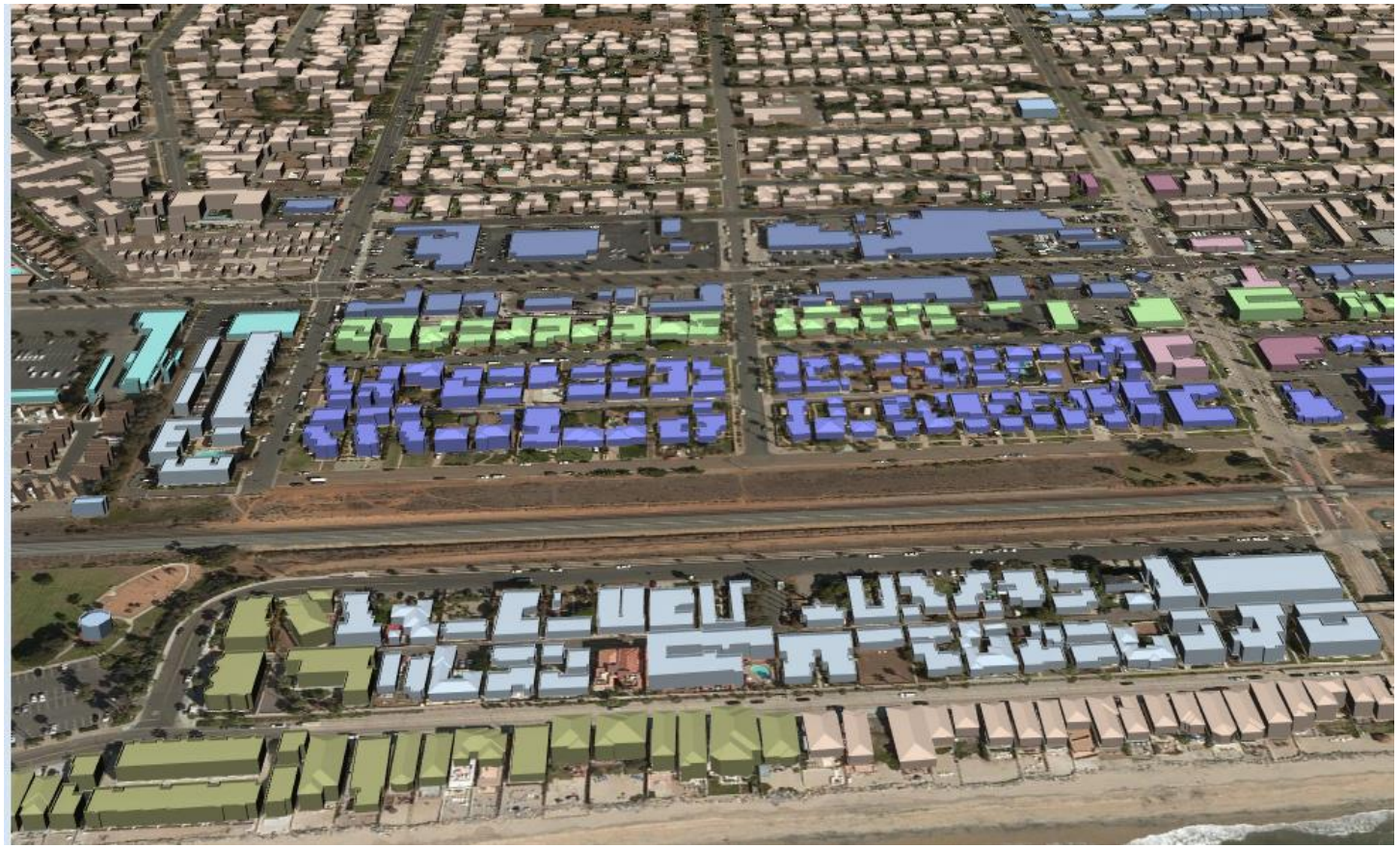
San Diego UrbanSim



Subregional Allocation Model: UrbanSim for SANDAG

November 23, 2015

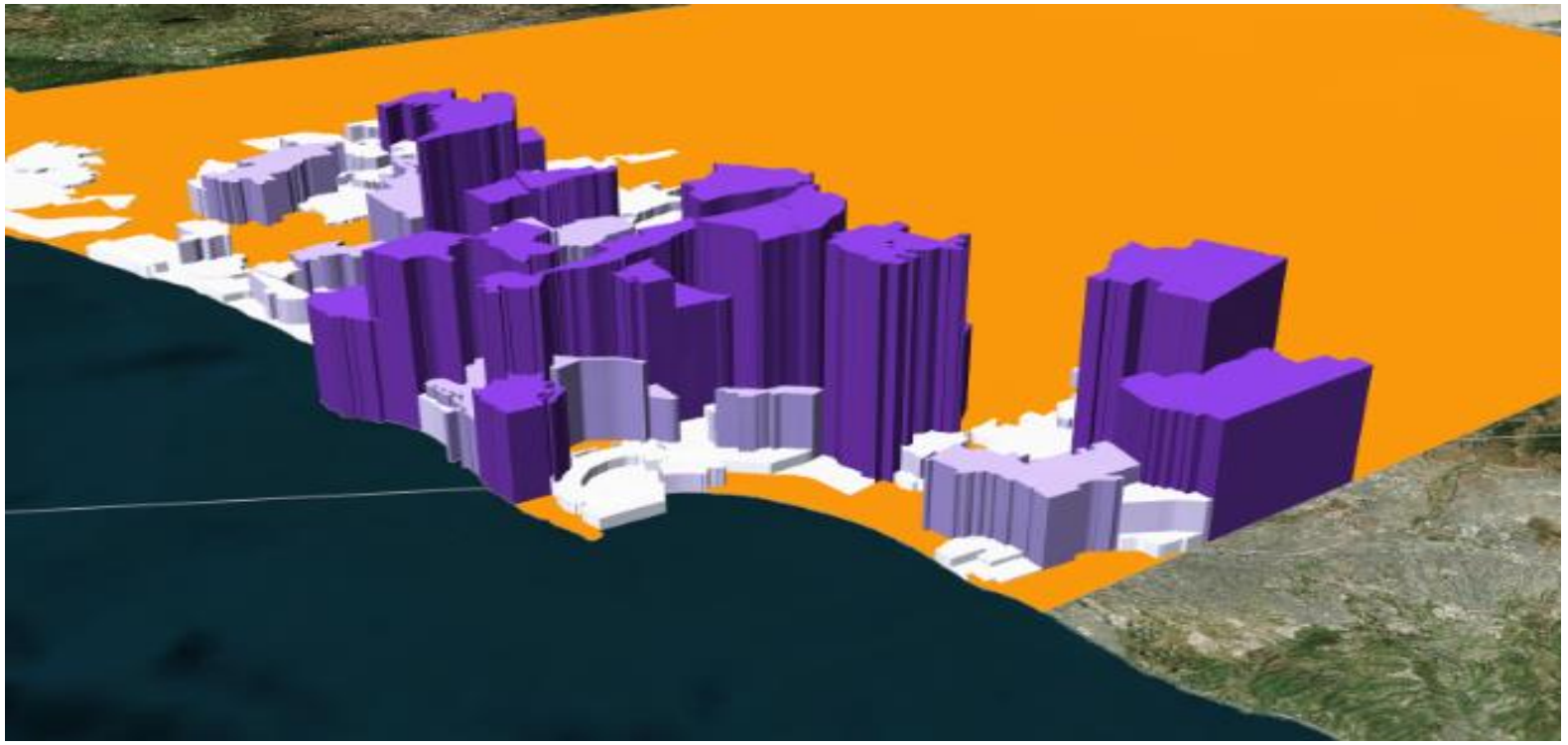
Project History

- Goals
  - Enhance SANDAG's capabilities for small-area modeling
  - UrbanSim model system that is consistent with SANDAG's needs and fits within SANDAG's existing model execution workflow
