

2023 Regional Trip Diary

RTM User Group Meeting

April 8th, 2024



Agenda



- Trip Diary Overview
- Targets & Completions
- Mobile App vs. Online
- Key Challenges & Mitigation Strategies
- Questions & Comments

Trip Diary Overview

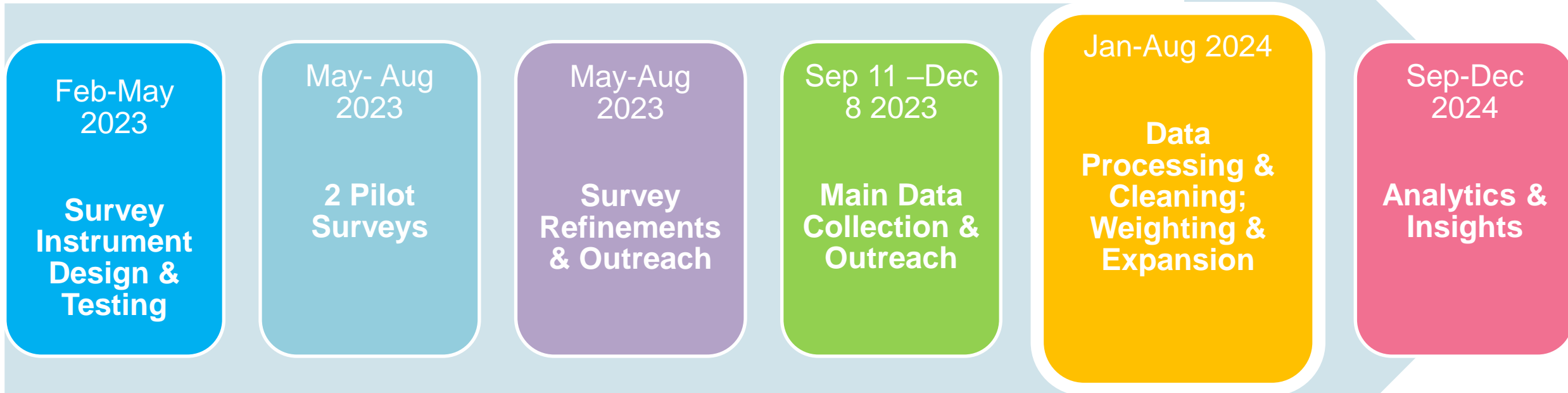


2023 Trip Diary - Objective

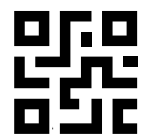
- Collect high-quality and reliable **household travel data** (Fall weekday) for **current and future regional transportation and land-use planning purposes**; incl. the regional transportation model
- Provide a statistically reliable basis for a **trend analysis of changes in travel behavior** and patterns in Metro Vancouver, impacts of infrastructure investments, land use, and policies



High-Level Timelines



How is the Data Collected?



Pre-notification letter
to randomly selected
households
~ to almost 700,000
households in Fall
2023



Households either
register online or to be
recruited by phone

In addition: Cellphone
recruitment



Smartphone
App



Online



Diary date(s) assigned,
and household/person
level and trip information
collected

Questionnaire – Data Collected



Households



- Location
- Size & composition
- Dwelling type & tenure
- Vehicles
- Income

Persons



- Age
- **Gender identity**
- **Race/ethnicity/indigeneity**
- **Level of education**
- **Disability impacting mobility**
- Employment & occupation
- **WFH & onsite**
- Driver's license
- Work/school/**daycare** location
- Transit travel

Trips



- Start & end location
- Start & end time
- Purpose
- **Modes (micro-mobility, ride hailing)**
- Bridge / station/ bus route
- **Escort trips children under 5y.**
- **'loop' trips**

Targets & Completions



Sampling Targets



- Overall target sample size = **1.25%** of the region's household population
→ **Overall target = 14,508**
(15,108 incl. oversample)
- Sub-regional targets for 58 sampling areas in Metro Vancouver and Fraser Valley
- Age sample targets for 7 sub-regions aiming for 2021 Census age distribution



Registrations and Completions by Recruitment Method



Recruitment	# of Letters / Phone Calls	# of Self- Registrations/ Phone Recruits	# of Completions	% Completed of Registered	Completion Rate
Online Self- Registrations	686,792	32,618	14,493	44%	2.2%
Phone Recruitment	43,653	2,167	933	43%	2.1%
Cellphone Sample	7,338	1,595	560	35%	7.6%
Total		36,392	15,992	44%	2.3%

Sample Age & Sub-Region Distribution



Age Range	Sample	Census
0 to 19	18%	20%
20 to 24	4%	6%
25 to 34	17%	15%
35 to 54	29%	28%
55 to 64	13%	13%
65+	20%	17%

- Age distribution targets were reasonable regionwide and across all 7 sub-regions
- Sampling area targets for most of the 58 areas met (except for some small communities and some oversample areas)

Comparison 2011, 2017, 2023



Year	# of Letters	# of Registrations	Registration Rate	# of Completions	% Completed of Registered	Completion Rate
2011	124,553	31,978	25.6%	22,848	71%	18.3%
2017	491,888	65,709	13.4%	28,225	43%	5.7%
2023	686,792	36,392	5.3%	15,992	44%	2.3%

- Registration & completion rates continuously decreasing
- A lot more effort (and more \$) in 2023 compared to 2017 and 2011

Mobile App vs. Online



Mobile App Advantages & Limitation



Potential Advantages

- More accurate reporting of trips; incl. improved spatial and temporal accuracy
- Could facilitate adjustments to data generated by online survey
- Reporting convenience could enable multiple days of data collection (it didn't for us)
- Potentially reduce age biases
- Potentially reduce respondent burden

Potential Limitations

- Lower response rates
- Availability (small # of commercial providers) and privacy concerns
- Accuracy issues (signal drops, phantom trips)
- Making changes to trips (splits, merges) is unintuitive
- Impacts on cell performance (battery, data usage)
- Costs (two platforms, additional incentives)

Incentive Scheme



Because Your Participation Matters!

