



CITILABS

**SOFTWARE FOR MODELING &
SIMULATION OF TRAFFIC & LAND USE**



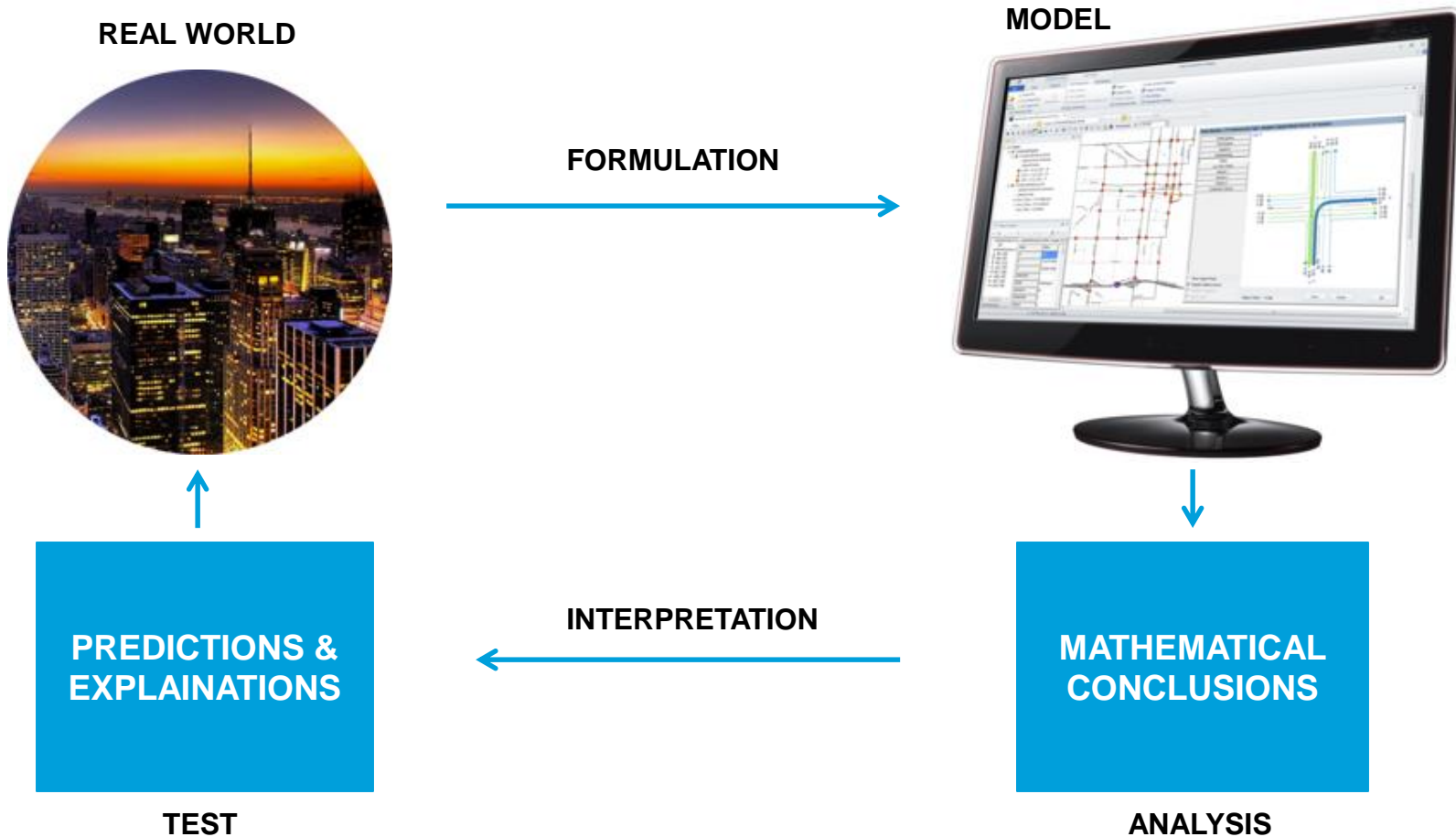
What is (transport) modelling?



Train vs Plane: <http://www.bettertransport.org.uk/>

What is (transport) modelling?

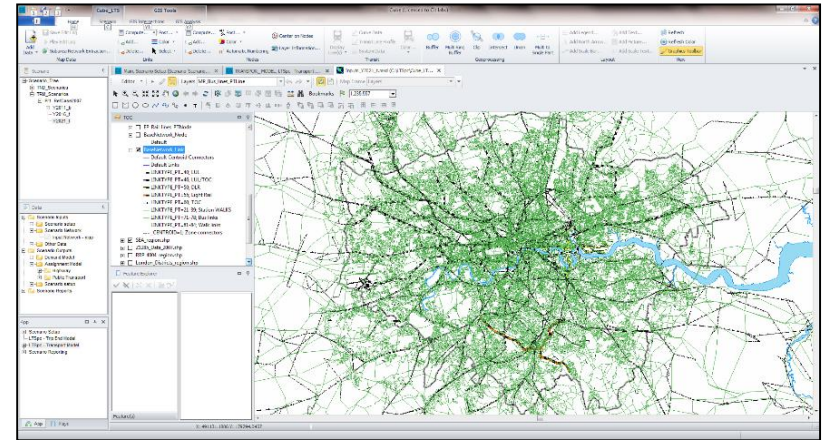
Answer real world questions using mathematical models.



