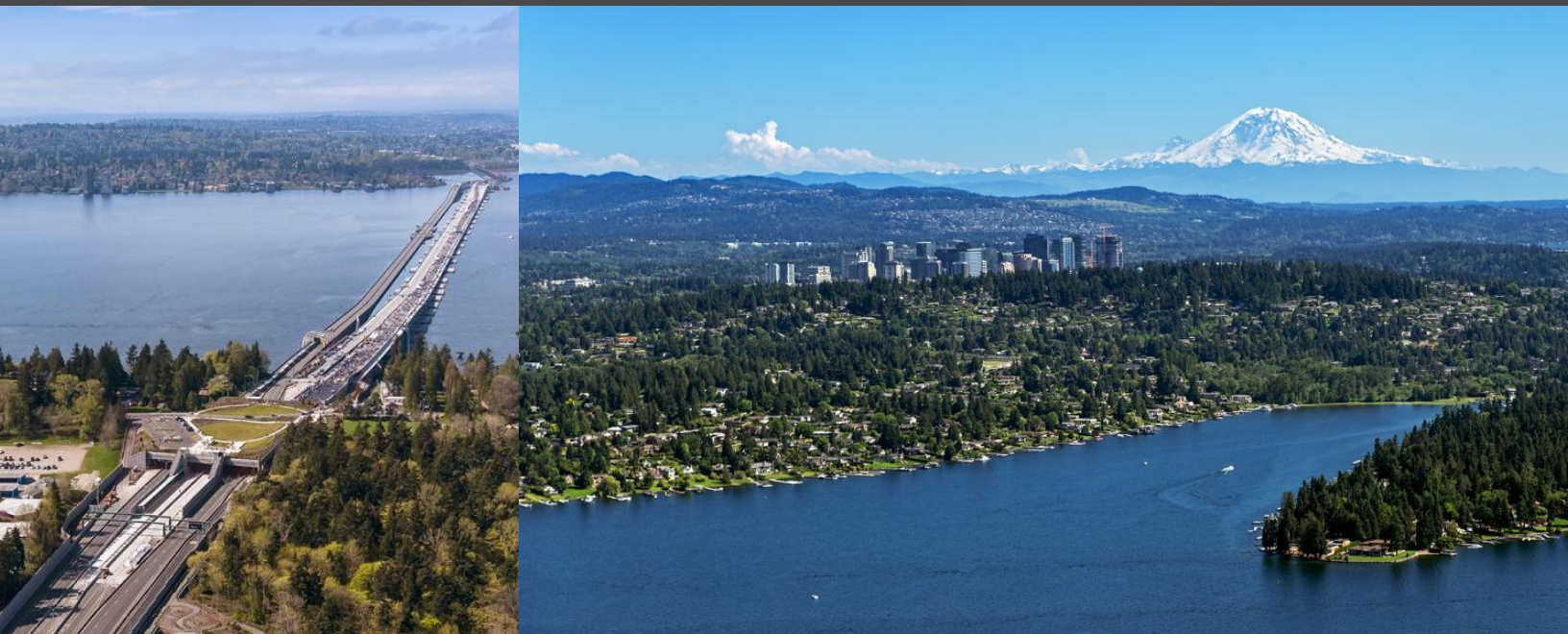




**PUGET SOUND REGIONAL COUNCIL**

# **2023 PUGET SOUND REGIONAL TRAVEL STUDY**

**Final Report | March 18, 2024**



**PREPARED FOR:**  
PUGET SOUND REGIONAL COUNCIL

**SUBMITTED BY:**  
RSG

**IN COOPERATION WITH:**  
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## ACKNOWLEDGMENTS

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The 2023 Puget Sound Regional Travel Study was supported by the efforts and advice of many partners. The Puget Sound Regional Council offers their thanks and appreciation to these partners and their staff for their input on this study.

### STUDY SPONSORS

- City of Bellevue.
- City of Seattle.
- Puget Sound Regional Council.

### CONSULTANT TEAM

- RSG (Prime Consultant).
- WestGroup Research (Subconsultant).



## GLOSSARY OF TERMS

TERM	DEFINITION
ABS	Address-based sampling (ABS) draws from a complete list of households within a given geographic area. This study's sampling frame was the full list of addresses in the specified census block groups as available from the United States Postal Service (USPS) Computerized Delivery Sequence File.
ACS	The American Community Survey (ACS) is an ongoing US Census Bureau survey that gathers demographic and other person- and household-level information. ACS estimates informed this study's sampling and weighting methods.
BG	A block group (BG) is a statistical division of a census tract and a contiguous geographic area that typically contains 600–3,000 people.
HH	In this study, a household (HH) encompassed anyone who lives in the home, including roommates, relatives, friends, and household help.
HTS	A household travel survey (HTS) is a periodic survey that collects trip and other travel information from an entire household for a predefined period (at least one full day).
PSRC	The Puget Sound Regional Council (PSRC) is a regional planning agency with specific responsibilities under federal and state law for transportation planning, economic development and growth management within King, Kitsap, Pierce, and Snohomish counties.
rMove™	rMove is a smartphone app designed to collect complete household travel diary information from invited participants. The app is compatible with most Android and iOS phones that are less than four years old. The study was designed to allow up to 50% of participants to complete Part 2 using rMove.
Travel date	In the context of this study, a "travel date" is the day on which a household reported its trips.



## 1.0 INTRODUCTION

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### 1.1 STUDY OBJECTIVES

The 2023 Puget Sound Regional Travel Study is the first data collection year in a household travel survey program cycle that is expected to include four waves, with surveys in 2023, 2025, 2027, and 2029. The survey instrument, overall methodology, and study goals follow the previous three wave data collection program that began in 2017. The 2023 study collected household- and person-level activity and travel pattern information from residents throughout the Puget Sound Regional Council (PSRC) four-county region from March–June of 2023.

The overarching goal of the multiyear program is to maintain an updated source of household travel behavior data that supports and allows for the following:

- Transportation and land-use modeling and planning needs.
- Trend analysis over time.
- Regular study design updates to integrate evolving data collection methods and emerging travel behaviors and transportation issues.

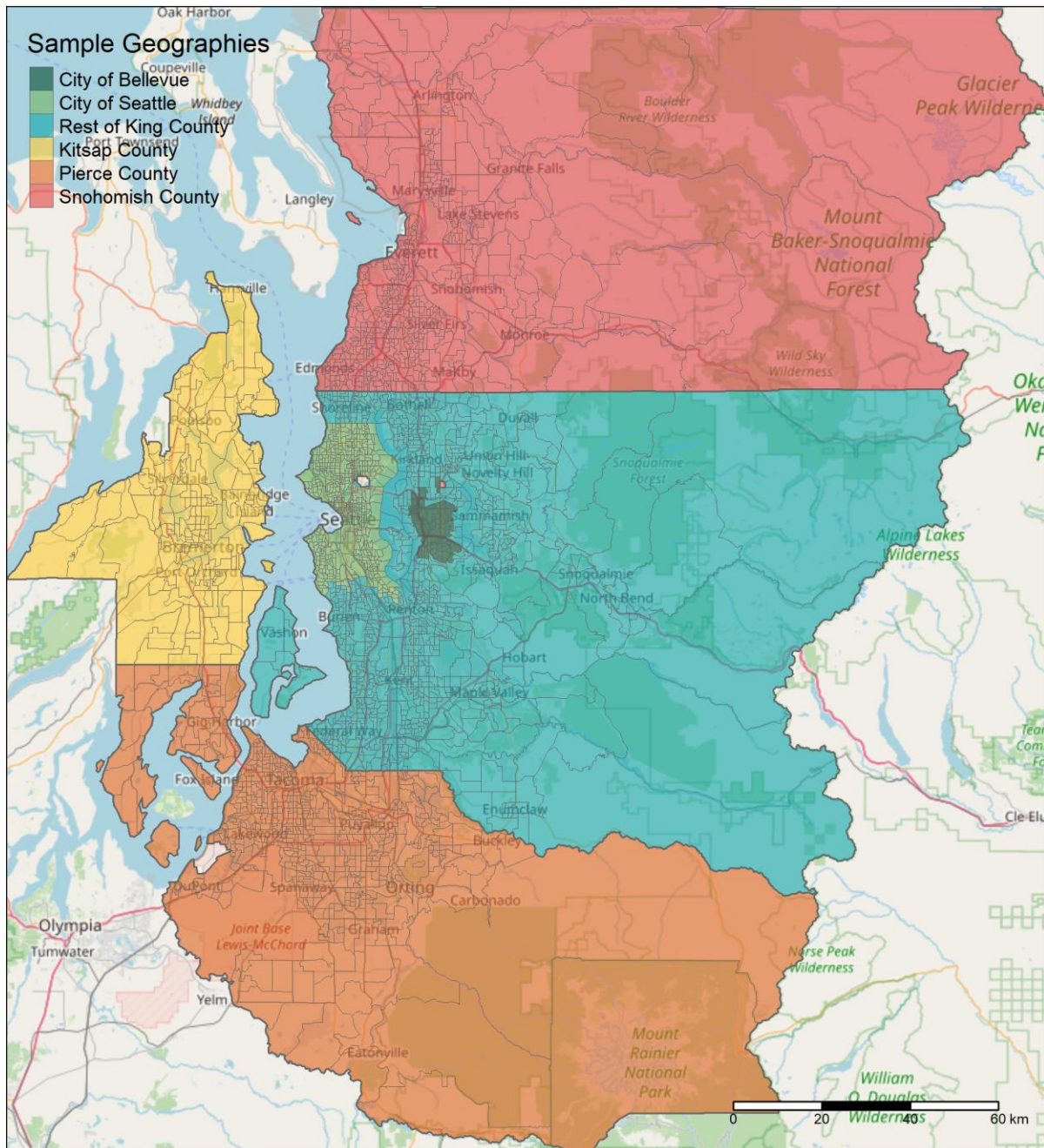
### 1.2 STUDY AREA

Consistent with recent surveys, the 2023 study encompassed the entire four-county PSRC region, which includes King, Kitsap, Pierce, and Snohomish counties. The region includes 82 cities and towns with a total population of over four million people. The study area comprises approximately 1,691,189 households.<sup>1</sup>

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<sup>1</sup> Estimated residential household population from the American Community Survey 2015–2019 five-year estimates, scaled to county-level household counts in the 2021 ACS one-year estimates.

### FIGURE 1: MAP OF STUDY AREA



### 1.3 STUDY TIMELINE

The scope of work for this project included the design and administration of a mixed-mode data collection approach, with smartphone-based retrieval of seven days of travel data as the primary methodology, supplemented with traditional online and call center-based data collection. Table 1 documents the project's schedule.

