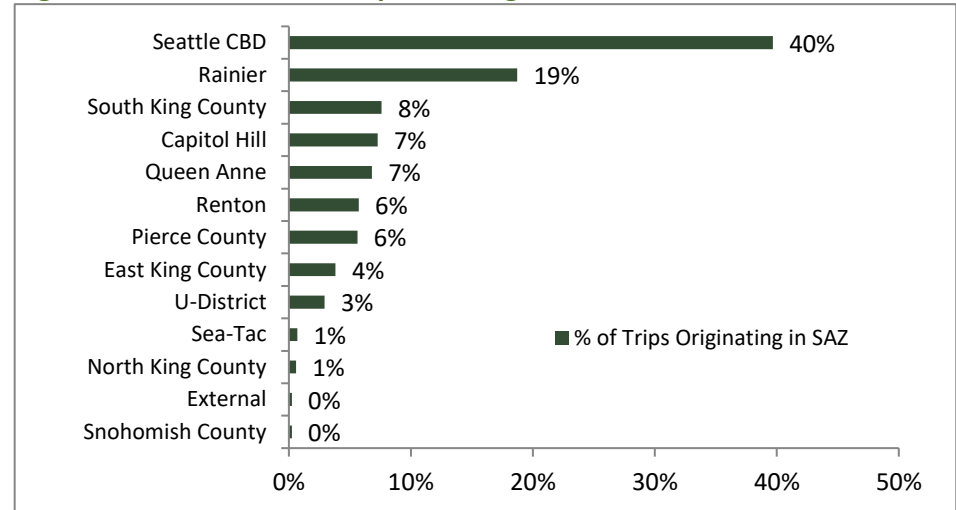


Figure 13: % of PM Peak Trips Ending in SAZ

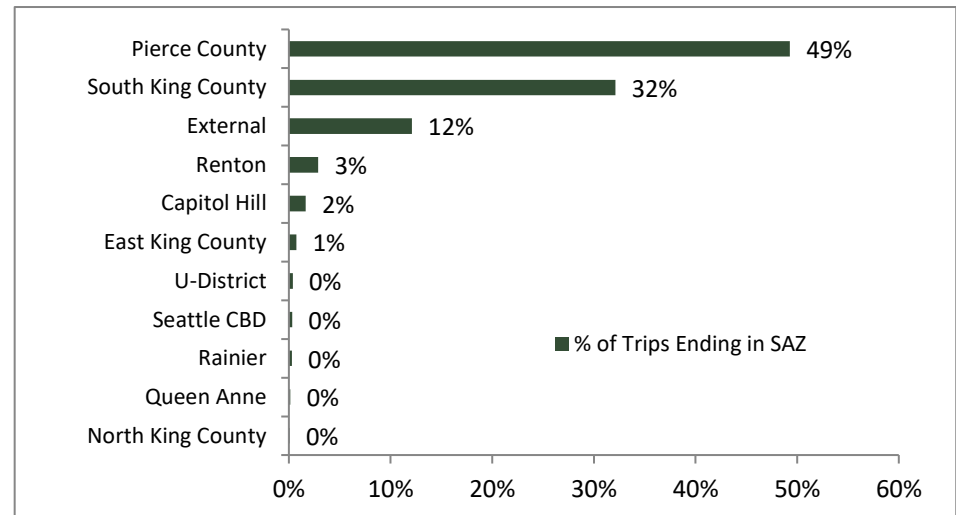


Table 37: Origin – Destination Survey Analysis Zone Pairs – Sounder South PM Peak

