

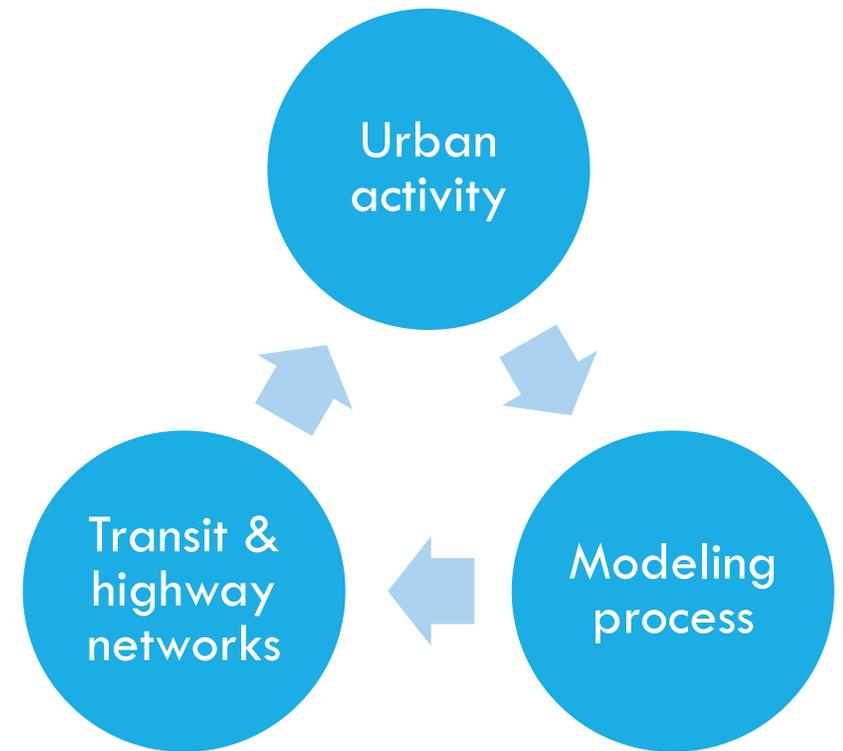


Modeling and VMT: A Primer

City of Culver City
City Council
January 30, 2018

OBJECTIVES FOR THIS PRESENTATION

- Have a basic ‘big picture’ understanding of modeling
- Answer the following questions:
 - Why should we model travel demand?
 - What is a travel demand forecast model?
 - Who will use model output?
 - How will we use model output?
 - Why the change from LOS to VMT?

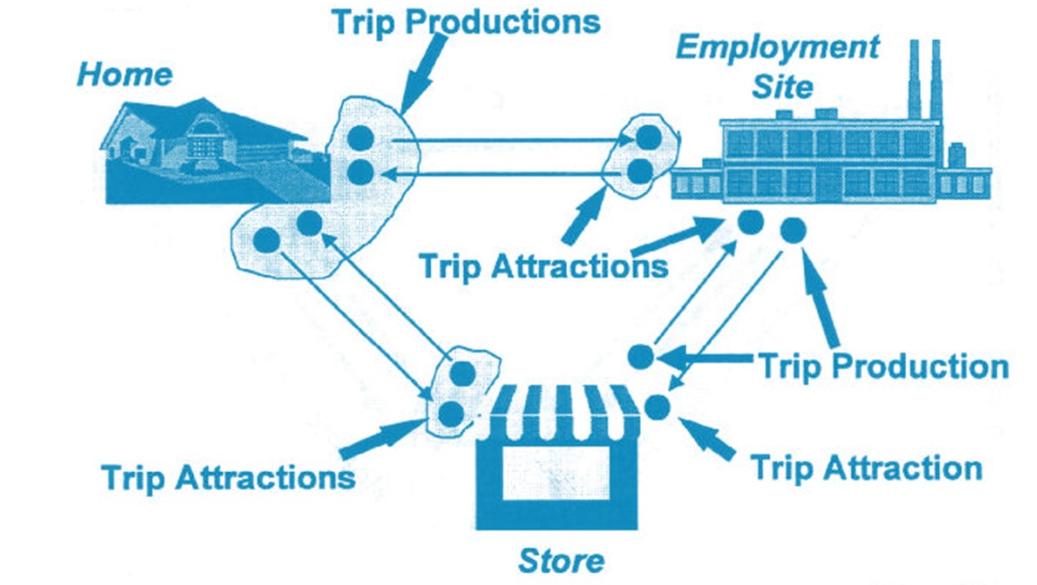


PRESENTATION OVERVIEW

1. Introduction to modeling
2. How to build a model
3. How the model works
4. Model output
5. Performance measures
6. Model application
7. LOS to VMT transition
8. Modeling costs

WHAT IS A TRAFFIC MODEL?

