

Travel Behavior Inventory Household Survey Update

Transportation Committee- 2018-03-26



TBI: Project Purpose

- Study of household demographics, daily travel activities, and transportation patterns throughout the region
- Informs travel demand forecasting, regional transportation planning and performance tracking
- Recurrent survey
 - Biennial data collection beginning with a “starter” wave sample of 7,500 households
 - Future waves will sample 3,700 households per wave

What is a household travel survey?

CORE SURVEY DATA COLLECTED

Household: resides within the pre-specified study region

Person: all members report demographic and trip information

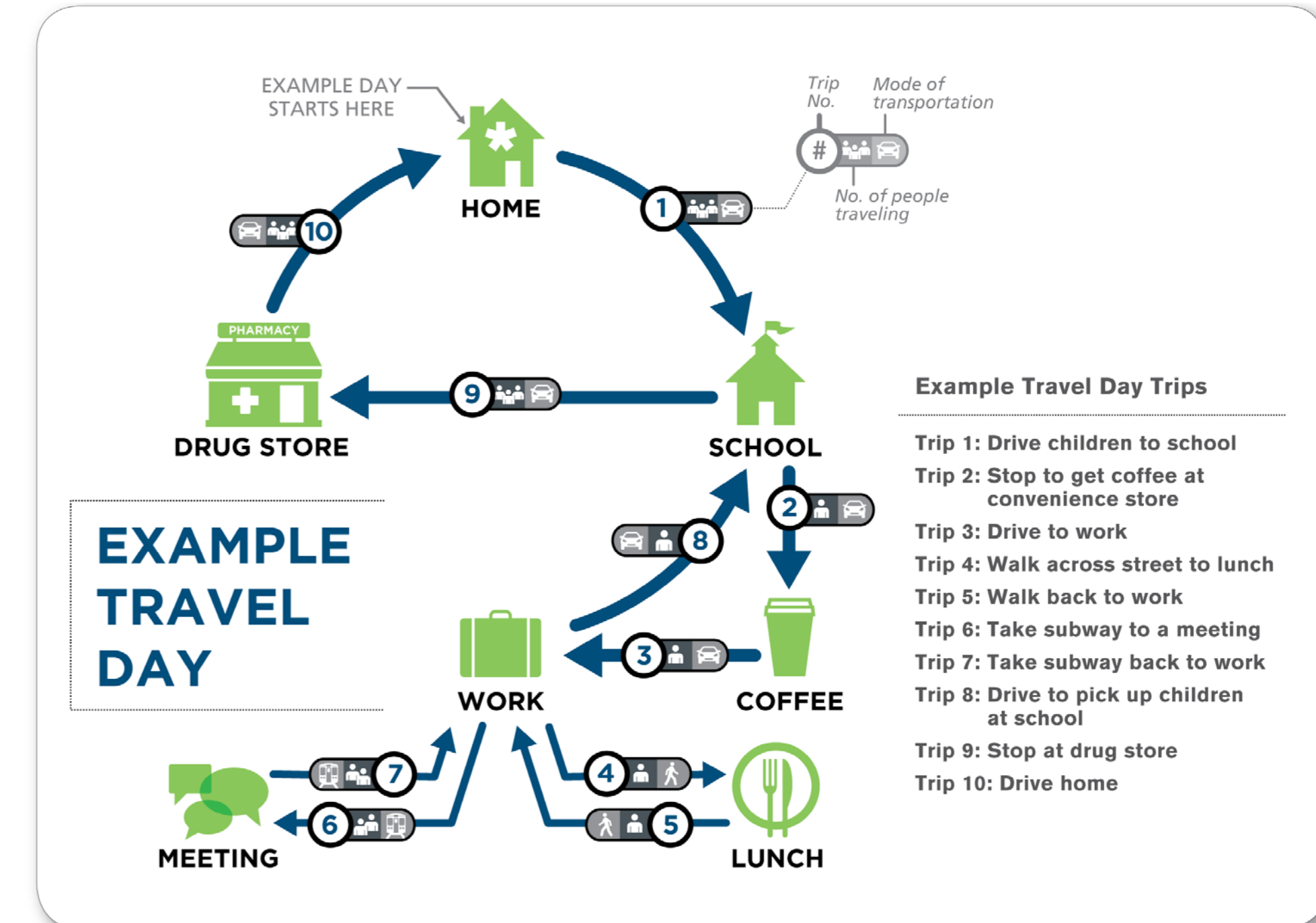
Vehicle: all vehicle details and trips collected

Trip: all household trips made during a specific period

POTENTIAL SUPPLEMENTAL DATA COLLECTED

Transportation network company usage (e.g., Uber, Lyft, etc.)

