Case Study: I-20 Reversible Lane Corridor Modeling

Jody Peace, PE
ARCADIS

Atlanta Regional Commission Model Users Group
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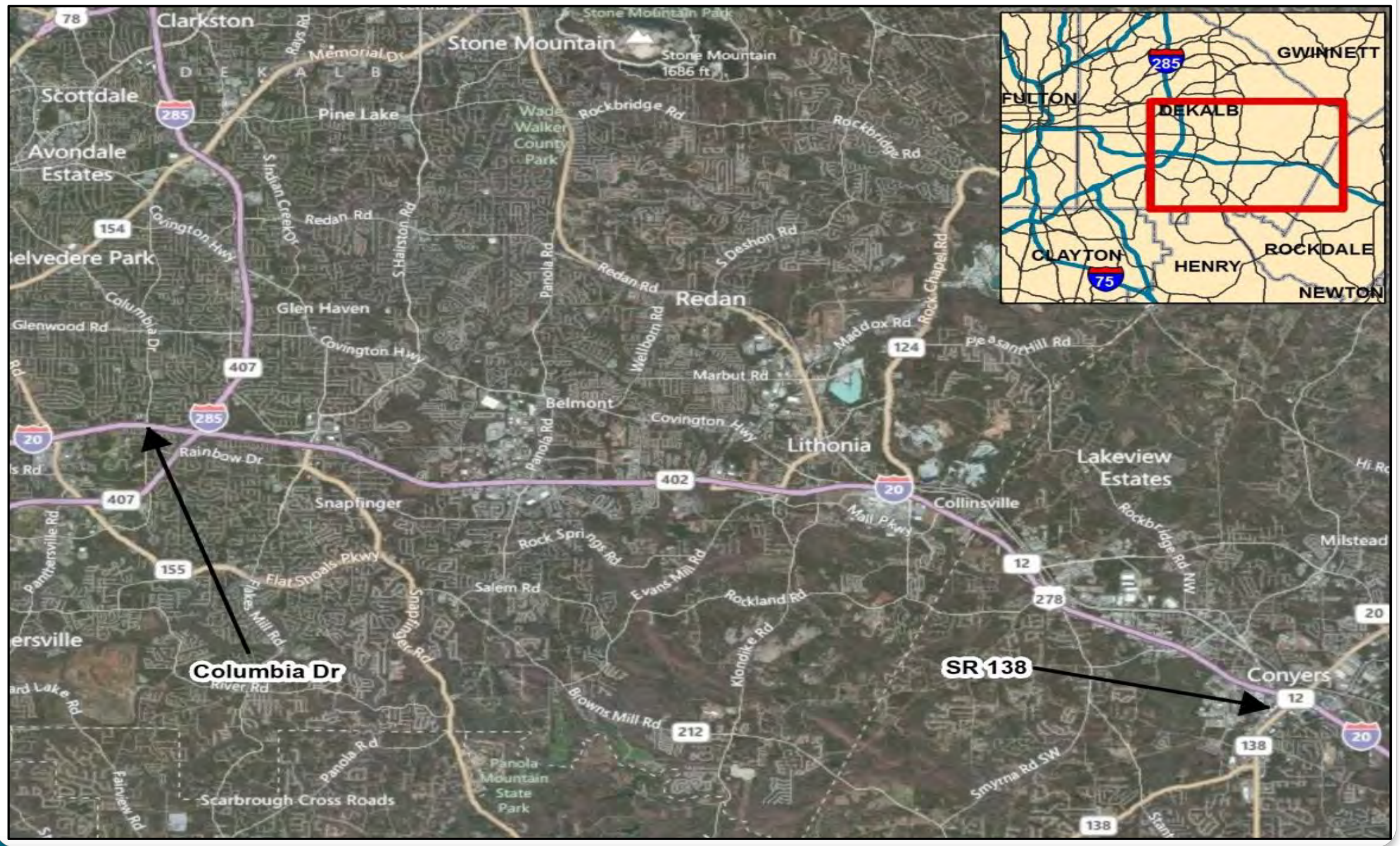
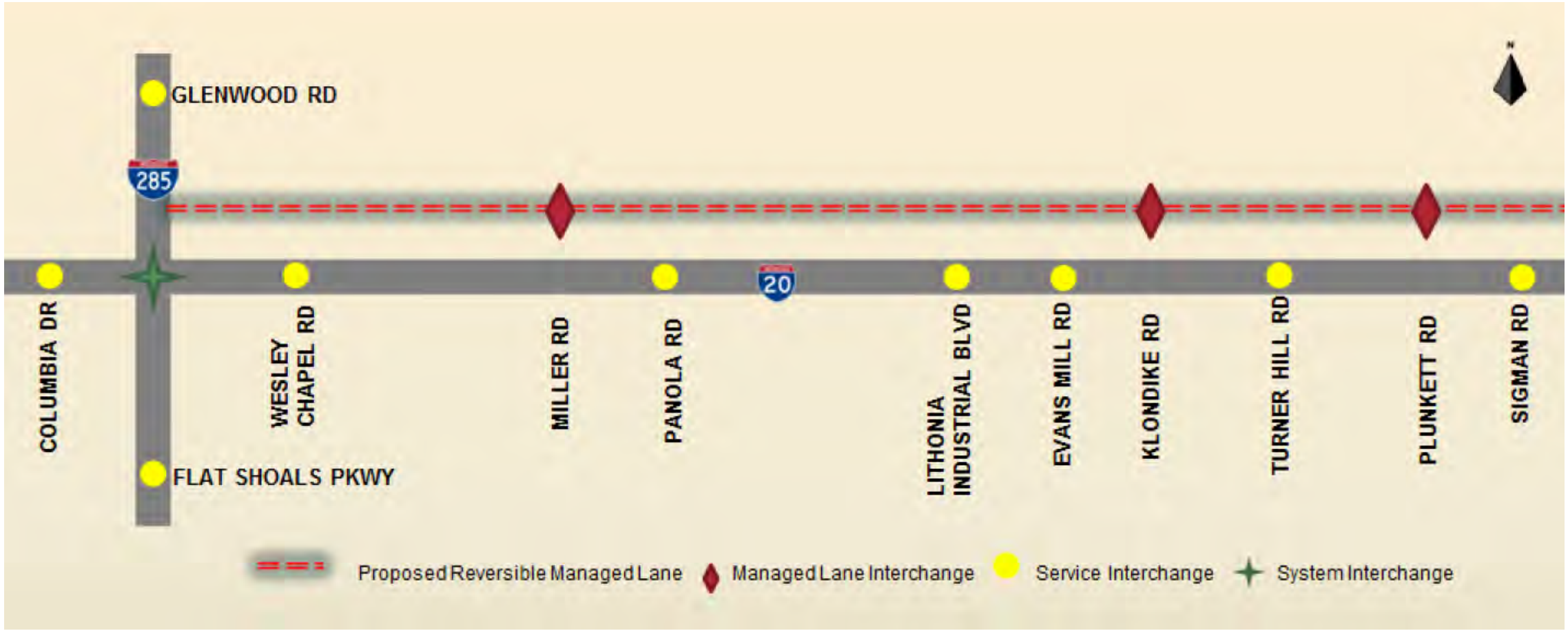
Outline