  - Phase 1 UrbanSim draft model system

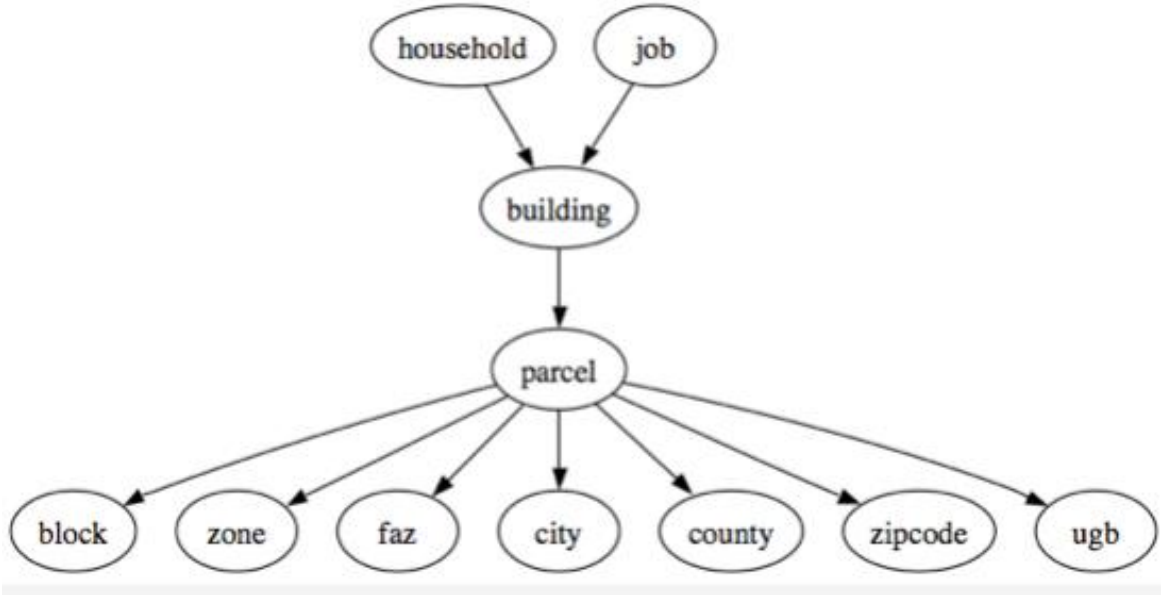
- Timeline
  - November 2014 – June 2015
  - November – March: Data development, initial infrastructure, and design memos
  - March – June: Model development, initial calibration/validation, documentation

