



Southeast Florida Regional Planning Model v9

Overview of Model Features

SERPM v9 – New Feature Overview

1 Activity-Based Model

2 Population Synthesis

3 Networks

4 Software Platform



Resident Demand implemented in the ActivitySim platform

Activity-Based
Model

Population
Synthesis

Networks

Software
Platform

Open-source software
for activity-based
modeling

One design, multiple
implementations
philosophy

Growing user
community



ActivitySim

An open platform for activity-based travel modeling

ActivitySim

The mission of the ActivitySim project is to create and maintain advanced, open-source, activity-based travel behavior modeling software based on best software development practices for distribution at no charge to the public.

The ActivitySim project is led by a consortium of Metropolitan Planning Organizations (MPOs), Departments of Transportation (DOTs), and other transportation planning agencies, which provides technical direction and resources to support project development. New member agencies are welcome to join the consortium. All member agencies help make decisions about development priorities and benefit from contributions of other agency partners.



<https://activitysim.github.io/>

Same model concept, different implementation software

CT-RAMP framework

Based on the SANDAG
"two-zone" ActivitySim
example

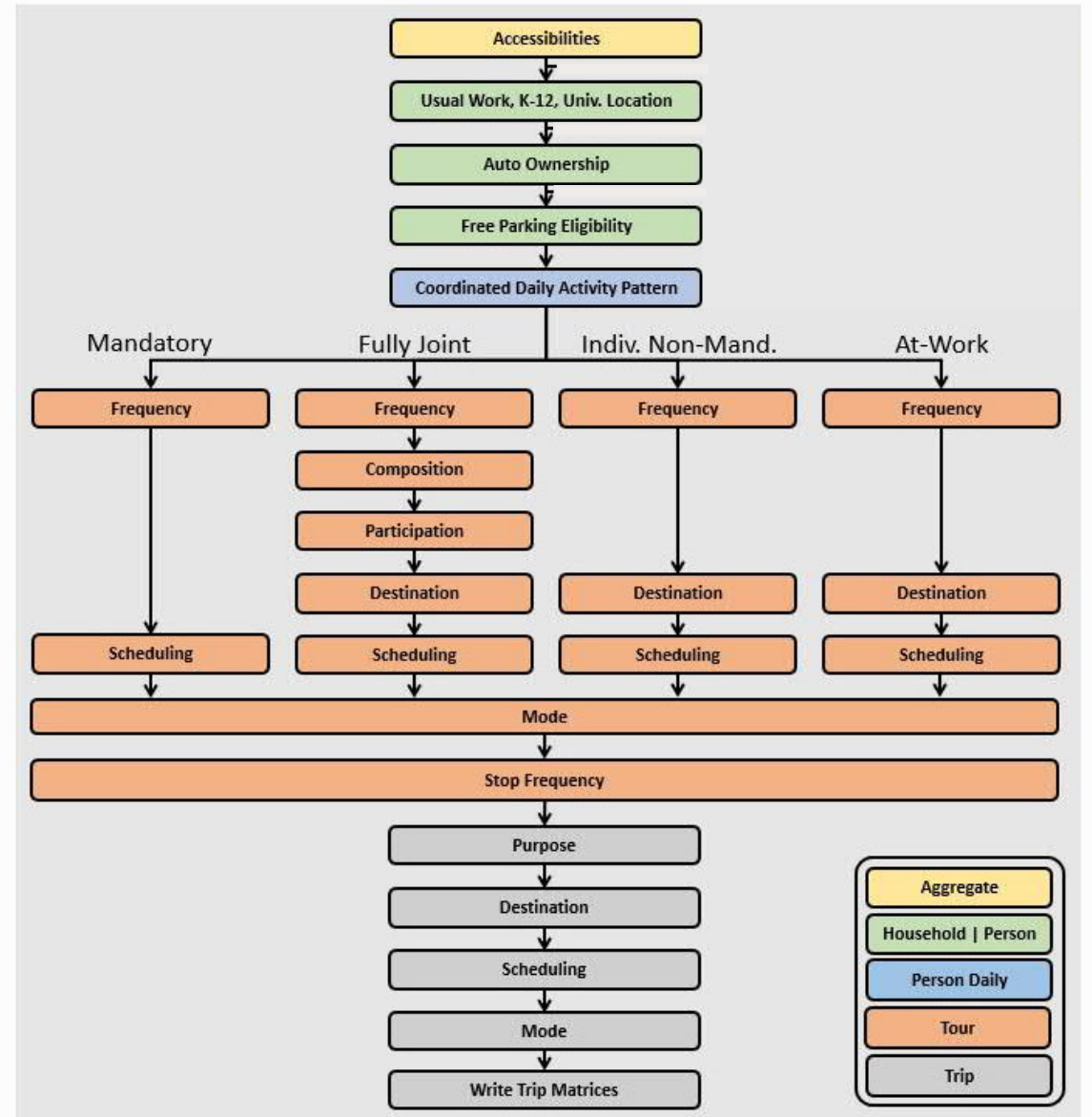
Python
implementation

Activity-Based
Model

Population
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Model design compared to SERPM v8