Your household will receive a **\$20 gift card (plus an additional \$10 per person who completes the survey using the mobile app)** and a chance to win amazing cash prizes!

You also have the option of donating the gift card value to either: United Way, BC Children's Hospital, or the David Suzuki Foundation.



\$2,000 cash grand prize!
+ runner-up prizes of up to \$1,000

- Low App completion rate (in pilot studies) led to the decision to add App additional incentives (\$10 per person for using the App)
- E.g. a 2-person household with both persons using the App received \$40 (vs. \$20 if both used the online survey)
- Reduced 3-day requirement for the App to 1-day

Registrations & Completions by Diary Mode



	Total	App Only	Online Only	Mixed
Registered	36,391	13,518	15,909	6,964
% Registered	5.2%	1.9%	2.3%	1.0%
Completed	15,992	4,153	9,472	2,367
% Completed of Registered	44%	31%	60%	34%
Completion Rate	2.3%	0.6%	1.4%	0.3%
% Completed by Diary Mode		26%	59%	15%
Avg. HH Size	2.2	1.5	2.3	3.1

**Total Mail-Out =
686,792**
(i.e. 60% of all
households
receive an
invitation letter)

App vs Online – Persons by Age



	Total	Census	App User	Online User
Total Persons	35,512		9,643	25,866
0 to 19	18%	20%	2%	23%
20 to 24	4%	6%	4%	4%
25 to 34	17%	15%	27%	13%
35 to 54	29%	28%	38%	25%
55 to 64	13%	13%	15%	12%
65+	20%	17%	14%	22%

- 27% of all persons completing the TD used the App
- Higher % of 'middle age groups' (i.e. 25-54y.) completed the survey by App
- Note that minimum age to complete by App was 16y.

Key Challenges & Mitigation Strategies



Key Data Collection Challenges



- Overall completion rates very low
- App completion rates even lower
- Sample skewed towards older age groups
- Very low response rates in small sub-regions/communities
- Difficulties reaching oversample targets
- Cumbersome App registration process
- High costs

Mitigation Strategies



- **Increased # of pre-notification letters:** + 300,000 letters
- **Cell Phone Sample:** cell phone sample boost to households that had not received a pre-notification letter.
- **Targeted recruit:** allowed for skew towards households with a higher propensity for younger age cohorts
- **Targeted outreach:** help desk support staff focus on outreach to incomplete households and on regions with lower response rates or younger households
- **Extended Field Window:** last diary date was extended to Dec 8th
- **Improved logic checks:** program logic was optimised and implemented so certain questions were asked only if a threshold had been triggered
- **Improved survey structure:** registration and household section combined

Mitigation Strategies cont.



- **Additional incentives:** \$10 additional incentive per App participants
- **1-Day App data:** lowered the required # of days from 3 to 1 for app participants
- **App user-friendliness:** improved App registration process and App interface
- **Simplified language:** extra verbiage was removed from survey and email communications.
- **SMS Text:** reminder notification also sent via SMS
- **Modified Email Content:** emails updated to include links allowing households to change diary date or survey mode themselves without contacting the help desk
- **Targeted communication:** worked with municipalities to target outreach in sub-regions with low response rates

Data Processing & Cleaning

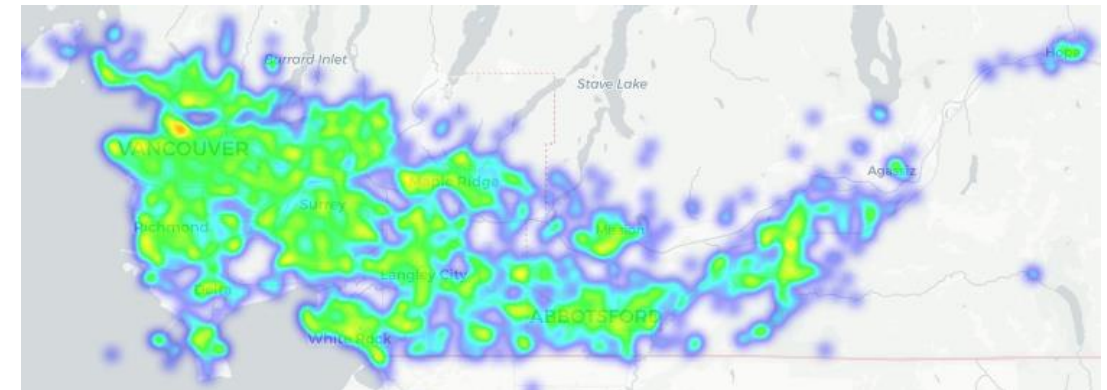
Key Observations



- Total flagged trips
6159 / 5.9%
- Trip sequence or merging issues (duration too low, consecutive same purpose)
4850 / 4.7%
- Trip speed or time too low or too high
775 / 0.74%
- Duplicate consecutive locations
759 / 0.73%
- Missing attributes of trip time, mode or purpose
225 / 0.22%
- Location outside of our region
188 / 0.18%



Trip locations for unprocessed survey, all locations



Trip locations for unprocessed survey, within region

Questions & Comments

