

# Complete Enough for Complete Streets?

Testing the Sensitivity of  
HCM 2010 Multimodal LOS  
Under Conditions of Change

Peter Carter

2013 TRB Planning Applications Conference

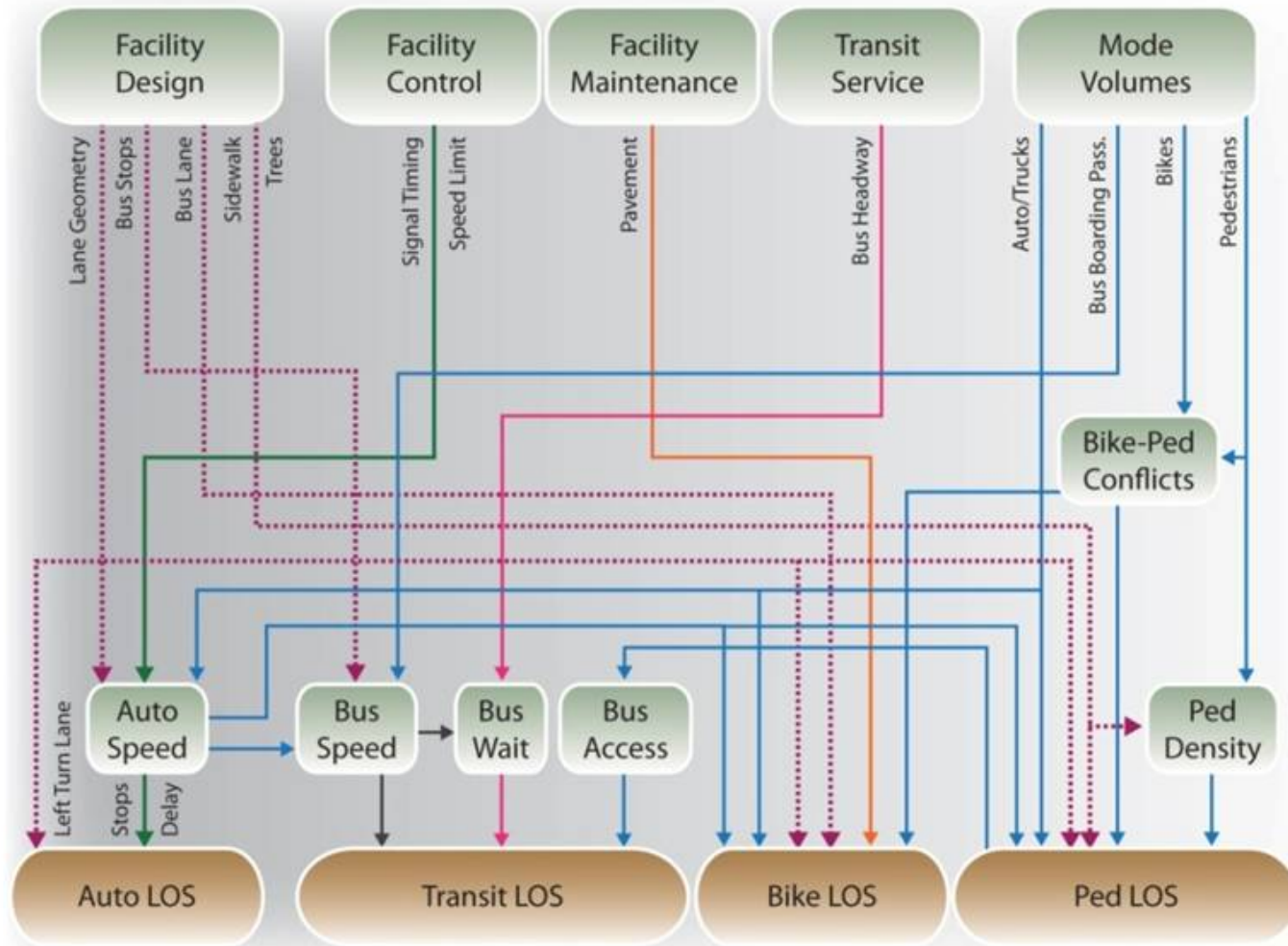
LA.23—Los Angeles Civic Center from Hollywood Freeway, Los Angeles, California