Autonomous vehicle attitudes/interests

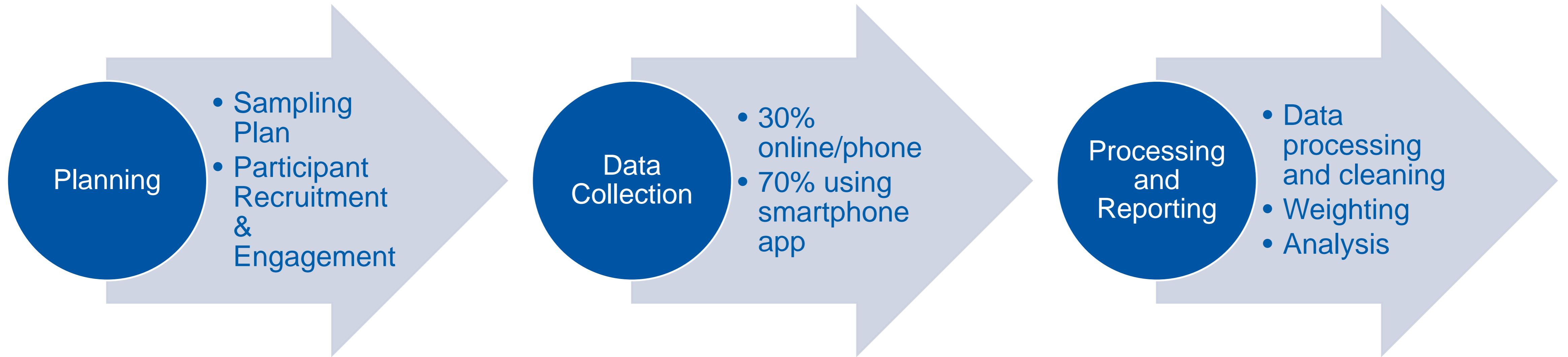


Expected Data

TBI Dataset	2010 Study	2018-2019 Study*
Households	10,400	7,500
Persons	21,300	15,400
Travel Days	21,300	107,800
Trips	79,200	485,100
GPS Points	-	48,510,000

* Based on conservative estimates

Methodology and Approach



Planning

Hard-to-Reach Populations

- 3 keys to ensure representation:
 - Oversampling is critical to obtaining sufficient participation from hard-to-reach groups
 - Outreach to communicate the importance of the survey to communities to encourage participation
 - Engagement/Reminders once a hard-to-reach household engages with the study to ensure they can easily complete the survey

Non-English Speaking Populations

Options for Participation:

- Call Center: operators in English & Spanish
- Print Materials: include translated text for how to participate in six languages
- Study Website: Google translate bar included
- Survey Instrument: fully translated from English into five languages

LANGUAGE OFFERINGS

English

Spanish

Hmong

Karen

Oromo

Somali

Chinese

Russian

Vietnamese

Other

Full Translation

Google Translate Bar

Study Outreach

Performing targeted outreach to populations of interest to improve participation.

- Stakeholder identification and engagement
- Print and electronic news publications
- Community newspapers
- Social media
- Television
- Radio
- Posters in public spaces geared toward hard-to-reach populations
- Connecting with community organizations and leaders

Data Collection

TBI PreTest Data Collection Modes



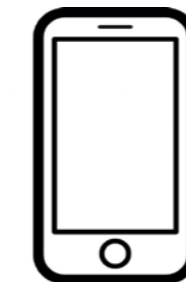
Mailed Invitation Materials

- Address-based sample
- Invitation Letter
- Two reminder postcards



ONLINE OR PHONE (rSURVEY)

- **1 Day** of trip data collected
- Approximately **30% of HHs** will participate using this method



SMARTPHONE (rMOVE)