- Project overview
- Modeling approach
  - Macrocopic (Cube)
  - Mesoscopic (VISUM)
  - Microscopic (VISSIM)
- Results
- Conclusion

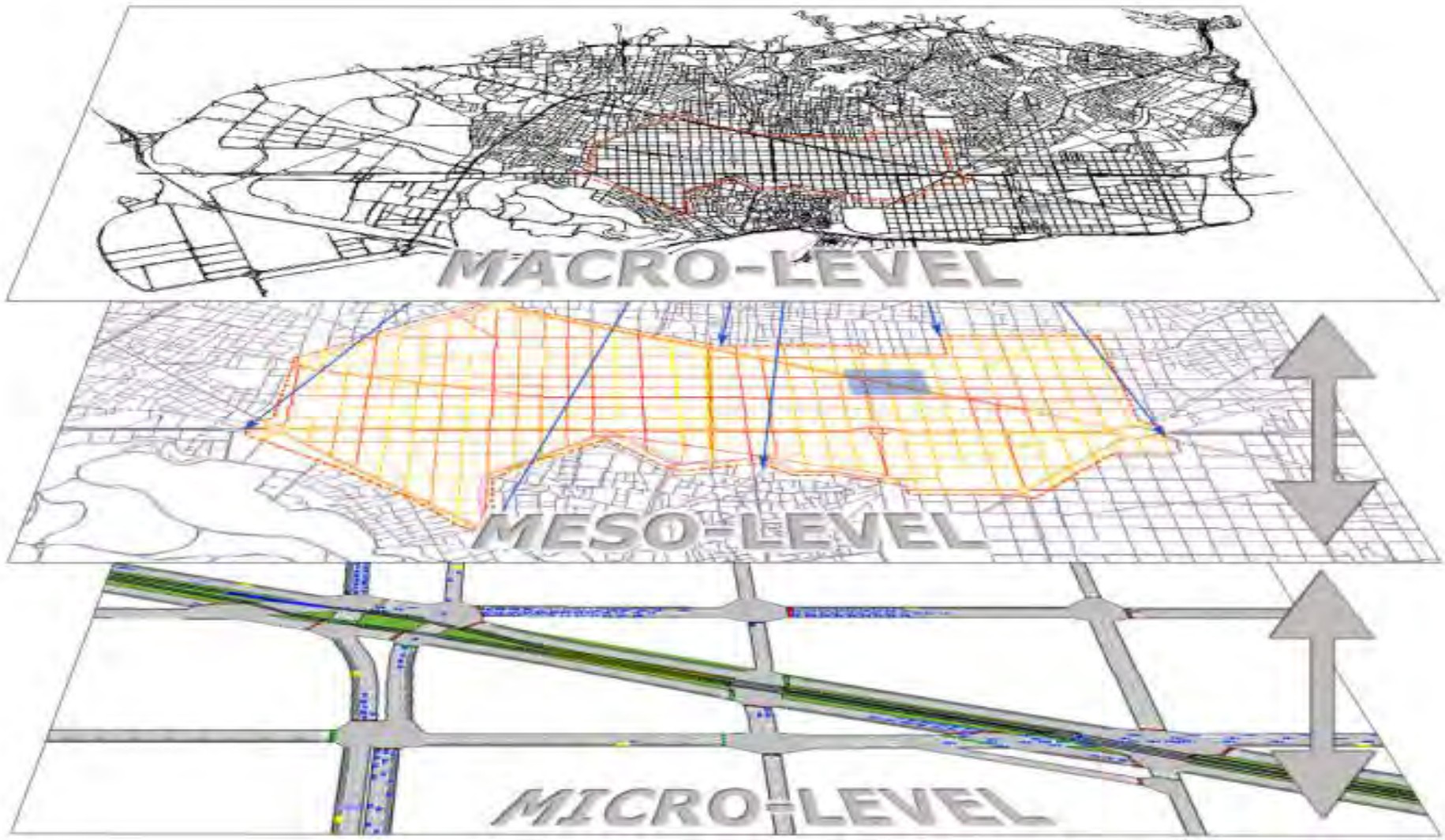
Project Overview – The Facts



Project Overview – Build Alternative



Modeling Approach – Overview