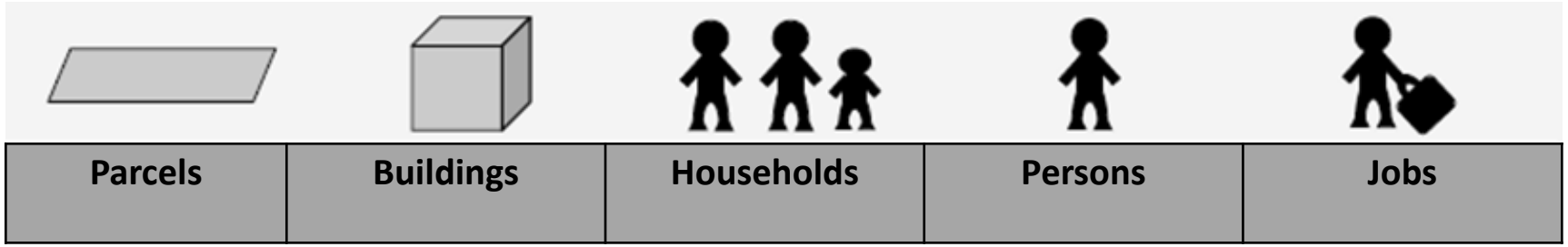
Exporting UrbanSim-simulated buildings to Urban Canvas

Viewing indicators in Urban Canvas



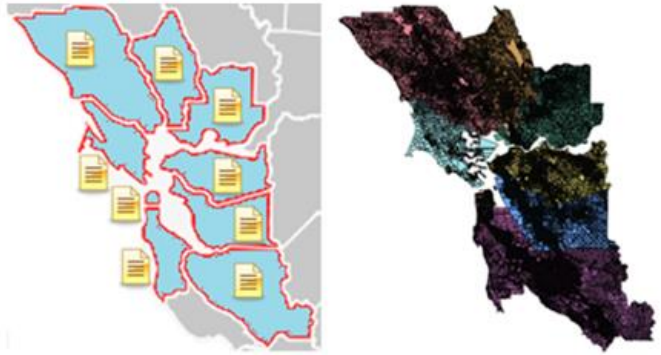
Reconciling data from many different sources into one common framework





… and zoning, control totals, relocation rates, target vacancies, building_sqft_per_job, skims, logsums, construction costs, pipeline projects, etc.