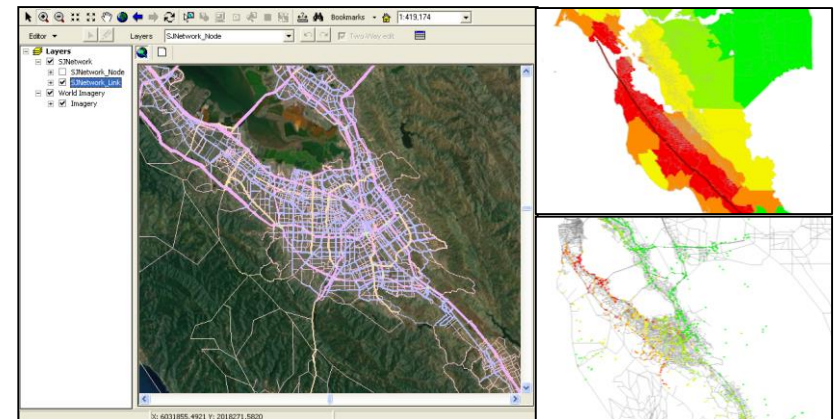
Transportation Modelling

Predict the number of trips, mode and routes taken considering different policy, land use, and infrastructure scenarios:

- What will the traffic be once a road is built?
- How many passengers will be lost if bus services are reduced?
- How many people will find other routes if tolls are introduced?
- How much traffic will a new development generate?
- How are commodities moved by truck in a region?