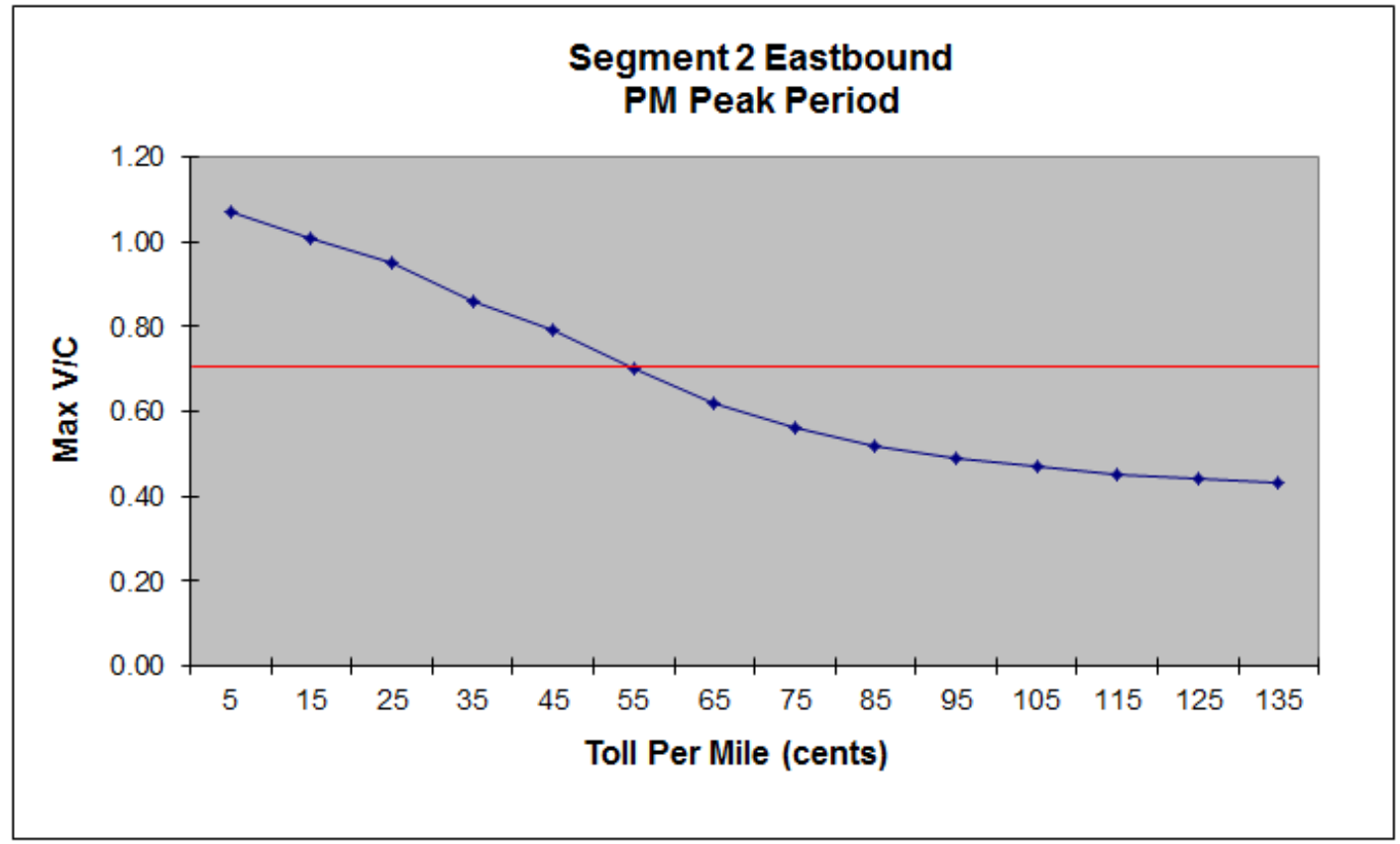
CUBE

VISUM

VISSIM
SYNCHRO

Macroscopic – Model Changes

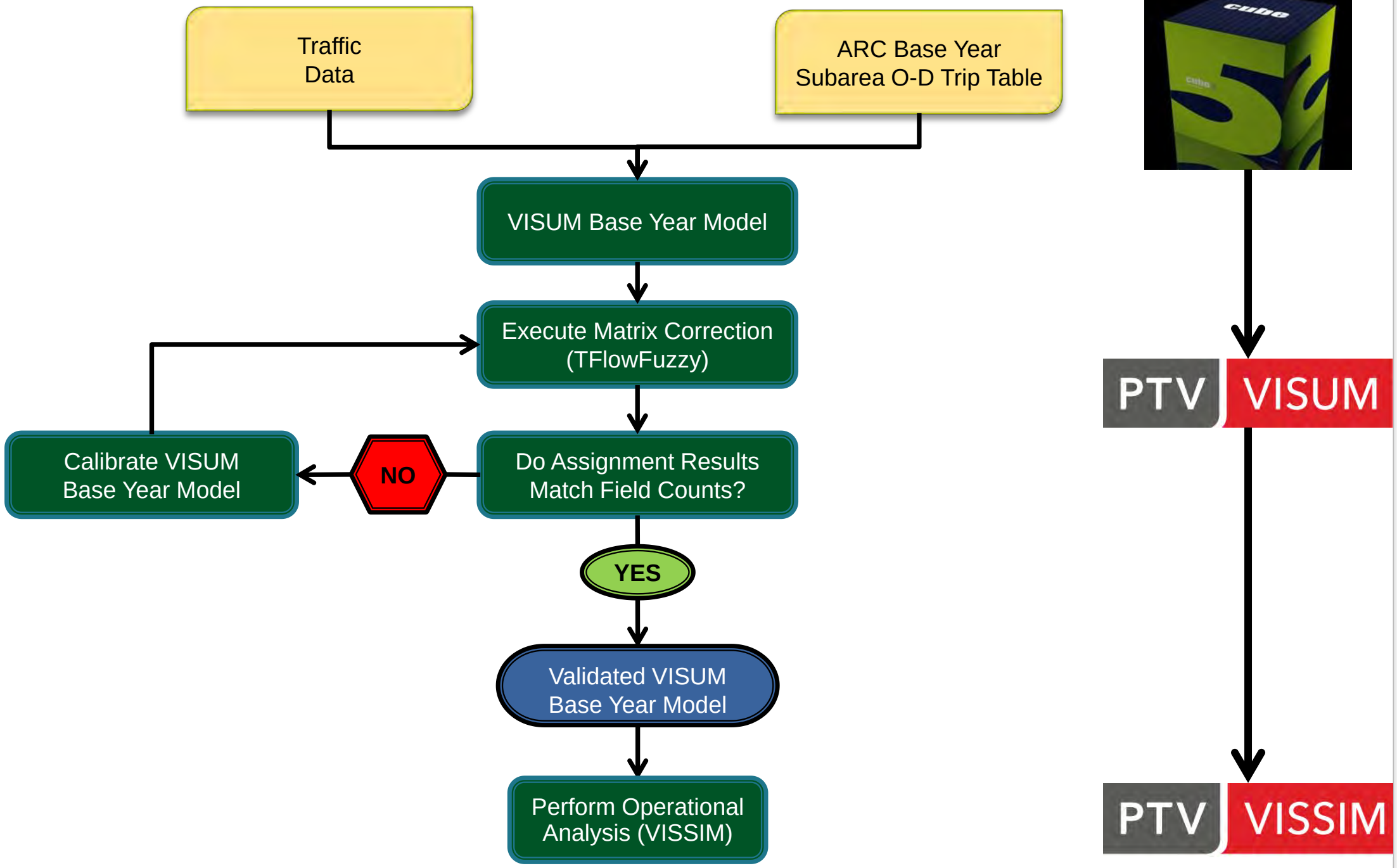
- Plan2040 model
- Updated geometry
- Added managed lanes
- Tolling analysis
- Projection for design year (2050)