**TABLE 1: STUDY TIMELINE**

PHASE	TIMELINE
Scope Refinement	Nov. 2022–Dec. 2022
Survey Design	Nov. 2022–Feb. 2023
Survey Implementation	Mar. 2023–June 2023
Data Processing and Cleaning	June 2023–Oct. 2023
Weighting and Data Analysis	Dec. 2023 – Feb. 2024
Documentation	Feb. 2024–Mar. 2024
Technical Assistance	Mar. 2024 – Aug. 2024
Project Closure	Aug. 2024

Source: RSG



## 2.0 SURVEY SAMPLING

### 2.1 SAMPLING GOALS

The 2023 study aimed to sample a minimum of 3,480 complete responses with a target of **4,176 complete responses**, which equates a **0.25% sample rate** for the region (based on data from the 2015–2019 American Community Survey [ACS], scaled to 2021 one-year estimate). Typical sample rates for similar studies range from approximately 0.5–1%. Across the 2017, 2019, and 2021 studies, the combined sample rate was 0.6%. The 2014 PSRC study (the last study prior to the recurrent data collection design) also had a sample rate of approximately 0.6%. Table 2 shows the sample minimums and targets by sponsor.

**TABLE 2. EXPECTED SAMPLE BY SAMPLING GEOGRAPHY**

SPONSOR	MINIMUM HOUSEHOLDS	TARGET HOUSEHOLDS
PSRC	2,000	2,400
City of Bellevue	400	480
City of Seattle	1,080	1,296

The sections below further explain the process RSG used to determine the final sample rates for each census block group (BG).

### 2.2 SAMPLING METHODS

#### *Sampling Frame*

The sampling frame for the sample was the list of all households in the four-county study region of King, Kitsap, Pierce, and Snohomish counties.<sup>2</sup> RSG used address-based sampling (ABS) to select and invite households to participate in the study. ABS involves drawing a random sample of addresses from all the residential addresses in each sampling geography such that all households have an equal chance of selection for the sample. RSG purchased the final household mailing addresses from Marketing Systems Group, which maintains the Computer Delivery Sequence file from the USPS.

According to the ACS data, the region contains 2,916 BGs, 1,691,189 households, and a total population of 3,360,210 persons (including children). Group Quarters are a relatively small segment of the population and were excluded from the sampling frame, as were BGs with no reported households.

<sup>2</sup> The sampling frame was defined and stratified using ACS estimates of number of households in each census BG.

## **Sample Geographies**

To ensure sufficient sample throughout the region, the survey team identified six geographic groups to stratify the sample based on data and analysis needs in the region. These groups were:

1. City of Bellevue
2. City of Seattle
3. Rest of King County
4. Kitsap County
5. Pierce County
6. Snohomish County

## **Stratification**

Within each geography, RSG proposed the following mutually exclusive and collectively exhaustive sample strata to 1) ensure representation of groups that are typically hard to reach and 2) provide a larger sample of groups of particular interest.

- 1) **General population:** Comprised of block groups that do not qualify for oversampling strata below.
- 2) **Hard-to-survey Oversample:** Comprised of block groups that meet one or more of the following criteria:
  - a. At least 35% of households earn less than \$25,000 per year (“low income”).<sup>3</sup>
  - b. At least 60% of persons identify as Hispanic or Latino.<sup>4</sup>
  - c. At least 40% of census tract persons identify as:
    - i. non-White and non-Asian, or
    - ii. Asian and have a household income less than \$50,000 per year.<sup>5</sup>
  - d. At least 20% of households have limited English capabilities.<sup>6</sup>
- 3) **Walk/Bike/Transit Oversample:** Comprised of block groups with at least 55% of persons reporting walk, bicycle, or public transportation as their means of transportation to work<sup>7</sup> or at least 15% of households owning zero vehicles.<sup>8</sup>
- 4) **Rural:** Comprised of block groups that align with PSRC’s “Rural Areas and Natural Resources Lands” regional geography. These areas describe different types of

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<sup>3</sup> Based on 2021 – 2017 ACS table B19001.

<sup>4</sup> Based on 2017 – 2021 ACS table B03002.

<sup>5</sup> Based on 2017 – 2021 ACS table B19001D.

<sup>6</sup> Based on 2017 – 2021 ACS table C16002.

<sup>7</sup> Based on 2017 – 2021 ACS table B08301. This threshold excludes those with a reported “work from home” mode in both the numerator and denominator.

<sup>8</sup> Based on 2017 – 2021 ACS table B25044.



unincorporated areas outside the urban growth area and include very low-density housing, working landscapes, and open space.<sup>9</sup>

If a block group qualified for both the Hard-to-Survey and Walk/Bike/Transit stratum, it was classified as Hard-to-Survey. If a block group qualified for both Hard-to-Survey and Rural stratum, it was classified as Rural. Households by stratum are listed in Table 3 and households by geography and stratum are listed in Table 4.

**TABLE 3: SURVEY REGION HOUSEHOLDS AND PERSONS, BY SAMPLE STRATA<sup>10</sup>**

SAMPLE STRATA	NUMBER OF BGS	TOTAL HOUSEHOLDS	TOTAL ADULTS	ADULTS PER HOUSEHOLD
General	1,724	982,355	1,986,984	2.02
Hard-to-survey	476	279,663	544,369	1.95
Walk/Bike/Transit	258	185,752	315,030	1.70
Rural	458	243,419	513,827	2.11
<b>Total</b>	<b>2,916</b>	<b>1,691,189</b>	<b>3,360,210</b>	<b>1.99</b>

**TABLE 4: SURVEY REGION HOUSEHOLDS, BY SAMPLE GEOGRAPHY AND STRATUM<sup>11</sup>**

SAMPLE GEOGRAPHY	GENERAL	HARD-TO-SURVEY	WALK/BIKE/TRANSIT	RURAL	TOTAL
City of Bellevue	19,795	17,876	7,778	--	45,449
City of Seattle	174,529	65,323	109,619	--	349,471
Rest of King County	297,910	133,228	29,566	69,130	529,834
Kitsap County	53,123	3,323	5,693	44,257	106,396
Pierce County	220,562	38,561	18,097	70,452	347,672
Snohomish County	216,436	21,352	14,999	59,580	312,367
<b>Total</b>	<b>982,355</b>	<b>279,663</b>	<b>185,752</b>	<b>243,419</b>	<b>1,691,189</b>

<sup>9</sup> PSRC Data Portal. [Regional Geographies | PSRC Data Portal \(arcgis.com\)](https://arcgis.com)

<sup>10</sup> Based on 2015-2019 ACS 5-year estimates, scaled to county-level household and person counts in the 2021 ACS 1-year estimates.

<sup>11</sup> Based on 2015-2019 ACS 5-year estimates, scaled to county-level household and person counts in the 2021 ACS 1-year estimates.



### Mid-Study Adjustment and Final Sample Rates

RSG and PSRC reviewed and analyzed response rates at two points during data collection. Initial response rates were lower than anticipated across most segments, and additional invitations were sent across twelve segments for the second half of data collection:

- **City of Bellevue:** General, Walk/Bike/Transit
- **Rest of King County:** General, Hard-to-Survey
- **Kitsap County:** Walk/Bike/Transit, Rural
- **Pierce County:** General, Walk/Bike/Transit
- **Snohomish County:** General, Hard-to-Survey, Walk/Bike/Transit, Rural

The final sample rates across the 2023 study are listed below by strata and geography in Table 5.

**TABLE 5. FINAL INVITATIONS AND INVITATION RATE BY STRATA AND GEOGRAPHY FOR 2023**

GEOGRAPHY	SAMPLE SEGMENT	TOTAL HH	INVITATIONS	INVITATION RATE	SAMPLE RATE
City of Bellevue	General	19,795	14,895	75%	1.1%
	Hard-to-survey	17,876	11,279	63%	
	Walk/Bike/Transit	7,778	5,544	71%	
City of Seattle	General	174,529	22,127	13%	0.5%
	Hard-to-survey	65,323	25,157	39%	
	Walk/Bike/Transit	109,619	22,706	21%	
Rest of King County	General	297,910	21,103	7%	0.1%
	Hard-to-survey	133,228	9,921	7%	
	Walk/Bike/Transit	29,566	2,013	7%	
	Rural	69,130	5,536	8%	
Kitsap County	General	53,123	4,620	9%	0.2%
	Hard-to-survey	3,323	356	11%	
	Walk/Bike/Transit	5,693	374	7%	
	Rural	44,257	6,695	15%	
Pierce County	General	220,562	18,187	8%	0.1%
	Hard-to-survey	38,561	9,535	25%	
	Walk/Bike/Transit	18,097	4,713	26%	
	Rural	70,452	4,781	7%	
Snohomish County	General	216,436	18,314	8%	0.1%
	Hard-to-survey	21,352	3,257	15%	
	Walk/Bike/Transit	14,999	2,760	18%	
	Rural	59,580	12,283	21%	
TOTAL	General	982,355	99,246	10%	0.2%
	Hard-to-survey	279,663	59,505	21%	
	Walk/Bike/Transit	185,752	38,110	21%	

GEOGRAPHY	SAMPLE SEGMENT	TOTAL HH	INVITATIONS	INVITATION RATE	SAMPLE RATE
	Rural	243,419	29,295	8%	
	<b>TOTAL</b>	<b>1,691,189</b>	<b>226,156</b>	<b>13%</b>	