Trip Origin	Trips	Trip Destination														Total
		Capitol Hill	East King County	North King County	U-District	Pierce County	Queen Anne	Rainier	Renton	Sea-Tac	Seattle CBD	Snohomish County	South King County	West Seattle	External	
Capitol Hill	#	0	0	0	0	300	0	0	16	0	0	0	172	0	38	526
	%	0.0%	0.0%	0.0%	0.0%	4.2%	0.0%	0.0%	.2%	0.0%	0.0%	0.0%	2.4%	0.0%	.5%	7.3%
East King County	#	0	0	0	0	197	0	0	0	0	0	0	0	0	80	277
	%	0.0%	0.0%	0.0%	0.0%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	3.8%
North King County	#	0	0	0	0	18	0	0	0	0	0	0	17	0	7	42
	%	0.0%	0.0%	0.0%	0.0%	.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.2%	0.0%	.1%	.6%
U-District	#	0	0	0	0	96	0	0	0	0	0	0	69	0	46	211
	%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	.6%	2.9%
Pierce County	#	93	6	0	12	235	0	10	6	0	0	0	45	0	0	407
	%	1.3%	.1%	0.0%	.2%	3.3%	0.0%	.1%	.1%	0.0%	0.0%	0.0%	.6%	0.0%	0.0%	5.6%
Queen Anne	#	0	16	0	0	174	0	0	16	0	0	0	208	0	79	493
	%	0.0%	.2%	0.0%	0.0%	2.4%	0.0%	0.0%	.2%	0.0%	0.0%	0.0%	2.9%	0.0%	1.1%	6.8%
Rainier	#	0	0	0	0	528	0	0	78	0	0	0	645	0	101	1,352
	%	0.0%	0.0%	0.0%	0.0%	7.3%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	8.9%	0.0%	1.4%	18.7%
Renton	#	15	0	0	7	240	0	0	0	0	7	0	31	0	114	414
	%	.2%	0.0%	0.0%	.1%	3.3%	0.0%	0.0%	0.0%	0.0%	.1%	0.0%	.4%	0.0%	1.6%	5.7%
Sea-Tac	#	0	0	0	0	39	0	0	0	0	0	0	11	0	0	50
	%	0.0%	0.0%	0.0%	0.0%	.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.2%	0.0%	0.0%	.7%
Seattle CBD	#	0	0	0	0	1,352	0	0	94	0	0	0	1,037	0	384	2,867
	%	0.0%	0.0%	0.0%	0.0%	18.7%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	14.4%	0.0%	5.3%	39.7%
Snohomish County	#	0	0	0	0	0	0	0	0	0	0	0	9	0	9	18
	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.1%	0.0%	.1%	.2%
South King County	#	11	32	5	9	381	11	11	0	0	16	0	58	0	15	549
	%	.2%	.4%	.1%	.1%	5.3%	.2%	.2%	0.0%	0.0%	.2%	0.0%	.8%	0.0%	.2%	7.6%
West Seattle	#	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
External	#	0	0	0	0	0	0	0	0	0	0	0	18	0	0	18
	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	.2%	0.0%	0.0%	.2%
Total	#	119	54	5	28	3,560	11	21	210	0	23	0	2,320	0	873	7,224
	%	1.6%	.7%	.1%	.4%	49.3%	.2%	.3%	2.9%	0.0%	.3%	0.0%	32.1%	0.0%	12.1%	100.0%

Origin and Destination Zone Pairs – Sounder North All Trips

Sounder North trips were only sampled during the morning and the vast majority of Sounder North trips originate at home and end at work. The morning commute pattern is evident in the distribution of the 751 trips.

- Nearly three quarters of morning trips on Sounder North begin in Snohomish County (72%).
- An additional quarter of all Sounder North morning trips begin in the External zone (25%).
- The remaining four percent of morning trips start in the North King County zone (4%). All other zones have an average of zero trips originating from them in the morning.

Sounder North morning destinations are mostly concentrated in the Seattle CBD and Rainier Zones, which together represent nearly all evening destinations (82%).

- Half of afternoon/evening trips end in the Seattle CBD zone (53%).
- The second most frequent destination zone is the Rainier Zone (29%).

