Other Modeling and Data Analysis Activities & Support

- Household Travel Survey
- Replica Big Data Pilot Project
- Micromobility
- Remix Transit
- Bike & Pedestrian Data Collection
- Sugar Access
- PPA
SACOG 2018 Household Travel Survey
Survey Basics

- Unique dataset--integrated data on:
  - People (income, age, household structure, etc.)
  - Travel (trips, mode, timing, VMT, etc.)
  - Location (residence, jobs, other activities, etc.)
  - Vehicles (number, type, power source, etc.)
  - Multi-day (includes several weekdays, weekends)
Survey Basics (cont’d)

- **Data collection: Mar. 12 to May 27, 2018**
  - Total households: 3,956
  - Total persons: 8,321
  - Total vehicles: 6,636
  - Total linked trips: 146,000
  - Actual household sampling rate: 0.5%
  - Most respondents used smartphone app

- **Data mining workshop: Feb. 25, 2020**
Weekday Mode Share—All Trip Purposes

- Source: SACOG, February 2018. Based on SACOG 2018 Household Travel Survey, using internal-to-region person trips only.
Mode Share—Split by Transit Accessibility

Transit Accessibility at Place of Residence
(Job w/in 30' Transit Time)

- **Average (Region):** 85%
- **No Access:** 89%
- **Low:** 84%
- **Medium:** 82%
- **High:** 69%

Source: SACOG, February 2018. Based on SACOG 2018 Household Travel Survey, using internal-to-region person trips only.
Alternative Mode Share--Detail

- **TNC**: 9.7%
- **Transit**: 2.3%
- **Bike**: 1.5%
- **Other**: 1.2%

Source: SACOG, February 2018. Based on SACOG 2018 Household Travel Survey, using internal-to-region person trips only.
Alt. Mode Share—Split by Transit Accessibility

Transit Accessibility at Place of Residence
(Jobs w/in 30' Transit Time)

- **Source**: SACOG, February 2018. Based on SACOG 2018 Household Travel Survey, using internal-to-region person trips only.
Weekday VMT per Capita

Source: SACOG, February 2018. Based on SACOG 2018 Household Travel Survey, using internal-to-region person trips only.
Weekday VMT per Capita

Auto Accessibility at Place of Residence
Jobs w/in 30' Drive

- Average (Region): 16
- Low: 21
- Med-Low: 16
- Med-High: 15
- High: 13

Source: SACOG, February 2018. Based on SACOG 2018 Household Travel Survey, using internal-to-region person trips only.
VMT per Vehicle by Fuel Type

- VMT per vehicle type
- Vehicle type and household income

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>VMT (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25.0</td>
</tr>
<tr>
<td>2</td>
<td>40.3</td>
</tr>
<tr>
<td>3</td>
<td>31.6</td>
</tr>
<tr>
<td>4</td>
<td>22.6</td>
</tr>
<tr>
<td>5</td>
<td>25.7</td>
</tr>
</tbody>
</table>

Source: SACOG, February 2018. Based on SACOG 2018 Household Travel Survey, using internal-to-region person trips only.
Income

<table>
<thead>
<tr>
<th>EV</th>
<th>MPG &gt; 30</th>
<th>MPG 25-30</th>
<th>MPG 20-25</th>
<th>MPG 10-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (&lt;$35K)</td>
<td>16%</td>
<td>18%</td>
<td>14%</td>
<td>20%</td>
</tr>
<tr>
<td>Medium ($35K--$100K)</td>
<td>4%</td>
<td>4%</td>
<td>14%</td>
<td>20%</td>
</tr>
<tr>
<td>High (&gt;$$100K)</td>
<td>80%</td>
<td>41%</td>
<td>40%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Source: SACOG, February 2018. Based on SACOG 2018 Household Travel Survey, using internal-to-region person trips only.
Takeaways

- Unique and valuable research dataset—travel, demographics, land use, etc.
- Some research done—but much more to do!
- Encourage research on:
  - VMT—what factors seem to influence it—SB 743
  - Weekend travel—how does it differ from weekday travel?
  - Vehicle ownership and use—how are different vehicle types allocated within households?
Big Data Pilot Project: Replica
Data for Transportation Planning

A Full Travel Day Example

3. What is most common type purpose of your travel?
   - Family Vacation
   - Adventure
   - Business
   - Spiritual
   - Religious

4. What mode of transportation do you opt? Rate them on the basis of your preference (most preferred at the top, least preferred at the bottom):
   - Car, Bus, Train, Airplane, Ship

5. Where do you go most often?
   - Hill Stations
   - Beaches
   - Deserts
   - Historically Significant places
   - Commercially Busy cities