2C-H45

# Highway Capacity Manual 2010

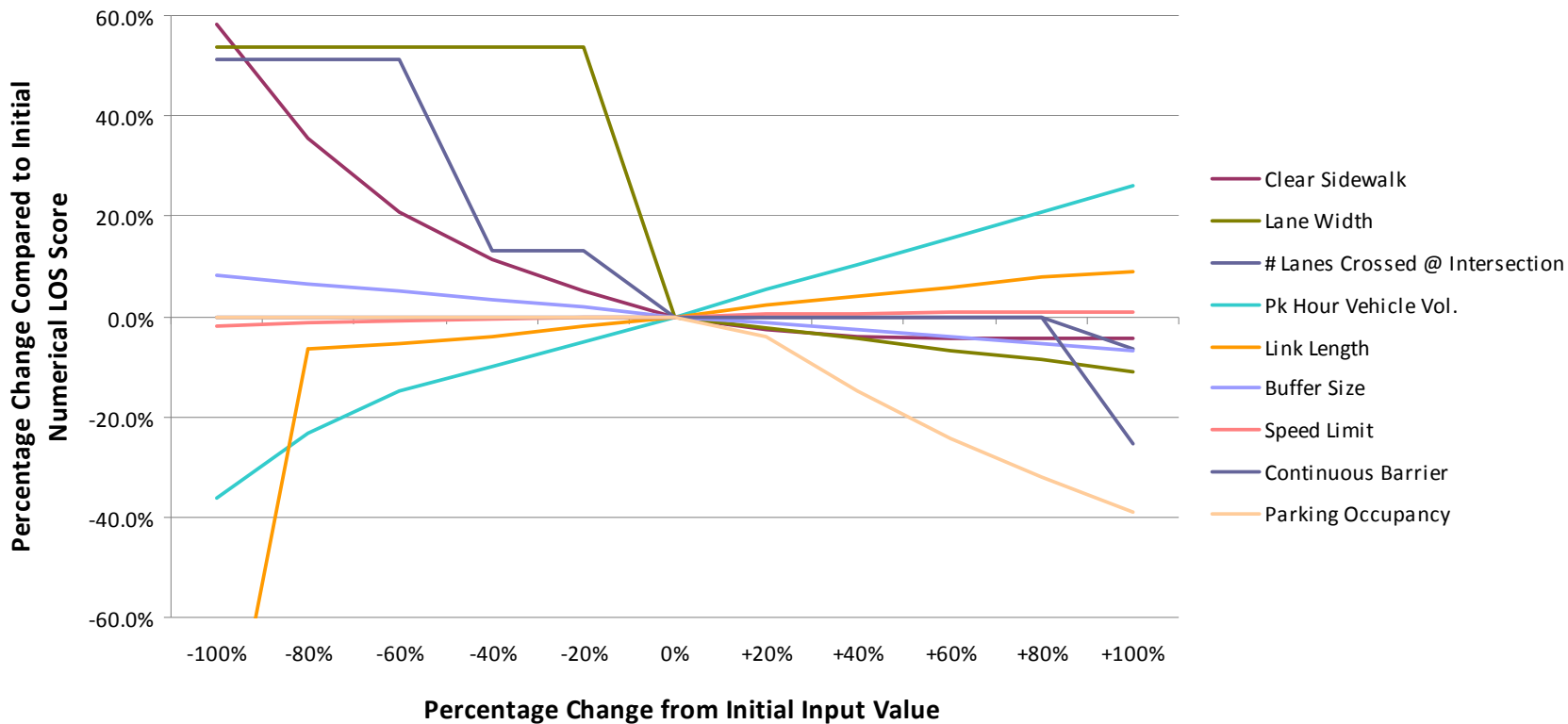
LOS Model Interactions



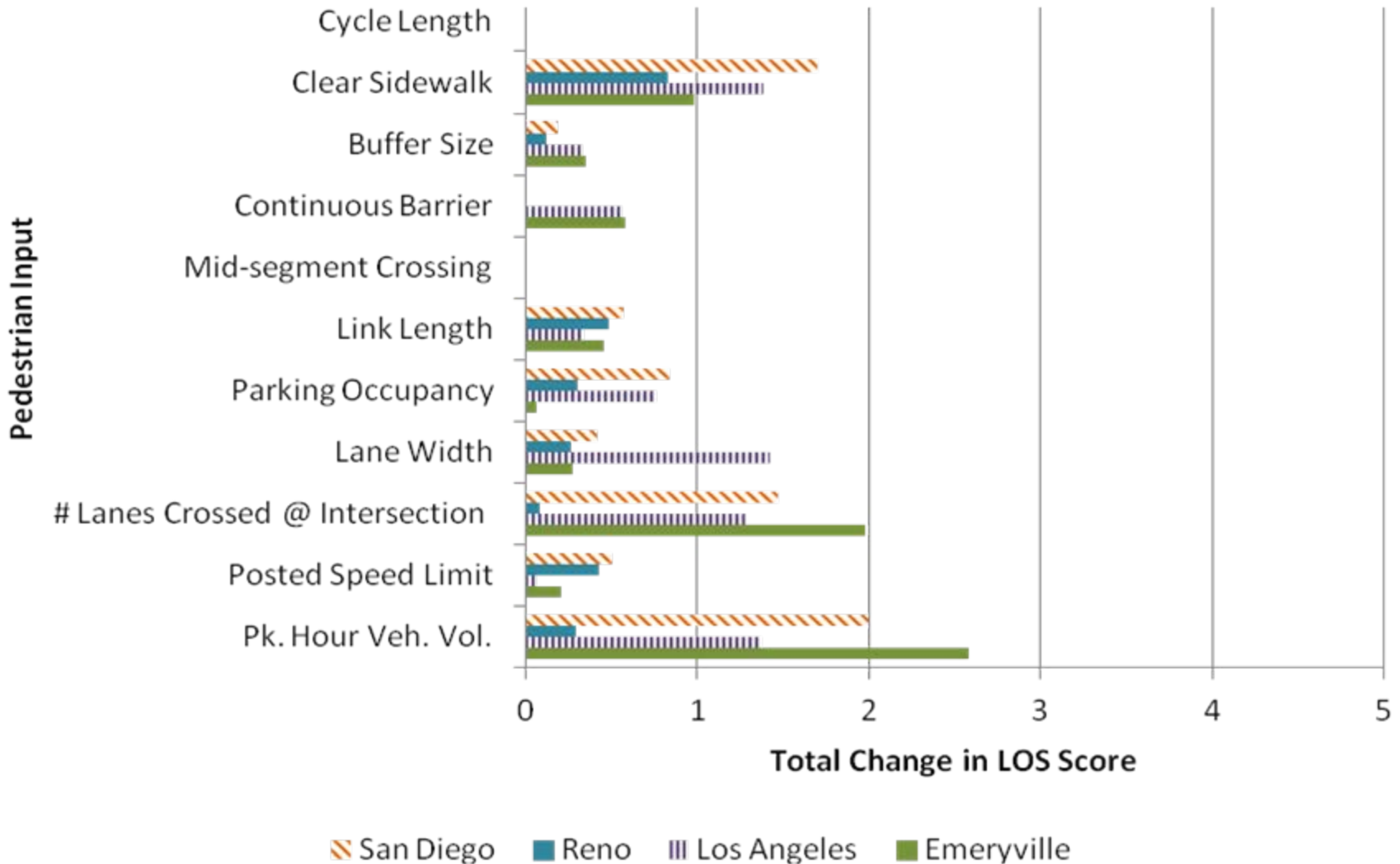
# Sensitivity Testing Method

- Study locations chosen to maximize diversity of existing LOS grades
- Inputs chosen based on ability to affect LOS
- Input values produced by scaling from up to 200% and down to 0% with 20% intervals
- Only one input variable changed at a time
- Change in LOS score recorded