- A forecast of future travel
 - Where are people traveling to and from?
 - What routes are they choosing to get there?



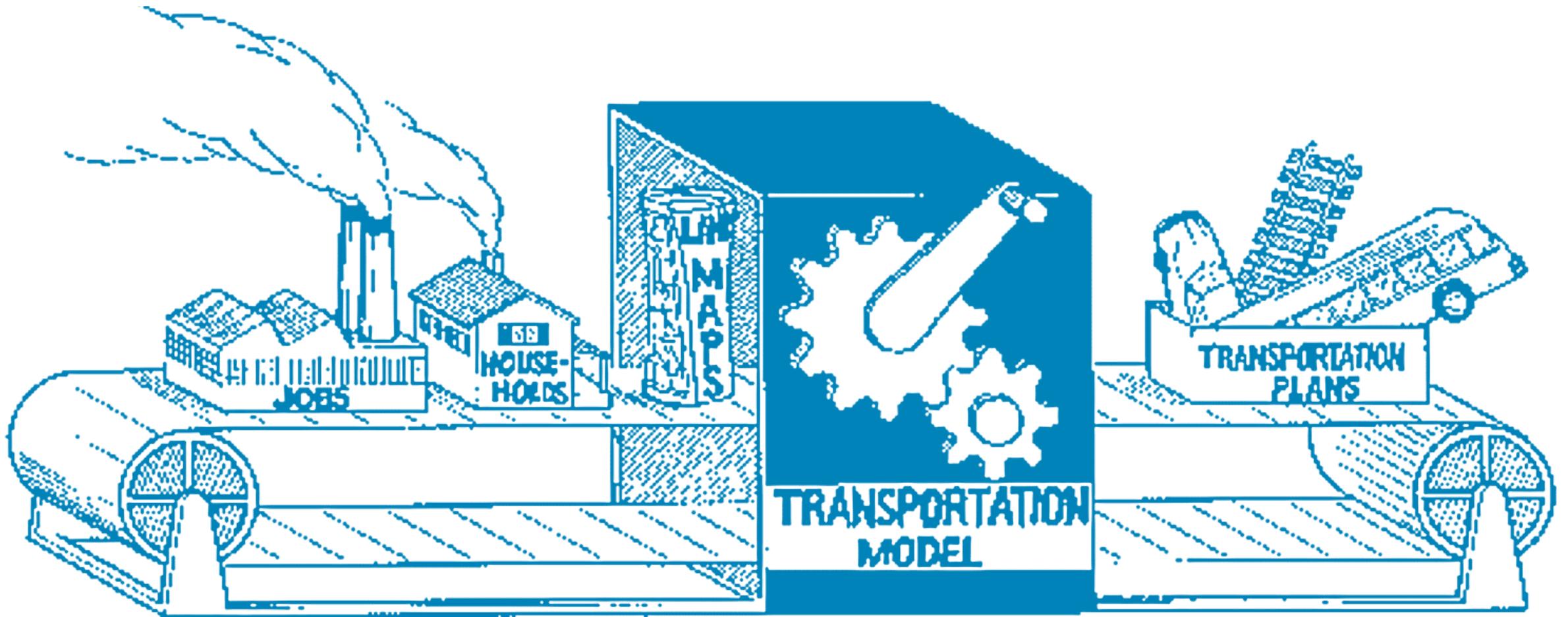
WHY ARE MODELS IMPORTANT?

- Guides development of long-range transportation plans
- Guides future investment strategies
- Determines how much traffic will be on roadways in future
- Helps understand impact development has on transportation system
- Allows us to make informed decisions

WHAT ARE MODELS USED FOR?