6. Have you travelled Internationally?
   - Yes
   - No

7. With whom, do you travel most often?
   - Family
   - Friends
   - Colleagues
   - Alone

8. Where do you like to stay?
   - Expensive Hotels
   - Economy Hotels
   - Resorts

9. What is generally the length of the trip?
   - 1-2 days
Household Travel Survey vs. Big Data

<table>
<thead>
<tr>
<th></th>
<th>Household Travel Survey</th>
<th>Big Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
<td>Small (&lt;0.5%)</td>
<td>Large (&gt;5%)</td>
</tr>
<tr>
<td>Total Cost</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Unit Cost</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Timeliness</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Privacy Concerns</td>
<td>High</td>
<td>Low to Medium</td>
</tr>
<tr>
<td>Data Quality</td>
<td>High</td>
<td>Medium to High</td>
</tr>
<tr>
<td>Seasonal Variation</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Project Status

• Project partners: SACOG, Caltrans, CARB
• Data coverage: Sept. 2018 – Nov. 2020
• **Current available data: Sept. 2018 – Feb. 2019**
• Authorized online users: the project partners and SACOG member agencies
• Data request: general public (including consultants)
• Contact: Shengyi Gao, 916.340.6239, sgao@sacog.org
Replica Big Data Methodology

- Raw data: smart phone app based locations; cellular data; commercial marketing data

- Sample size: 5 to 30 percent samples for each census block
What Are in Replica Online Platform?

Replica gives you a complete picture of movement patterns in your region.

There are three ways to access the data...

- **Replica Reports**
  Create simple reports about key topics in just a few clicks
  
  [Choose a report type](#)

- **Explorer**
  Filter and visualize Replica data across dozens of vital metrics
  
  [Create an explorer project](#)

- **Data Downloads**
  Download data in a variety of formats for analysis in other tools
  
  [Visit the downloads page](#)
Replica Report Screen Shots

- Where did people live?
- Why did people travel?
- Which mode did people use?
Replica Applications

• Provide the latest travel info at the macro and micro levels
• Fill data gaps where there are no observed data
• Analyze commute patterns between SACOG and adjacent areas
• Analyze pass-through traffic
• Analyze freight movement
• Analyze seasonal variations of traffic flows
• Analyze SB 743 projects
• Analyze the impacts of road projects
Replica Travel Shed

Travel shed: areas that trips start and pass through the selected road segment(s)

- Who are using the road segment(s) (age, income, race/ethnicity)?
- Where are they from? (trip origin)
- Where do they go? (trip destination)
- Why do they travel? (trip destination purpose)
- How do they travel? (travel mode)
- When do they travel? (trip departure time)
- How far do they travel? (travel distance)
Better Understanding Micromobility Data

Open Mobility Data Specifications (MDS) Workshop
- 2/27/2020 SACOG Board Room
- Last chance to register Monday February 24th!
- Contact Sabrina Bradbury Sbradbury@sacog.org

Regional Micromobility Platform
Remix Transit Planning

SACOG staff can provide Transit Planning support to member agencies.

Contact: Michael Rosson, Senior Transit Analyst
mrosson@sacog.org
SACOG is finalizing a contract with Eco-Counter to launch a regional bicycle and pedestrian counting program in April. Accurate data about the volume of people biking and walking will support local and regional plans, projects, and models.

- Long and short term counters to help inform local plans and projects
- Regional reporting and Replica and SACSIM calibration
- Cooperative purchasing agreement for SACOG member agencies

For more information on the program contact Victoria Cacciatore VCacciatore@sacog.org
Sugar Access Software

- Created by Citilabs
- Measures access to a variety of destination types from user-specified areas.
- Fine-grained data inputs for better non-motorized accessibility analysis
  - All-streets network
  - Observed average speeds
  - GTFS transit service data
- Using for Project Performance Assessment (PPA) tool

Jobs accessible within 45min transit trip from each block group
Project Performance Assessment (PPA) Tool

- Purposes
  - Help evaluate projects applying for money from Funding Round program
  - Provide a more “apples to apples” basis for evaluating projects
- Update of tool used in 2018 Funding Round
  - More observed data, visualizations
  - Beta release scheduled for March 2020
- More information:
  - More on the Funding Round: [https://www.sacog.org/regional-funding-programs](https://www.sacog.org/regional-funding-programs)
  - Darren Conly: dconly@sacog.org
  - Garett Ballard-Rosa: GBallard-Rosa@sacog.org
Thank You

For more information on any of these Data Analysis & Support items contact us!

Shengyi Gao – sgao@sacog.org

Kyle Shipley – kshipley@sacog.org

Darren Conly – dconly@sacog.org
SACSIM Open Round Table Discussion

- Name?
- Organization?
- What project or research topic are you working on relating to SACSIM?
- What SACSIM modeling needs do you have?