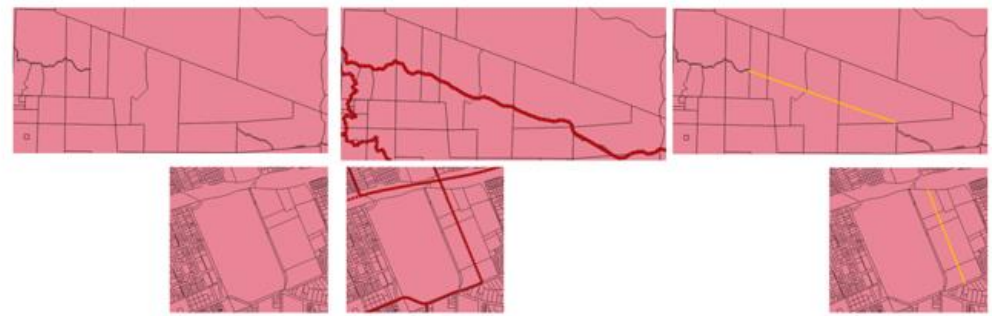
Load/format/reproject



Reshape (trim) parcels

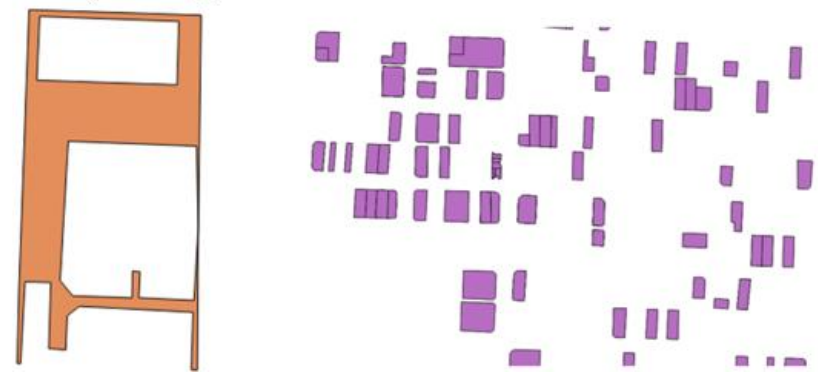
Calculate proportion overlap

Slice parcels



Tag parcels

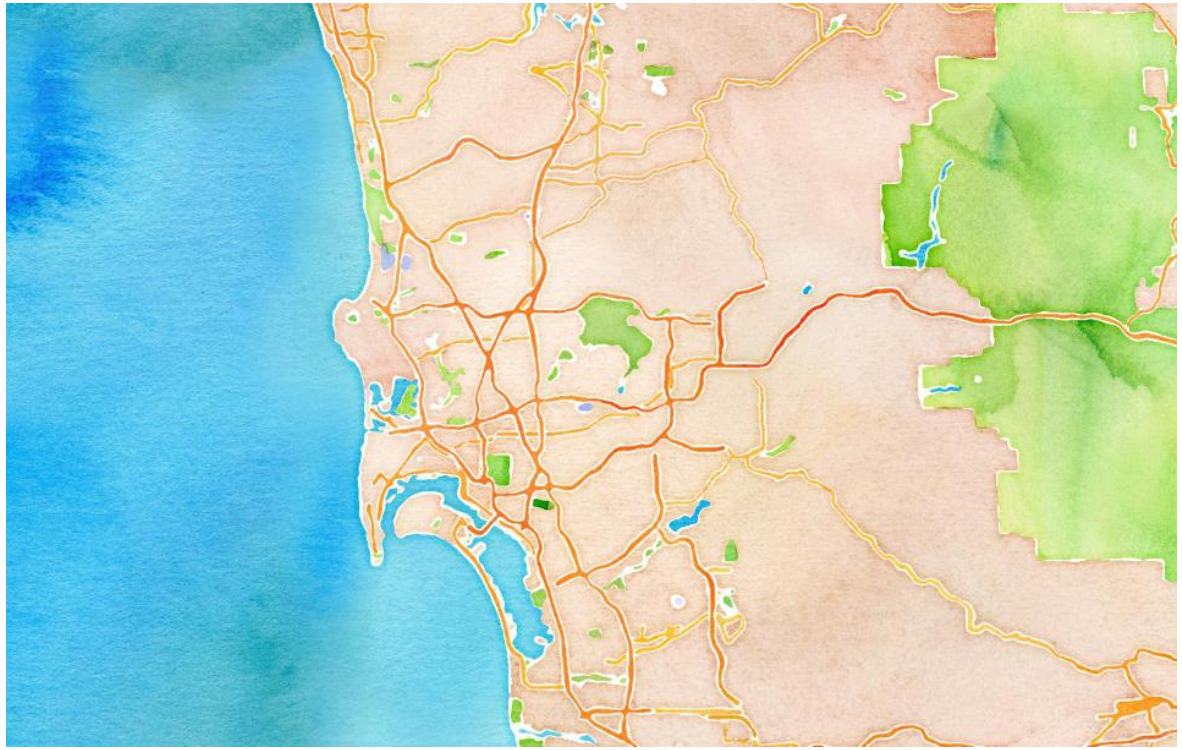
Geometry diagnostics



Model development steps