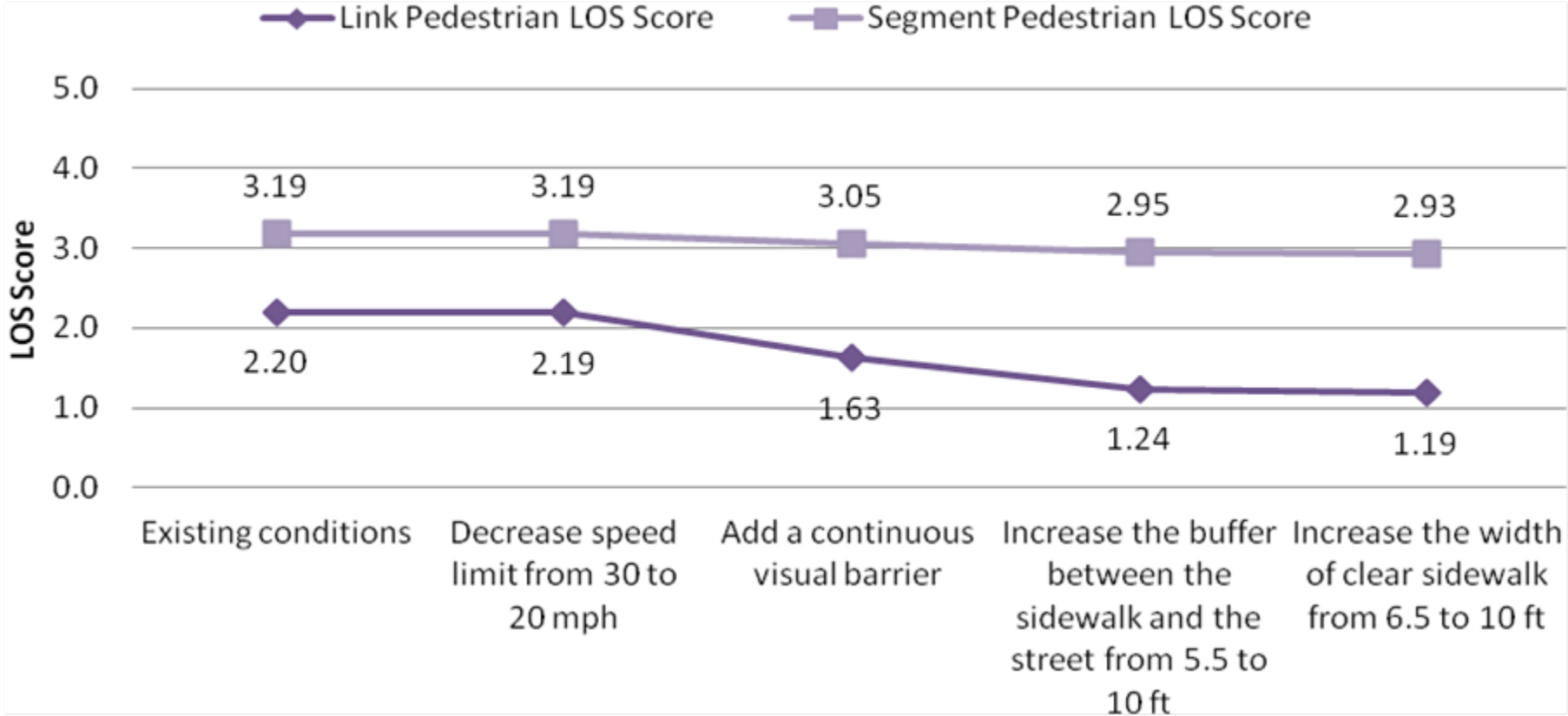
### Effect of Changes in Inputs on Link-Level Pedestrian LOS - Los Angeles