Figure 14: % of All Trips Starting in SAZ

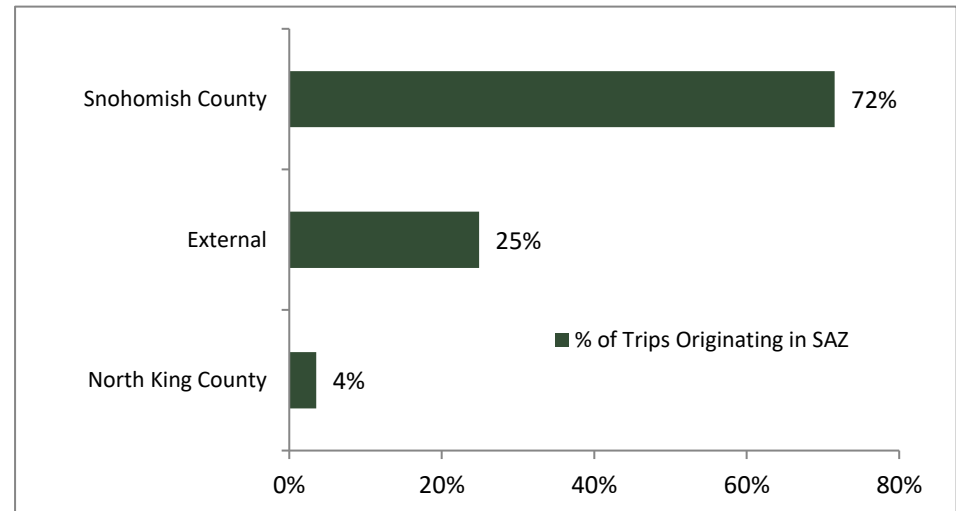


Figure 15: % of All Trips Ending in SAZ

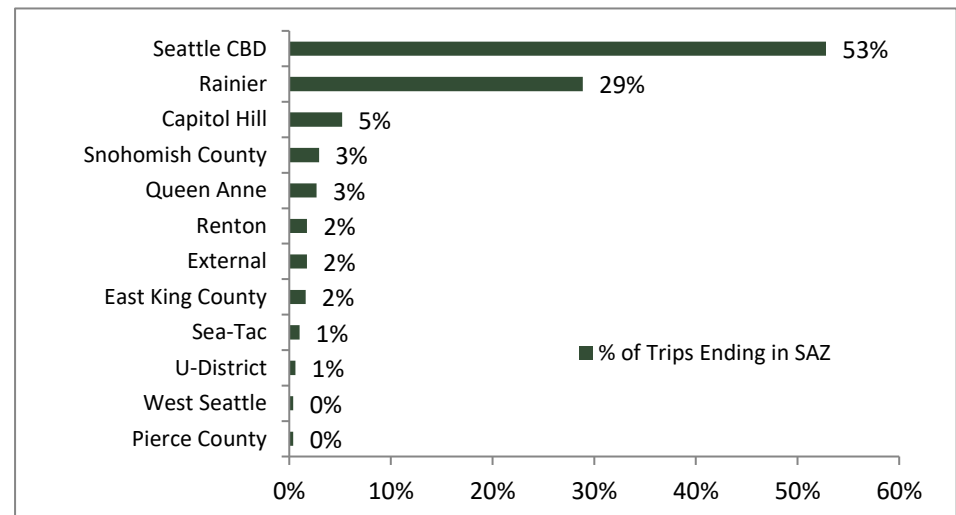


Table 38: Origin – Destination Pairs – Sounder North All Trips

Trip Origin	Trips	Trip Destination												Total
		Capitol Hill	East King County	U-District	Pierce County	Queen Anne	Rainier	Renton	Sea-Tac	Seattle CBD	Snohomish County	West Seattle	External	
North King County	#	3	0	0	0	0	3	3	3	15	0	0	0	27
	%	.4%	0.0%	0.0%	0.0%	0.0%	.4%	.4%	.4%	2.0%	0.0%	0.0%	0.0%	3.6%
Snohomish County	#	24	12	5	3	17	162	5	5	290	11	3	0	537
	%	3.2%	1.6%	.7%	.4%	2.3%	21.6%	.7%	.7%	38.6%	1.5%	.4%	0.0%	71.5%
External	#	12	0	0	0	3	52	5	0	91	11	0	13	187
	%	1.6%	0.0%	0.0%	0.0%	.4%	6.9%	.7%	0.0%	12.1%	1.5%	0.0%	1.7%	24.9%
Total	#	39	12	5	3	20	217	13	8	396	22	3	13	751
	%	5.2%	1.6%	.7%	.4%	2.7%	28.9%	1.7%	1.1%	52.7%	2.9%	.4%	1.7%	100.0%

APPENDIX

Questionnaire Example: Seattle-Everett Line

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: SNE

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 Sounder at	I got/will get OFF Sounder at
Everett	<input type="checkbox"/>	<input type="checkbox"/>
Mukilteo	<input type="checkbox"/>	<input type="checkbox"/>
Edmonds	<input type="checkbox"/>	<input type="checkbox"/>
Seattle	<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. For your current train, how did you pay your fare? (check all that apply)

<input type="checkbox"/> ORCA, as pass	<input type="checkbox"/> ORCA Day Pass	<input type="checkbox"/> Train Ticket-One Way (Vending Machine Ticket)
<input type="checkbox"/> ORCA, as e-purse	<input type="checkbox"/> Police/Peace Officer	<input type="checkbox"/> Train Ticket-Day Pass (Vending Machine Ticket)
<input type="checkbox"/> U-PASS (ORCA)	<input type="checkbox"/> Free	<input type="checkbox"/> Transit Go (Mobile Ticket)
<input type="checkbox"/> Cash	<input type="checkbox"/> Other _____	

