

## DATA IN REPLICA ONLINE PLATFORM

### 1. Population

The population is synthesized for each census block group with seeds from 2013-2017 ACS 5-year PUMS (for the quarters from Sept. 2018 to Feb. 2019) and 2014-2018 ACS 5-year PUMS (for the quarters from Mar. 2019 to Nov.2020) and controls from 2013-2017 ACS 5-year summary (for the quarters from Sept. 2018 to Feb. 2019) and 2014-2018 ACS 5-year summary (for the quarters from Mar. 2019 to Nov.2020). The attributes include household size, household income, family structure, tenure, number of vehicles, residence location (census block group, census tract, TAZ, RAD, community type, county), age, sex, race, ethnicity, person income, employment status, education achievement, school grade, industry, household role, subfamily member, commute mode, work location (census block group, census tract, TAZ, RAD, community type, county).

### 2. Person Trips

Replica residents' daily trip tables, including:

- Trip origin: The geographies include census block group, census tract, TAZ, RAD, community type, or county.
- Trip destination: The geographies include census block group, census tract, TAZ, RAD, community type, or county.
- Mode: walk, bike, private auto, carpool, transit, school bus, TNC, commercial (freight)
- Purpose (of trip destination): home, shop, work, social, errands, commercial (freight), eat, school
- Departure time: real time
- Arrival time: real time
- Travel distance: miles. It is calculated from the points of trip origin and destination on road network.
- Travel time: minutes. It is calculated from the points of trip origin and destination on road network.

### 3. Visitor Trips

In the context of Replica, non-SACOG residents are visitors. The travel made by visitors is included in the person trip table.

### 4. Commercial Trips

A commercial trip is defined as a trip made by a truck for commercial purpose.

### 5. Pass-through Traffic

Pass-through traffic includes all person and commercial trips that make use of roads within SACOG but both origins and destinations are outside SACOG region.

#### 6. Road Network and Traffic Counts

Replica uses open street map (OSM), which includes all freeways, highways, major arterials, minor arterials, ramps, local collectors, and neighborhood streets, and estimates the traffic volume on all road segments. The estimates for the roads with low volume are expected to have higher margin of error.

#### 7. Traffic flows

The authorized users can download the build-in traffic flows.

#### 8. Time period

Replica provides trip departure and arrival times in clock time and does not assign each trip a time period as a travel demand model does. Users can aggregate the trips by selecting departure or arrival time.

#### 9. Day of week

Replica estimates travel for each day of a week, i.e. Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday

#### 10. Travel shed

Replica users can create a travel shed by selecting one/multiple road segment(s). The person and commercial trips passing on the road segment(s) can then be downloaded.

#### 11. Reports

Replica has a lot of ready-to-use summary tables and charts. Users can download the tables and charts or make their charts by downloading the tables. The reports are listed in the table below.

<b>1. Mobility reports</b>	All reports are report templates. To generate a report, a user will have to click the report name and choose the geography of interest. The template is hard coded and cannot be customized. Only Replica can add new reports.
<b>1.1 Destination report</b>	Create a report focusing on selected destinations. The destination location map can be downloaded as an image.
<b>Overview</b>	Trips ending in the area per day; compared with the region
	People making trips to the area per day; compared with the region
	Average household income of trip makers; compared with the region
	Average trip distance of trips to the area; compared with the region
<b>Maps</b>	
Where did trips end?	Trips end in the selected area or the region.
Where did trips start?	Trips start in the selected area or the region.
Where did trip makers live?	Home locations of trip makers of the selected area or the region
<b>Travel behavior</b>	
Why did people travel?	travel purpose
Which modes did people use?	mode share
How far was each trip?	trip distance distribution
What time did trips arrive?	trip distribution by time bin of trip ending
<b>Demographics</b>	
Were the people residents or visitors?	trip shares by resident status
What were the household incomes of trip makers?	trip distribution by household income category

What were the races & ethnicities of trip makers?	
<b>Mobility reports by demographic group</b>	
Destination by income	\$0-25k; \$25k-75k; \$75k-150k; \$150k
Destination by race & ethnicity	white non-Hispanic; black non-Hispanic; Hispanic; all people of color
destination by car ownership	car-free; car owning
<b>1.2 Shared origin/destination</b>	
<b>Overview</b>	
	Trips per day
	People makers per day
	Share of trips by residents
	Average trip distance of trips to the area; compared with the region
	Cumulative private auto VMT
<b>Maps</b>	
Where did trips end?	
Where did trips start?	
Where did trip makers live?	
<b>Travel behavior</b>	
Why did people travel?	
Which modes did people use?	
How far was each trip?	
What time did trips arrive?	
<b>Demographics</b>	
Were the people residents or visitors?	
What were the household incomes of trip makers?	
What were the races & ethnicities of trip makers?	
<b>1.3 Seasonal comparison report</b>	

<b>Overview</b>	Trips ending in the area per day; compared with the region
	People making trips to the area per day; compared with the region
	Average household income of trip makers; compared with the region
	Average trip distance of trips to the area; compared with the region
<b>Maps</b>	
Where did trips end?	
Where did trips start?	
Where did trip makers live?	
<b>Travel behavior</b>	
Why did people travel?	
Which modes did people use?	
How far was each trip?	
What time did trips arrive?	
<b>Demographics</b>	
Were the people residents or visitors?	
What were the household incomes of trip makers?	
What were the races & ethnicities of trip makers?	
<b>2. Resident reports</b>	
<b>All residents</b>	
<b>Overview</b>	Resident population
	Total trips by residents per day
	Trips per resident per day
	Average annual household income
	Average trip distance

<b>Maps</b>	
Where did residents live?	
Where did residents work?	
Where did residents go?	
<b>Demographics</b>	
What were the household incomes of residents?	
What were the races & ethnicities of residents?	
How many people had a private auto vehicle?	
<b>Travel behavior</b>	
Which modes did residents use?	
Why did residents travel?	
How far was each trip?	
How long did each trip take?	
What was the total daily distance traveled by private auto? (VMT per driver)	
What was the total daily distance traveled by bikers? (BMT per biker)	
What was the total distance traveled by walkers? (WMT per walker)	
<b>Resident reports by demographic group</b>	
Residents by income	\$0-25k; \$25k-75k; \$75k-150k; \$150k
Residents by race & ethnicity	white non-Hispanic; black non-Hispanic; Hispanic; all people of color
Residents by car ownership	car-free; car owning
<b>3. Transit reports</b>	
<b>All transit rides</b>	transit trip by route/line name
<b>Overview</b>	Trips per day

	Unique riders per day
	Average annual household income
<b>Maps</b>	
Where did riders' trips start?	
Where did riders' trips end?	
Where did riders live?	
<b>Travel behavior</b>	
Why did riders travel?	
How far was each trip (including walking and transfers)?	
<b>Demographics</b>	
What were the household incomes of riders?	
What were the races & ethnicities of residents?	
How many riders had a private auto vehicle?	
<b>Transit reports by demographic group</b>	
Transit by income	\$0-25k; \$25k-75k; \$75k-150k; \$150k
Transit by race & ethnicity	white non-Hispanic; black non-Hispanic; Hispanic; all people of color
Transit by car ownership	car-free; car owning
<b>4. Worker reports</b>	
<b>All workers</b>	
	Resident population
	Jobs located in area
	Jobs per resident in area
	Average household income of workers in area
<b>Maps</b>	
Where were the workplaces located?	

Where did workers live?	
<b>Demographics</b>	
What were the household incomes of workers?	
What were the races & ethnicities of workers?	
What were the ages of workers?	
How many workers had private auto vehicles?	