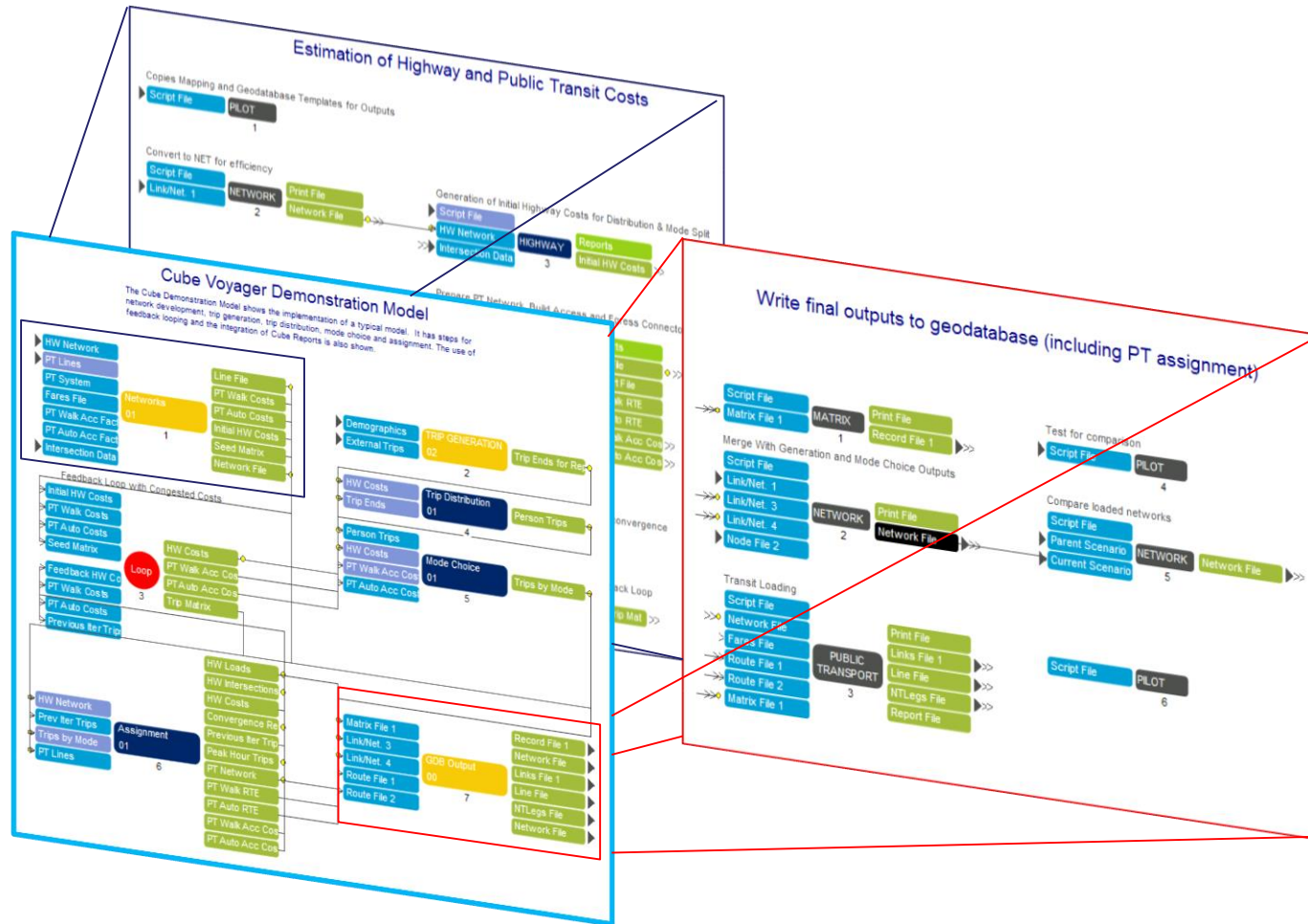


London, UK – strategic transport model



San Jose / Santa Clara County , USA – evacuation transport model

Our Solution: Cube



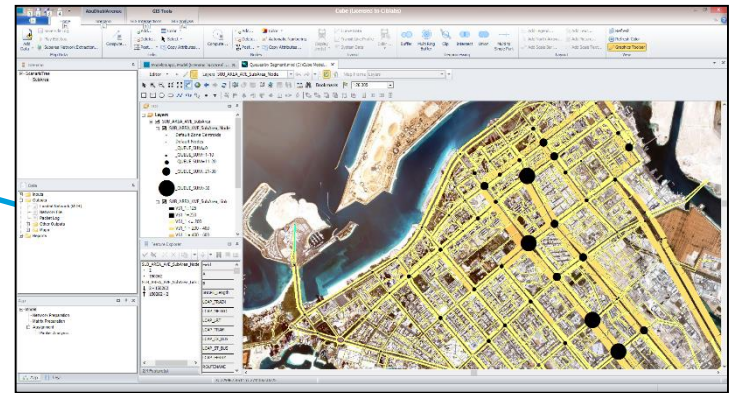
Our Solution: Cube

Expert (Cube) user



MODEL CREATION & ANALYSIS

Cube Product Suite
ArcGIS

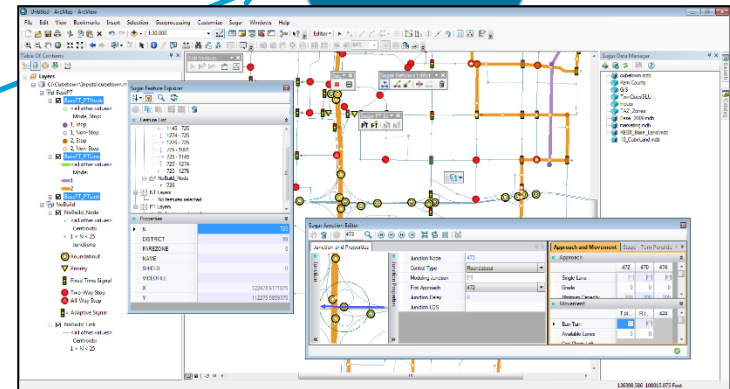


MODEL



DATA PREPARATION

Sugar Editor
ArcGIS



DATA

Non-Expert (Cube) user



Network Analyst and Beyond

ArcGIS Only

Analysis with current information

EXISTING INFRASTRUCTURE

- Find shortest routes
- Efficient routing for vehicles
- Location of closest facilities
- Optimal location for facilities
- Service areas