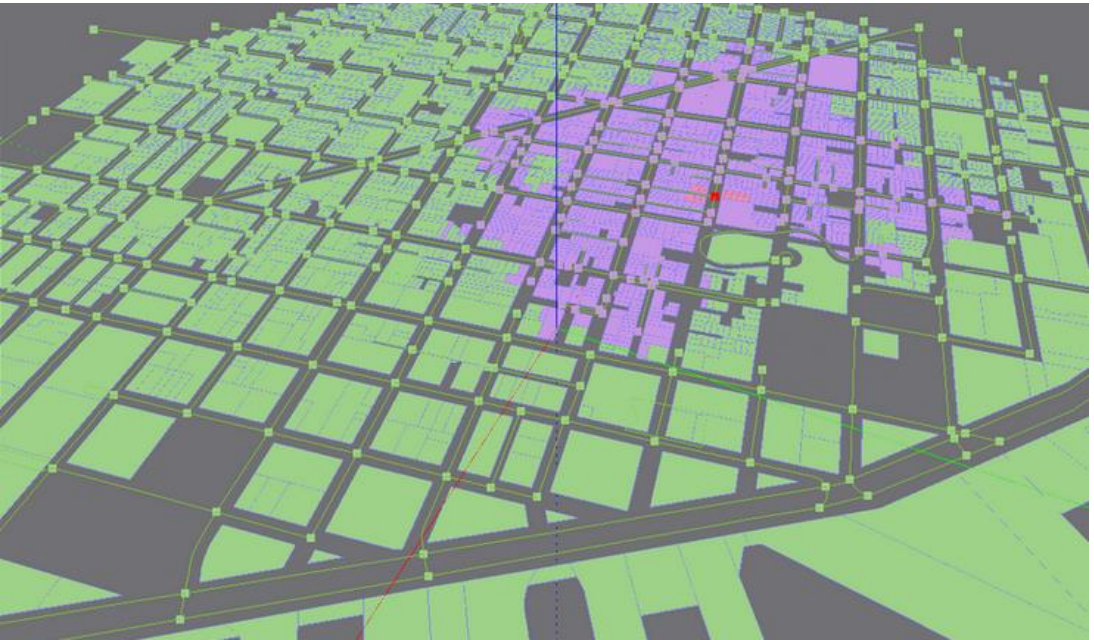
…

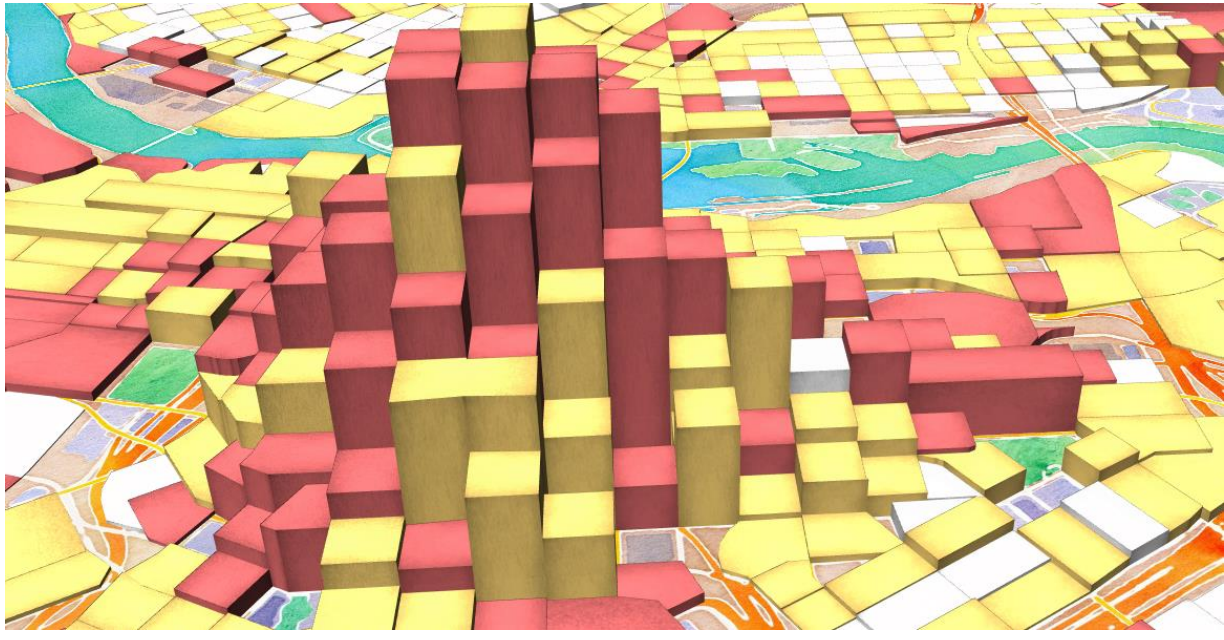
- Prepare input data
- Develop model specification
- Estimate model parameters
- Travel model integration
- Calibrate model system
- Validate model system
- Sensitivity testing
- Operational use: analyze alternative scenarios