## 2.3 SAMPLE MONITORING

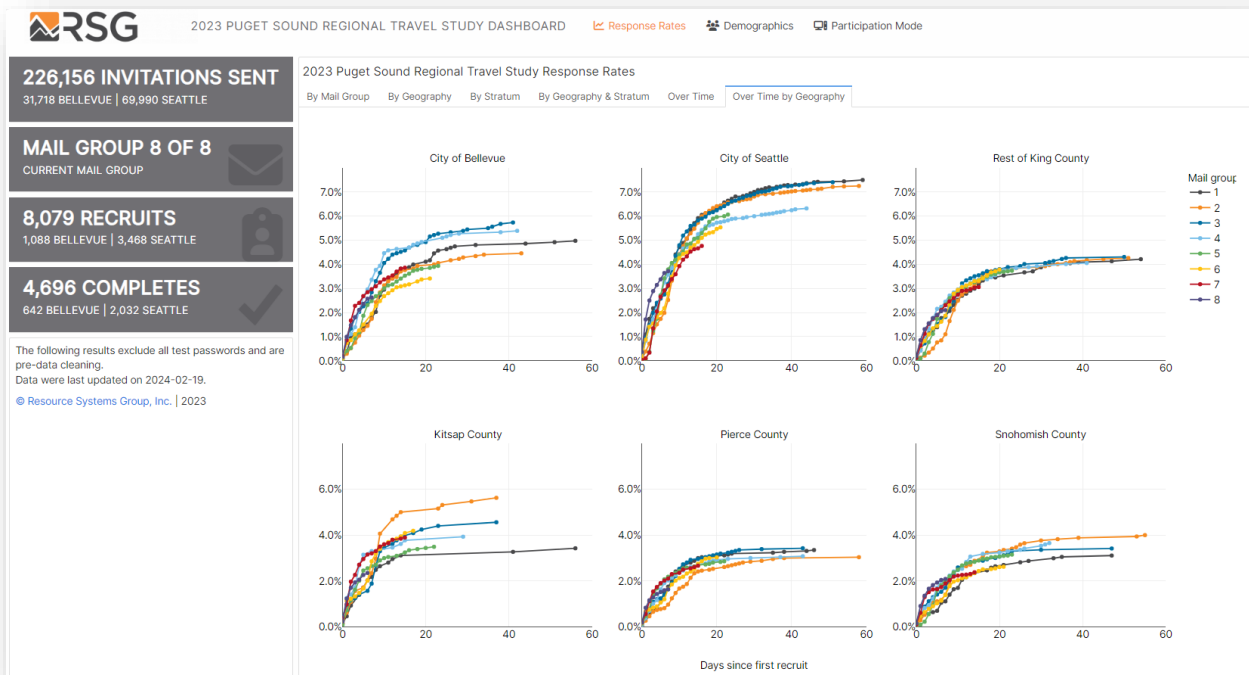
Throughout data collection, RSG monitored response rates to ensure that the survey response was on target overall and by individual segment. This monitoring included a project tracking dashboard that summarized live demographic distributions for households that completed at least Part 1 of the study (Figure 2). RSG and PSRC conducted a “midpoint review” after the first few weeks of data collection to determine whether adjustments were needed to help meet sampling objectives.

The consultant team monitored response at two levels:

- **Primary target:** Meet the total number of complete records for the study while meeting individual sponsor targets.
- **Secondary target:** Ensure that the response is roughly proportional in each sample segment.

Trends at the midpoint review indicated that the initially planned number of invitations for multiple segments were insufficient based on the response rates. Table 5 reflects the adjustments at both mid-study evaluations.

**FIGURE 2: LIVE TRACKING DASHBOARD**



## 3.0 SURVEY DESIGN

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### 3.1 OVERVIEW

The 2023 study collected data using smartphone-, online- and telephone-based methods. The survey design included several stages to recruit and collect data about households, their members, and their travel behaviors during the assigned travel period.

### 3.2 SURVEY STAGES AND PARTICIPATION METHODS

RSG contacted invited households via mailed letter and postcard invitations. The mailed study invitation materials instructed households to visit the study website or call a toll-free number to complete Part 1 (the demographic “recruit” survey). Households received instructions for Part 2 (the travel diary) after completing Part 1.

#### Study Components

All households had the option to complete Part 1 either via the survey smartphone app (rMove), the online survey, or the call center. When households contacted the call center, a representative utilized an identical online survey instrument, resulting in consistent data coding for telephone and online responses. Part 1 collected general demographic information, established information to facilitate Part 2, and obtained any additional household-level information. At the end of Part 1, participants had the option to choose whether to complete Part 2 via rMove or the online survey. Part 2 collected all trip and travel day information and any person-level information.

#### Travel Date Assignments

All households were assigned to a Monday, Tuesday, Wednesday, or Thursday travel date during the study period. Travel days were assigned roughly proportionally as respondents completed the Part 1 survey. Households participating through rMove were instructed with a seven-day travel period.

#### Language Options

The survey instruments were available only in English. Households that spoke Spanish, Russian, Chinese, Korean, Tagalog, Vietnamese, or Somali had the option to call the toll-free line to complete the survey over the phone in their preferred language. The call center received ten calls in Spanish, three calls in Vietnamese, and one call in Russian.

### 3.3 SURVEY INCENTIVES

RSG offered \$15–\$35 gift card incentives—as communicated on the survey mailed materials—to all households that completed the study. Travel surveys offer incentives to boost response rates and the quality of respondent data, and to decrease the overall study cost by reducing the number of mailed invitations. rMove app households were offered one \$25–\$35 gift card per

adult after all related adults had completed the survey. Online households were offered one \$15-\$20 gift card per household. Households could also choose to receive no gift card.

The gift card amount was dependent on the sampling segment and reported demographic information. Households with incomes below \$25,000, persons reporting non-White and non-Asian race, or persons reporting Asian race with household income below \$50,000, as well as households in the Walk/Bike/Transit Oversample and Rural segments were offered a higher incentive upfront to encourage participation. These populations are often underrepresented in surveys (and thus required additional attention).

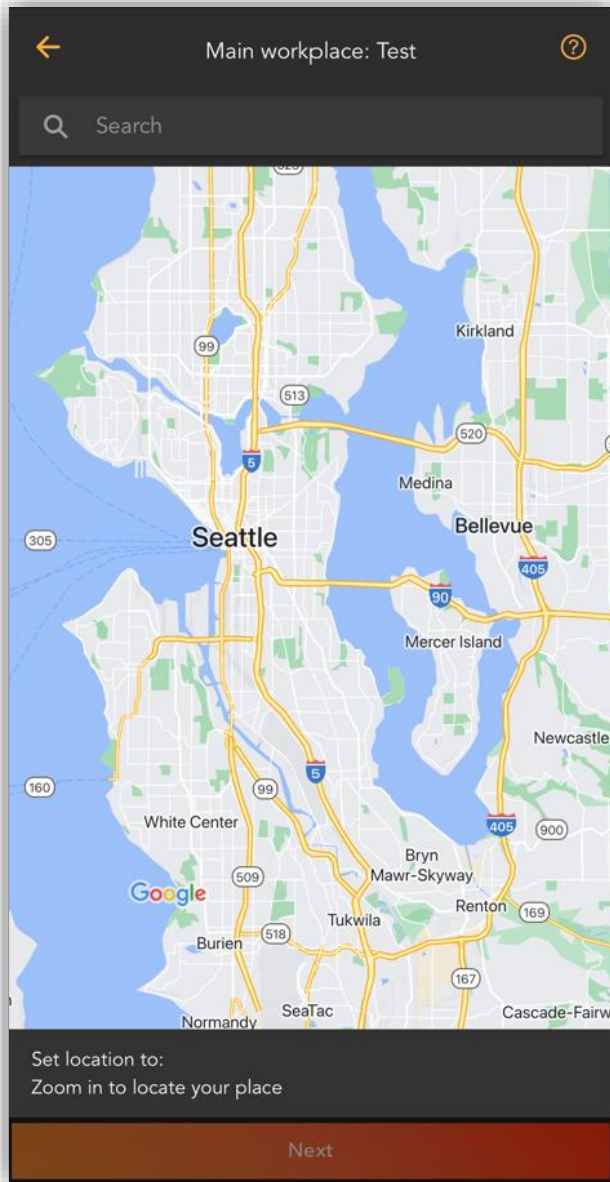
Invited households could choose from physical Visa gift cards, digital Starbucks gift cards, or digital Amazon gift cards. Households also had the option to opt out of receiving a gift card.

### **3.4 HOUSEHOLD, PERSON, AND VEHICLE DATA COLLECTED**

Part 1 of the survey was the main collection source of household, person, and vehicle data. Part 1 was organized into the following question categories:

1. Vehicle ownership.
2. Household membership details (e.g., age, relationship, smartphone ownership).
3. Work and school information.
4. Home details.
5. Demographic information.
6. Home location preferences and reasons for relocation (if applicable).
7. Household income.
8. Incentive and communication preferences.
9. Part 2 completion instructions.

The survey collected all address information for current and previous “habitual” locations (e.g., home address, work address, school address) using a built-in real-time geocoder (Figure 3). The full survey questionnaire is available in Appendix A.

**FIGURE 3: PRIMARY WORKPLACE LOCATION GEOCODER (RECRUIT SURVEY SCREENSHOT)**

Source: RSG

## 3.5 TRAVEL DIARY DATA COLLECTED

### Trip Data

rMove required each adult household member to report full travel diary information for seven consecutive days, whereas rMove for Web only required one household member to report travel for the entire household. Households participating through rMove for Web reported all their trip information through recollection. The survey instruments gathered the following information from participants:

- Trip roster.
- Trip start and end times / points.
- Travel party.
- Trip purpose.
- Travel mode(s).
- Trip costs and other details associated with each mode (e.g., access/egress modes, parking details).

### Travel Day Data

In addition to all trip data, the survey collected day-level information at the end of the travel day. This information included the following:

- Why the participant made no trips that day (when that was the case).
- Types of deliveries that occurred that day.
- How much time the participant spent telecommuting that day.

### Reporting Summary Travel Details for Children by Proxy

Although Part 1 collected information on all household members, Part 2 required only household adults to report their travel. Household adults provided summary travel diary information for all children under age 18. During postprocessing, RSG derived individual trip records for children based on the trips on which they traveled (reported in the travel party on trips made by other household members). Additionally, adult participants were asked whether children made trips on their travel days without household adults, including trips to school.

## 3.6 ADDITIONAL DATA COLLECTED

The survey questionnaire also included questions about general travel behavior and preferences. These questions included the following:

- Typical travel and frequency of using different travel modes (e.g., how often the participant typically walks, bikes, or uses transit).
- Factors that encouraged moving away from previous residence.

- Employer transit subsidies and commuter benefits.

### 3.7 SURVEY DESIGN UPDATES

While most of the survey design remained consistent with previous study waves, there were several additions and changes.

#### Content Changes: Added/Modified Questions

- **Gender:** Refined answer options to increase inclusion.
- **Licenses:** Update question text to remove reference to a driver's license and instead ask whether someone drives.
- **Office Available:** Added a question for remote-only workers regarding whether they had a dedicated space available for work.
- **Commute duration:** Added a question for workers that commute to understand how long the worker has been commuting to their workplace.
- **Industry:** Added a question for which industry workers are employed within.
- **Commute Subsidy:** Added a question pair to assess which commute subsidies are available and which the workers utilize.
- **Sexuality:** Added a question asking residents' sexuality to gather data to understand variations in travel behavior related to sexuality.

The 2023 study also included several updates to ensure that the survey was current. For example, RSG updated the list of vehicles from which participants could select their household vehicles' year/make/model.

