



MATSim User's Group Meeting

# Leveraging passive data and MATSim to provide transportation scenario planning through a web-based interface

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TRANSPORT  
FOUNDRY

# The Problem of Travel Models

# Transport Models are Expensive

Data collection (small sample)

Expansion, Estimation, Calibration

Scenario specification and execution

# Passive Data is Cheap

A single dataset doesn't describe everything

Linking different datasets is difficult

# A Data-Driven Approach

# A Data-Driven Model

1

**Synthetic Households lookup  
schedules in a database**

Number and types of tours,  
activity time and duration, etc.

2

**Households choose locations  
for activities from O-D patterns**

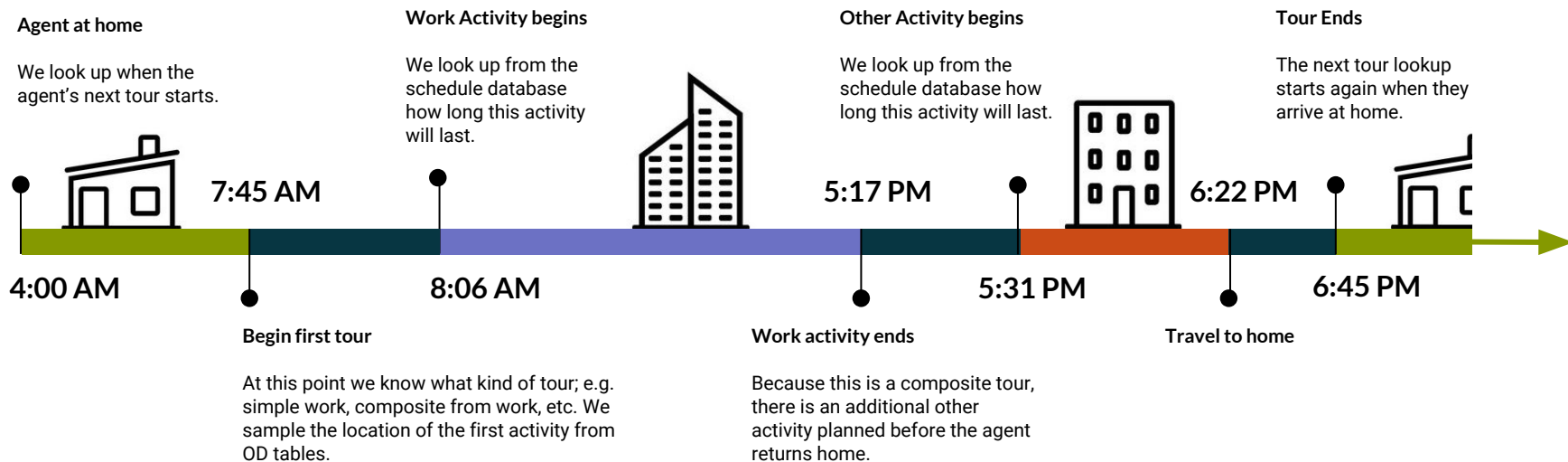
Considering travel time, size  
terms, etc.

3

**Route daily plans on a  
multi-modal network**

Using MATSim, adjust routes,  
departure times, mode  
choice, etc.