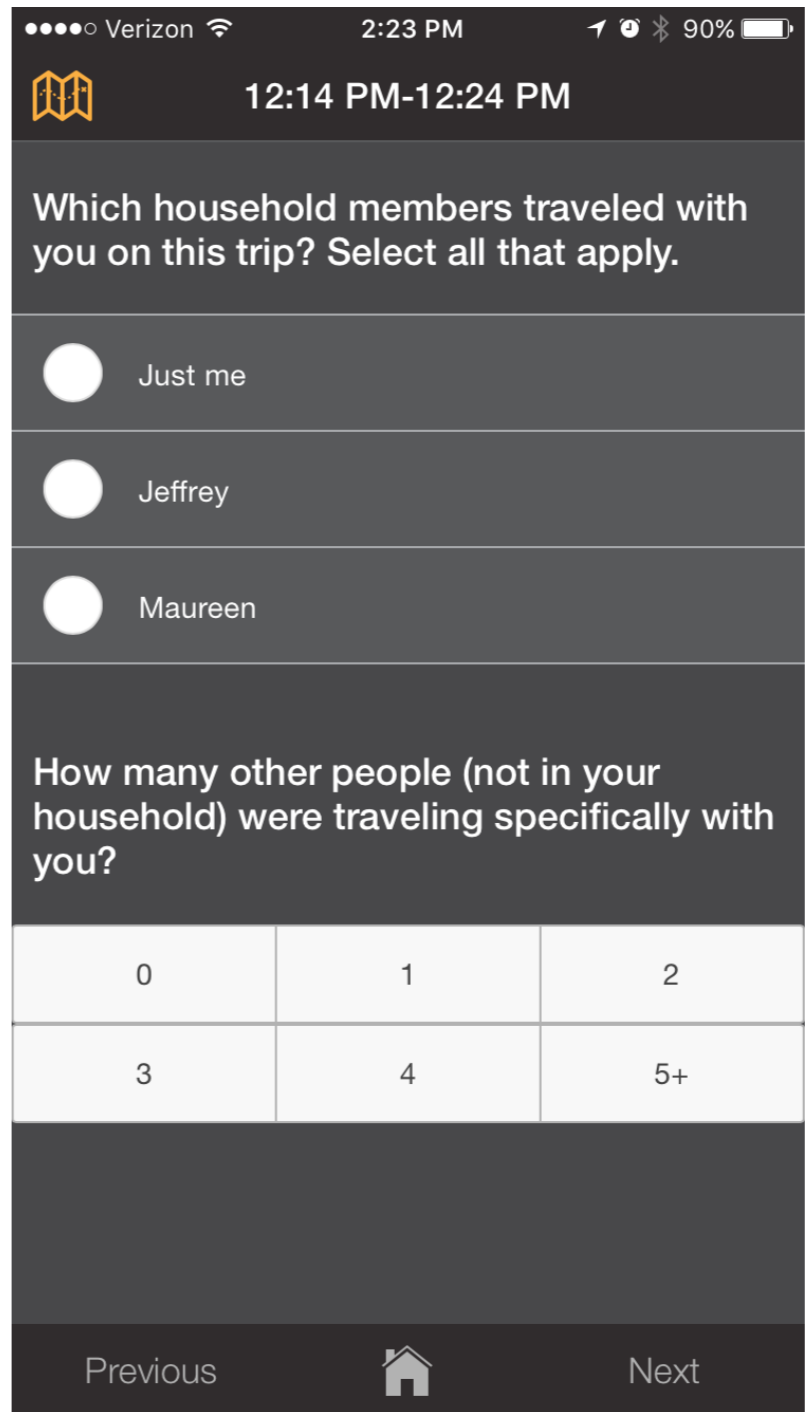
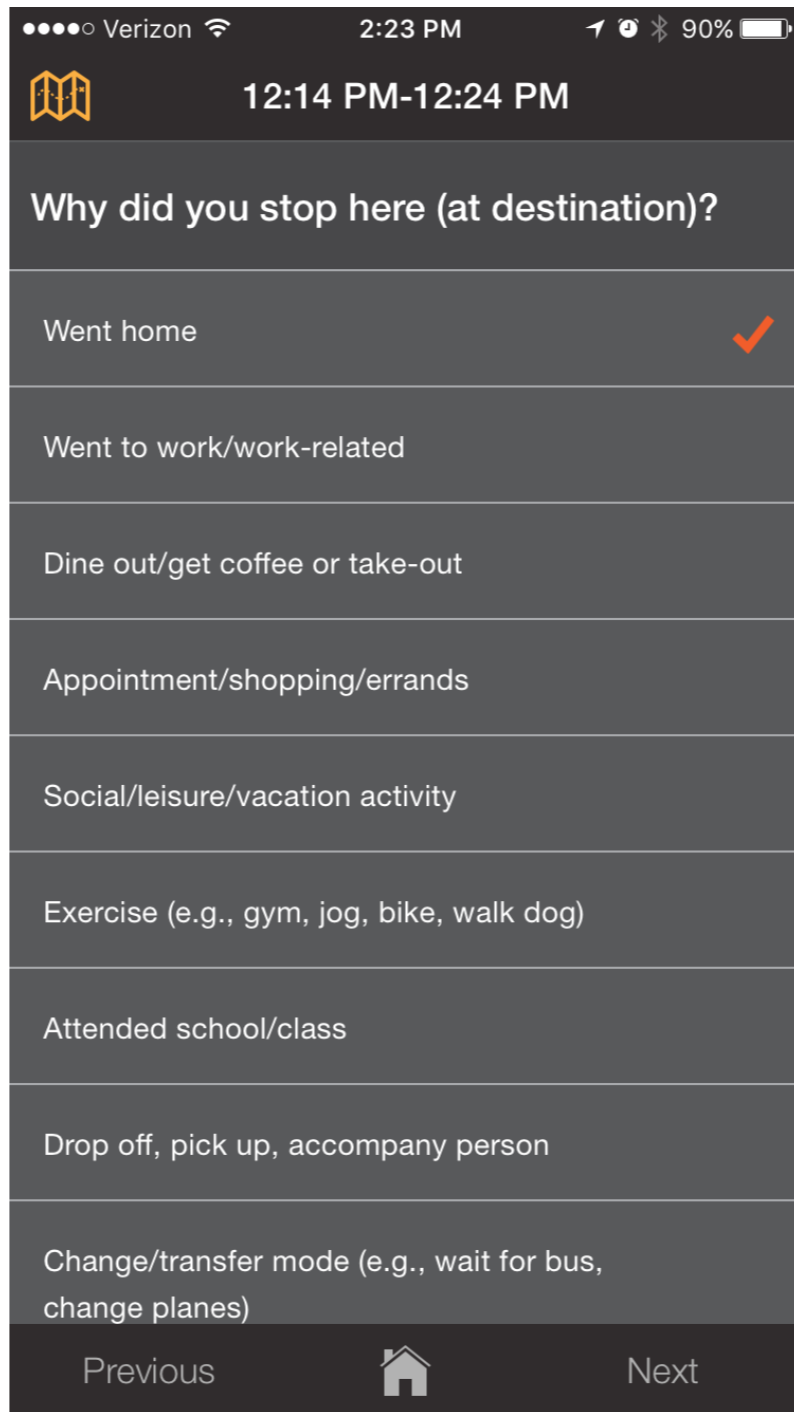
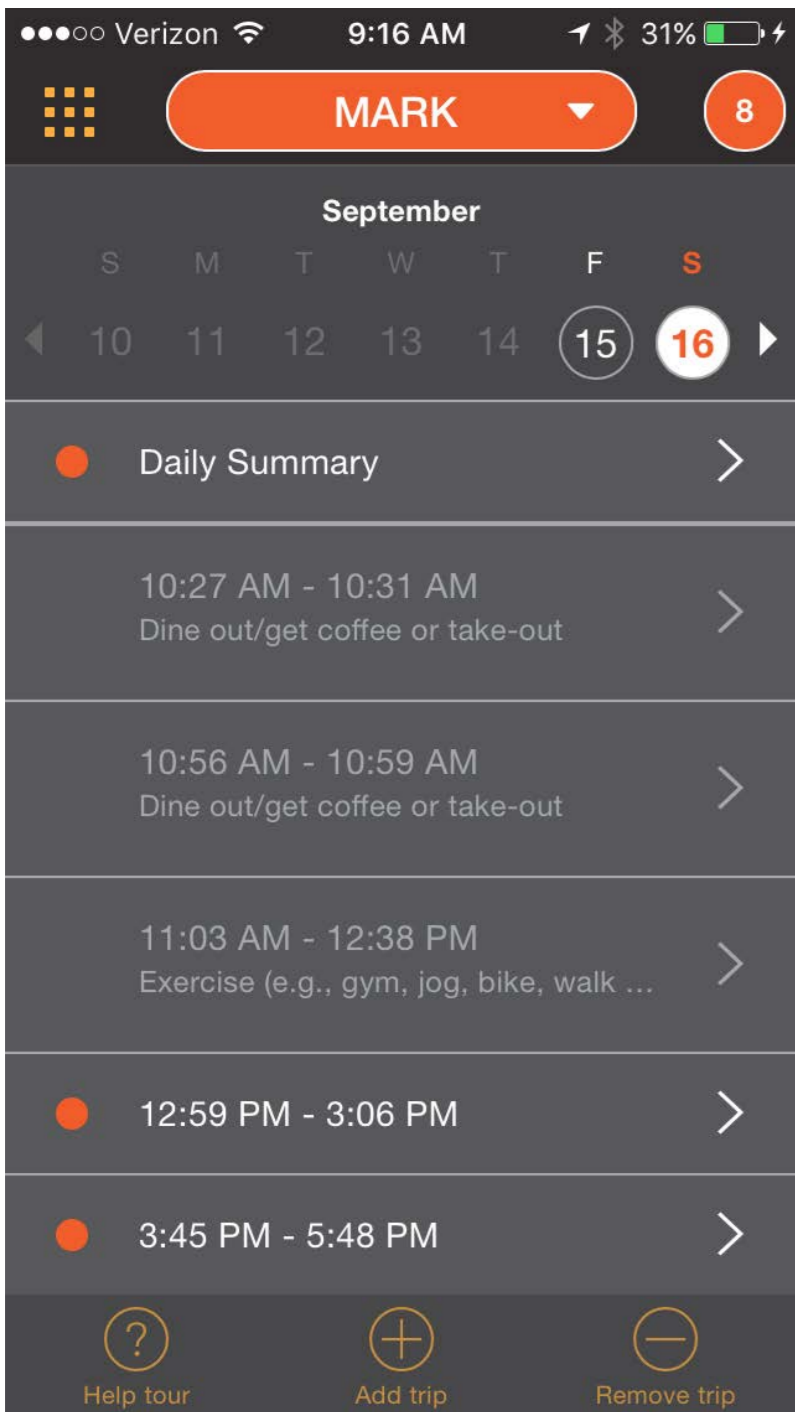
- **7 Days** of trip data collected
- Approximately **70% of HHs** will participate using this method