10B. If you selected ORCA, was it provided by your employer? ☐ Yes ☐ No ☐ Didn't Use ORCA**10C. If you selected Train Ticket-Day Pass or ORCA Day Pass, how many trips will be/were taken using the pass? _____****10D. Will you (or did you) make a roundtrip on Sounder today?**

☐ Yes Sounder both ways ☐ No, bus for one trip, Rt # _____ ☐ No, carpool for one trip ☐ No, not doing round trip today ☐ Don't know

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 -5: _____

11C. Number of children in your group ages 6 to 13: _____

12. What is your fare 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:

☐ Sounder: _____ ☐ 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

Questionnaire Example: Seattle-Tacoma Line

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: SSE

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 Sounder at	I got/will get OFF Sounder at
Seattle	<input type="checkbox"/>	<input type="checkbox"/>
Tukwila	<input type="checkbox"/>	<input type="checkbox"/>
Kent	<input type="checkbox"/>	<input type="checkbox"/>
Auburn	<input type="checkbox"/>	<input type="checkbox"/>
Sumner	<input type="checkbox"/>	<input type="checkbox"/>
Puyallup	<input type="checkbox"/>	<input type="checkbox"/>
Tacoma	<input type="checkbox"/>	<input type="checkbox"/>
South Tacoma	<input type="checkbox"/>	<input type="checkbox"/>
Lakewood	<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. For your current train, how did you pay your fare?

(check all that apply)

<input type="checkbox"/> ORCA, as pass	<input type="checkbox"/> ORCA Day Pass	<input type="checkbox"/> Train Ticket-One Way (Vending Machine Ticket)
<input type="checkbox"/> ORCA, as e-purse	<input type="checkbox"/> Police/Peace Officer	<input type="checkbox"/> Train Ticket-Day Pass (Vending Machine Ticket)
<input type="checkbox"/> U-PASS (ORCA)	<input type="checkbox"/> Free	<input type="checkbox"/> Transit Go (Mobile Ticket)
<input type="checkbox"/> Cash	<input type="checkbox"/> Other _____	

10B. If you selected ORCA, was it provided by your employer? ☐ Yes ☐ No ☐ Didn't Use ORCA

10C. If you selected Train Ticket-Day Pass or ORCA Day Pass, how many trips will be/were taken using the pass? _____

10D. Will you (or did you) make a round trip on Sounder today?

☐ Yes Sounder both ways ☐ No, bus for one trip, Rt # _____ ☐ No, carpool for one trip ☐ No not doing round trip today ☐ Don't know

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 -5: _____

11C. Number of children in your group ages 6 to 13: _____

12. What is your fare 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:

☐ Sounder: _____ ☐ 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	6927	564	6595	514	14600
		%	95%	78%	91%	98%	93%
	Non-Commute	n	347	156	631	12	1146
		%	5%	22%	9%	2%	7%
Total		n	7274	720	7226	526	15746
		%	100%	100%	100%	100%	100%

Fare Category by Purpose

			Purpose		Total
			Commute	Non-Commute	
What is your fare category?	Adult	n	12815	916	13731
	(Age 19-64)	%	96%	89%	95%
	Youth	n	60	39	99
	(Age 6-18)	%	0%	4%	1%
	Senior	n	345	66	411
	(Over 65)	%	3%	6%	3%
	Disabled	n	74	5	79
		%	1%	0%	1%
	ORCA Lift	n	64	3	67
		%	0%	0%	0%
Total		n	13358	1029	14387
		%	100%	100%	100%

Direction by Purpose

			Purpose		Total
			Commute	Non-Commute	
Direction surveyed	Outbound	n	7637	693	8330
		%	52%	60%	53%
	Inbound	n	6963	453	7416
		%	48%	40%	47%
Total	n		14600	1146	15746
	%		100%	100%	100%

Direction by Time Period

			Time period				Total
			AM Peak	Midday Off Peak	PM Peak	Evening Off Peak	
Direction surveyed	Outbound	n	360	535	6908	527	8330
		%	5%	74%	96%	100%	53%
	Inbound	n	6914	185	317	0	7416
		%	95%	26%	4%	0%	47%
Total	n		7274	720	7225	527	15746
	%		100%	100%	100%	100%	100%