# Demand Discrete Event Simulation



# Alloys in CityCast

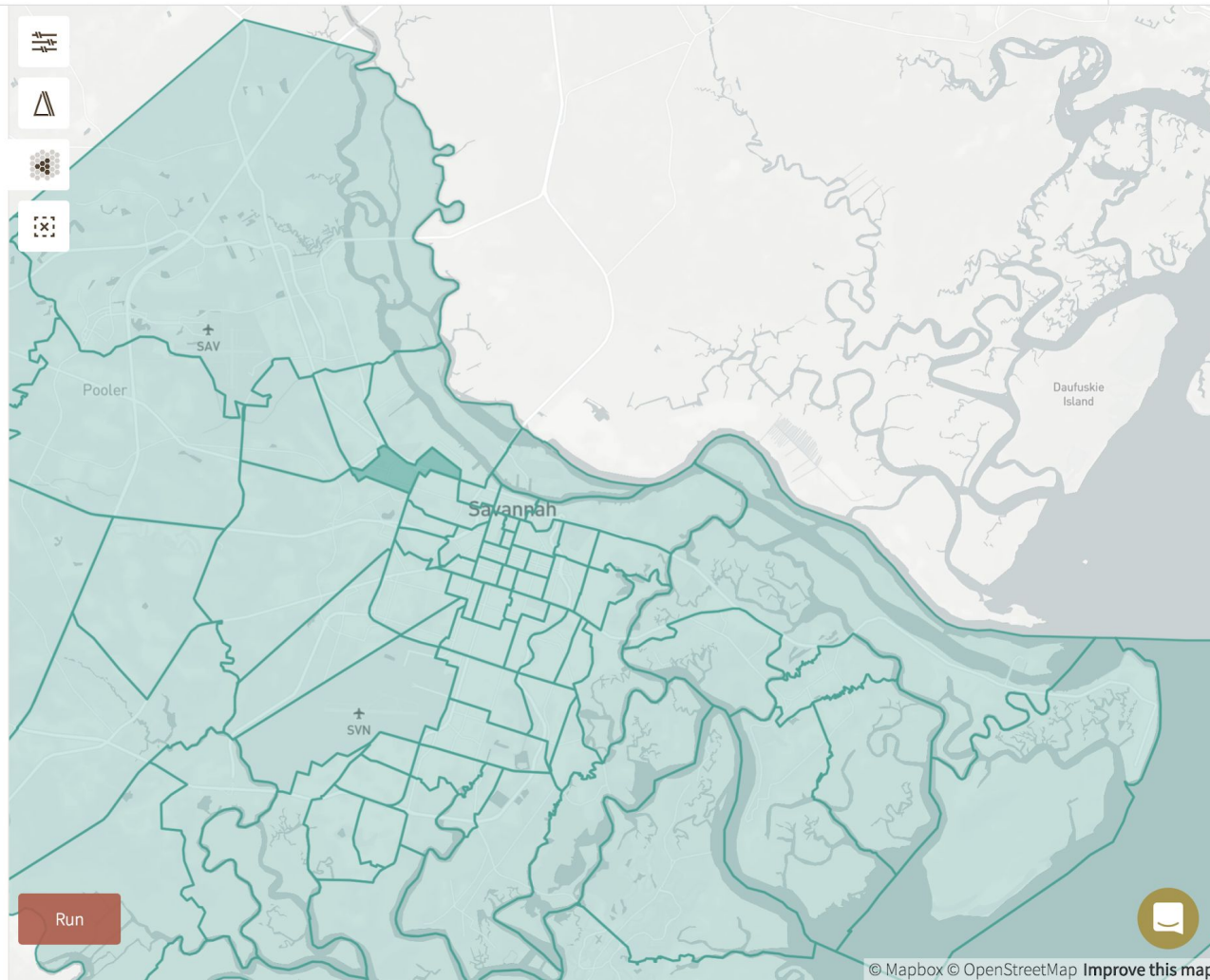
Type	Passive Data Alloy	Open Data Alloy
Households	Acxiom, Epsilon, Experian, or similar	ACS PUMS
Businesses	Dun & Bradstreet, InfoUSA, or similar	LEHD LODES WAC
Origin-destination flows	AirSage, SafeGraph, or similar	LEHD LODES OD/Gravity
Road network	HERE Maps	OpenStreetMap
Transit network	GTFS	GTFS
Tour Patterns	NHTS (for now)	NHTS