How does rMove work?

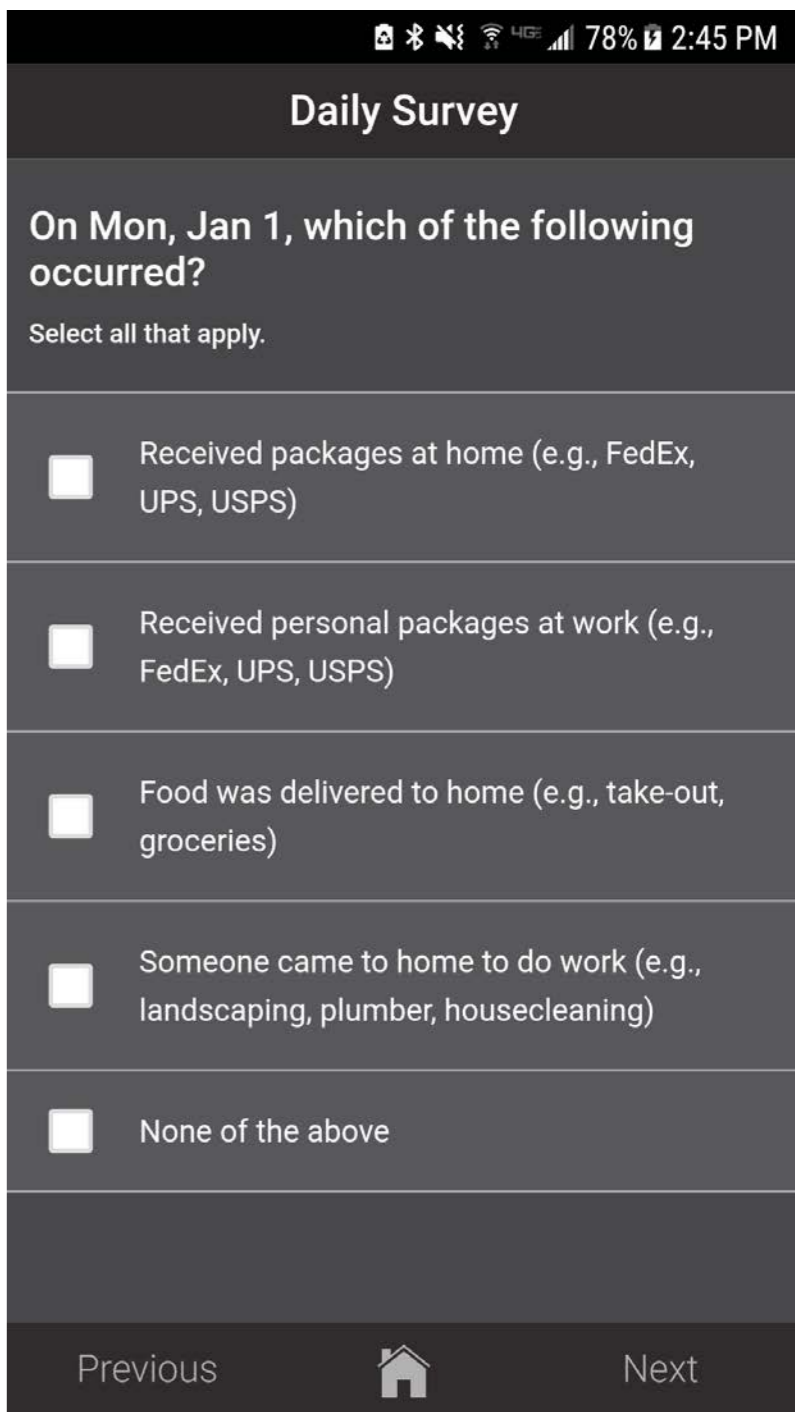


Passive/automatic collection of spatial data for seven days **AND** prompted in-app surveys

TRIP SURVEY

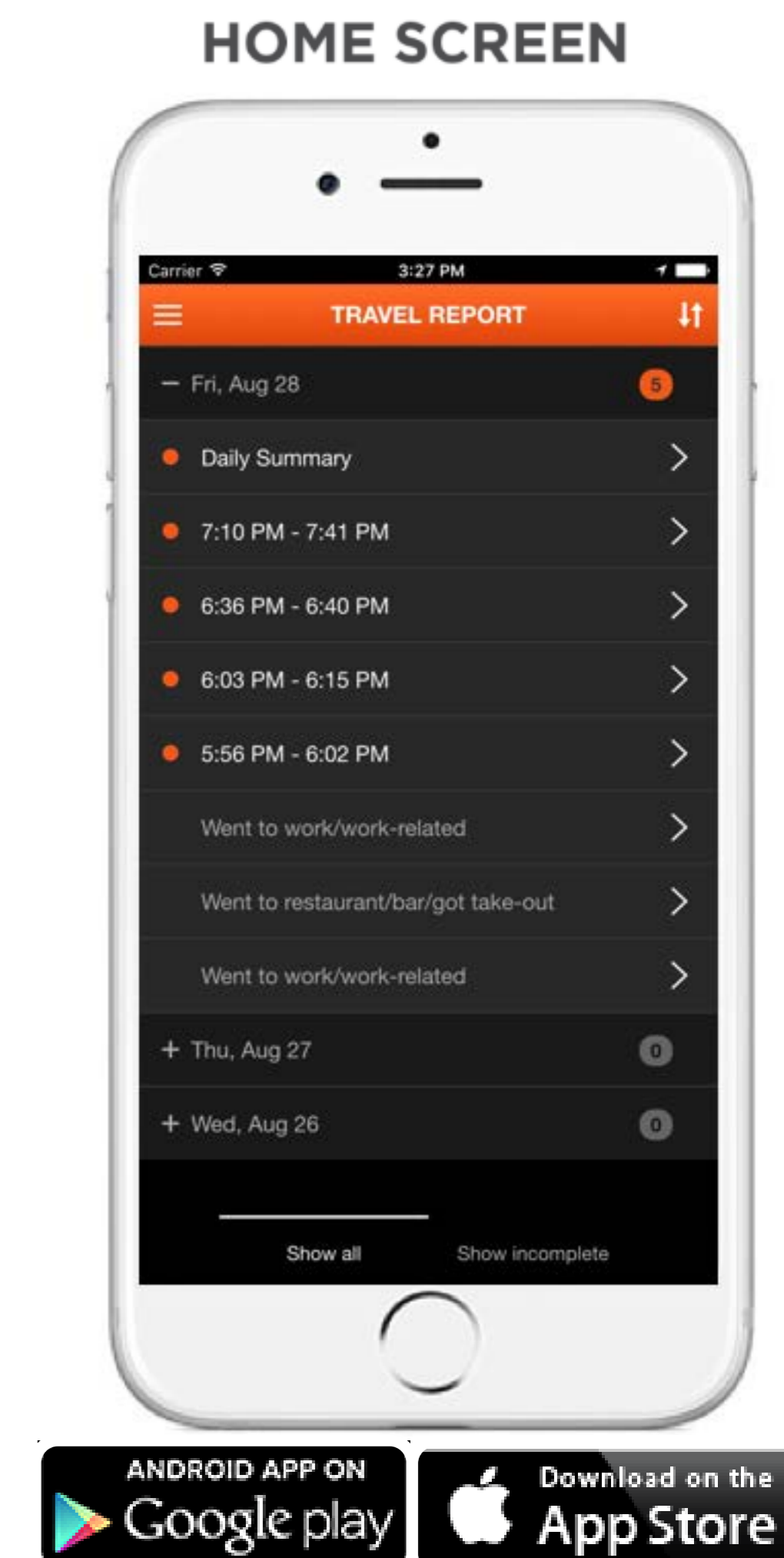


DAILY SURVEY



Move **Underlying Technology**

- Automatically runs in background upon device power-up
- Adaptive GPS collection technology using multiple smartphone sensors to optimize battery life
- In-app messages indicate the beginning & end of assigned data collection period
- Automatic trip start/stop detection and recording of trip path and duration
- Allows participants to edit trips and add missed trips
- Automatically transfers encrypted data to servers immediately after each trip is completed (assuming connection)