ArcGIS +

Using a model to make predictions

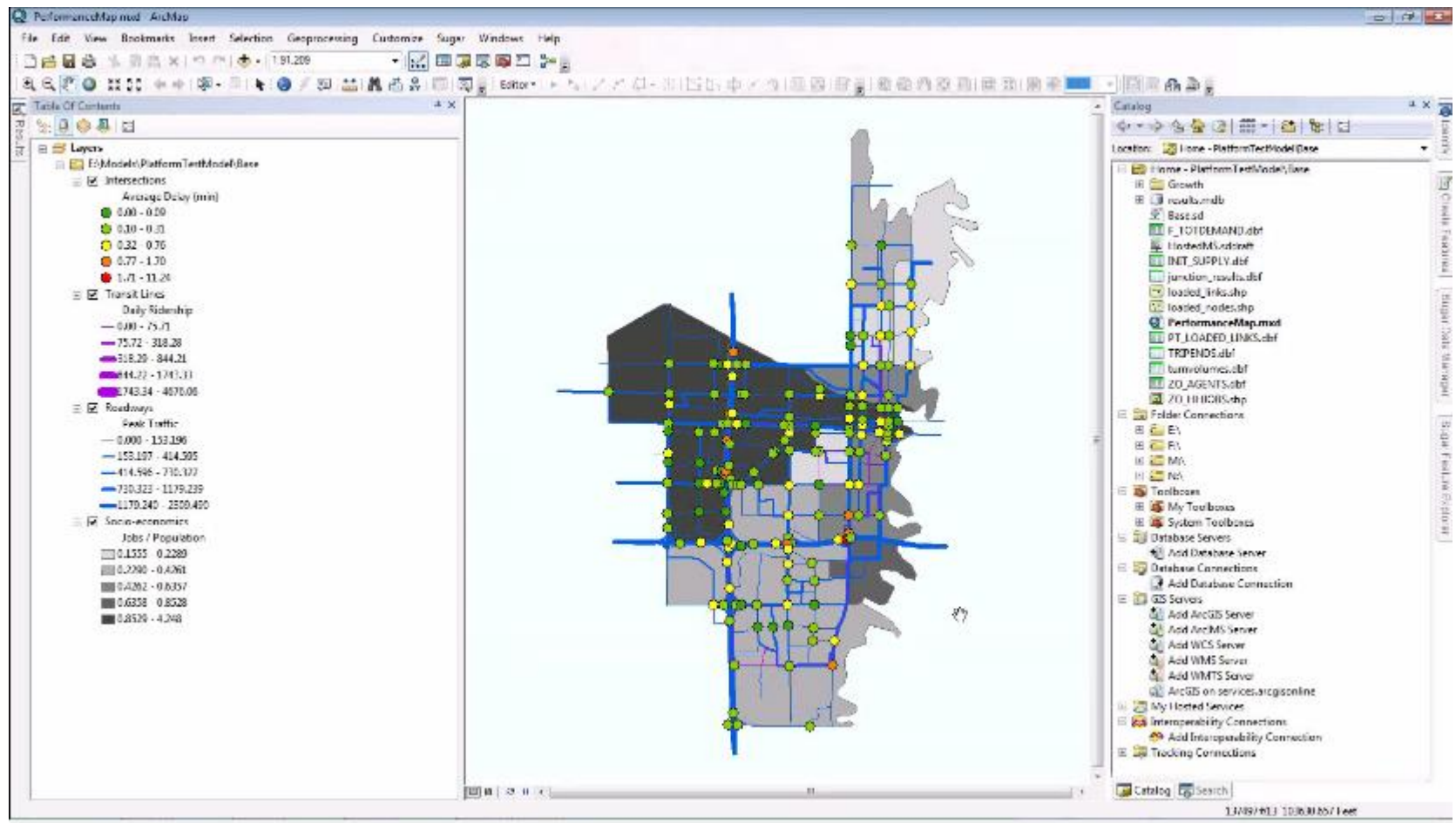
EXISTING INFRASTRUCTURE PLUS MODEL

- Traffic demand analysis
- Transit revenue forecasting
- Project feasibility analysis
- Managed lanes optimization
- Toll revenue estimation
- Land value estimation
- Simulations and animations of traffic and pedestrians
- Parking lot simulations and optimizations

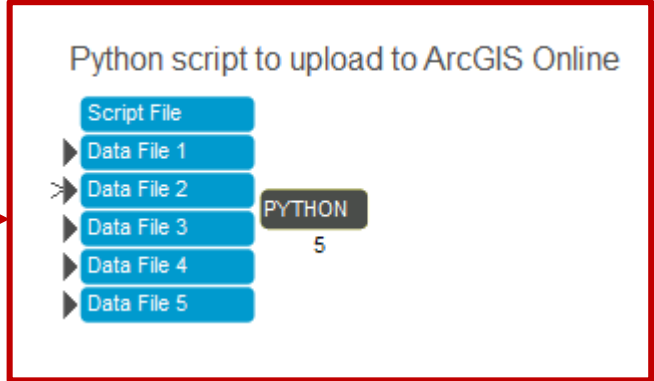
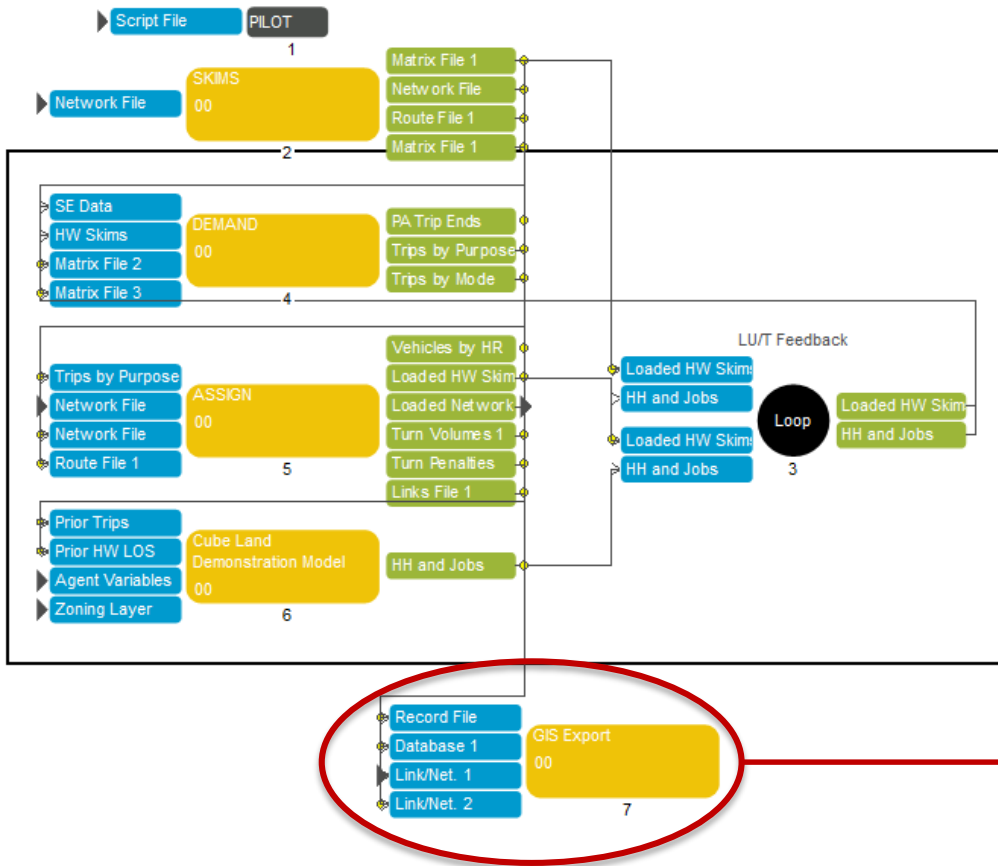
ArcGIS + Cube