Origin by Time Period

			Time period				Total
			AM Peak	Midday Off Peak	PM Peak	Evening Off Peak	
Origin location type	Work	n	194	449	6702	470	7815
		%	3%	63%	93%	89%	50%
	Home	n	7005	174	249	31	7459
		%	97%	25%	3%	6%	48%
	School or	n	14	71	145	22	252
	College	%	0%	10%	2%	4%	2%
	Shopping	n	0	0	19	0	19
		%	0%	0%	0%	0%	0%
	Other	n	19	16	81	4	120
		%	0%	2%	1%	1%	1%
Total		n	7232	710	7196	527	15665
		%	100%	100%	100%	100%	100%

Origin by Direction

			Direction surveyed		Total
			Outbound	Inbound	
Origin location type	Work	n	7360	454	7814
		%	89%	6%	50%
	Home	n	590	6868	7458
		%	7%	93%	48%
	School or	n	231	20	251
	College	%	3%	0%	2%
	Shopping	n	14	5	19
		%	0%	0%	0%
	Other	n	95	25	120
		%	1%	0%	1%
Total		n	8290	7372	15662
		%	100%	100%	100%

Destination by Time Period

			Time period				Total
			AM Peak	Midday Off Peak	PM Peak	Evening Off Peak	
Destination location type	Work	n	6767	105	200	23	7095
		%	94%	15%	3%	4%	45%
	Home	n	63	483	6607	496	7649
		%	1%	68%	92%	96%	49%
	Airport	n	9	0	0	0	9
		%	0%	0%	0%	0%	0%
	School or College	n	303	19	41	0	363
		%	4%	3%	1%	0%	2%
	Shopping	n	0	29	32	0	61
		%	0%	4%	0%	0%	0%
Total	Other	n	81	79	271	0	431
		%	1%	11%	4%	0%	3%
			7223	715	7151	519	15608
			100%	100%	100%	100%	100%

Destination by Direction

			Direction surveyed		Total
			Outbound	Inbound	
Destination location type	Work	n	478	6618	7096
		%	6%	90%	45%
	Home	n	7350	298	7648
		%	89%	4%	49%
	Airport	n	0	9	9
		%	0%	0%	0%
	School or College	n	109	254	363
		%	1%	3%	2%
	Shopping	n	43	18	61
		%	1%	0%	0%
Total	Other	n	272	159	431
		%	3%	2%	3%
			8252	7356	15608
			100%	100%	100%

Origin by Destination

			Destination location type						Total
			Work	Home	Airport	School or College	Shopping	Other	
Origin location type	Work	n	196	7215	0	22	33	279	7745
		%	3%	95%	0%	6%	54%	65%	50%
	Home	n	6851	105	0	322	23	115	7416
		%	97%	1%	0%	89%	38%	27%	48%
	School or College	n	9	211	0	19	0	13	252
		%	0%	3%	0%	5%	0%	3%	2%
	Shopping	n	0	14	0	0	5	0	19
		%	0%	0%	0%	0%	8%	0%	0%
	Other	n	25	68	3	0	0	24	120
		%	0%	1%	100%	0%	0%	6%	1%
Total	n	7081	7613	3	363	61	431	15552	
	%	100%	100%	100%	100%	100%	100%	100%	

Origin by Destination (AM Peak)

			Destination location type					Total
			Work	Home	Airport	School or College	Other	
Origin location type	Work	n	127	41	0	13	13	194
		%	2%	64%	0%	4%	16%	3%
	Home	n	6601	23	0	285	68	6977
		%	98%	36%	0%	94%	84%	97%
	School or College	n	9	0	0	5	0	14
		%	0%	0%	0%	2%	0%	0%
	Other	n	16	0	3	0	0	19
		%	0%	0%	100%	0%	0%	0%
Total	n	6753	64	3	303	81	7204	
	%	100%	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	60	6307	9	27	230	6633
		%	30%	96%	21%	84%	85%	93%
	Home	n	132	76	25	0	15	248
		%	66%	1%	60%	0%	6%	3%
	School or College	n	0	131	8	0	6	145
		%	0%	2%	19%	0%	2%	2%
	Shopping	n	0	14	0	5	0	19
		%	0%	0%	0%	16%	0%	0%
	Other	n	9	54	0	0	19	82
		%	4%	1%	0%	0%	7%	1%
Total		n	201	6582	42	32	270	7127
		%	100%	100%	100%	100%	100%	100%