Pandana

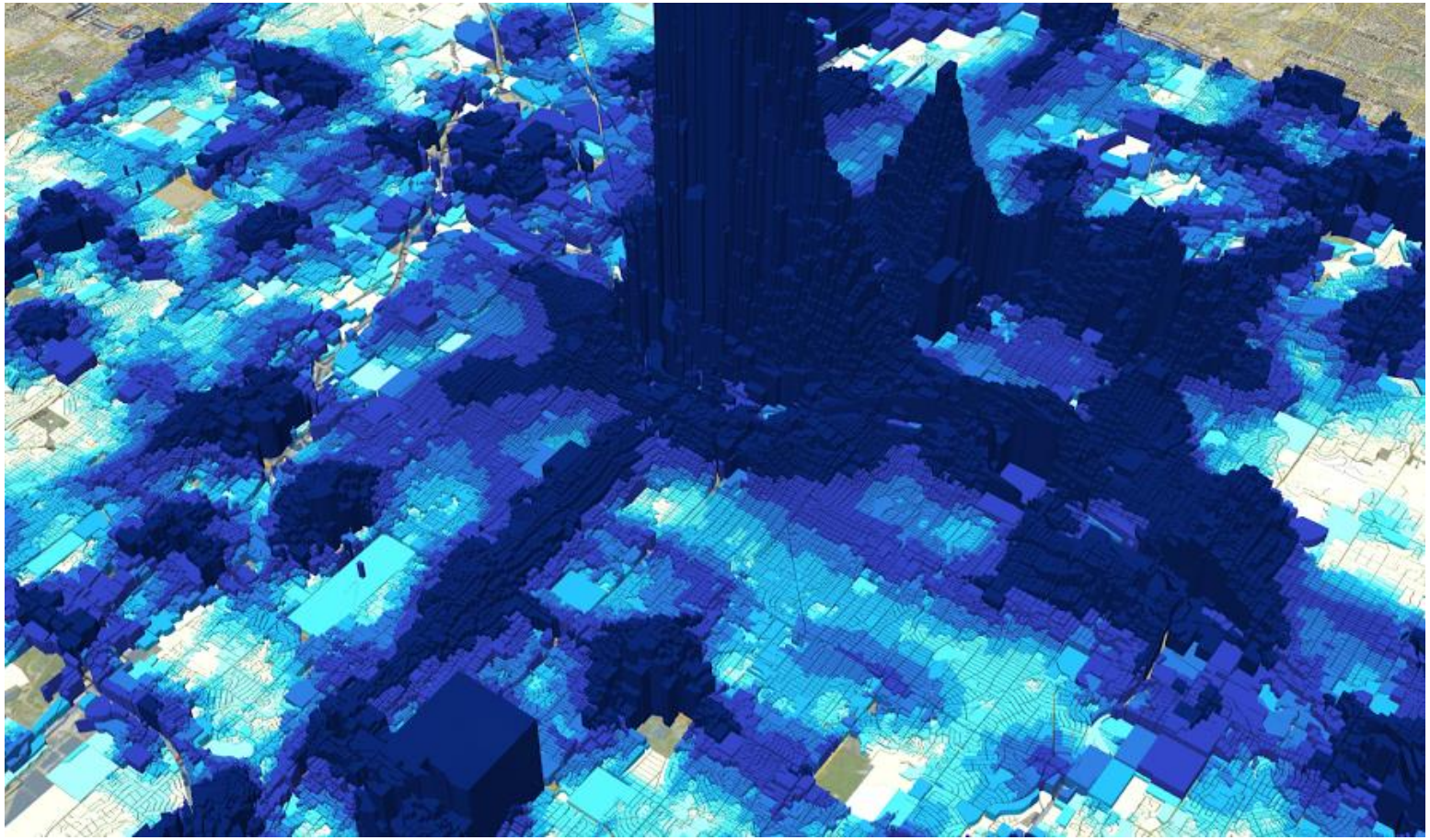
Fast network-based accessibility variable calculations