Cube – Sugar – Cube Cloud

ArcGIS or Cube: Map Template



Cube: Upload to ArcGIS Online



ArcGIS Online: Interactive Map

Legend

Base - Intersections

- 0.00 - 0.09
- 0.10 - 0.31
- 0.32 - 0.76
- 0.77 - 1.70
- 1.71 - 11.24

Base - Daily Person-Trips

- 53.24 - 367.18
- 367.19 - 529.51
- 529.52 - 843.45
- 843.46 - 1450.61
- 1450.62 - 2624.87
- 2624.88 - 4895.89
- 4895.90 - 9288.07

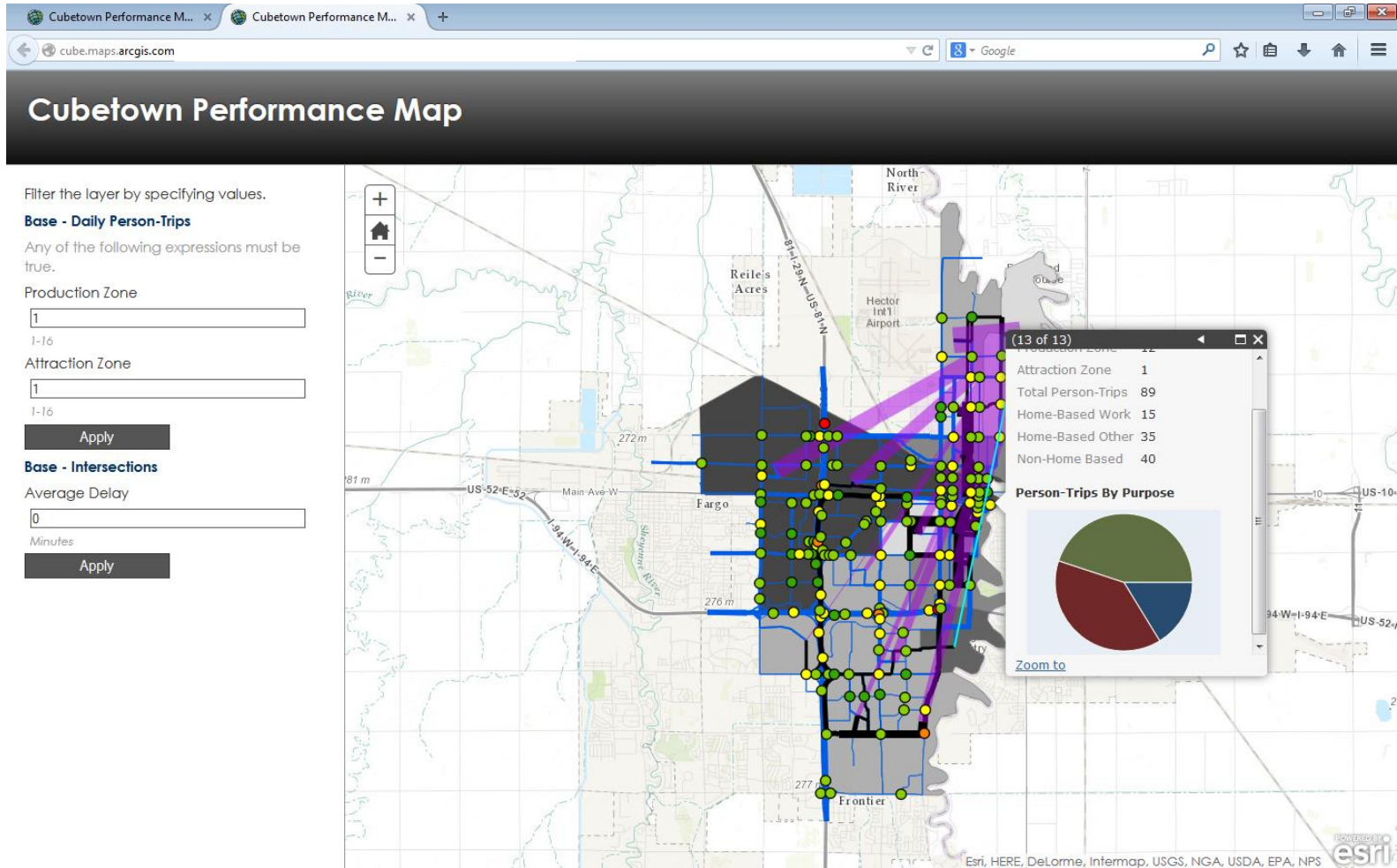
Base - Transit Lines

- 0.00 - 75.71
- 75.72 - 318.28
- 318.29 - 844.21
- 844.22 - 1743.33

Person-Trips By Purpose

Attraction Zone	1
Total Person-Trips	89
Home-Based Work	15
Home-Based Other	35
Non-Home Based	40

ArcGIS Online: Interactive Application



Cubetown Performance Map

Filter the layer by specifying values.

Base - Daily Person-Trips
Any of the following expressions must be true.

Production Zone

 1-16

Attraction Zone

 1-16

Apply

Base - Intersections
Average Delay

 Minutes

Apply

Person-Trips By Purpose

Purpose	Count
Production Zone	12
Attraction Zone	1
Total Person-Trips	89
Home-Based Work	15
Home-Based Other	35
Non-Home Based	40