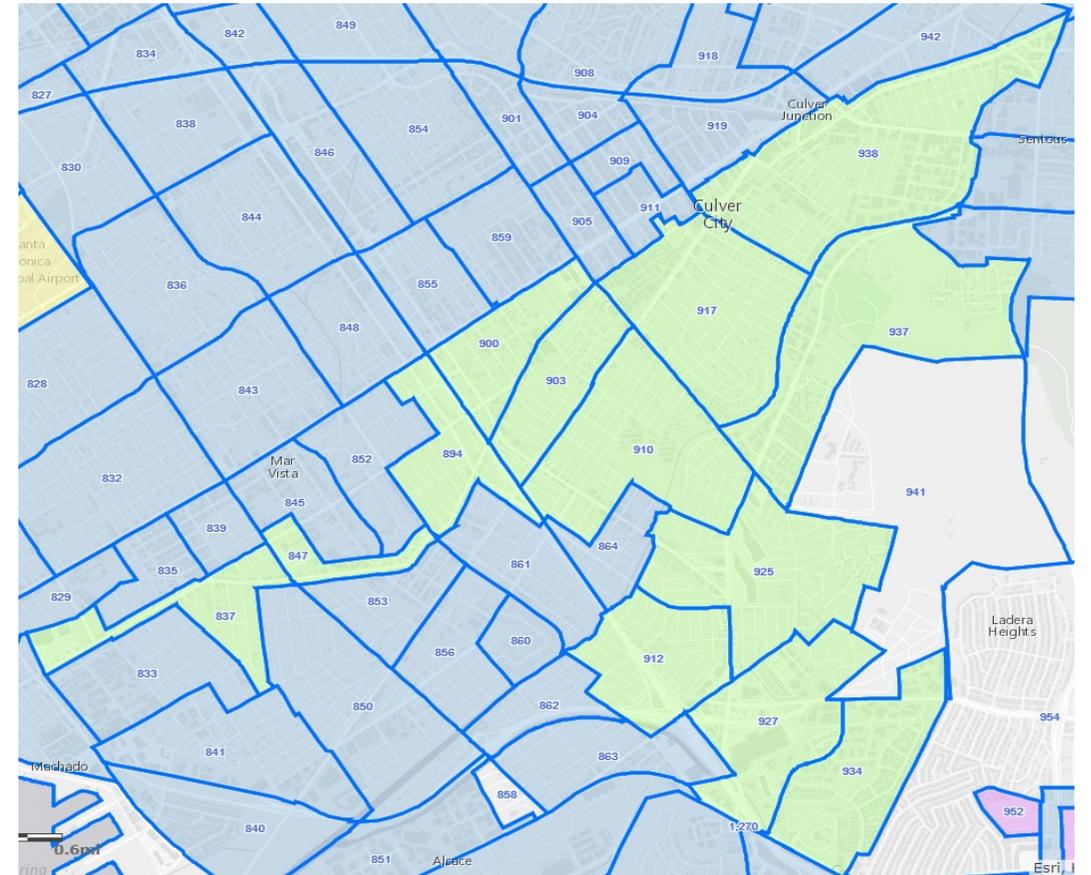
- Providing decision makers best possible information about future needs
- Determining where congestion may be in the future
- Determining how to alleviate or minimize that congestion
- Determining traffic impact due to land use changes and/or development projects
- Considering scenario alternatives analysis

BUILDING A MODEL



TRAFFIC ANALYSIS ZONES (TAZ)