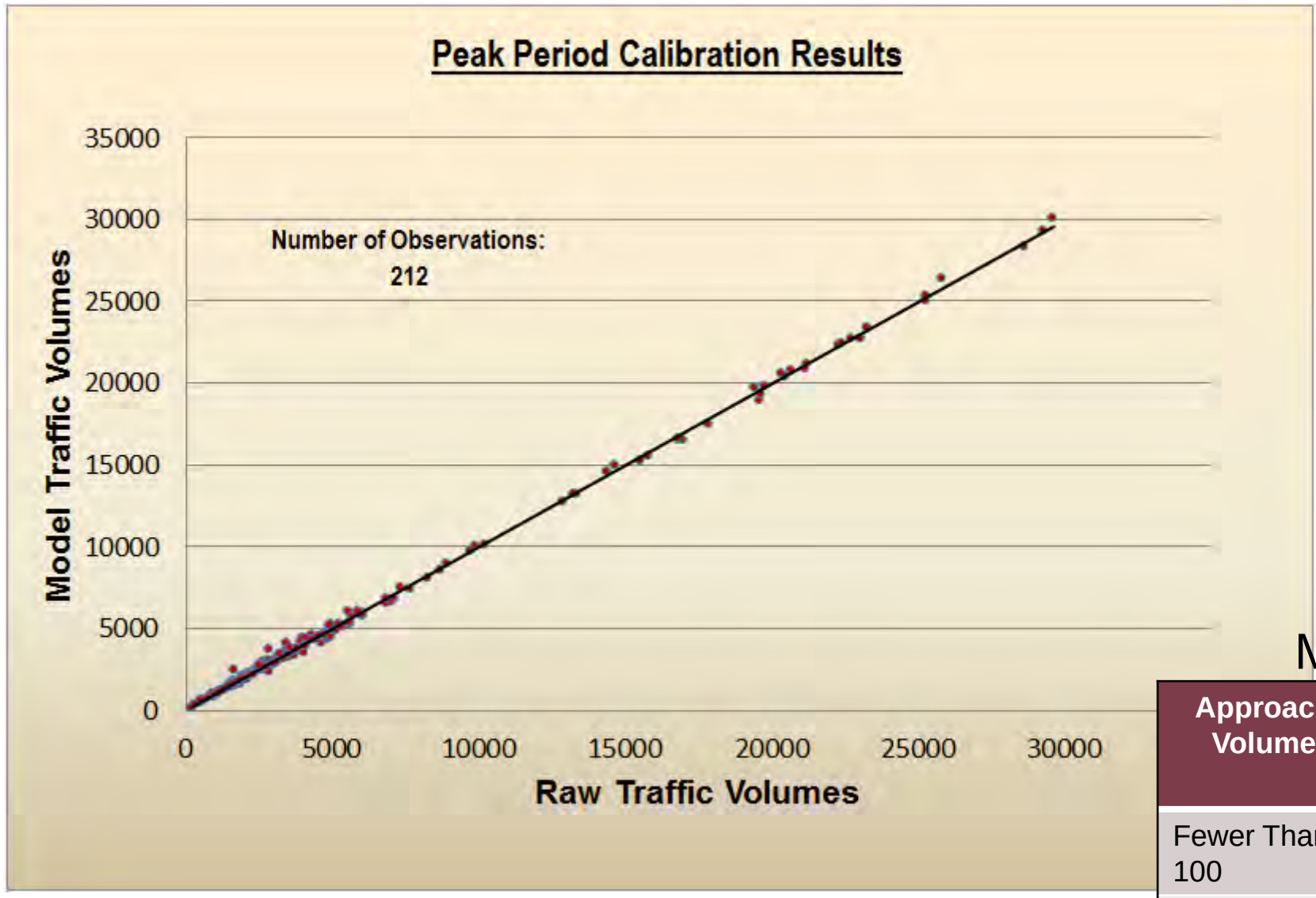
Macroscopic – Subarea Extraction

- No cut centroid connectors
- Combined trip tables

Mesoscopic – Model Calibration



Mesoscopic – Model Validation

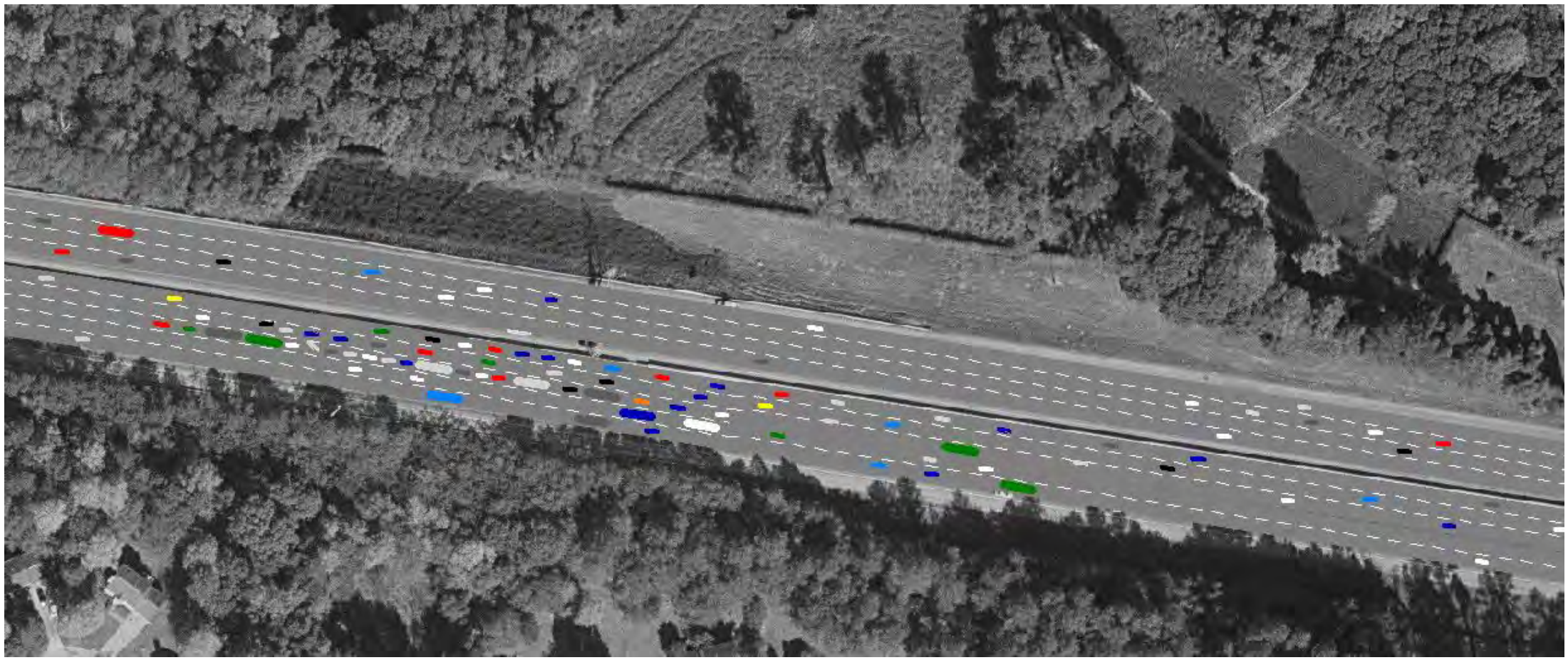