Map labels: North River, Reileis Acres, Hector Int'l Airport, Fargo, Frontier, Main Ave W, US-52 E, US-10, 94 W, 94 E, US-52 W, 272 m, 276 m, 277 m, 81 m, 10 m, 20 m, 30 m, 40 m, 50 m, 60 m, 70 m, 80 m, 90 m, 100 m, 110 m, 120 m, 130 m, 140 m, 150 m, 160 m, 170 m, 180 m, 190 m, 200 m, 210 m, 220 m, 230 m, 240 m, 250 m, 260 m, 270 m, 280 m, 290 m, 300 m, 310 m, 320 m, 330 m, 340 m, 350 m, 360 m, 370 m, 380 m, 390 m, 400 m, 410 m, 420 m, 430 m, 440 m, 450 m, 460 m, 470 m, 480 m, 490 m, 500 m.

Map controls: +, Home, -

Map data: Esri, HERE, DeLorme, Intermap, USGS, NGA, USDA, EPA, NPS

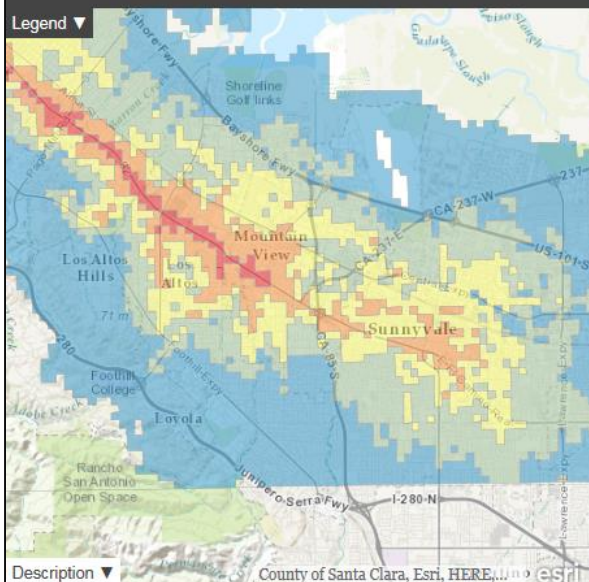
ArcGIS Online: Accessibility

Relative Access to Vibrancy in Mountain View

SYNCHRONIZE MAPS: ● Scale ● Location

Dining Weighted Access

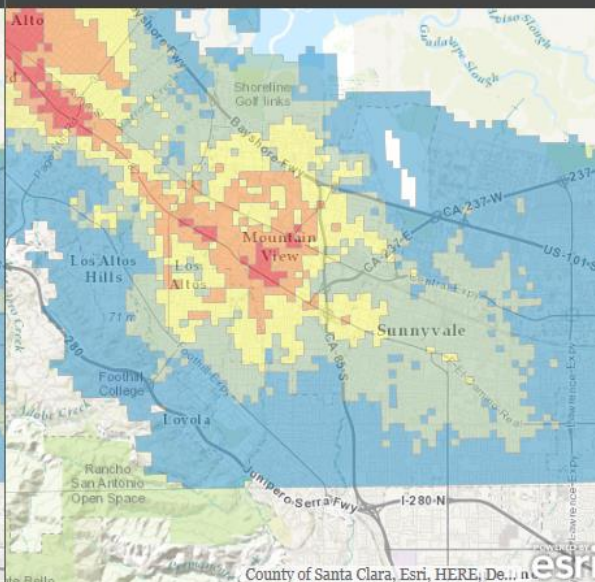
Legend ▼



Description ▼ County of Santa Clara, Esri, HERE, De... esri

The above map shows the relative access to places that serve food and beverages without using a car as a means of travel. Dining can include restaurants, bars or pubs, and coffee shops.