Activity-Based
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Population
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Software
Platform

- “Two Zone” design
 - No longer requires transit access points (TAPs)
 - Transit skims are from zone-to-zone, instead of stop-to-stop
- Updated representation of autonomous vehicles
- Retains specification of models estimated with local data
- Visitor model remains Java-based
- May incorporate additional model steps (contingent on their release by the ActivitySim Consortium)
- Validated to 2019/2020 pre-pandemic conditions

Adopting the PopulationSim platform

Activity-Based
Model

Population
Synthesis

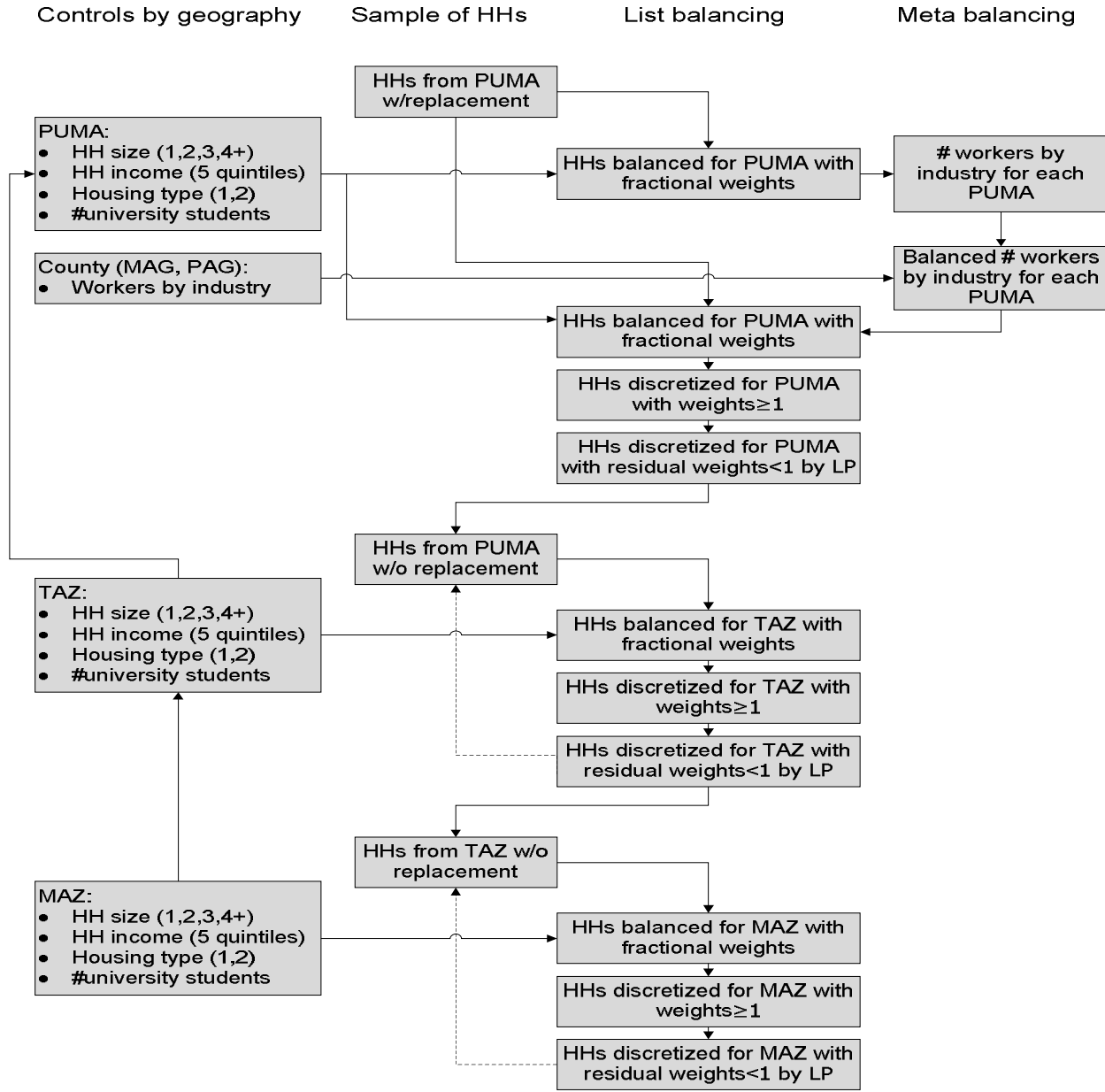
Networks

Software
Platform

Open-source software
for population
synthesis

Same maximum
entropy and linear
optimization concepts