# Web-Based Interface

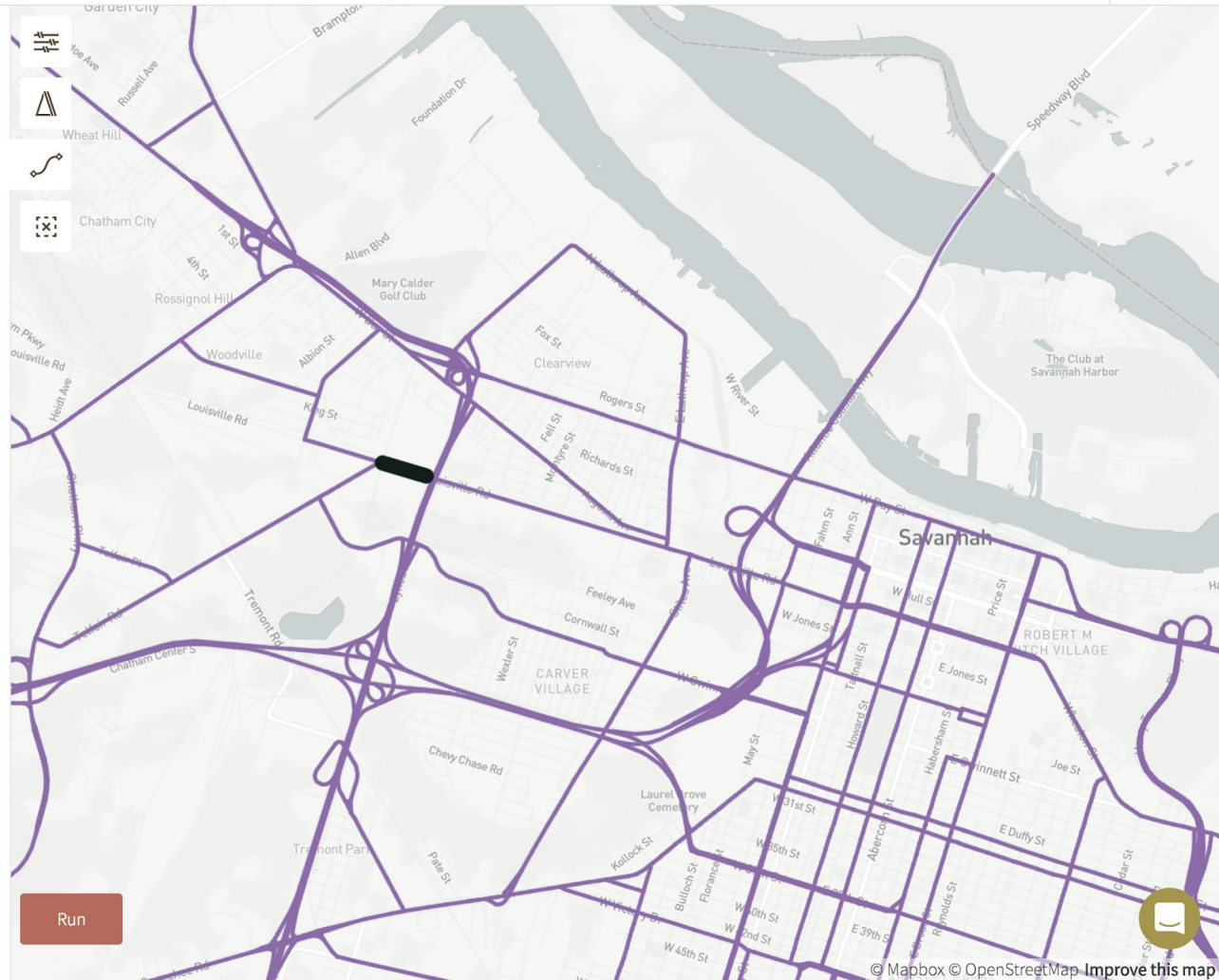
Tract 13051011600

	Parent Cast	This Cast
Households	777	<input type="text" value="777"/>
Retail Jobs	131	<input type="text" value="131"/>
Service Jobs	475	<input type="text" value="475"/>
Other Jobs	843	<input type="text" value="843"/>

Update Cast SchemeRun

Link 111697667

	Parent Cast	This Cast
Facility Type	4	<input type="text" value="4"/>
Speed Limit	60mph	<input type="text" value="60"/>
From Lanes	1	<input type="text" value="1"/>
To Lanes	1	<input type="text" value="1"/>

[Update Cast Scheme](#)[Run](#)

## Cast Scheme

BaseCast: Public Data 1.0  
with the following changes:

### Tract 13051010605

Households 800

### Link 815146188

To Lanes 4

### Tract 13051000601

Households 1,800 Other Jobs 1,200

Retail Jobs 200 Service Jobs 195

### Tract 13051010601

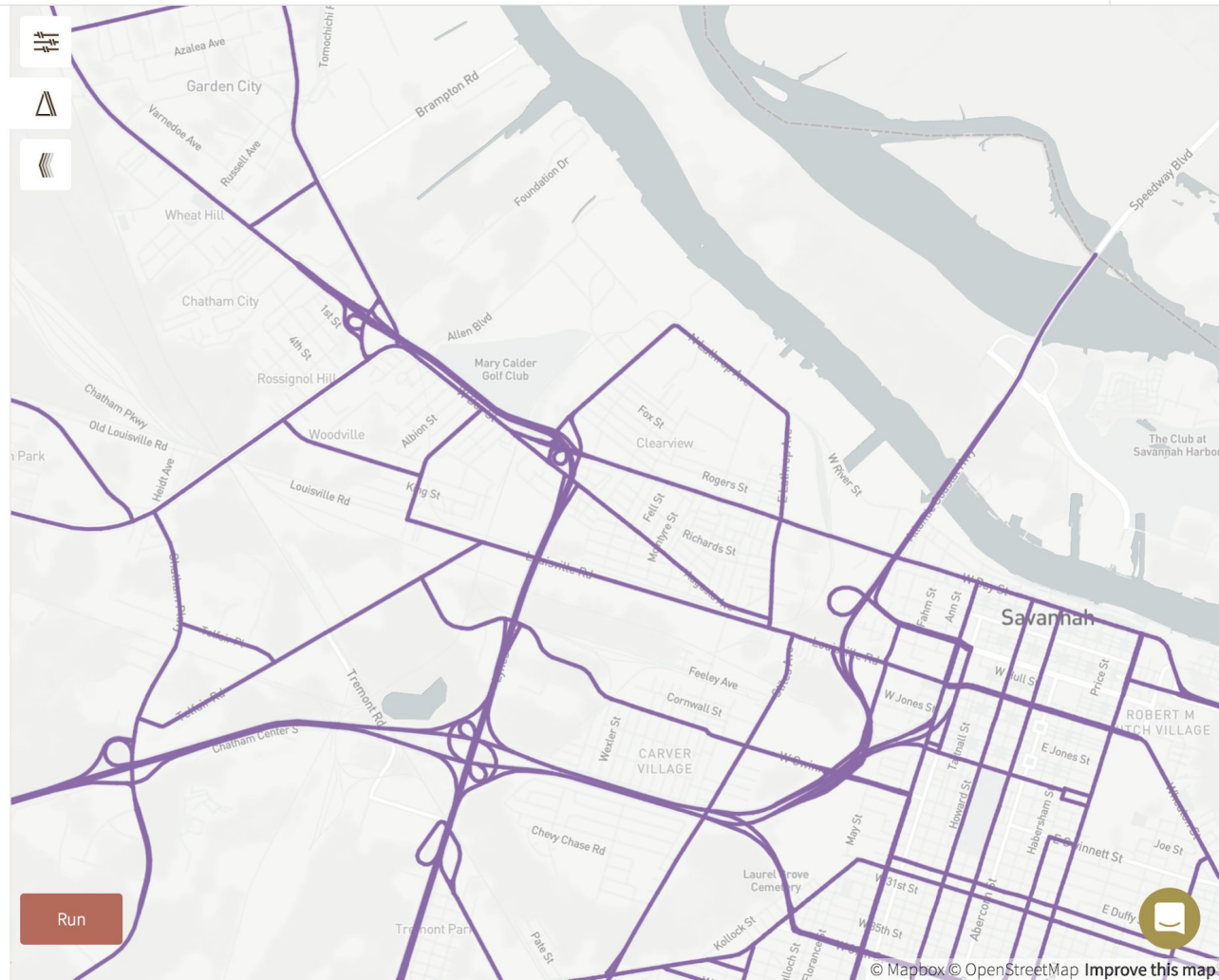
Households 1,850 Retail Jobs 450

### Link 1182193279


To Lanes 4 From Lanes 4