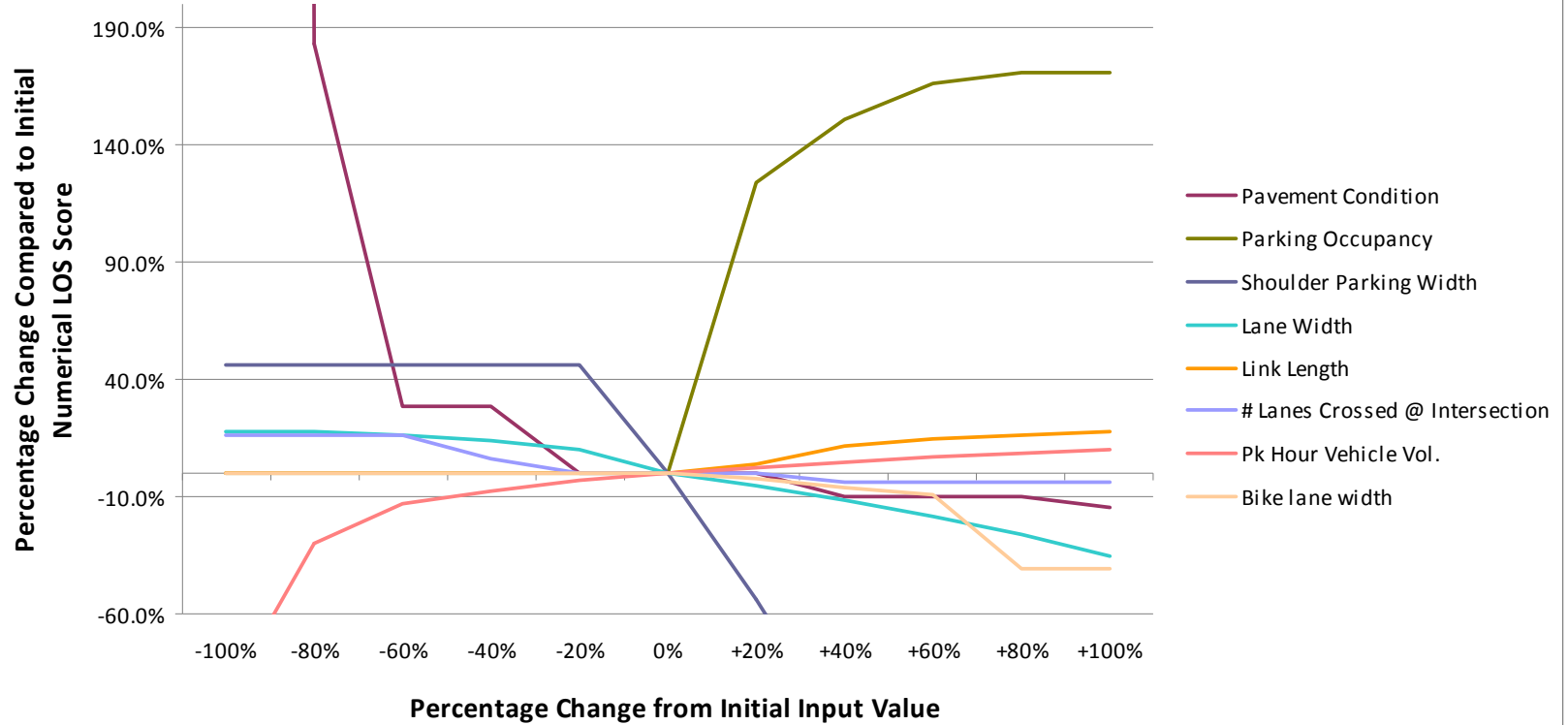
# Link-level Pedestrian LOS Sensitivity Testing