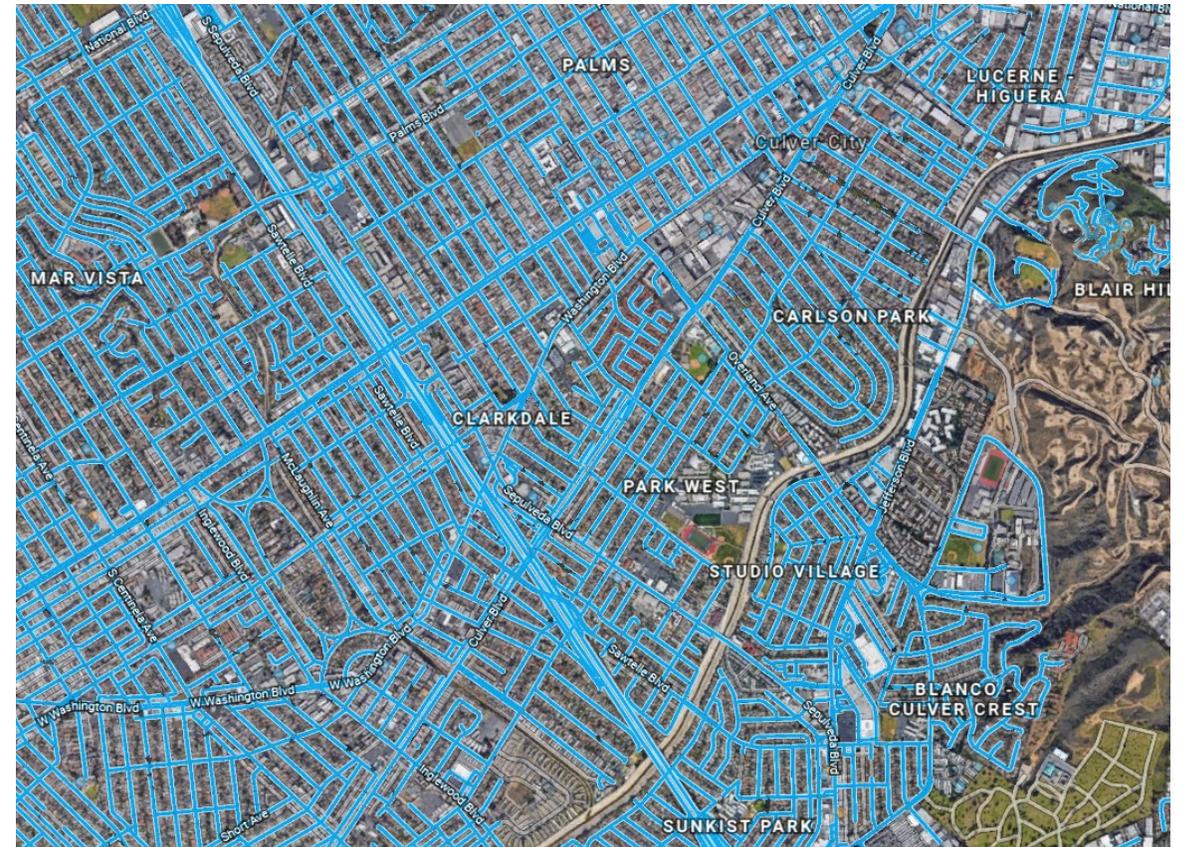
- Data is organized by “TAZ,” a geographic area, similar to a census block
- Culver City model will create detailed sublayers in SCAG TAZs