as PopSyn3

Targeted
improvements to
distribute errors across
all zones



Verification against PopSyn3

Activity-Based
Model

Population
Synthesis

Networks

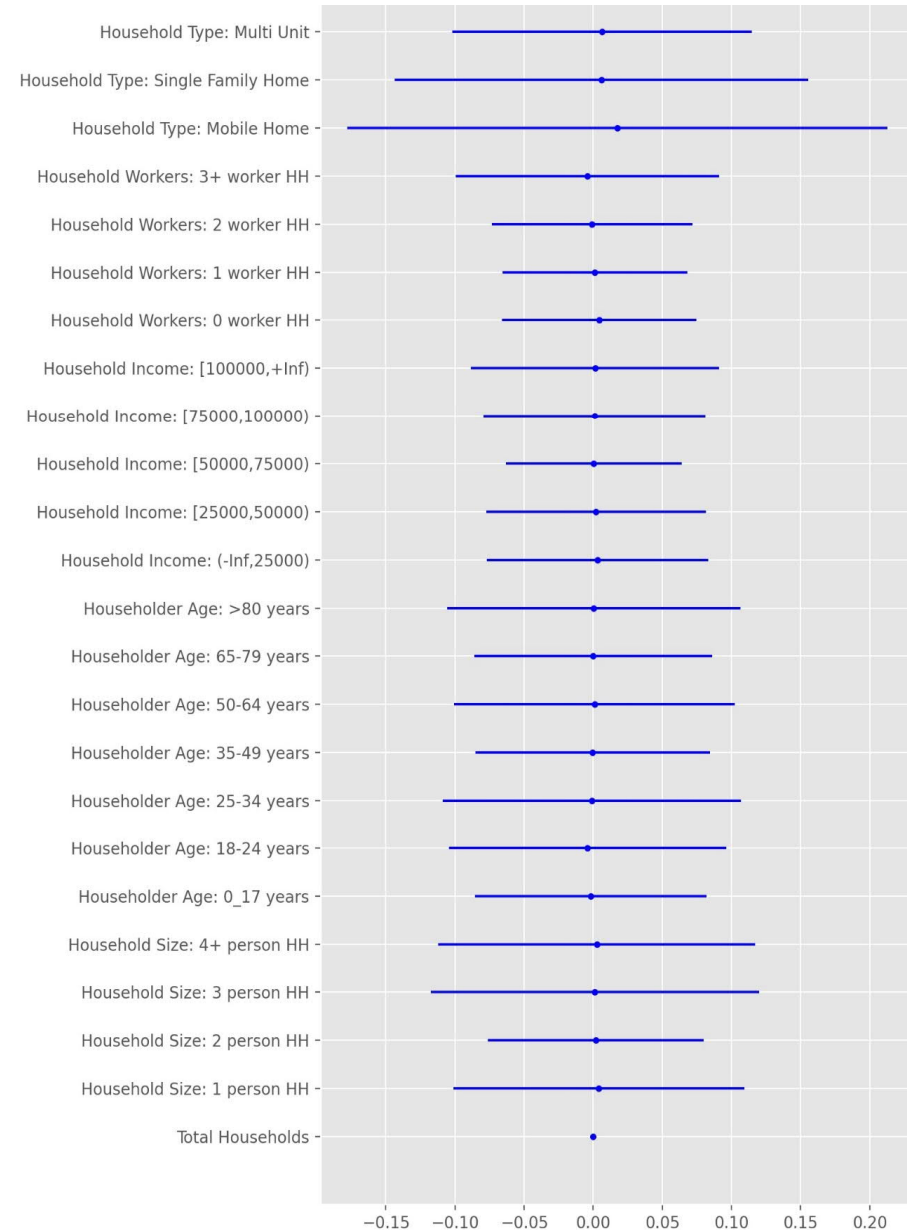
Software
Platform



Initial SE Florida
deployment using
SERPM 7 & 8 control
totals

Results verified using
2010 and 2015
scenarios

Seed population
updated to
ACS 2015-2019



Network Development

Base networks rebuilt using Open-Street Map, Shared Street, GTFS and other data

Projects are coded using 'project cards', which are akin to Cube log files

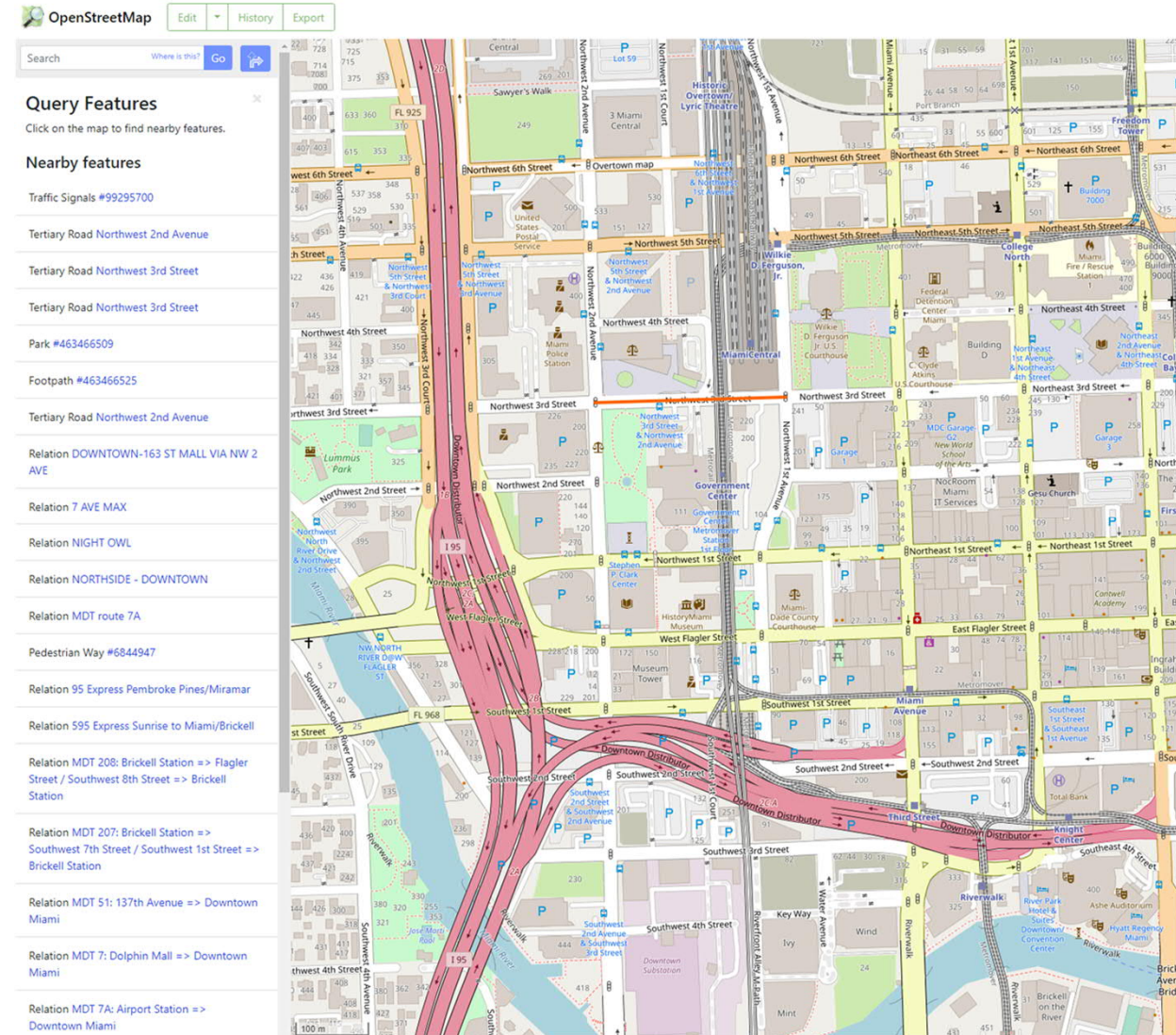
The plan is for the region to maintain a shared library of project cards

Activity-Based Model

Population Synthesis

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Software Platform



Network Development

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Ranch

Python package that creates Standard Networks (Roadway & Transit) from input source data

Wrangler

Python package that manages Standard Networks, makes changes to standard networks, and keeps version control

Lasso

Python package that converts Standard Networks into Model Networks (Roadway & Transit), and hosts other miscellaneous network utilities



Transitioning from Cube to Visum

SERPM9 will be developed in Cube initially,
then transitioned to Visum

Final validation to be verified with the Visum
release by the S9 Team

User training scheduled for 2023 Q2 will be
conducted with the VISUM release

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Acknowledgements

Project Advisory Committee

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