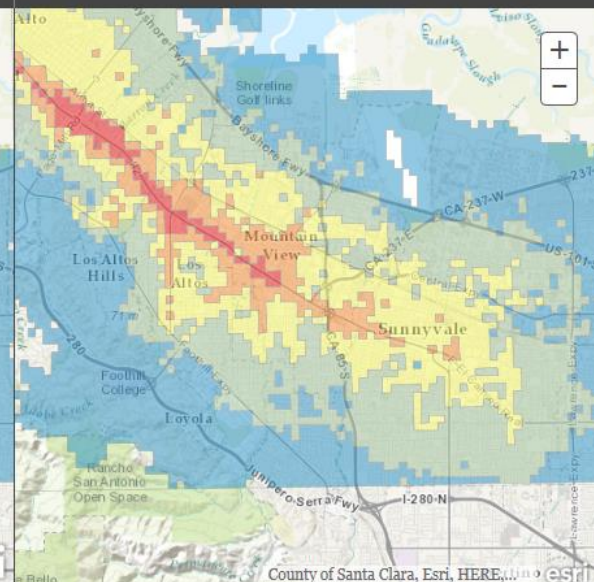
Culture Weighted Access



Description ▼ County of Santa Clara, Esri, HERE, De... esri

The above map shows the relative access to places related to culture with no car. The category Culture means any place that can contribute to the atmosphere and lifestyle of an area's population. This can include anything from museums and venues for performing arts to sports complexes where games are held for viewing.