Origin SAZ by Destination SAZ

			Destination SAZ 13 Zones													Total	
			Capitol Hill	East King County	North King County	U-District	Pierce County	Queen Anne	Rainier	Renton	Sea-Tac	Seattle CBD	Snohomish County	South King County	West Seattle		External
Origin SAZ 13 Zones	Capitol Hill	n	0	0	0	0	333	0	0	42	0	0	0	238	0	46	659
		%	%	%	%	%	8%	%	%	6%	%	%	%	7%	%	5%	4%
	East King County	n	0	0	0	0	212	0	0	0	0	0	0	15	0	80	307
		%	%	%	%	%	5%	%	%	%	%	%	%	%	%	8%	2%
	North King County	n	3	0	0	0	46	0	3	33	3	15	0	40	0	7	150
		%	%	%	%	%	1%	%	%	5%	7%	%	%	1%	%	1%	1%
	U-District	n	0	0	0	0	170	0	0	10	0	0	0	105	0	56	341
		%	0%	0%	0%	0%	4%	0%	0%	1%	0%	0%	0%	3%	0%	6%	2%
	Pierce County	n	367	163	0	116	448	207	448	318	29	1357	0	384	0	4	3841
		%	56%	69%	0%	42%	10%	46%	35%	44%	67%	40%	0%	12%	0%	0%	24%
	Queen Anne	n	0	16	0	0	196	0	0	16	0	0	0	272	0	79	579
		%	0%	7%	0%	0%	4%	0%	0%	2%	0%	0%	0%	8%	0%	8%	4%
	Rainier	n	0	0	0	0	641	0	0	84	0	0	0	772	0	119	1616
		%	0%	0%	0%	0%	15%	0%	0%	12%	0%	0%	0%	24%	0%	12%	10%
	Renton	n	15	0	0	7	304	0	14	0	0	126	0	37	0	114	617
		%	2%	0%	0%	3%	7%	0%	1%	0%	0%	4%	0%	1%	0%	11%	4%
	Sea-Tac	n	0	0	0	0	39	0	0	0	0	14	0	11	0	0	64
		%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Seattle CBD	n	0	0	0	0	1526	0	0	106	6	0	0	1196	0	423	3257
		%	0%	0%	0%	0%	35%	0%	0%	15%	14%	0%	0%	37%	0%	43%	21%
	Snohomish County	n	24	12	0	5	3	17	162	15	5	290	11	48	3	9	604
		%	4%	5%	0%	2%	0%	4%	13%	2%	12%	9%	50%	1%	27%	1%	4%
	South King County	n	194	32	13	99	456	169	425	43	0	1053	0	84	0	22	2590
		%	30%	14%	59%	36%	10%	37%	33%	6%	0%	31%	0%	3%	0%	2%	16%
	West Seattle	n	0	0	0	0	0	0	0	0	0	0	0	24	0	0	24
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
	External	n	54	12	9	48	0	59	232	53	0	537	11	42	8	35	1100
		%	8%	5%	41%	17%	0%	13%	18%	7%	0%	16%	50%	1%	73%	4%	7%
Total		n	657	235	22	275	4374	452	1284	720	43	3392	22	3268	11	994	15749
		%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Origin SAZ by Destination SAZ (AM Peak)