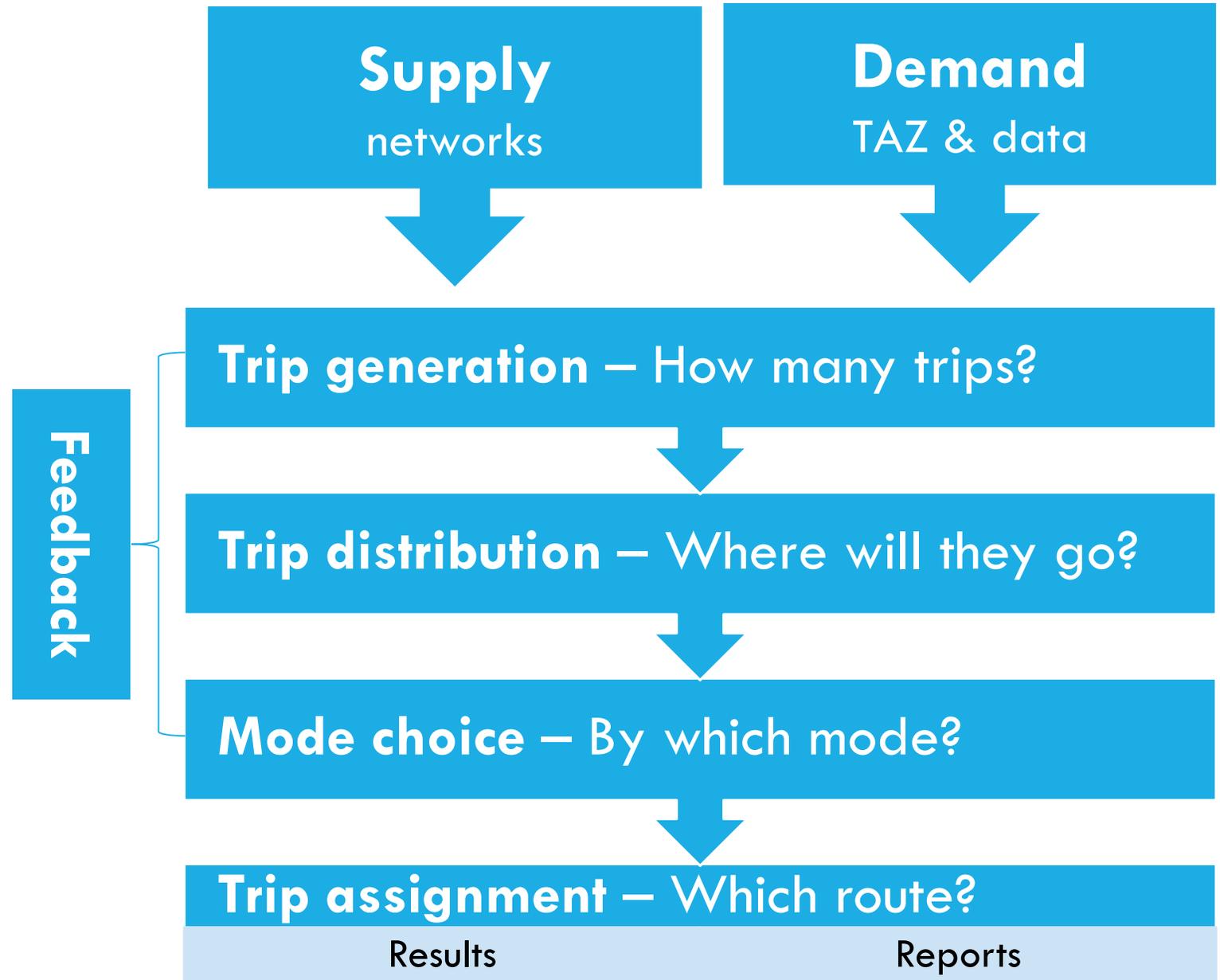
SCAG TAZs

TRANSPORTATION NETWORKS

- Need to know how TAZs are connected before figuring out how trips are distributed between TAZs
- TAZs are connected by transportation networks



MODELING STEPS



MODEL INPUTS AND OUTPUTS

Inputs

- Transportation networks
- Socioeconomic data
- External data
- Special generators
- Model parameters



Outputs

- Trips by mode
- Traffic volumes
- Congestion speeds
- Transit volumes
- Bike/ped volumes
- Summary information

MODEL VALIDATION

- Steps to Obtain a Reliable Model
 - Model Estimation
 - Model Calibration
 - Model Validation (Traffic Counts)
 - Model Application
 - Reasonableness Checks
 - Sensitivity Checks