#### Content Changes: Dropped Questions

The following questions were dropped from the 2023 study either to reduce survey burden or to keep the survey up to date:

- **Employment details before the COVID-19 pandemic:** The 2021 survey included several questions about respondents' work attributes prior to 2020 to facilitate data weighting and cross-year comparisons. These were not needed in 2023 and dropped to reduce burden.
- **Trip-level toll:** This was dropped to reduce burden.
- **Factors to increase walk, bike, transit usage:** This was dropped to reduce burden.

## 4.0 SURVEY BRANDING, COMMUNICATION, AND ADMINISTRATION

### 4.1 STUDY BRANDING

RSG developed the 2023 study branding collaboratively with PSRC, with a refreshed logo that drew on design elements from previous studies. The complete branding package included the study name, logo, color scheme, and font selections. The final 2023 study logo is shown in Figure 4.

FIGURE 4: 2023 STUDY LOGO



Source: RSG

### 4.2 STUDY INVITATION MATERIALS

Households received one to two mailings:

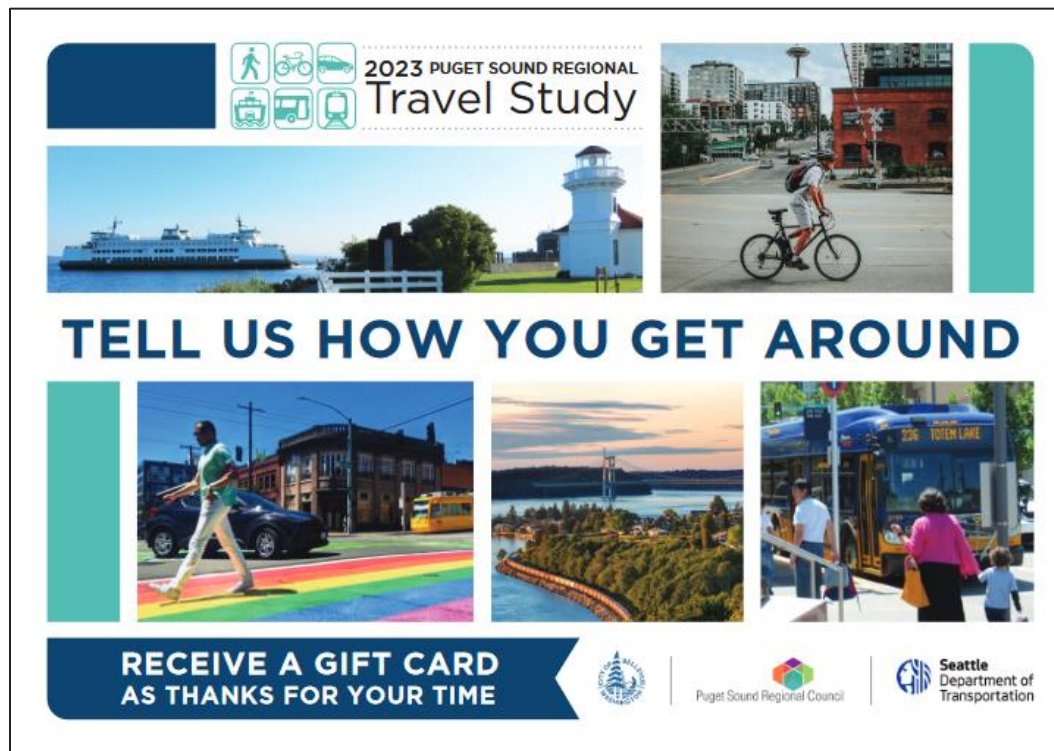
- **Invitation packet:** RSG mailed letter invitations by US standard mail. The letter explained the study purpose, described the steps necessary to complete the study, and included the PSRC logo and a signature from PSRC's executive director, Josh Brown. The invitation also included a list of Frequently Asked Questions (FAQ) information about non-English participation in Spanish, Chinese, Russian, Korean, Tagalog, Vietnamese, and Somali.
- **Reminder postcard:** Reminder postcards arrived at each household approximately one week after the invitation packet to encourage every household to complete the study. These cards included the study phone number, website address, and participant login information.

Most households received both mailings, however RSG mailed postcards only to a set of households in the second half of data collection to increase sample size during a shorter timeframe than is typically feasible with a full set of mailings. All households received the same postcard (see Figure 5 and Figure 6).

All mailings were written in English, but the postcards and letter also indicated phone support for non-English-speaking participants. The additional languages offered on the postcards were Spanish, Chinese, Korean, Russian, Tagalog, Vietnamese, and Somali. All languages were coordinated through the study call center. Example postcards are shown in Figure 5 (front) and Figure 6 (back), and examples of all printed materials can be found in Appendix B.



FIGURE 5: EXAMPLE SURVEY POSTCARD (FRONT)



Source: RSG

FIGURE 6: EXAMPLE SURVEY POSTCARD (BACK)

**2023 PUGET SOUND REGIONAL Travel Study**  
 1011 Western Avenue, Suite 500  
 Seattle, WA 98104

**SIGN UP TODAY!** Complete the study about how you travel and receive a gift card as thanks

GO ONLINE: [survey.psrc.org](https://survey.psrc.org) OR CALL TOLL-FREE: **1-833-888-1373**

INVITATION ACCESS CODE: **XXXXXXXXXX**

**ESPAÑOL | SPANISH** – Cuéntanos acerca del transporte en tu comunidad. Si desea participar en español, llame al número gratuito 1-833-888-1373 para participar en el estudio y recibir una tarjeta de regalo.  
**中文 | CHINESE** – 请告知我们您社区的交通状况。如果您想参与简体中文的调查，请拨打免费电话 1-833-888-1373，参与调查即可获得一份礼品卡。  
**РУССКИЙ | RUSSIAN** – Расскажите нам о транспорте в Вашем микрорайоне. Если Вы захотите рассказать на русском, пожалуйста позвоните по бесплатному номеру телефона 1-833-888-1373 чтобы участвовать в нашем исследовании и получить подарочную карту.  
**한국 | KOREAN** – 귀하의 지역사회 교통편에 대해 알려주세요. 혹시 본 조사를 한국어로 참여하고 싶으시면 무료전화 1-833-888-1373으로 참여하고 기프카드도 받으시길 바랍니다.  
**TAGALOG** – Sabihin sa amin ang tungkol sa transportasyon sa iyong komunidad. Kung nais mong makilahok sa wikang tagalog, mangyaring tumawag sa walang bayad na numero sa 1-833-888-1373 upang makilahok sa pag-aaral at manalo ng isang gift card.  
**TIẾNG VIỆT | VIETNAMESE** – Hãy cho chúng tôi biết về cách đi lại trong cộng đồng của bạn. Nếu bạn muốn tham gia bằng tiếng Việt, vui lòng gọi cho số điện thoại miễn phí 1-833-888-1373 để tham gia nghiên cứu và nhận thẻ quà tặng.  
**SOOMAALI | SOMALI** – Wax nooga sheeg gaadiidka bulshadaada. Haddii aad jeclaan laheed inaad ku qaybqaadato af Soomaali, Fadlan wax Khadka lacag la'aanta ah ee 1-833-888-1373 si aad uga qaybqaadato daraasada iyo aad u hesho kaar hadiyad ah.

<City name resident>  
 <Street Address 1>  
 <Street Address 2>  
 <City, WA <#####>

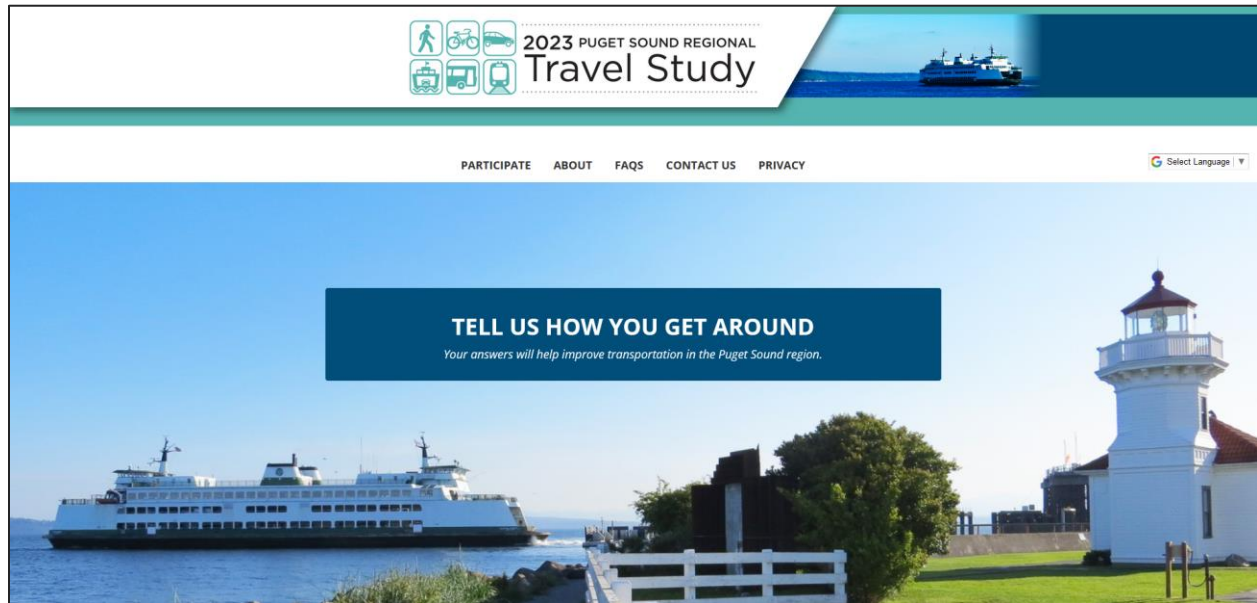
Source: RSG



## 4.3 STUDY WEBSITE

RSG developed a project website in 2014 to describe the 2014–2015 study and facilitate survey participation. RSG maintained this site in the interim and updated the design in 2017, 2019, 2021, and again in 2023 to reflect the new study and provide current information (e.g., updated FAQs, sponsors). The 2023 study website (like prior websites) was designed to be simple, intuitive, and easy to navigate on desktop computers and mobile devices. The website home page is shown in Figure 7 below.

**FIGURE 7: PROJECT WEBSITE HOME PAGE**



Source: RSG

## 4.4 PARTICIPANT SUPPORT

### Outbound Participant Support

RSG used two primary types of outbound participant support throughout the study. These included automated email reminders and reminder phone calls.

#### *Email Reminders and Phone Calls*

During Part 1 of the survey, participants could provide a phone number or email address for study communications. The study call center conducted all phone reminders to households that only provided a phone number. Phone reminders occurred on the following schedule:

- One day before each household's travel date.
- One day after each household's travel date.
- Three days after each household's travel date (if the household had not yet completed the study).