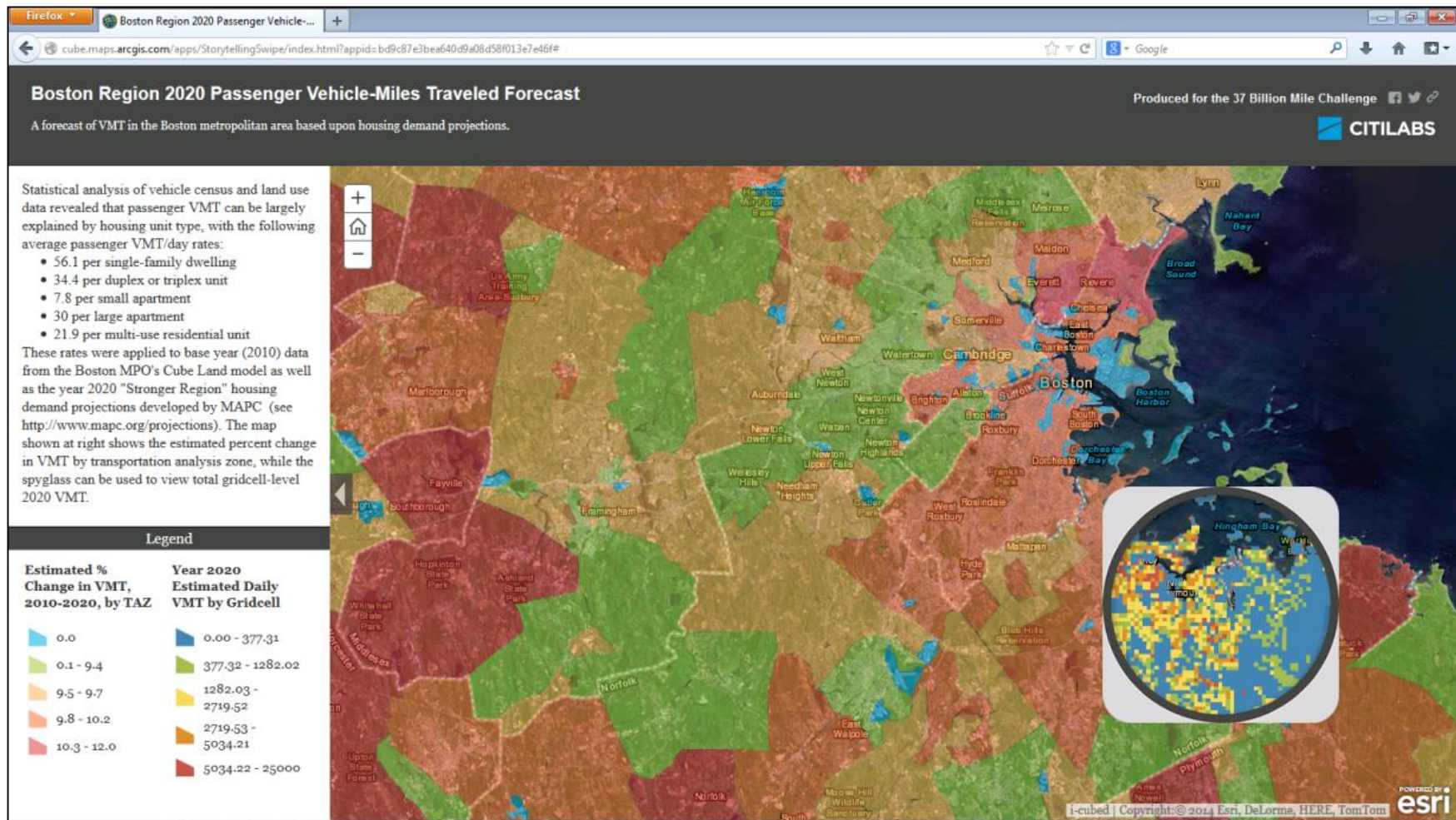
Activities Weighted Access



Description ▼ County of Santa Clara, Esri, HERE, De... esri

The above map shows the relative access to activities with no car. Activities include places where you can do some type of physical activity. This can include playing a sport or even walking around. Some examples of activity places are parks, golf courses, skating rinks and shopping complexes.

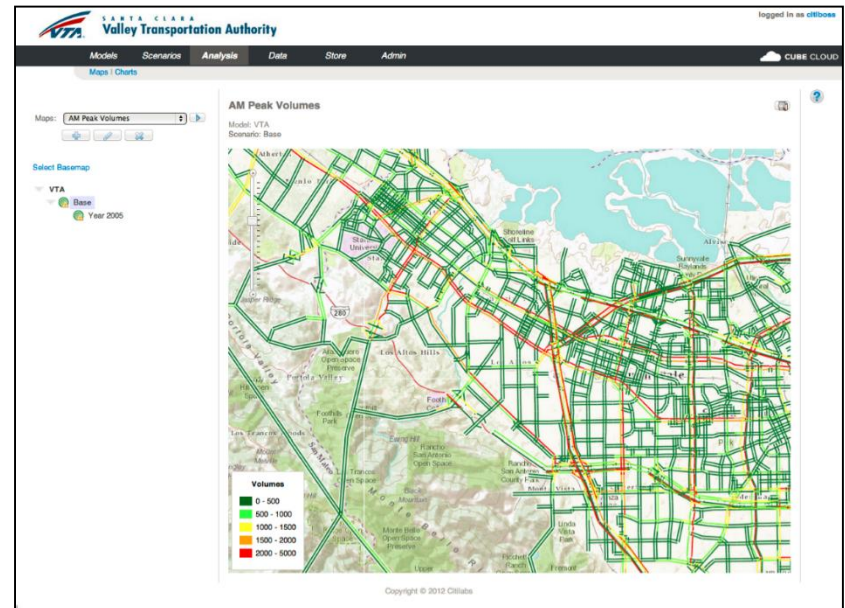
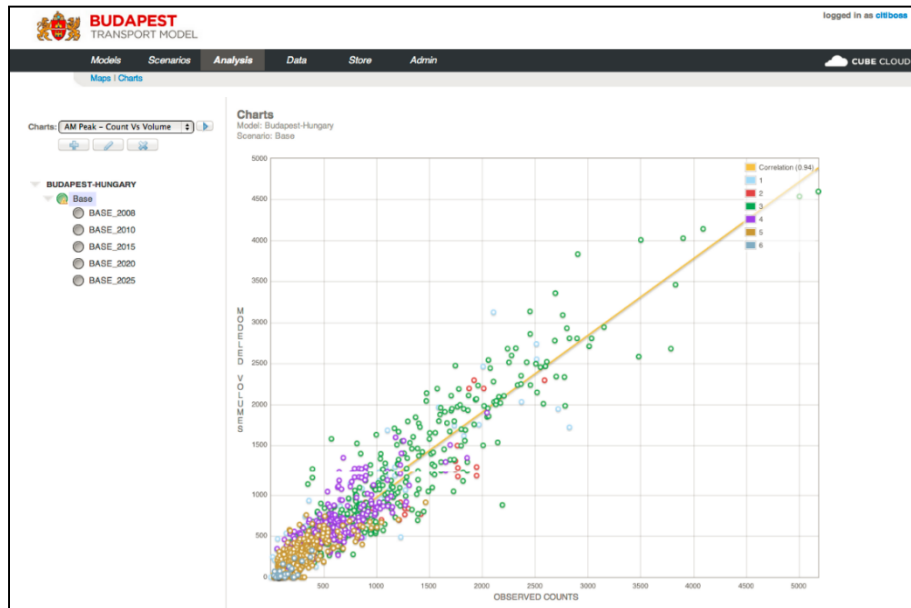
ArcGIS Online: Land use



Cube Cloud

Cores	Run Time
8	175:13
16	139:03
32	53:40
64	25:57
128	12:41
256	9:58
512	7:17

- Start 1, 10 or 100 scenarios simultaneously
- Improve validation and forecasts by doing more tests



The Future?

- Big Data – HERE, TomTom
(a modelers savior)
- Autonomous vehicles
(a modelers nightmare)
- Citilabs Software for all occasions
(a modelers solution)



THANK YOU

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