			Destination SAZ 13 Zones													Total	
			Capitol Hill	East King County	North King County	U-District	Pierce County	Queen Anne	Rainier	Renton	Sea-Tac	Seattle CBD	Snohomish County	South King County	West Seattle		External
Origin SAZ 13 Zones	Capitol Hill	n	0	0	0	0	1	0	0	20	0	0	0	30	0	0	51
		%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	6%	0%	0%	1%
	North King County	n	3	0	0	0	7	0	3	33	3	15	0	15	0	0	79
		%	1%	0%	0%	0%	3%	0%	0%	7%	8%	0%	0%	3%	0%	0%	1%
	U-District	n	0	0	0	0	0	0	0	10	0	0	0	0	0	0	10
		%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
	Pierce County	n	247	157	0	99	170	193	433	302	29	1309	0	325	0	4	3268
		%	49%	87%	0%	42%	64%	45%	35%	63%	78%	40%	0%	60%	0%	14%	45%
	Queen Anne	n	0	0	0	0	1	0	0	0	0	0	0	24	0	0	25
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%
	Rainier	n	0	0	0	0	9	0	0	0	0	0	0	24	0	0	33
		%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%
	Renton	n	0	0	0	0	16	0	14	0	0	115	0	0	0	0	145
		%	0%	0%	0%	0%	6%	0%	1%	0%	0%	3%	0%	0%	0%	0%	2%
	Sea-Tac	n	0	0	0	0	0	0	0	0	0	14	0	0	0	0	14
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Seattle CBD	n	0	0	0	0	16	0	0	0	0	0	0	10	0	0	26
		%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%
	Snohomish County	n	24	12	0	5	3	17	162	15	5	290	11	39	3	0	586
		%	5%	7%	0%	2%	1%	4%	13%	3%	14%	9%	50%	7%	27%	0%	8%
	South King County	n	172	0	8	90	44	158	385	43	0	1029	0	26	0	7	1962
		%	34%	0%	47%	38%	16%	37%	31%	9%	0%	31%	0%	5%	0%	24%	27%
	West Seattle	n	0	0	0	0	0	0	0	0	0	0	0	24	0	0	24
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%
	External	n	54	12	9	42	0	59	232	53	0	529	11	24	8	18	1051
		%	11%	7%	53%	18%	0%	14%	19%	11%	0%	16%	50%	4%	73%	62%	14%
Total	n	500	181	17	236	267	427	1229	476	37	3301	22	541	11	29	7274	
	%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	

Origin SAZ by Destination SAZ (PM Peak)

			Destination SAZ 13 Zones											Total
			Capitol Hill	East King County	North King County	U-District	Pierce County	Queen Anne	Rainier	Renton	Seattle CBD	South King County	External	
Origin SAZ 13 Zones	Capitol Hill	n	0	0	0	0	300	0	0	16	0	172	38	526
		%	0%	0%	0%	0%	8%	0%	0%	8%	0%	7%	4%	7%
	East King County	n	0	0	0	0	197	0	0	0	0	0	80	277
		%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	9%	4%
	North King County	n	0	0	0	0	18	0	0	0	0	17	7	42
		%	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%	1%	1%
	U-District	n	0	0	0	0	96	0	0	0	0	69	46	211
		%	0%	0%	0%	0%	3%	0%	0%	0%	0%	3%	5%	3%
	Pierce County	n	93	6	0	12	235	0	10	6	0	45	0	407
		%	78%	11%	0%	43%	7%	0%	48%	3%	0%	2%	0%	6%
	Queen Anne	n	0	16	0	0	174	0	0	16	0	208	79	493
		%	0%	30%	0%	0%	5%	0%	0%	8%	0%	9%	9%	7%
	Rainier	n	0	0	0	0	528	0	0	78	0	645	101	1352
		%	0%	0%	0%	0%	15%	0%	0%	37%	0%	28%	12%	19%
	Renton	n	15	0	0	7	240	0	0	0	7	31	114	414
		%	13%	0%	0%	25%	7%	0%	0%	0%	30%	1%	13%	6%
	Sea-Tac	n	0	0	0	0	39	0	0	0	0	11	0	50
		%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
	Seattle CBD	n	0	0	0	0	1352	0	0	94	0	1037	384	2867
		%	0%	0%	0%	0%	38%	0%	0%	45%	0%	45%	44%	40%
	Snohomish County	n	0	0	0	0	0	0	0	0	0	9	9	18
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
	South King County	n	11	32	5	9	381	11	11	0	16	58	15	549
		%	9%	59%	100%	32%	11%	100%	52%	0%	70%	3%	2%	8%
	External	n	0	0	0	0	0	0	0	0	0	18	0	18
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Total		n	119	54	5	28	3560	11	21	210	23	2320	873	7224
		%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Transfers by Time Period

			Time period				Total
			AM Peak	Midday Off Peak	PM Peak	Evening Off Peak	
Total	0	n	3764	399	3980	251	8394
number		%	52%	55%	55%	48%	53%
of	1	n	2971	265	2733	231	6200
transfers		%	41%	37%	38%	44%	39%
	2	n	533	56	463	45	1097
		%	7%	8%	6%	9%	7%
	3	n	6	0	49	0	55
		%	0%	0%	1%	0%	0%
Total		n	7274	720	7225	527	15746
		%	100%	100%	100%	100%	100%