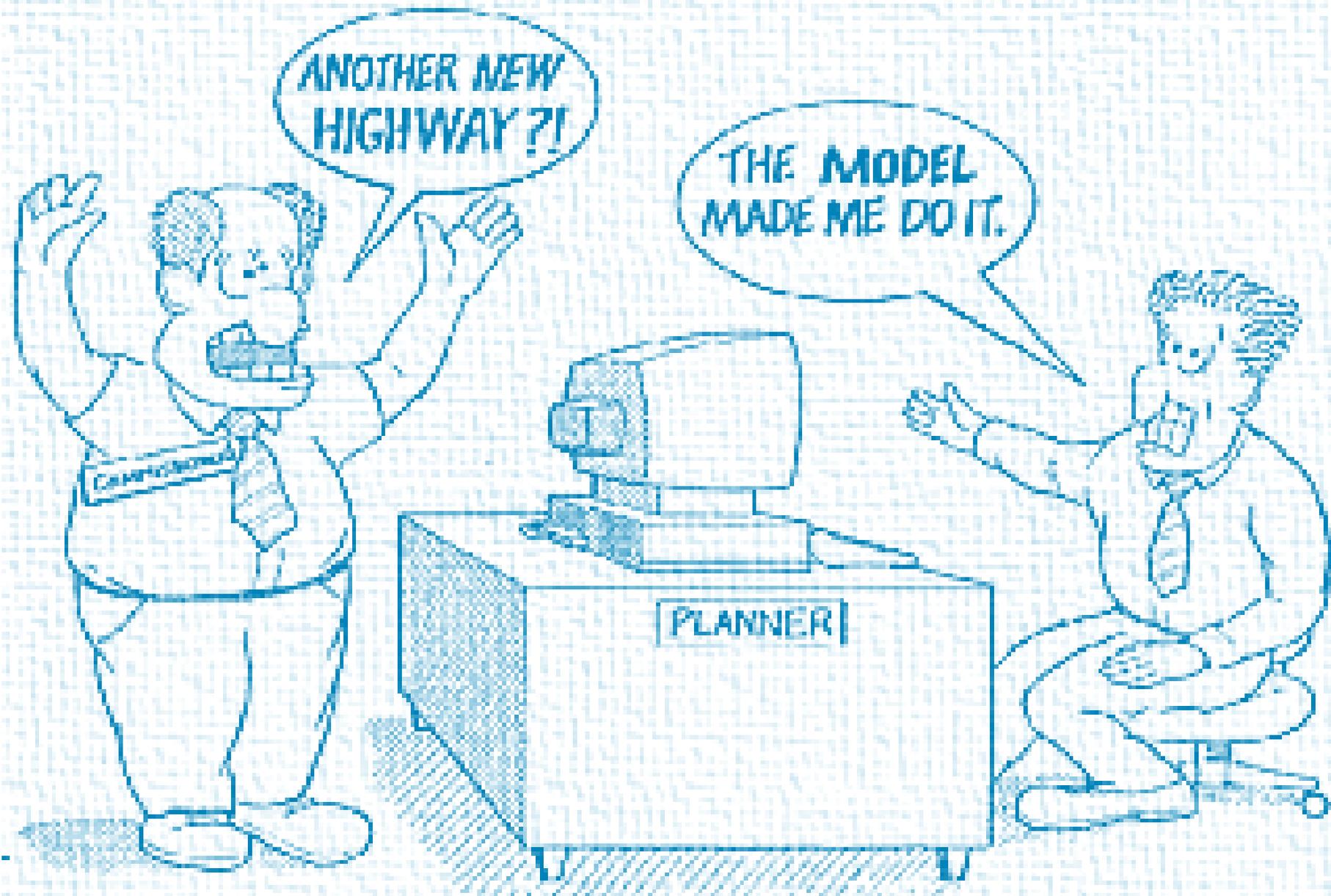
UPDATED ANALYSIS METHODS

California Senate Bill (SB) 743

- Requires CEQA transportation analysis to measure impacts with Vehicle Miles Traveled (VMT), promoting:
 - efficient access to destination such as removing barriers to infill development
 - reduction of greenhouse gas emissions
 - public health through active transportation

WHY THE CHANGES?

- We can't widen our way out of congestion...
 - ✓ yet everyone wants to ease traffic
- Our continued economic growth and activity...
 - ✓ needs more and enhanced transportation
- Our changing demographics and preferences...
 - ✓ are shifting how people travel



PROBLEMS WITH LOS AS A MEASURE OF TRANSPORTATION IMPACT

- Hard and expensive to model real-world conditions accurately
- Focuses on moving more cars faster rather than people
- Discourages and penalizes infill development; biased against “last in” development
- Exacerbates regional congestion
- Encourages sprawl
- Scale of analysis is too small
- Induces vehicular travel
- Favors inefficiency and ignores road users who aren’t in cars

USING VEHICLE DELAY TO EVALUATE LAND USE PROJECTS RESTRICTS EFFICIENT DEVELOPMENT



| Development Review Metric | Outcome |
|---------------------------|-------------|
| Level of Service (LOS) | More sprawl |