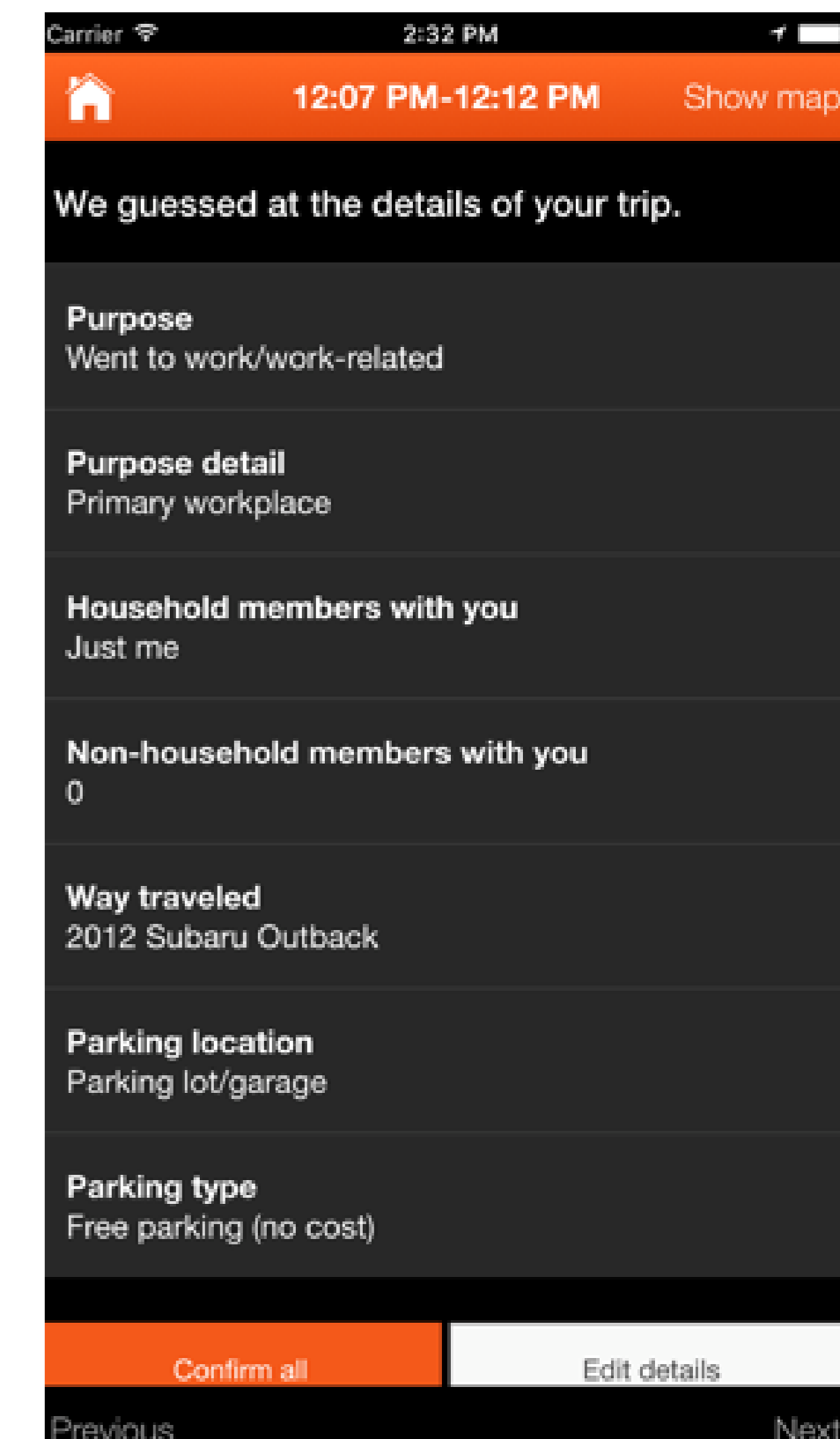
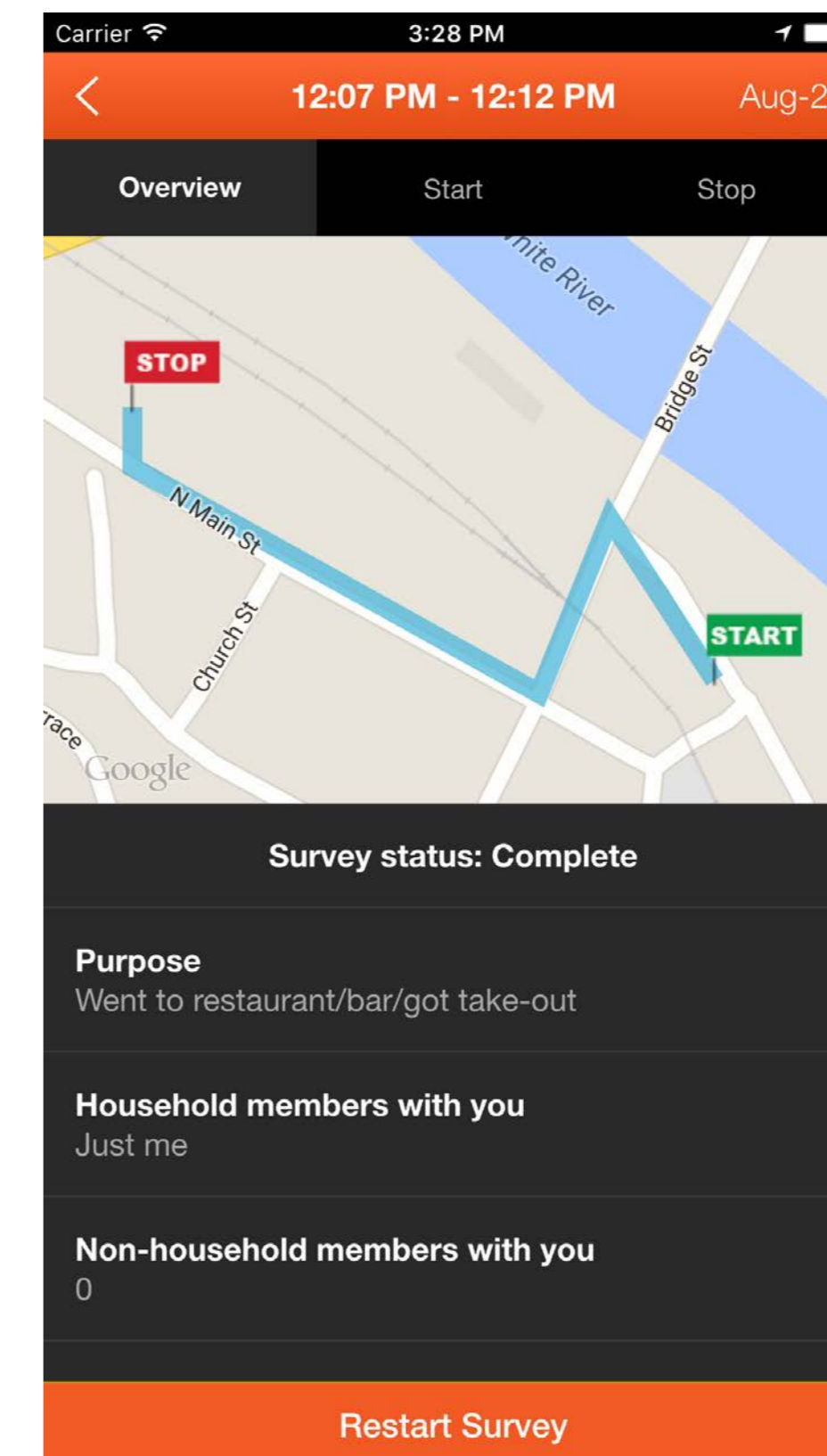