Model Validation

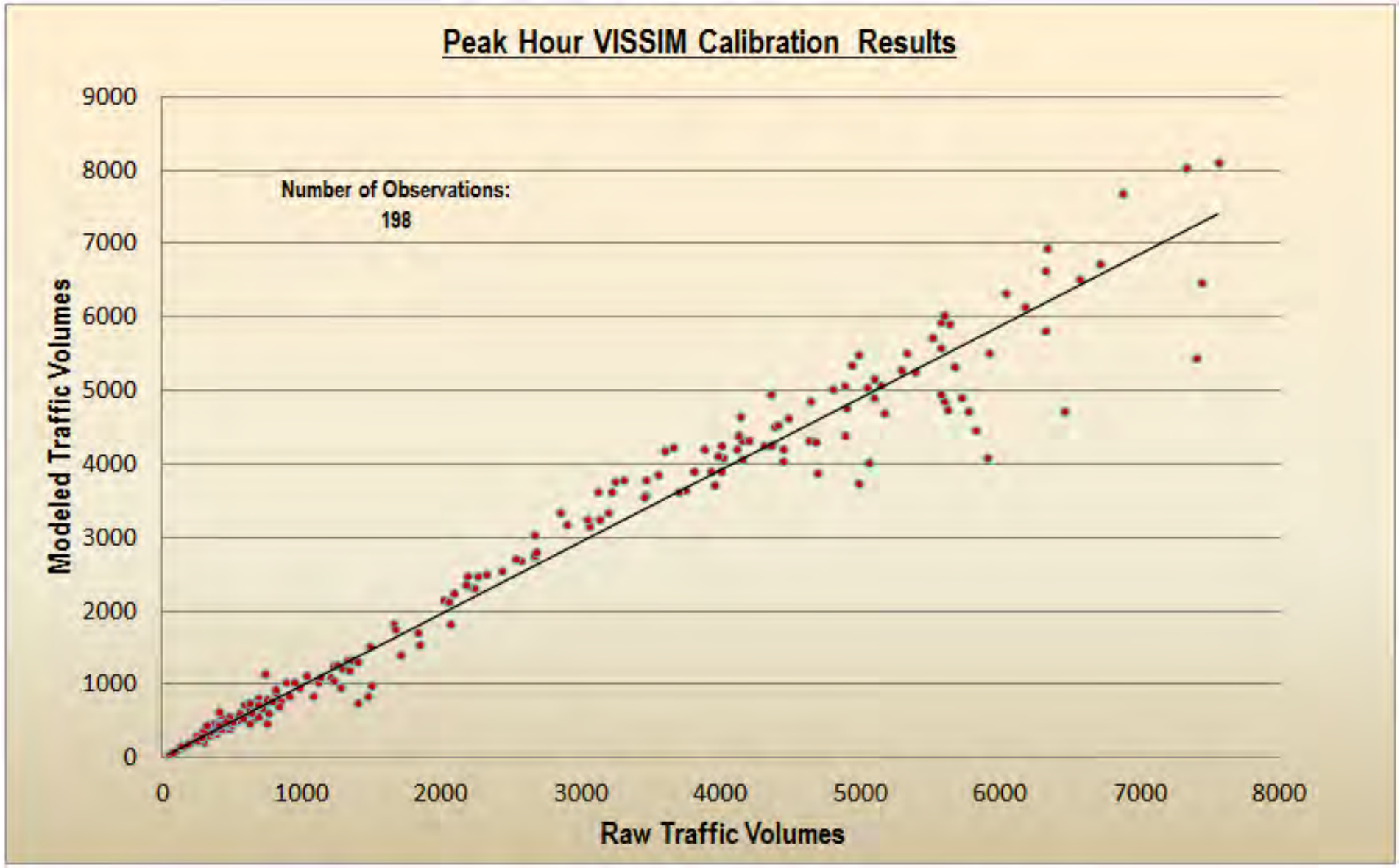
Approach Volume	VISUM Output Validation Criteria	% Met Criteria
Fewer Than 100	+/- 25 Percent	98%
Between 100 and 1000 Vehicles	+/- 15 Percent	98%
Greater than 1000	+/- 10 Percent	95%