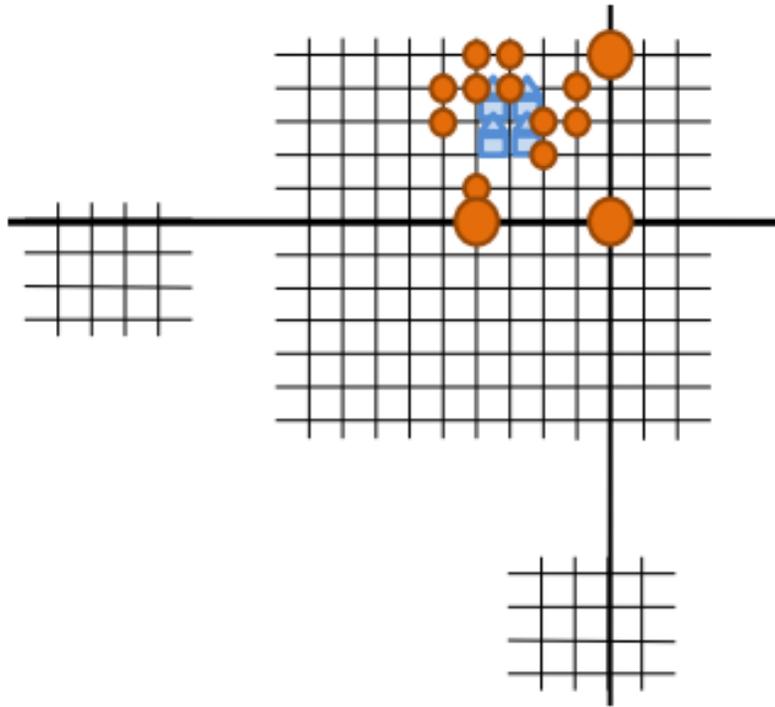
VMT IS A BETTER MEASURE OF THE EFFECTS OF LAND USE ON THE TRANSPORTATION SYSTEM



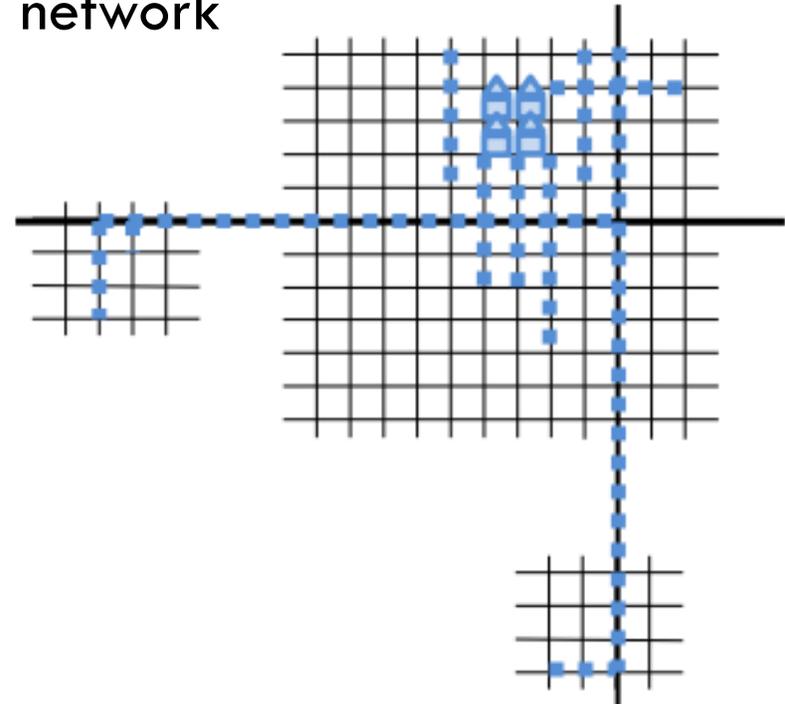
| Development Review Metric | Outcome |
|------------------------------|--------------------------------|
| Vehicle Miles Traveled (VMT) | Projects where they make sense |

ANALYSIS DIFFERENCE

Current: LOS on local intersections and highway segments



Proposed: Full extent of VMT loaded onto the roadway network



BENEFITS OF USING VMT

- Safer streets for all
- Data to evaluate effectiveness
- Lower CEQA costs
- Better public health outcomes
- Fights climate change, reduces GHG emissions
- Promotes growth where it makes sense
- Streamlines transit and active transportation
- Lower road maintenance costs
- Enhances mobility throughout the region



VMT IS ONLY ONE ASPECT OF THE PUZZLE

CEQA Guidelines ask, “Would the project:

- **Conflict with any City plan, ordinance, or policy addressing the safety or performance of the circulation system**, including transit, roadways, bicycle lanes and pedestrian paths (except for automobile level of service)
- **Substantially increase additional vehicle miles traveled** (per capita, per service population, or other appropriate efficiency measure)
- **Substantially induce additional automobile travel by increasing physical roadway capacity in congested areas** (i.e. by adding new mixed-flow lanes) or by adding new roadways to the network
- **Result in inadequate emergency access**”

KEY COMPONENTS FOR IMPLEMENTATION

- General Plan Land Use and Mobility Elements
- CEQA significance thresholds and implementing guidelines
- Traffic study guidelines incorporating regional tools for consistency
- Mobility fund programming to implement plans to reduce VMT

VMT MITIGATION OPTIONS

- Parking management
- Transit incentives
- Education and encouragement
- Bicycle infrastructure
- Shared mobility
- Commute trip reduction
- Neighborhood enhancement

WHAT HAPPENS TO LOS?