Trip Surveys – Who, How, Why?

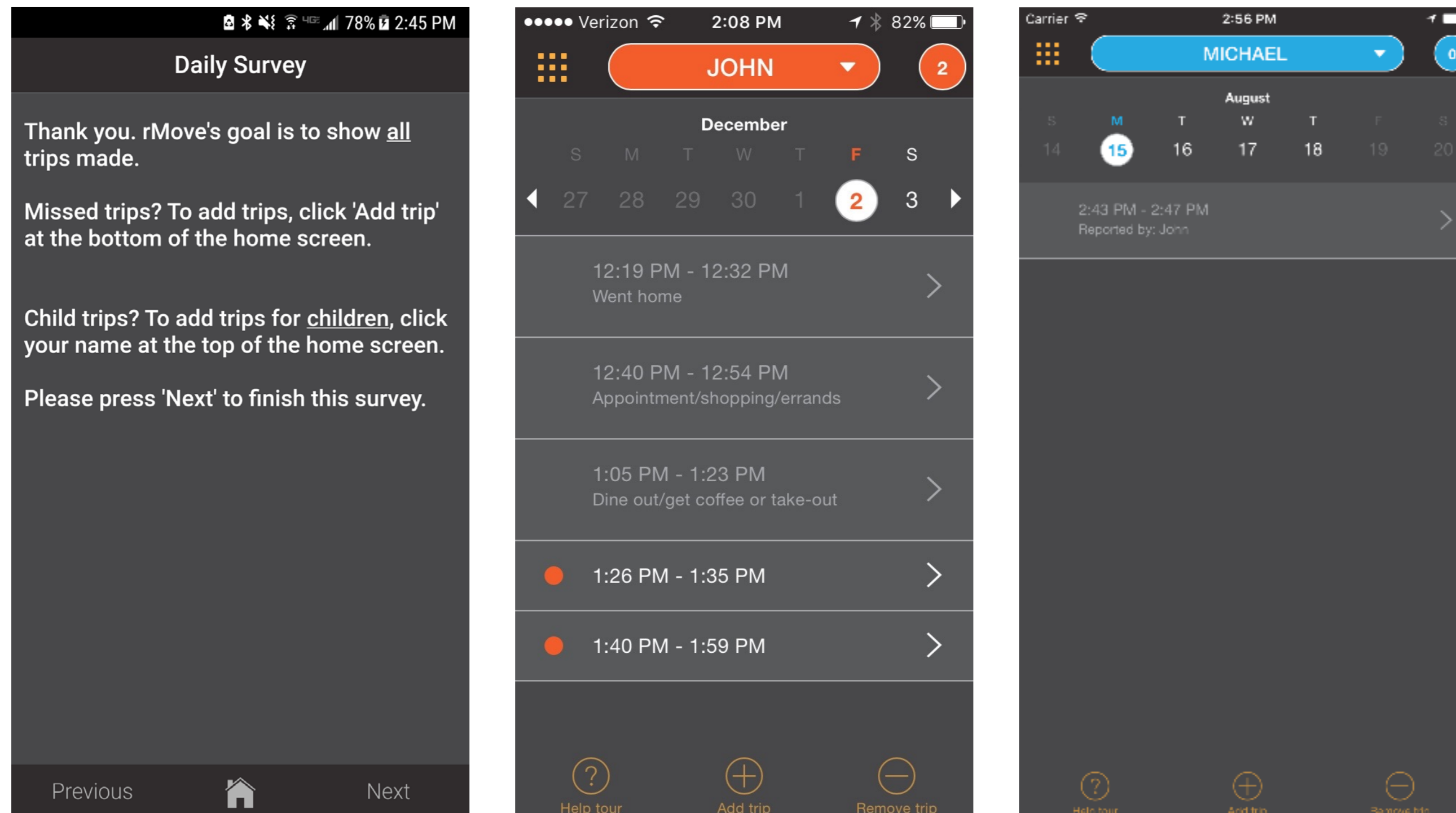
- Custom in-app trip survey triggered automatically
- Survey has validation & real-time logic based on response
- Can select which vehicle was used & which HH members they traveled with
- Able to give feedback or report errors