# Link- and Segment-level Pedestrian LOS Cumulative Sensitivity Testing - Los Angeles

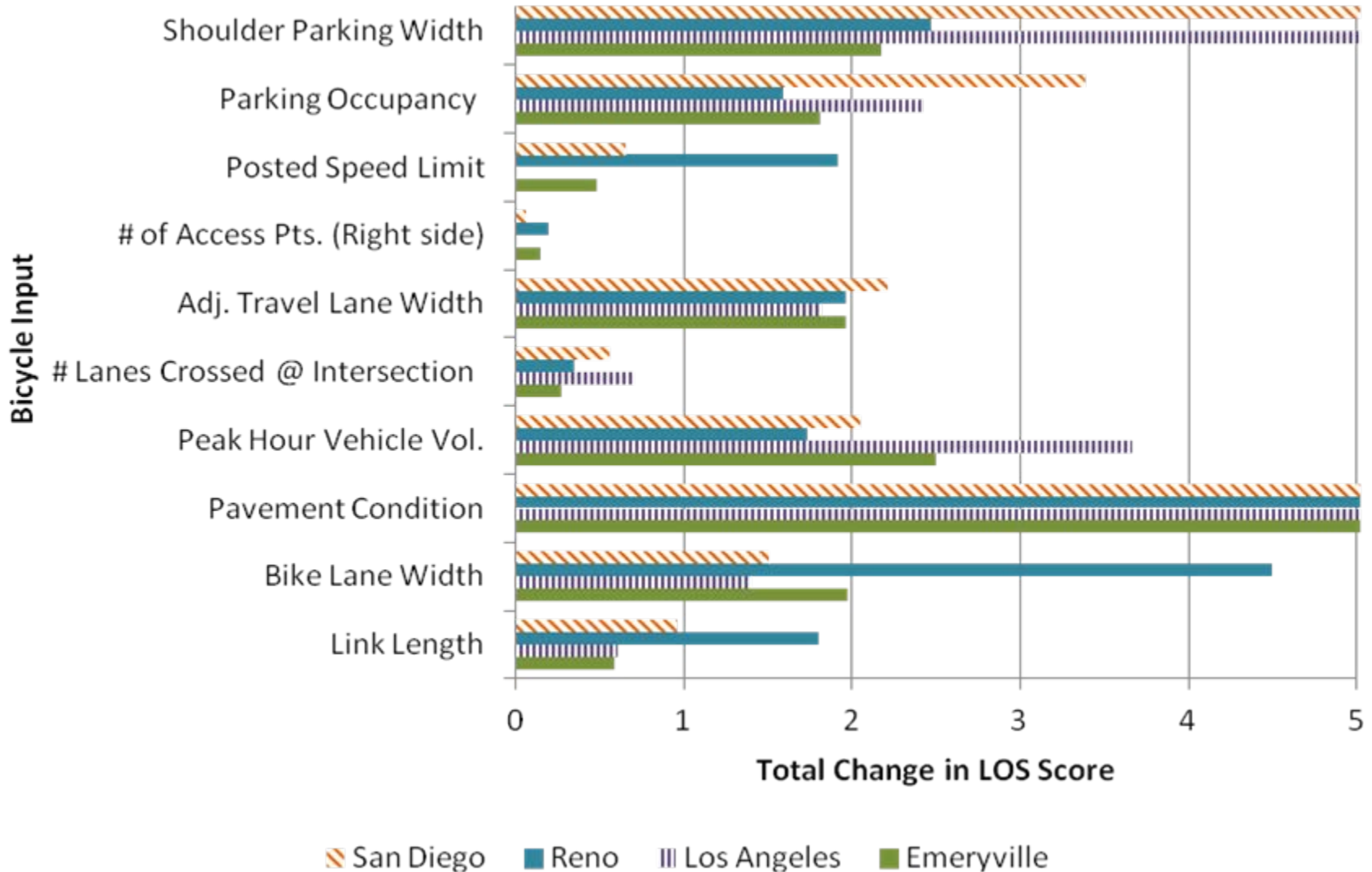


### Effect of Changes in Inputs on Link-Level Bicycle LOS - Los Angeles

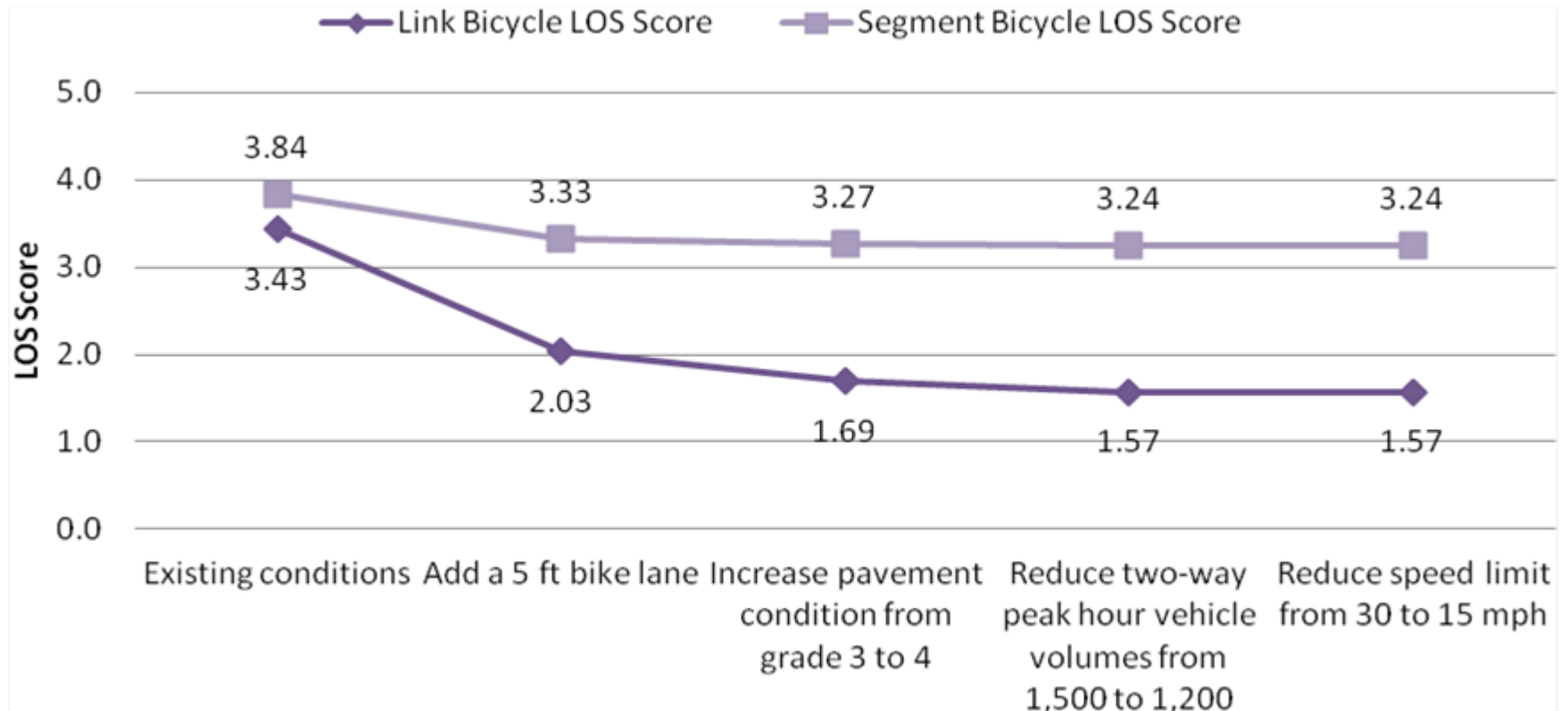




# Link-level Bicycle LOS Sensitivity Testing

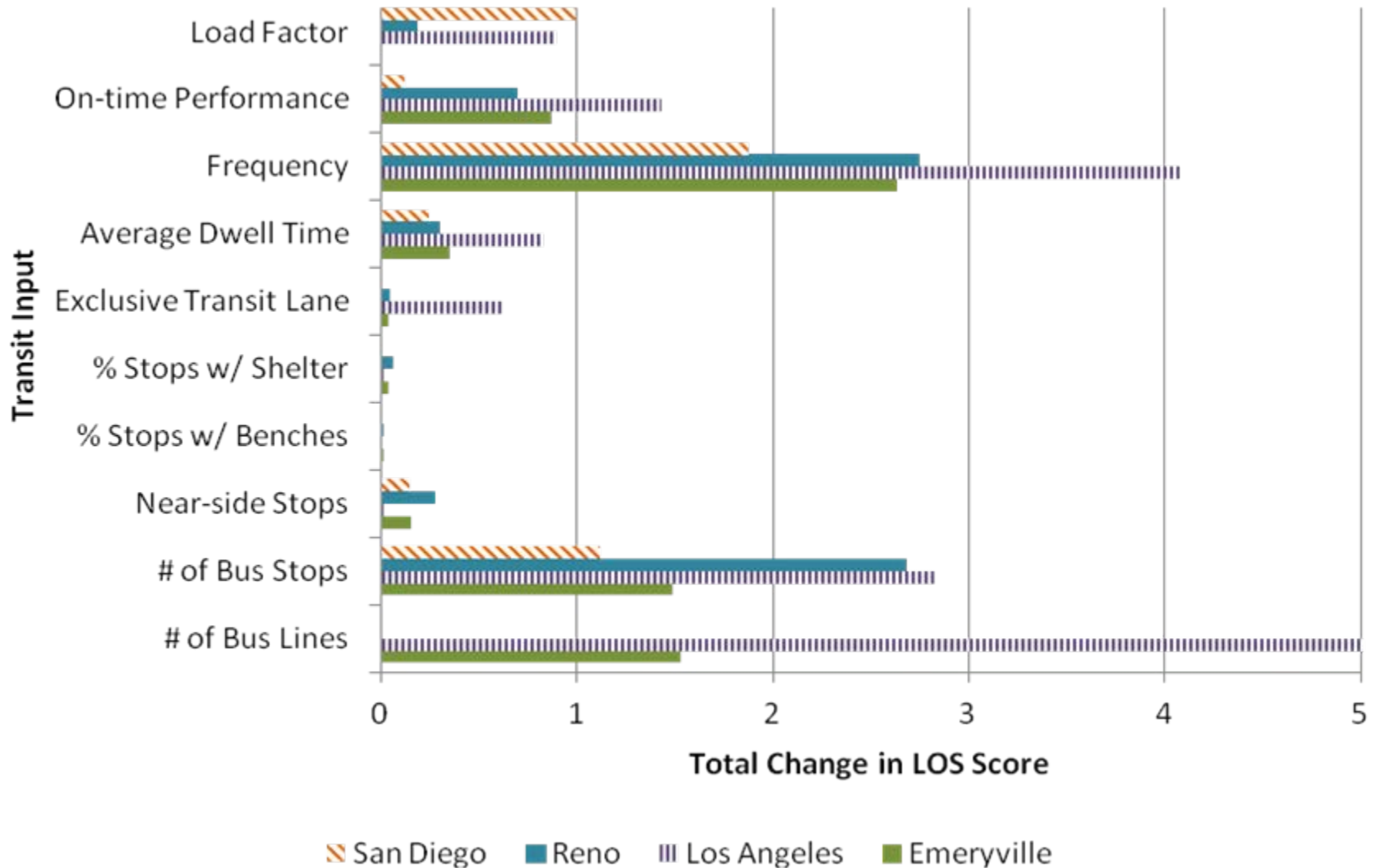


# Link- and Segment-level Bicycle LOS Cumulative