RSG sent reminder emails on a more frequent schedule:

- Immediately after each household completed Part 1.
- On the travel date.
- One day after the travel date.
- Three to seven days after the travel date (if the household had not yet completed the study).

## Inbound Participant Support

In addition to all outbound participant support, RSG provided two primary means through which participants could contact study administrators. Participants could call a toll-free number to reach the study call center or email the study inbox with questions. The study website included the toll-free number and a contact form to submit an email request. Anyone with a question or comment could contact the consultant team for information, whether they were a participant or simply an interested member of the public.

### ***Call Center***

Participants who called the toll-free number were either connected to a trained representative who could answer any questions or asked to leave a voicemail. In total, the call center received 925 inbound calls, including 14 foreign language (10 Spanish, 3 Vietnamese, 1 Russian) calls, and made 2,517 outbound calls (primarily reminder calls).

### ***Email Inbox***

RSG staff monitored and responded to the study email inbox, typically within one business day. Table 6 below shows the breakout of inbound emails, by primary topic.

**TABLE 6: INBOUND EMAIL TOPICS**

EMAIL TOPIC	COUNT
Gift card inquiry	352
rSurvey troubleshooting	313
General questions	259
No reply needed (e.g., “thank you”)	108
Login help	108
Comments and feedback	143
Contact information update	14
Out of town/Travel date reassignment request	53
Unsubscribe request	38
Volunteer inquiry	30
Data deletion request	2
Completion status	136
<b>Total</b>	<b>1,556</b>

Source: RSG

## 5.0 DATASET PREPARATION

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### 5.1 OVERVIEW

RSG conducted dataset preparation and quality control procedures at every stage of the study (before, during, and after data collection). These procedures were designed to validate survey logic, review participant experience, and confirm consistent data coding in the survey database. The following sections summarize the various dataset preparation and quality control steps. RSG provided a separate dataset user guide to PSRC with the initial dataset; this guide included data cleaning details for key elements.

### 5.2 DATASET PREPARATION

#### Database Setup and Real-Time Quality Controls

Prior to a survey launch, RSG and PSRC reviewed the survey instruments to ensure that the survey interface was clear and easy to use, questions were understandable, and variables wrote out to the database as expected. To reduce survey burden and improve final data quality, the survey also included real-time data checks and logic. Examples of these checks include the following:

- Validation logic to prevent skipped questions.
- Logic checks to hide irrelevant questions and answers (e.g., employment questions for children).
- Spatial and temporal checks within trip rosters to prevent overlapping trips.

These real-time data checks do not eliminate every inconsistency, but they do significantly reduce reporting errors and re-coding requirements after data collection.

#### Geographic Data Checks

During data collection, the survey instruments used the Bing Maps API to geocode the coordinates for reported home, work, school, and trip addresses. The API was also used to estimate travel times and distances. These estimates were recorded in the database and shown to participants in real time to help them verify that they had correctly entered their trip location information.

Following data collection, RSG also coded home location points to BGs and broader regional definitions.

#### Trip Derivation for Nonparticipating Household Members

Household travel surveys require data for all household members to assess complete household travel patterns. However, some exceptions are allowed in the data collection process where travel can be reported by proxy, particularly for children.

Household adults were asked to report travel for the children in the household (under age 18). Participants could also report children of all ages as travel party members on their own trips. RSG used these records to derive diary records for children under age 18.

## **Completion Criteria**

The last step of dataset preparation involved reviewing all data records to confirm that they met survey, travel day, and household completion criteria. “Complete” households met the following conditions:

1. The household completed the online recruitment/demographic survey.
2. All ABS household members provided complete travel diary information (i.e., answered all surveys and reported all trips). Online panel members provided complete travel diary information for themselves (person 1 in the household).
3. The household reported a home address within the study region.

## 6.0 EXPANSION AND WEIGHTING

Household travel surveys cover a fraction of the population, yet the resulting datasets help analyze and make inferences about the population at large. Weighting is the process of comparing selected demographics in the survey to external control data, like the census or the ACS, and adjusting the profile of the survey dataset to improve the representativeness of the population in the study area.

RSG worked collaboratively with PSRC to develop a weighting approach to expand the survey data to represent the study region. The weighting target categories are included in Table 7 and Table 8.

**TABLE 7: HOUSEHOLD-LEVEL WEIGHTING TARGETS**

Variable	Categories
<b>Household Size</b>	1-person 2-person 3-person or more
<b>Income</b> <i>(Imputed if non-response)</i>	Under \$25,000 \$25,000–\$49,999 \$50,000–\$74,999 \$75,000–\$99,999 \$100,000–\$199,999 \$200,000 or more
<b>Workers</b>	0 workers 1 worker 2 workers 3 workers or more
<b>Vehicles</b>	No vehicles Fewer vehicles than drivers Vehicles greater than or equal to drivers
<b>Presence of Children</b>	0 children 1 or more children
<b>Total Households per PUMA</b>	<i>Not applicable</i>
<b>Total Households</b>	<i>Not applicable</i>



TABLE 8: PERSON-LEVEL WEIGHTING TARGETS

Variable	Categories
<b>Gender</b> <i>(Imputed if non-response)</i>	Female Male
<b>Age</b>	Under 5 5–15 years 16 – 17 years 18–24 years 25 – 44 years 55–64 years 65 years or older
<b>Worker Status</b>	Full-time worker Part-time worker Non-worker
<b>University Student Status</b>	University student Not a university student
<b>Educational Attainment</b>	Some college education No college education
<b>Race</b> <i>(Imputed if non-response)</i>	African American Asian White Other
<b>Ethnicity</b> <i>(Imputed if non-response)</i>	Hispanic Non-Hispanic
<b>Commute Mode</b>	Bike Walk Transit Auto / other Telework None
<b>Total Persons</b>	<i>Not applicable</i>

# 7.0 SURVEY RESULTS

## 7.1 SAMPLE PLAN EVALUATION

As mentioned in Section 2.0, the 2023 study aimed to sample a minimum of **3,080 complete households** (2,000 households in the four-county study region plus 400 additional households in the City of Bellevue, and 1,080 additional households in the City of Seattle). The sampling frame was stratified by county, city, and expected response rate. The estimated and final response rates and sample rates by sample segment are included in Table 9 and Table 10 below, respectively.

**Note:** The estimated sample rates in Table 10 are based on 2017-2021 ACS data (the most recent available at the time of sample plan development).

**TABLE 9: ESTIMATED AND ACTUAL RESPONSE RATE, BY SAMPLE SEGMENT**

SUBREGION	SEGMENT	INVITED HOUSEHOLDS	COMPLETED HOUSEHOLDS	RESPONSE RATE (ESTIMATED)	RESPONSE RATE (BEFORE IOS CLEANING)	RESPONSE RATE (ACTUAL)
City of Bellevue	General	14,895	224	5.3%	1.9%	1.5%
	Hard-to-survey	11,279	177	3.7%	2.1%	1.6%
	Walk/Bike/Transit	5,544	77	5.3%	1.9%	1.4%
	<b>TOTAL</b>	<b>31,718</b>	<b>478</b>	<b>4.5%</b>	<b>2.0%</b>	<b>1.5%</b>
City of Seattle	General	22,127	638	5.3%	3.6%	2.9%
	Hard-to-survey	25,157	417	3.7%	2.0%	1.7%
	Walk/Bike/Transit	22,706	553	5.3%	3.0%	2.4%
	<b>TOTAL</b>	<b>69,990</b>	<b>1,608</b>	<b>4.9%</b>	<b>2.9%</b>	<b>2.3%</b>
Rest of King County	General	21,103	303	5.3%	1.9%	1.4%
	Hard-to-survey	9,921	126	3.7%	1.6%	1.3%
	Walk/Bike/Transit	2,013	38	5.3%	2.1%	1.9%
	Rural	5,536	69	3.7%	1.5%	1.2%
	<b>TOTAL</b>	<b>38,573</b>	<b>536</b>	<b>4.5%</b>	<b>1.8%</b>	<b>1.4%</b>
Kitsap County	General	4,620	58	3.7%	1.5%	1.3%
	Hard-to-survey	356	13	3.1%	4.2%	3.7%
	Walk/Bike/Transit	374	5	3.7%	2.4%	1.3%
	Rural	6,695	129	3.1%	2.5%	1.9%
	<b>TOTAL</b>	<b>11,585</b>	<b>205</b>	<b>3.4%</b>	<b>2.2%</b>	<b>1.8%</b>

SUBREGION	SEGMENT	INVITED HOUSEHOLDS	COMPLETED HOUSEHOLDS	RESPONSE RATE (ESTIMATED)	RESPONSE RATE (BEFORE IOS CLEANING)	RESPONSE RATE (ACTUAL)
Pierce County	General	18,187	194	3.3%	1.4%	1.1%
	Hard-to-survey	9,535	60	2.1%	0.8%	0.6%
	Walk/Bike/Transit	4,713	80	3.3%	2.3%	1.7%
	Rural	4,781	63	2.1%	1.6%	1.3%
	TOTAL	37,216	397	2.8%	1.4%	1.1%
Snohomish County	General	18,314	223	4.0%	1.6%	1.2%
	Hard-to-survey	3,257	43	3.1%	1.7%	1.3%
	Walk/Bike/Transit	2,760	25	4.0%	1.4%	0.9%
	Rural	12,283	135	3.1%	1.5%	1.1%
	TOTAL	36,614	426	3.7%	1.5%	1.2%
TOTAL	General	99,246	1,640	5.2%	2.1%	1.7%
	Hard-to-survey	59,505	836	3.2%	1.8%	1.4%
	Walk/Bike/Transit	38,110	778	4.5%	2.6%	2.0%
	Rural	29,295	396	1.7%	1.7%	1.3%
	TOTAL	226,156	3,650	4.2%	2.1%	1.6%