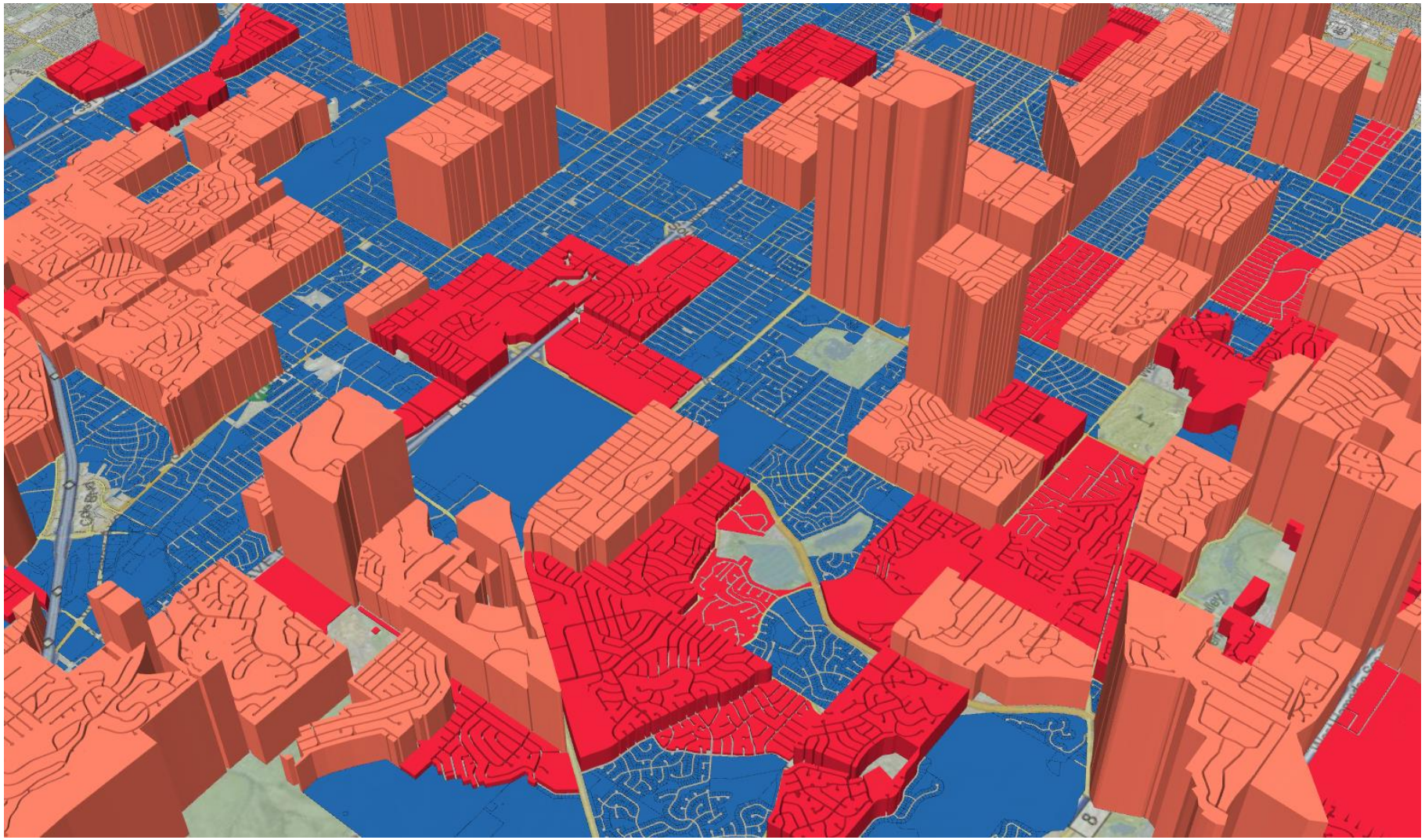


What is Pandana

Network-based accessibility calculator

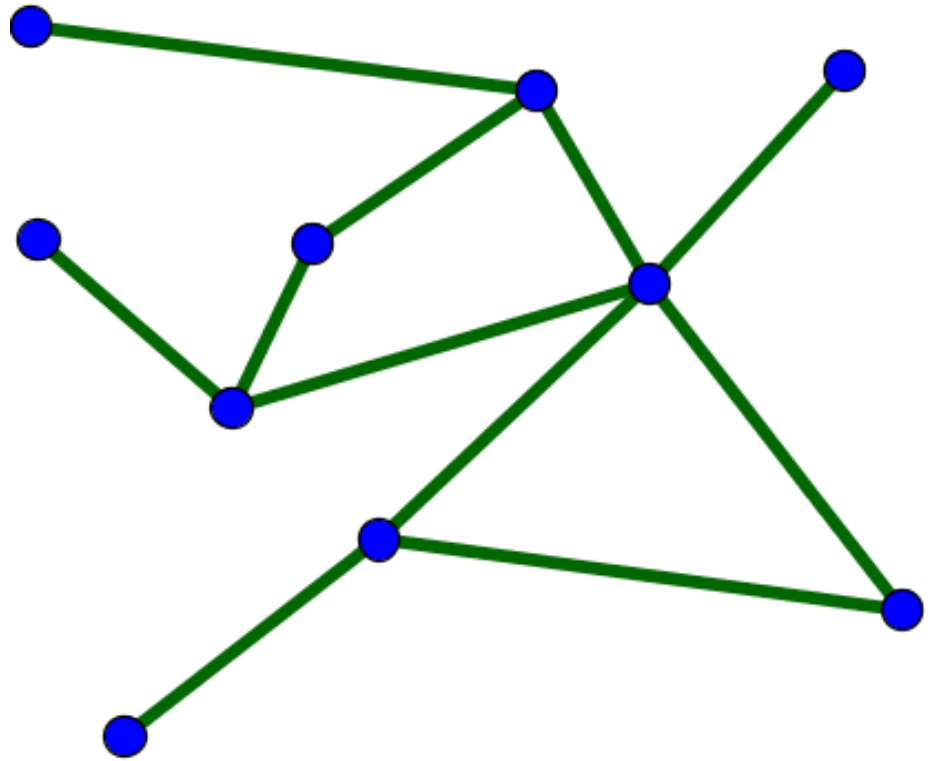


Avoid Zonal Aggregations



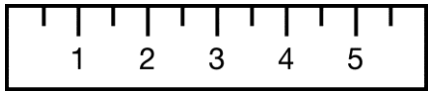
Input data

1. Spatial dataset to analyze