### Link 1185281550

Facility Type 3 From Lanes 1

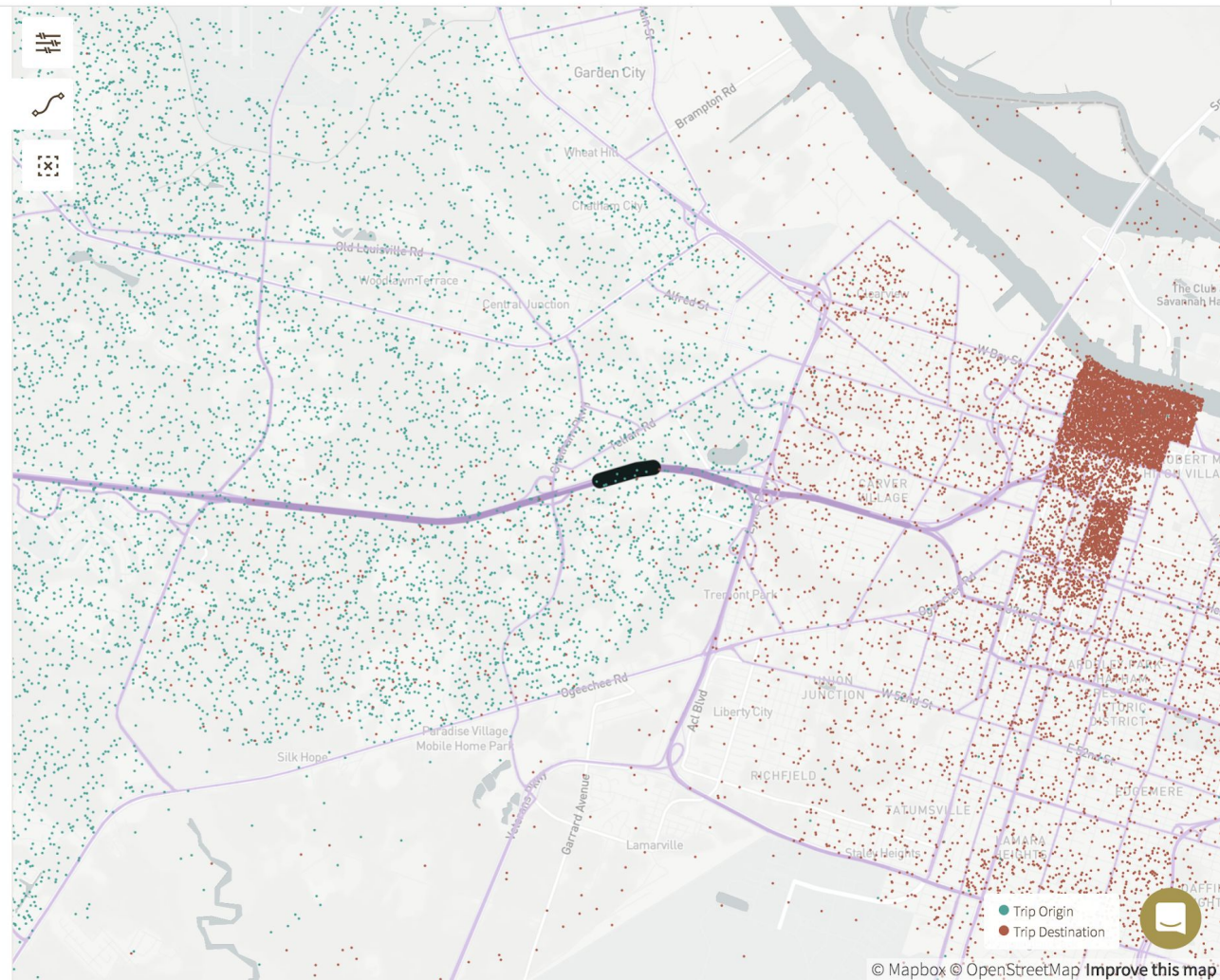




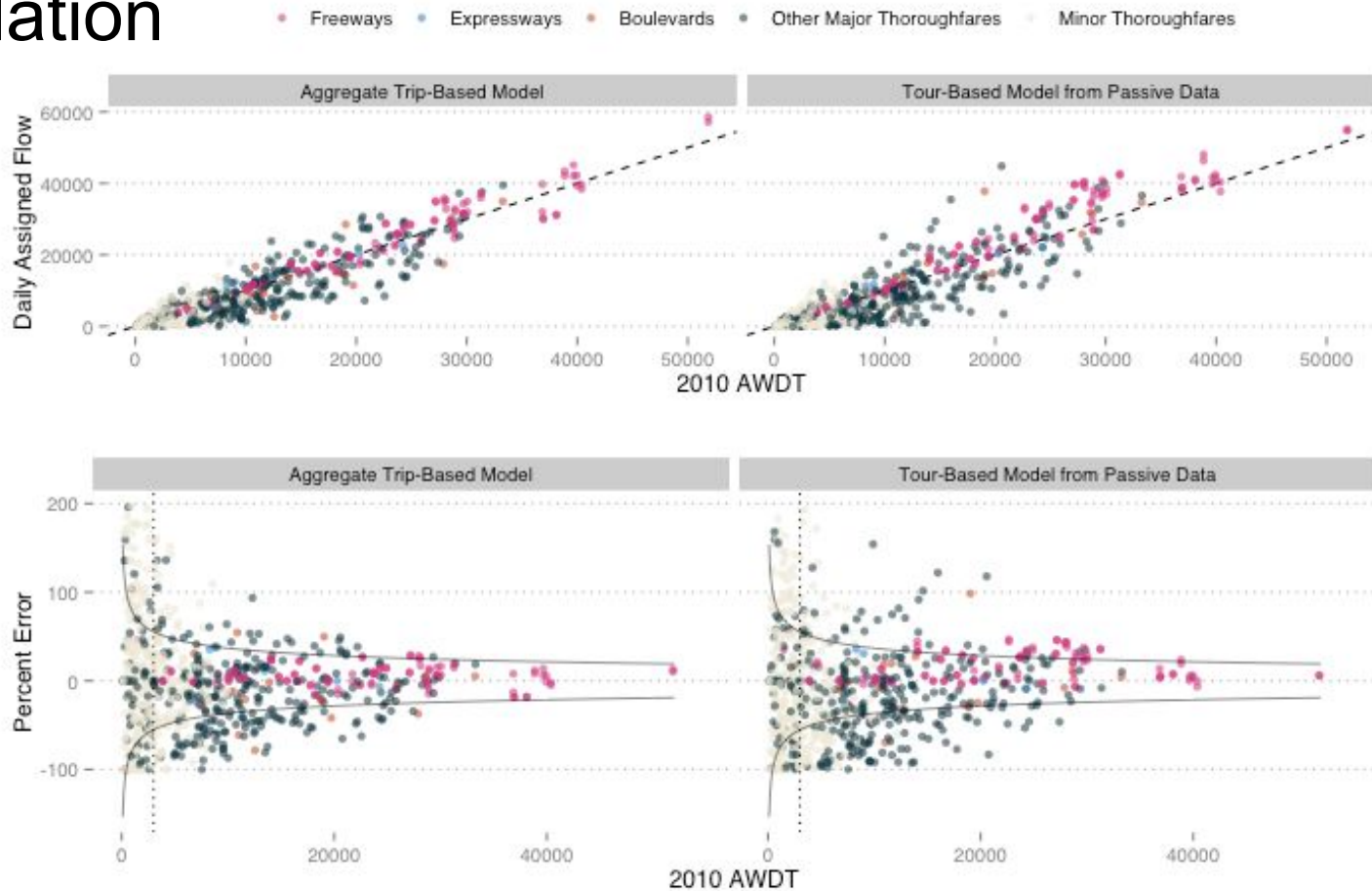
 Link 1185281550

Volume 18,227

Age Group	Distribution
0-17	20.0%
18-34	28.4%
35-64	41.3%
65+	10.3%
Income Brackets	Distribution
<= \$0	42.3%
\$0 - \$20,000	22.3%
\$20,000 - \$40,000	17.0%
\$40,000 - \$80,000	12.8%
\$80,000 - \$100,000	2.6%
\$100,000+	3.0%
Volume by Day Part	Distribution
Early AM	9.5%
Peak AM	17.2%
Midday	44.9%
Peak PM	12.7%
Late PM	15.7%



# Validation



# Next Steps

Transit

Tolling

AV / Flexible-route Transit

Validation reports

External and non-resident trips

# Questions