Transfers by Purpose

			Purpose		Total
			Commute	Non- Commute	
Total	0	n	7688	706	8394
number		%	53%	62%	53%
of	1	n	5858	342	6200
transfers		%	40%	30%	39%
	2	n	999	99	1098
		%	7%	9%	7%
	3	n	55	0	55
		%	0%	0%	0%
Total		n	14600	1147	15747
		%	100%	100%	100%

Fare Payment by Time Period

			Time period				Total
			AM Peak	Midday Off Peak	PM Peak	Evening Off Peak	
How did you pay your fare?	ORCA, as pass	n	5220	392	5077	408	11097
		%	73%	55%	72%	80%	72%
	ORCA Day Pass	n	1203	177	1263	90	2733
		%	17%	25%	18%	18%	18%
	ORCA, as e-purse	n	398	82	430	7	917
		%	6%	12%	6%	1%	6%
	Police/Peace Officer	n	49	0	44	0	93
		%	1%	0%	1%	0%	1%
	U-PASS (ORCA)	n	15	0	0	0	15
		%	0%	0%	0%	0%	0%
	Cash	n	19	0	15	7	41
		%	0%	0%	0%	1%	0%
	Train Ticket-One Way (Vending Machine Ticket)	n	81	13	71	0	165
		%	1%	2%	1%	0%	1%
	Train Ticket-Day Pass (Vending Machine Ticket)	n	30	28	81	0	139
		%	0%	4%	1%	0%	1%
	Transit Go (Mobile Ticket)	n	68	17	57	0	142
		%	1%	2%	1%	0%	1%
	Other	n	36	0	39	0	75
		%	1%	0%	1%	0%	0%
Total	n		7119	709	7077	512	15417
	%		100%	100%	100%	100%	100%

Fare Payment by Purpose

			Purpose		Total
			Commute	Non-Commute	
How did you pay your fare?	ORCA, as pass	n	10490	607	11097
		%	73%	55%	72%
	ORCA Day Pass	n	2509	222	2731
		%	18%	20%	18%
	ORCA, as e-purse	n	820	97	917
		%	6%	9%	6%
	Police/Peace Officer	n	39	54	93
		%	0%	5%	1%
	U-PASS (ORCA)	n	10	5	15
		%	0%	0%	0%
	Cash	n	36	6	42
		%	0%	1%	0%
	Train Ticket-One Way (Vending Machine Ticket)	n	108	57	165
		%	1%	5%	1%
	Train Ticket-Day Pass (Vending Machine Ticket)	n	102	37	139
		%	1%	3%	1%
	Transit Go (Mobile Ticket)	n	129	13	142
		%	1%	1%	1%
	Other	n	75	0	75
		%	1%	0%	0%
Total		n	14318	1098	15416
		%	100%	100%	100%

Fare Payment by Income

			Annual Household Income				Total
			Less than \$50,000	\$50,000 to \$74,999	\$75,000 to \$99,999	\$100,000+	
How did you pay your fare?	ORCA, as pass	n	861	1399	1210	4804	8274
		%	45%	71%	67%	81%	71%
	ORCA Day Pass	n	560	309	418	831	2118
		%	29%	16%	23%	14%	18%
	ORCA, as e-purse	n	320	121	101	204	746
		%	17%	6%	6%	3%	6%
	Police/Peace Officer	n	22	20	9	27	78
		%	1%	1%	1%	0%	1%
	U-PASS (ORCA)	n	5	0	5	0	10
		%	0%	0%	0%	0%	0%
	Cash	n	12	0	0	11	23
		%	1%	0%	0%	0%	0%
	Train Ticket-One Way (Vending Machine Ticket)	n	56	23	16	11	106
		%	3%	1%	1%	0%	1%
	Train Ticket-Day Pass (Vending Machine Ticket)	n	41	23	12	22	98
		%	2%	1%	1%	0%	1%
	Transit Go (Mobile Ticket)	n	35	60	15	8	118
		%	2%	3%	1%	0%	1%
	Other	n	8	10	14	25	57
		%	0%	1%	1%	0%	0%
Total		n	1920	1965	1800	5943	11628
		%	100%	100%	100%	100%	100%

ORCA Pass by Purpose

			Purpose		Total
			Commute	Non-Commute	
If you selected ORCA, was it provided by your employer?	Yes	n	9792	528	10320
		%	73%	59%	72%
	No	n	3518	365	3883
		%	26%	41%	27%
	Didn't Use ORCA	n	75	6	81
		%	1%	1%	1%
Total		n	13385	899	14284
		%	100%	100%	100%