Source: RSG



TABLE 10: SAMPLE RATE, BY SAMPLE SEGMENT

SUBREGION	SEGMENT	ACS HOUSEHOLDS (2017-2021)	COMPLETED HOUSEHOLDS	SAMPLE RATE (ESTIMATED)	SAMPLE RATE (ACTUAL)
City of Bellevue	General	19,795	224	1.0%	1.1%
	Hard-to-survey	17,876	177	1.2%	1.0%
	Walk/Bike/Transit	7,778	77	1.6%	1.0%
	TOTAL	45,449	478	1.2%	1.1%
City of Seattle	General	174,529	638	0.4%	0.4%
	Hard-to-survey	65,323	417	0.5%	0.6%
	Walk/Bike/Transit	109,619	553	0.6%	0.5%
	TOTAL	349,471	1,608	0.5%	0.5%
Rest of King County	General	297,910	303	0.1%	0.1%
	Hard-to-survey	133,228	126	0.2%	0.1%
	Walk/Bike/Transit	29,566	38	0.2%	0.1%
	Rural	69,130	69	0.1%	0.1%
	TOTAL	529,834	536	0.1%	0.1%
Kitsap County	General	53,123	58	0.1%	0.1%
	Hard-to-survey	3,323	13	0.3%	0.4%
	Walk/Bike/Transit	5,693	5	0.2%	0.1%
	Rural	44,257	129	0.1%	0.3%
	TOTAL	106,396	205	0.1%	0.2%
Pierce County	General	220,562	194	0.1%	0.1%
	Hard-to-survey	38,561	60	0.2%	0.2%
	Walk/Bike/Transit	18,097	80	0.3%	0.4%
	Rural	70,452	63	0.1%	0.1%
	TOTAL	347,672	397	0.1%	0.1%
Snohomish County	General	216,436	223	0.1%	0.1%
	Hard-to-survey	21,352	43	0.1%	0.2%
	Walk/Bike/Transit	14,999	25	0.2%	0.2%
	Rural	59,580	135	0.1%	0.2%

SUBREGION	SEGMENT	ACS HOUSEHOLDS (2017-2021)	COMPLETED HOUSEHOLDS	SAMPLE RATE (ESTIMATED)	SAMPLE RATE (ACTUAL)
TOTAL		312,367	426	0.1%	0.1%
TOTAL	General	982,355	1,640	0.2%	0.2%
	Hard-to-survey	279,663	836	0.3%	0.3%
	Walk/Bike/Transit	185,752	778	0.4%	0.4%
	Rural	243,419	396	0.1%	0.2%
	TOTAL	1,691,189	3,650	0.2%	0.2%

Source: RSG



## 7.2 PARTICIPANT DEMOGRAPHICS

Table 11 through Table 22 below show the distribution of key demographics. Overall, rMove diary participants tend to have smaller households, are more likely to be White, and are less likely to be low income. Low-income participants and African American participants were much more likely to use the call center or web diary.

Table 11 through

Table 14 shows share of participation method (web, call center, or rMove diary) for key demographic variables. Table 11 through Table 23 shows weighted results and unweighted counts for each key demographic variable for all participation methods.

**TABLE 11: PARTICIPANT AGE BY PARTICIPATION MODE**

AGE	WEB	CALL	RMOVE
Under 18 years	24.20%	16.60%	16.30%
18-24 years	8.20%	10.60%	4.50%
25-34 years	9.20%	6.90%	16.60%
35-44 years	20.00%	4.40%	23.60%
45-54 years	13.10%	16.90%	12.20%
55-64 years	11.80%	7.00%	12.90%
65-74 years	10.00%	19.10%	10.30%
75-84 years	3.30%	16.60%	3.40%
85 or years older	0.20%	4.80%	0.00%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>

Source: RSG

TABLE 12: PARTICIPANT HOUSEHOLD INCOME BY PARTICIPATION MODE

HOUSEHOLD INCOME	WEB	CALL	RMOVE
Under \$25,000	4.60%	29.40%	5.00%
\$25,000-\$49,999	8.70%	32.00%	9.80%
\$50,000-\$74,999	14.90%	1.10%	17.30%
\$75,000-\$99,999	8.20%	4.20%	12.40%
\$100,000-\$199,000	30.40%	8.70%	29.80%
\$200,000 or more	22.00%	12.40%	19.40%
Prefer not to answer	11.10%	12.00%	6.30%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>

Source: RSG

TABLE 13: PARTICIPANT HOUSEHOLD SIZE BY PARTICIPATION MODE

HOUSEHOLD SIZE	WEB	CALL	RMOVE
1 member	6.80%	37.50%	24.70%
2 members	23.20%	19.80%	33.00%
3 members	11.10%	12.30%	16.50%
4 members	28.60%	11.60%	13.10%
5 or more members	30.30%	18.80%	12.70%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>

Source: RSG

**TABLE 14: PARTICIPANT RACE BY PARTICIPATION MODE**

RACE	WEB	CALL	RMOVE
African American or Black	2.90%	32.30%	3.50%
American Indian or Alaska Native	1.30%	6.40%	0.20%
Asian	12.80%	3.80%	11.40%
Native Hawaiian or Pacific Islander	1.60%	0.00%	0.70%
Hispanic	7.10%	0.30%	4.50%
Prefer not to answer	14.30%	4.70%	6.50%
Other	1.40%	5.50%	2.30%
White	49.90%	36.30%	62.10%
Multiple races or ethnicities	8.70%	10.80%	8.80%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>

Source: RSG

**TABLE 15: HOUSEHOLD SIZE (WEIGHTED)**

HOUSEHOLD SIZE	UNWEIGHTED COUNT	WEIGHTED COUNT	UNWEIGHTED %	WEIGHTED %
1 person	1,605	562,138	44.0%	33.3%
2 people	1,322	531,061	36.2%	31.4%
3 people	356	146,587	9.8%	8.7%
4 people	272	256,693	7.4%	15.2%
5+ people	95	193,098	2.6%	11.4%
<b>Total</b>	<b>3,650</b>	<b>1,689,577</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG



**TABLE 16: HOUSEHOLD INCOME (WEIGHTED)**

HOUSEHOLD INCOME	UNWEIGHTED COUNT	WEIGHTED COUNT	UNWEIGHTED %	WEIGHTED %
Under \$25,000	359	160,115	9.8%	9.5%
\$25,000-\$49,999	447	179,760	12.2%	10.6%
\$50,000-\$74,999	476	219,504	13.0%	13.0%
\$75,000-\$99,999	395	199,010	10.8%	11.8%
\$100,000-\$199,000	1,027	437,971	28.1%	25.9%
\$200,000 or more	583	303,137	16.0%	17.9%
Prefer not to answer	363	190,080	9.9%	11.2%
<b>Total</b>	<b>3,650</b>	<b>1,689,577</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG

**TABLE 17: HOUSEHOLD VEHICLES (WEIGHTED)**

HOUSEHOLD VEHICLES	UNWEIGHTED COUNT	WEIGHTED COUNT	UNWEIGHTED %	WEIGHTED %
0 (no vehicles)	589	171,741	16.1%	10.2%
1	1,619	508,817	44.4%	30.1%
2	1,051	611,461	28.8%	36.2%
3+ vehicles	391	397,557	10.7%	23.5%
<b>Total</b>	<b>3,650</b>	<b>1,689,576</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG

**TABLE 18: PERSON AGE (WEIGHTED)**

PERSON AGE	UNWEIGHTED COUNT	WEIGHTED COUNT	UNWEIGHTED %	WEIGHTED %
Under 5 years old	301	233,374	4.3%	5.6%
5-11 years	419	380,173	6.1%	9.2%
12-15 years	198	190,114	2.9%	4.6%
16-17 years	84	97,430	1.2%	2.4%
18-24 years	306	302,416	4.4%	7.3%
25-34 years	1,354	538,524	19.6%	13.0%
35-44 years	1,188	776,640	17.2%	18.7%
45-54 years	833	557,387	12.1%	13.4%
55-64 years	904	457,928	13.1%	11.0%
65-74 years	880	454,601	12.7%	11.0%
75-84 years	397	150,298	5.7%	3.6%
85 or years older	50	9,714	0.7%	0.2%
<b>Total</b>	<b>6,914</b>	<b>4,148,599</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG



**TABLE 19: PERSON GENDER (WEIGHTED)**

PERSON GENDER	UNWEIGHTED COUNT	WEIGHTED COUNT	UNWEIGHTED %	WEIGHTED %
Girl/woman (cisgender or transgender)	2,980	1,865,716	43.2%	45.0%
Boy/man (cisgender or transgender)	3,271	1,910,512	47.4%	46.0%
Non-binary/Something else fits better	124	37,073	1.8%	0.9%
Prefer not to answer	529	335,297	7.7%	8.1%
<b>Total</b>	<b>6,904</b>	<b>4,148,598</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG

**TABLE 20: PERSON RACE OR ETHNICITY**

PERSON RACE OR ETHNICITY	UNWEIGHTED COUNT	WEIGHTED COUNT	UNWEIGHTED %	WEIGHTED %
African American or Black	148	135,948	2.5%	4.2%
American Indian or Alaska Native	27	47,269	0.5%	1.5%
Asian	864	416,524	14.6%	12.8%
Hispanic or Latino	313	178,550	5.3%	5.5%
Native Hawaiian or Pacific Islander	24	37,689	0.4%	1.2%
White	3,529	1,688,060	59.8%	52.1%
Other race	85	66,512	1.4%	2.0%
Multiple races	287	282,509	4.9%	8.7%
Prefer not to answer	627	389,360	10.6%	12.0%
<b>Total</b>	<b>5,904</b>	<b>3,242,421</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG



**TABLE 21: PERSON STUDENT STATUS**

PERSON STUDENT STATUS	UNWEIGHTED COUNT	WEIGHTED COUNT	UNWEIGHTED %	WEIGHTED %
Not a student	6,510	3,919,767	94.2%	94.5%
Part-time student	185	77,292	2.7%	1.9%
Full-time student	219	151,539	3.2%	3.6%
<b>Total</b>	<b>6,914</b>	<b>4,148,598</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG

**TABLE 22: PERSON EMPLOYMENT STATUS (AGE 18+)**

PERSON EMPLOYMENT STATUS	UNWEIGHTED COUNT	WEIGHTED COUNT	UNWEIGHTED %	WEIGHTED %
Employed full time (35+ hours/week, paid)	2,983	1,653,928	49.8%	49.5%
Employed part time (fewer than 35 hours/week, paid)	498	412,301	8.3%	12.3%
Self-employed	351	148,470	5.8%	4.4%
Unpaid volunteer or intern	48	35,946	0.8%	1.1%
Not currently employed	1,809	898,836	30.2%	26.9%
Unemployed	264	167,083	4.4%	5.0%
Employed but not currently working (e.g., on leave, furloughed 100%)	43	28,373	0.7%	0.8%
<b>Total</b>	<b>5,996</b>	<b>3,344,937</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG

**TABLE 23: PERSON SEXUALITY**

PERSON SEXUALITY	UNWEIGHTED COUNT	WEIGHTED COUNT	UNWEIGHTED %	WEIGHTED %
Bisexual, gay, lesbian, or queer	598	258,582	10.1%	8.0%
Heterosexual (straight)	4,398	2,388,578	74.6%	73.9%
Something else fits better	65	26,028	1.1%	0.8%
Don't know or questioning	42	49,946	0.7%	1.5%
Prefer not to answer	796	510,385	13.5%	15.8%
<b>Total</b>	<b>5,899</b>	<b>3,233,519</b>	<b>100.0%</b>	<b>100.0%</b>

### 7.3 TRIP RATES ON COMPLETE WEEKDAYS (MONDAY–THURSDAY)

Table 24 through Table 29 below show person trip rates on complete Mondays through Thursdays for key demographics and travel behaviors. **(Note:** The trip rates by day of week in Table 24 are based on the date of the trip departure timestamps.)