TRIP MATCHING

- Trips are matched to reduce burden
 - Have same start & stop locations, trip distance
- Answers from matched trips are pre-populated so users can accept or change trip details



How do children participate?



- Only adults can participate using rMove
- Trips when a child travels with an adult HH member are automatically copied to the child's roster
- One adult in the HH asked to report all child trips on their own (without an adult HH member)

How do **non** smartphone-owning households participate?

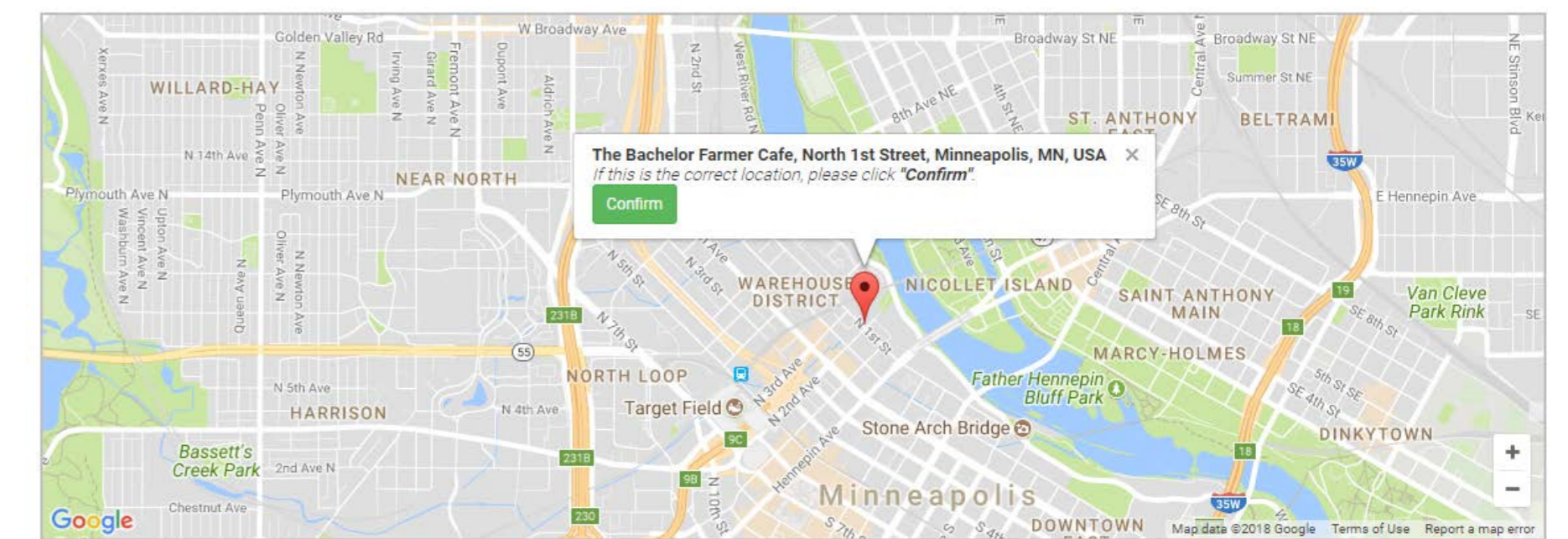
Online or through the call center

- Call center uses the same online instrument for those that call in
- Two-part survey methodology
 - Part 1: demographic information collected from one HH member
 - Part 2: **All HH members** report **all trips** and geocode **all locations** visited for **one day**
- Higher burden because report details that the smartphone passively collects

STUDY OVERVIEW		
This study has 2 parts	1	2
When do I take the survey?	As soon as convenient	After the day of your assigned travel
Who takes the survey?	You	All adults (an adult should also report trips for children under 18)
How long will the survey take?	About 15 minutes	About 5 minutes per person
What is the survey about?	We ask about your household and household members' typical travel behavior	Return to the website (or call) to report the trips you made on your assigned travel date (use your Travel Log to keep track!)

Please locate: COFFEE

The Bachelor Farmer Cafe, North 1st Street, Minneapolis, MN, USA



Project Status

- 2015/16- Decision to transition from decennial to biennial survey
- 2016/17- Funding secured for first six years from MnDOT, Council, TAB
- January 2018- Hired consultant team
- Spring 2018- Survey planning

Upcoming Schedule

- May 2018: 400 household pretest
- Summer 2018: Developing final materials
- **October 2018: September 2019: Survey administration wave 1**
- Spring 2020: First wave results
- October 2020 – September 2021: Survey administration wave 2
- Spring 2022: Second wave results
- October 2022 – September 2023: Survey administration wave 3
- Spring 2023: Third wave results