Microscopic – Calibration

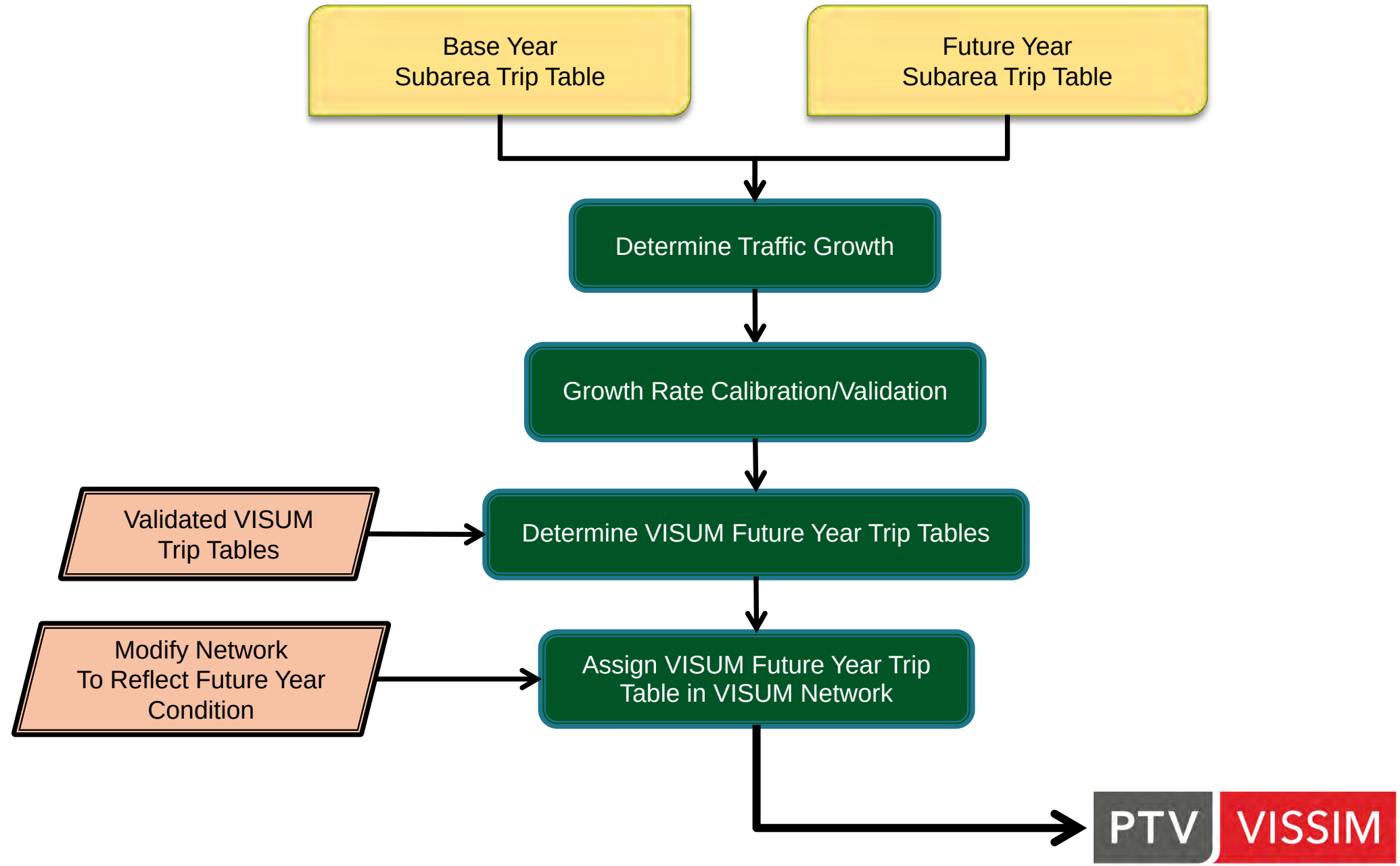
PTV VISSIM ⟷



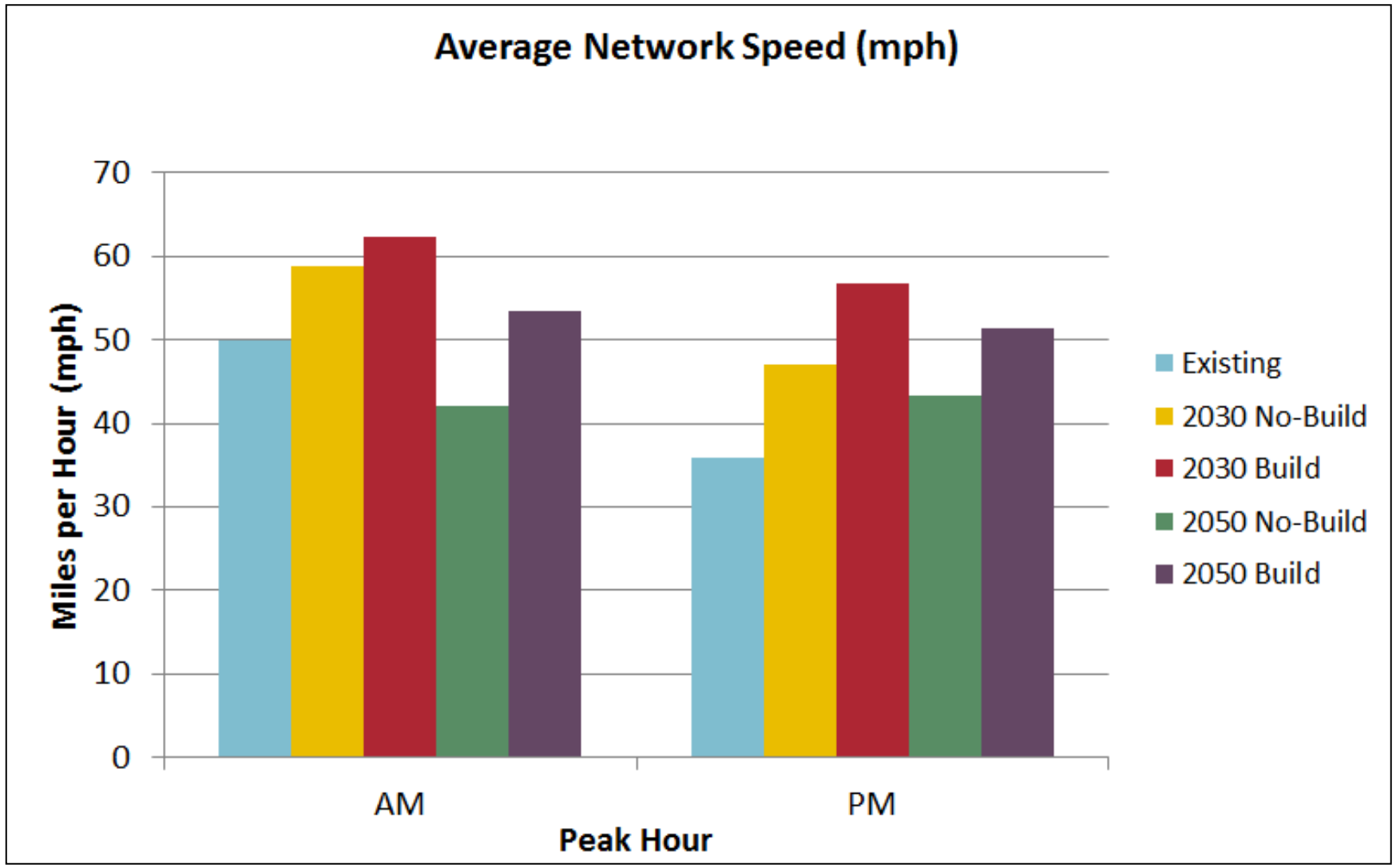
Microscopic – Validation



Traffic Forecast



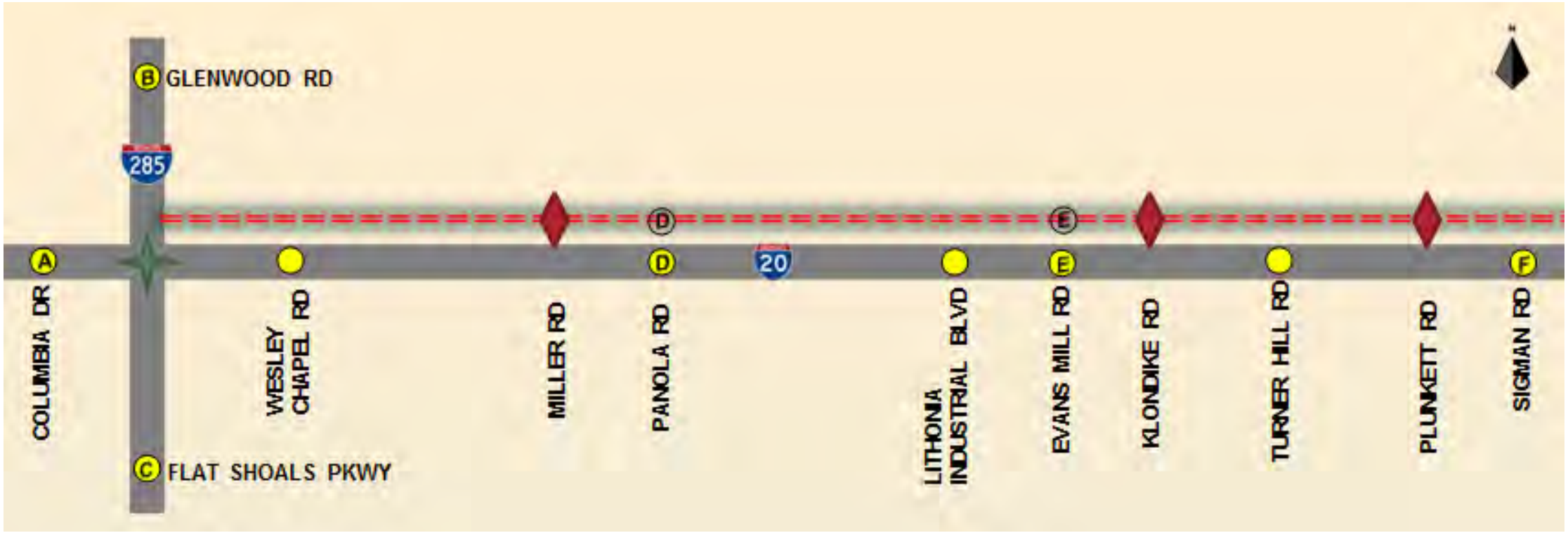
Results – Design Year Network Speed



Results – Design Year Travel Time

AM Peak Hour

No-Build	17 min	
Build	GP: 12 min	ML: 11 min



PM Peak Hour

No-Build	16 min	
Build	GP: 14 min	ML: 11 min

Note: Travel time shown only for the peak direction movements along I-20.

Concluding Thoughts

- Each model has its own benefits
  - Different level of details
  - Project screening could occur at Macro/Meso level
- Automation is Key
  - Reduces Error
- Efficient Data Storage
- Different project/ different approach

Questions?

Jody Peace – Jody.Peace@arcadis-us.com
Sridhar Basetty – Sridhar.Basetty@arcadis-us.com

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