One of the most notable patterns in the tables below is the difference in trip rate by income and employment status. The weighted trip rate for individuals from high income households is higher than the weighted trip rate within lower income households. Workers have higher trip rates than non-workers. For trip purpose, shopping and escort trips are slightly more common than work or work-related trips.

Section 7.4 and Section 7.5 show the weighted distribution of travel modes and trip purposes (respectively) by key variables including household income, age group, time of day, and trip distance.

**TABLE 24: PERSON TRIP RATE, BY DAY OF WEEK**

DAY OF WEEK	UNWEIGHTED DAYS	UNWEIGHTED TRIPS	WEIGHTED DAYS	WEIGHTED TRIPS	UNWEIGHTED TRIP RATE	WEIGHTED TRIP RATE
Monday	2,846	8,650	998,854	3,667,756	3.04	3.67
Tuesday	2,628	9,018	973,426	3,734,532	3.43	3.84
Wednesday	2,727	9,240	1,142,757	4,434,404	3.39	3.88
Thursday	2,816	9,795	1,033,561	3,968,801	3.48	3.84
<b>Total</b>	<b>11,017</b>	<b>36,703</b>	<b>4,148,598</b>	<b>15,805,493</b>	<b>3.33</b>	<b>3.81</b>

Source: RSG

**TABLE 25: PERSON TRIP RATE, BY HOUSEHOLD INCOME**

HOUSEHOLD INCOME	UNWEIGHTED DAYS	UNWEIGHTED TRIPS	WEIGHTED DAYS	WEIGHTED TRIPS	UNWEIGHTED TRIP RATE	WEIGHTED TRIP RATE
Under \$25,000	1,066	2,760	229,796	763,370	2.59	3.32
\$25,000-\$49,999	1,713	6,252	328,301	1,268,939	3.65	3.87
\$50,000-\$74,999	2,003	7,454	636,198	2,478,348	3.72	3.90
\$75,000-\$99,999	1,633	5,876	378,104	1,353,764	3.60	3.58
\$100,000-\$199,000	4,369	15,723	1,246,634	4,929,249	3.60	3.95
\$200,000 or more	3,063	10,834	861,388	3,378,957	3.54	3.92
Prefer not to answer	1,283	4,031	468,177	1,632,867	3.14	3.49
<b>Total</b>	<b>15,130</b>	<b>52,930</b>	<b>4,148,598</b>	<b>15,805,494</b>	<b>3.50</b>	<b>3.81</b>

Source: RSG

**TABLE 26: PERSON TRIP RATE, BY AGE GROUP**

AGE GROUP	UNWEIGHTED DAYS	UNWEIGHTED TRIPS	WEIGHTED DAYS	WEIGHTED TRIPS	UNWEIGHTED TRIP RATE	WEIGHTED TRIP RATE
Under 5 years old	664	1,616	233,374	675,632	2.43	2.90
5-11 years	848	2,339	380,173	1,043,985	2.76	2.75
12-15 years	372	730	190,114	463,592	1.96	2.44
16-17 years	132	238	97,430	264,006	1.80	2.71
18-24 years	720	2,592	302,416	1,235,553	3.60	4.09
25-34 years	3,362	13,295	538,524	2,118,766	3.95	3.93
35-44 years	2,819	11,374	776,640	3,352,647	4.03	4.32
45-54 years	1,684	6,254	557,387	2,502,503	3.71	4.49
55-64 years	1,852	6,096	457,928	1,737,635	3.29	3.79
65-74 years	1,840	5,964	454,601	1,747,934	3.24	3.84
75-84 years	775	2,325	150,298	651,771	3.00	4.34
85 or years older	62	107	9,714	11,470	1.73	1.18
<b>Total</b>	<b>15,130</b>	<b>52,930</b>	<b>4,148,599</b>	<b>15,805,494</b>	<b>3.50</b>	<b>3.81</b>

Source: RSG

**TABLE 27: PERSON TRIP RATE, BY EMPLOYMENT STATUS (AGE 18+)**

EMPLOYMENT STATUS	UNWEIGHTED DAYS	UNWEIGHTED TRIPS	WEIGHTED DAYS	WEIGHTED TRIPS	UNWEIGHTED TRIP RATE	WEIGHTED TRIP RATE
Employed full time (35+ hours/week, paid)	6,705	25,844	1,653,928	6,658,879	3.85	4.03
Employed part time (fewer than 35 hours/week, paid)	1,128	4,540	412,301	1,847,689	4.02	4.48
Self-employed	831	3,759	148,470	681,251	4.52	4.59
Unpaid volunteer or intern	96	294	35,946	176,342	3.06	4.91
Not currently employed	3,759	11,640	898,836	3,594,803	3.10	4.00
Unemployed	624	1,857	167,083	598,082	2.98	3.58
Employed but not currently working (e.g., on leave, furloughed 100%)	103	311	28,373	65,239	3.02	2.30
No response	1,884	4,685	803,661	2,183,209	2.49	2.72
<b>Total</b>	<b>15,130</b>	<b>52,930</b>	<b>4,148,598</b>	<b>15,805,494</b>	<b>3.50</b>	<b>3.81</b>

Source: RSG

**TABLE 28: PERSON TRIP RATE, BY TRAVEL MODE**

TRAVEL MODE	UNWEIGHTED DAYS	UNWEIGHTED TRIPS	WEIGHTED DAYS	WEIGHTED TRIPS	UNWEIGHTED TRIP RATE	WEIGH TED TRIP RATE
Walk	11,880	12,633	3,360,774	1,637,812	1.06	0.49
Bike	11,880	1,096	3,360,774	100,798	0.09	0.03
Car	11,880	35,804	3,360,774	13,271,907	3.01	3.95
Taxi	11,880	20	3,360,774	11,022	0.00	0.00
Transit	11,880	1,250	3,360,774	263,675	0.11	0.08
School bus	11,880	306	3,360,774	294,185	0.03	0.09
Other	11,880	226	3,360,774	54,872	0.02	0.02
Shuttle/Vanpool	11,880	147	3,360,774	46,750	0.01	0.01
TNC (Uber, Lyft, or other smartphone-app car service)	11,880	244	3,360,774	45,531	0.02	0.01
Bikeshare	11,880	55	3,360,774	8,859	0.00	0.00
Scooter or e-scooter (e.g., Lime, Bird, Razor)	11,880	90	3,360,774	10,059	0.01	0.00
Long distance (e.g., airplane)	11,880	69	3,360,774	47,278	0.01	0.01
Ferry	11,880	17	3,360,774	12,745	0.00	0.00
<b>Total</b>	<b>11,880</b>	<b>52,905<sup>12</sup></b>	<b>3,309,438</b>	<b>15,833,142</b>	<b>4.45</b>	<b>4.78</b>

Source: RSG

<sup>12</sup> The final dataset as delivered to RSG from PSRC included 25 unweighted person trips without mode\_type identification, resulting in a marginally reduced total count of unweighted person trips.

TABLE 29: PERSON TRIP RATE, BY TRIP PURPOSE

TRIP PURPOSE	UNWEIGHTED DAYS	UNWEIGHTED TRIPS	WEIGHTED DAYS	WEIGHTED TRIPS	UNWEIGHTED TRIP RATE	WEIGHTED TRIP RATE
Home	11,880	17,025	3,360,774	4,940,593	1.43	1.47
Work	11,880	3,163	3,360,774	1,368,520	0.27	0.41
Work-related	11,880	3,409	3,360,774	952,146	0.29	0.28
School	11,880	969	3,360,774	658,555	0.08	0.20
School-Related	11,880	102	3,360,774	24,997	0.01	0.01
Escort	11,880	3,697	3,360,774	1,876,998	0.31	0.56
Shop	11,880	6,324	3,360,774	1,693,384	0.53	0.50
Meal	11,880	4,320	3,360,774	1,022,275	0.36	0.30
Social/Recreation	11,880	8,023	3,360,774	1,497,510	0.68	0.45
Errand/Other	11,880	2,817	3,360,774	780,380	0.24	0.23
Overnight	11,880	2,129	3,360,774	594,097	0.18	0.18
Change mode	11,880	69	3,360,774	25,770	0.01	0.01
Other	11,880	856	3,360,774	370,269	0.07	0.11
<b>Total</b>	<b>166,320</b>	<b>52,906<sup>13</sup></b>	<b>47,050,836</b>	<b>15,805,494</b>	<b>0.32</b>	<b>0.34</b>

Source: RSG

<sup>13</sup> The final dataset as delivered to RSG from PSRC included 24 unweighted person trips without dest\_purpose\_cat identification, resulting in a marginally reduced total count of unweighted person trips.

## 7.4 PERCENTAGE OF TRIPS BY TRAVEL MODE (WEIGHTED)

Participants were asked about which mode they utilized for each trip. Table 30 through Table 32 shows weighted trip mode share by household income, age, and time of day. Lower income households are more likely to utilize active transportation modes and transit and higher income households are more likely to travel by car.