2. Network
   - **Edges**
   - **Nodes**



Options

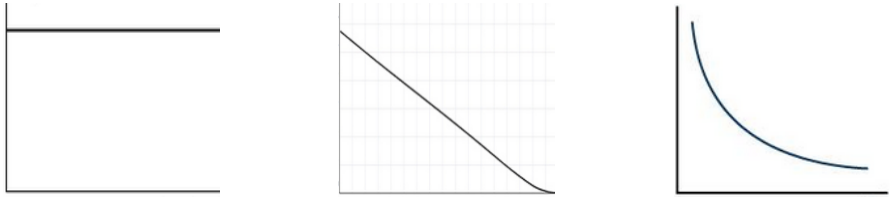
- **Radius**

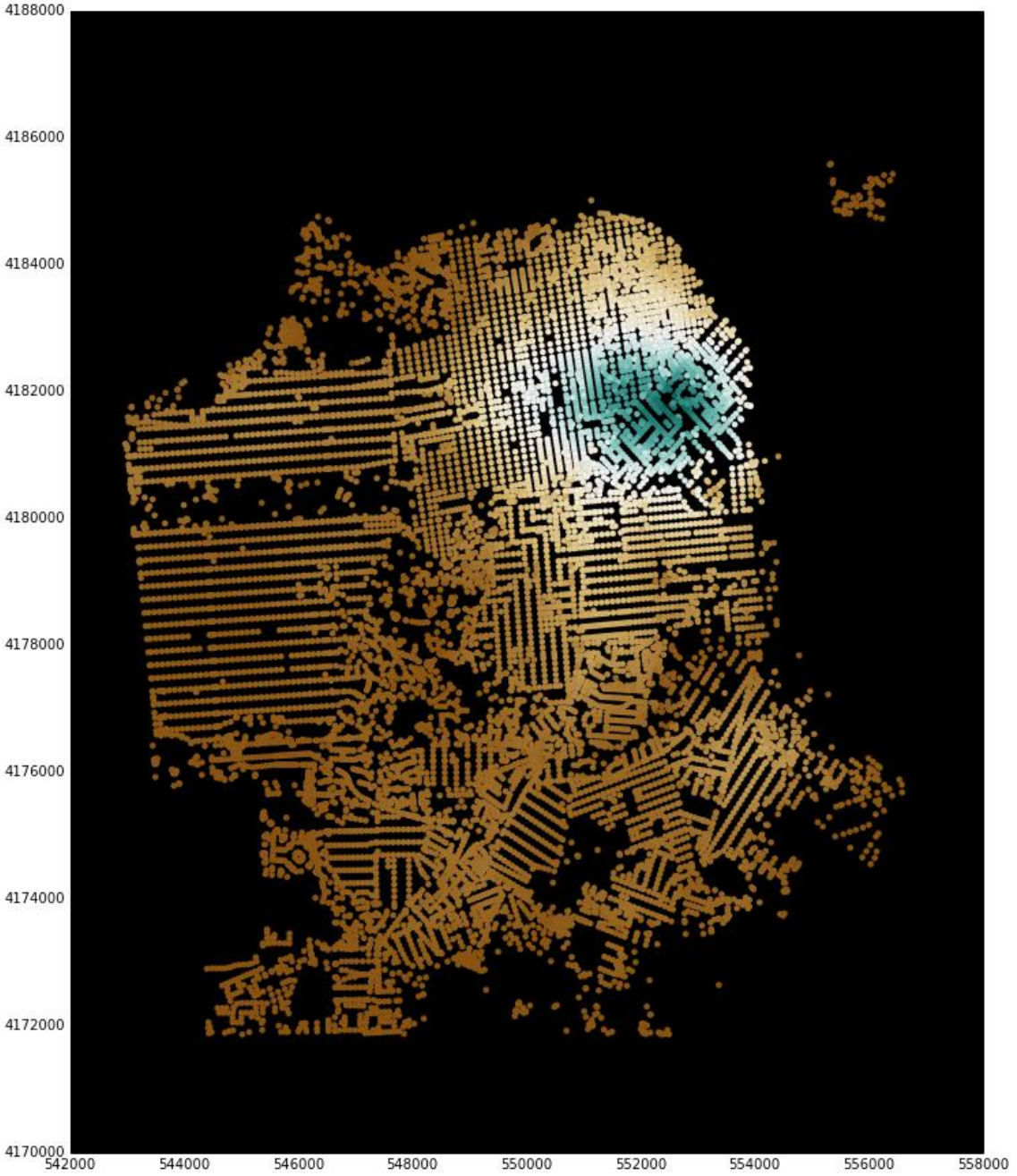


- **Aggregation type**

$\sum$ $\bar{x}$ σ

- **Decay**





Examples

https://github.com/UDST/sandiego_urbansim