- LOS will no longer be considered an environmental impact under CEQA
- Cities can keep authority to require projects to achieve LOS thresholds in General Plan and Zoning Code
- Could continue to be useful when considering non-vehicular LOS

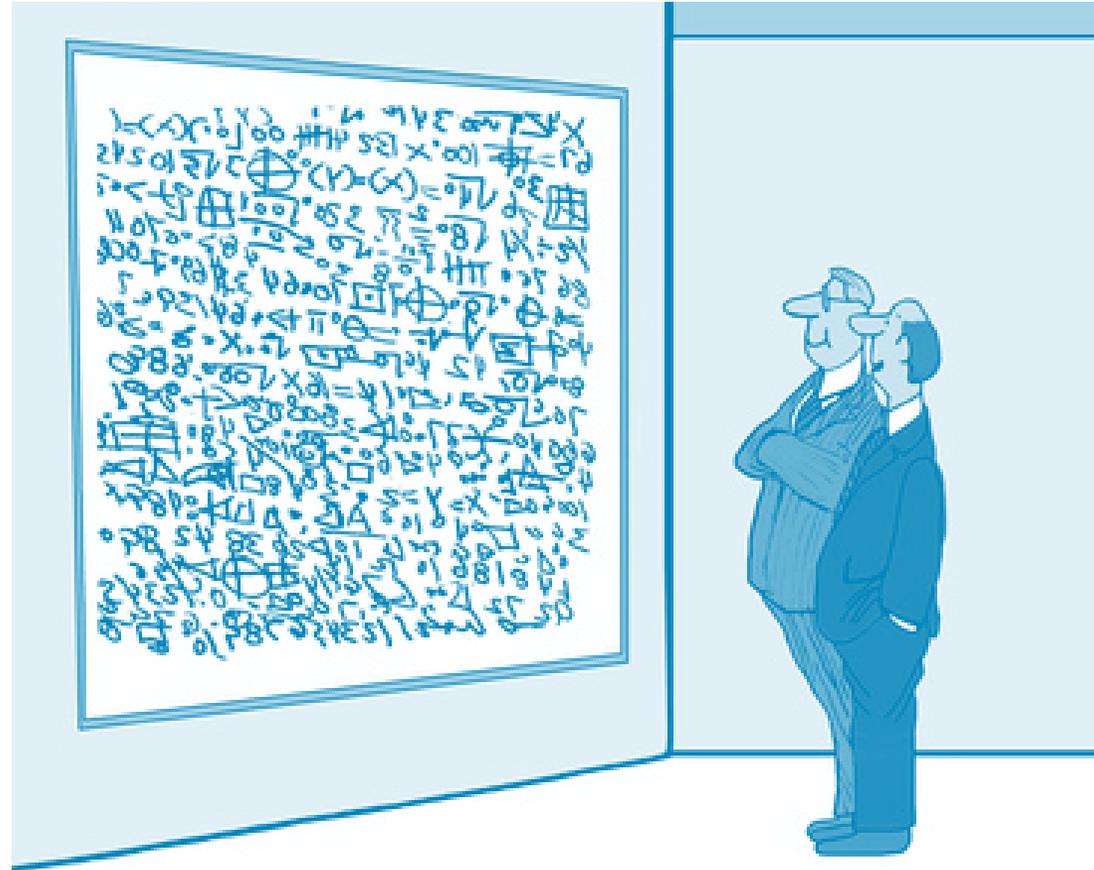
COST EXAMPLES

- Updates to existing models for SB 743 compliance
 - \$700,000 (LA)
 - \$300,000 (SaMo)
 - \$106,000 (Pasadena)
- Creation of new model:
 - \$500,000 (WeHo)

KEY OBJECTIVES

- Identify/align objectives
 - General Plan sets the objectives
- Measure what matters
 - Choose metrics that reinforce desired outcomes
- Develop tools to ease implementation
 - Transportation Impact Fees
 - Travel Demand Management (TDM) regulations
 - Choose forecasting tools wisely

QUESTIONS AND ANSWERS



“When you put it like that, it makes complete sense.”