**TABLE 30: TRAVEL MODE, BY HOUSEHOLD INCOME (WEIGHTED)**

TRAVEL MODE	UNDER \$25,000	\$25,000– \$49,999	\$50,000– \$74,999	\$75,000– \$99,999	\$100,000– \$199,000	\$200,000 OR MORE	PREFER NOT TO ANSWER
Walk	24.6%	16.0%	9.1%	7.8%	9.0%	10.4%	7.5%
Bike	0.9%	0.8%	0.2%	0.6%	0.6%	1.1%	0.2%
Car	60.8%	76.6%	86.5%	89.1%	86.5%	81.5%	89.8%
Taxi	0.8%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Transit	10.9%	5.2%	0.6%	0.6%	0.9%	1.1%	0.4%
School bus	0.8%	0.6%	3.0%	1.2%	2.2%	1.9%	1.0%
Other	0.4%	0.3%	0.0%	0.1%	0.1%	1.0%	0.3%
Shuttle/Vanpool	0.4%	0.2%	0.0%	0.1%	0.2%	0.8%	0.0%
TNC (Uber, Lyft, or other smartphone-app car service)	0.2%	0.1%	0.3%	0.1%	0.2%	0.7%	0.1%
Bikeshare	0.1%	0.0%	0.0%	0.2%	0.0%	0.0%	0.1%
Scooter or e-scooter (e.g., Lime, Bird, Razor)	0.1%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%
Long distance (e.g., airplane)	0.0%	0.0%	0.2%	0.0%	0.2%	0.9%	0.2%
Ferry	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.4%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source: RSG



TABLE 31: TRAVEL MODE, BY AGE GROUP (WEIGHTED)

TRAVEL MODE	UNDER 5	5–11 YEARS	12–15 YEARS	16–17 YEARS	18–24 YEARS	25–34 YEARS	35–44 YEARS	45–54 YEARS	55–64 YEARS	65–74 YEARS	75–84 YEARS	85 OR YEARS OLDER
Walk	9.1%	7.6%	8.0%	9.7%	10.4%	14.2%	11.2%	8.7%	8.9%	12.2%	6.2%	7.3%
Bike	0.1%	0.7%	0.3%	0.1%	0.9%	1.1%	0.8%	0.7%	0.4%	0.1%	0.2%	0.0%
Car	89.2%	76.2%	59.4%	81.5%	83.3%	81.7%	85.1%	87.7%	87.8%	82.5%	91.5%	92.0%
Taxi	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.1%	0.0%	0.0%
Transit	0.1%	0.3%	2.4%	4.8%	4.3%	1.7%	1.0%	1.7%	1.2%	2.3%	1.4%	0.7%
School bus	1.4%	13.0%	27.4%	3.9%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.1%	0.0%	2.2%	0.3%	0.0%
Shuttle/Vanpool	0.0%	0.9%	1.0%	0.0%	0.0%	0.1%	0.3%	0.5%	0.2%	0.2%	0.0%	0.0%
TNC (Uber, Lyft, or other smartphone-app car service)	0.0%	0.4%	0.2%	0.0%	0.2%	0.8%	0.5%	0.1%	0.1%	0.1%	0.0%	0.0%
Bikeshare	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%
Scooter or e-scooter (e.g., Lime, Bird, Razor)	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%	0.3%	0.0%
Long distance (e.g., airplane)	0.0%	0.8%	1.3%	0.0%	0.0%	0.0%	0.5%	0.4%	0.1%	0.3%	0.0%	0.0%
Ferry	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.5%	0.0%	0.0%	0.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG



**TABLE 32: TRAVEL MODE, BY TIME OF DAY (WEIGHTED)**

TRAVEL MODE	AM PEAK: 6:00 A.M.– 9:00 A.M.	MIDDAY: 9:00 A.M.– 3:00 P.M.	PM PEAK: 3:00 P.M.– 6:00 P.M.	EVENING: 6:00 P.M.– 8:00 P.M.	NIGHT: 8:00 P.M.–6:00 A.M.
Walk	9.6%	10.0%	10.5%	11.6%	11.5%
Bike	0.8%	0.5%	0.8%	0.5%	0.8%
Car	82.1%	84.9%	83.5%	85.8%	82.7%
Taxi	0.0%	0.1%	0.1%	0.0%	0.1%
Transit	1.3%	1.7%	2.0%	1.4%	1.4%
School bus	4.7%	1.3%	2.2%	0.0%	0.0%
Other	0.7%	0.3%	0.0%	0.4%	0.5%
Shuttle/Vanpool	0.1%	0.2%	0.2%	0.0%	1.7%
TNC (Uber, Lyft, or other smartphone-app car service)	0.4%	0.3%	0.2%	0.1%	0.2%
Bikeshare	0.0%	0.0%	0.0%	0.1%	0.2%
Scooter or e-scooter (e.g., Lime, Bird, Razor)	0.0%	0.0%	0.1%	0.0%	0.3%
Long distance (e.g., airplane)	0.2%	0.4%	0.2%	0.0%	0.6%
Ferry	0.1%	0.1%	0.1%	0.0%	0.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG



## 7.5 PERCENTAGE OF TRIPS BY TRIP PURPOSE (WEIGHTED)

Participants were asked about the purpose for each trip. Table 33 through Table 35 shows the weighted trip purpose by household income, time of day, and trip distance. A greater proportion of trips in higher income households are work trips or work-related trips, while lower income households tend to have a greater proportion of trips for shopping, social/recreational, and errand/other trips.

**TABLE 33: TRIP PURPOSE, BY HOUSEHOLD INCOME (WEIGHTED)**

TRIP PURPOSE	UNDER \$25,000	\$25,000– \$49,999	\$50,000– \$74,999	\$75,000– \$99,999	\$100,000– \$199,999	\$200,000 OR MORE	PREFER NOT TO ANSWER
Home	31.2%	28.1%	29.8%	32.7%	31.5%	31.7%	33.0%
Work	2.0%	6.7%	6.9%	9.2%	11.0%	8.9%	8.1%
Work-related	3.4%	8.1%	7.4%	5.5%	8.1%	3.5%	2.8%
School	3.2%	0.7%	4.5%	2.1%	5.2%	5.2%	3.3%
Escort	13.0%	15.2%	13.2%	5.2%	12.4%	13.0%	8.3%
Shop	20.0%	13.4%	16.1%	8.7%	7.5%	8.6%	11.7%
Meal	5.4%	6.7%	5.9%	11.0%	5.6%	6.3%	6.7%
Social/Recreation	9.9%	9.8%	7.4%	10.1%	9.3%	10.5%	10.2%
Errand/Other	7.0%	5.2%	3.7%	7.7%	4.5%	4.0%	6.8%
Change mode	0.1%	0.0%	0.0%	0.1%	0.1%	0.6%	0.0%
Overnight	1.8%	2.9%	3.4%	4.1%	2.6%	5.9%	4.5%
Other	2.8%	3.2%	1.5%	3.4%	2.0%	1.5%	4.7%
School-related	0.1%	0.0%	0.1%	0.1%	0.2%	0.3%	0.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG

**TABLE 34: TRIP PURPOSE, BY TIME OF DAY (WEIGHTED)**

TRIP PURPOSE	AM PEAK: 6:00 A.M.–9:00 A.M.	MIDDAY: 9:00 A.M.– 3:00 P.M.	PM PEAK: 3:00 P.M.–6:00 P.M.	EVENING: 6:00 P.M.–8:00 P.M.	NIGHT: 8:00 P.M.– 6:00 A.M.
Home	10.0%	24.5%	45.3%	42.6%	47.1%
Work	25.4%	6.8%	1.8%	0.5%	14.0%
Work-related	9.1%	6.5%	3.8%	4.2%	7.0%
School	17.2%	2.5%	0.9%	0.4%	0.2%
Escort	20.5%	11.6%	11.1%	6.0%	5.3%
Shop	3.1%	15.6%	10.7%	11.0%	3.9%
Meal	3.5%	7.9%	5.3%	8.8%	6.8%
Social/Recreation	4.6%	9.4%	11.3%	14.8%	7.7%
Errand/Other	3.2%	8.5%	3.0%	2.6%	1.5%
Change mode	0.0%	0.0%	0.1%	0.0%	1.4%
Overnight	1.6%	3.3%	4.2%	7.6%	4.0%
Other	1.5%	3.3%	2.4%	1.2%	1.0%
School-related	0.3%	0.1%	0.2%	0.0%	0.2%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG



TABLE 35: TRIP PURPOSE, BY DISTANCE (WEIGHTED)

TRIP PURPOSE	< 1 MILE	1–2 MILES	2–4 MILES	4–6 MILES	6–8 MILES	8–10 MILES	10–12 MILES	12–14 MILES	14–16 MILES	16–18 MILES	18–20 MILES	>= 20 MILES
Home	29.4%	34.7%	31.9%	30.4%	32.1%	33.1%	31.1%	29.0%	31.4%	28.9%	35.9%	27.8%
Work	5.4%	4.8%	7.2%	9.7%	7.8%	9.8%	18.8%	15.3%	21.5%	23.4%	14.9%	13.7%
Work-related	6.9%	4.1%	3.0%	4.9%	8.4%	7.9%	4.2%	8.3%	12.6%	6.8%	9.7%	10.9%
School	4.4%	6.4%	4.6%	5.2%	4.2%	0.7%	1.3%	4.5%	1.1%	0.7%	0.9%	1.4%
Escort	11.7%	13.4%	11.0%	16.8%	14.1%	9.6%	7.0%	6.2%	13.0%	8.9%	4.6%	7.7%
Shop	13.4%	10.4%	13.5%	10.3%	7.2%	11.8%	9.3%	9.4%	2.4%	5.2%	6.6%	4.5%
Meal	9.1%	6.7%	7.5%	5.1%	4.8%	5.8%	2.6%	2.5%	1.9%	1.2%	2.9%	6.2%
Social/ Recreation	10.5%	11.3%	9.3%	6.8%	9.6%	11.0%	5.4%	8.4%	10.1%	14.2%	8.7%	7.0%
Errand/Other	5.7%	4.9%	3.8%	5.3%	6.8%	4.8%	6.7%	5.5%	3.6%	3.2%	3.9%	3.1%
Change mode	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.1%	0.0%	0.0%	2.0%
Overnight	2.2%	1.7%	3.5%	3.6%	1.8%	2.6%	10.1%	5.8%	1.7%	6.2%	4.3%	14.2%
Other	1.3%	1.4%	4.5%	1.6%	3.2%	2.9%	2.4%	5.2%	0.5%	1.0%	7.5%	1.2%
School-related	0.1%	0.1%	0.1%	0.3%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.4%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG

## 7.6 TRAVEL DAY ACTIVITIES (WEIGHTED)

In addition to providing details about each trip, participants were asked to provide travel replacement information for each day in their travel periods. This information included time spent working from home for pay, and home deliveries (including services). The weighted findings from these questions are included below in Table 36 through Table 37.

**TABLE 36: SUMMARY OF TELEWORK TIME, BY DAY OF WEEK (EMPLOYED ADULTS, WEIGHTED)**

TIME SPENT TELEWORKING ON TRAVEL DAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY
0–1 hours	2.4%	1.7%	4.8%	2.5%
1–6 hours	8.3%	11.0%	12.5%	10.5%
6+ hours	22.8%	20.9%	19.3%	22.2%
Did not telework	66.5%	66.5%	63.4%	64.8%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: RSG



**TABLE 37: SUMMARY OF REPORTED DELIVERIES ON TRAVEL DAY (WEIGHTED)**

DELIVERIES ON TRAVEL DAY	PERCENT (%)
Packages	12.83%
Services	0.90%
Groceries	0.43%
Food / Meal Prep	0.68%
Other	0.11%
Multiple	53.46%
None	31.59%
<b>Total</b>	<b>100.0%</b>

*Source: RSG*



## APPENDIX A. QUESTIONNAIRE

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(See separate PDF file.)





## APPENDIX B. INVITATION MATERIALS

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(See separate PDF files.)





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