Sensitivity Testing - Los Angeles



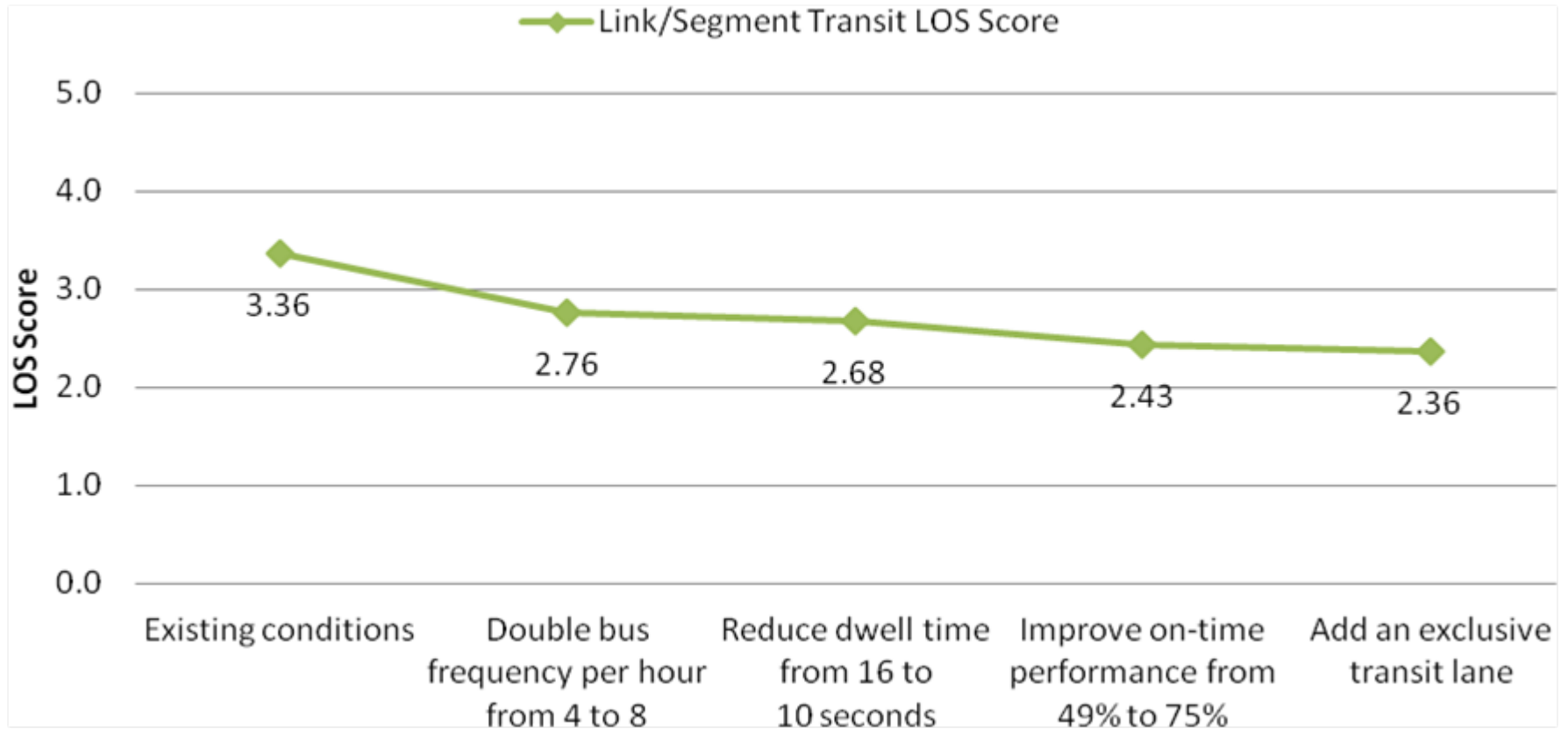


# Link-level Transit LOS Sensitivity Testing



# Link/Segment-level Transit LOS Cumulative Sensitivity

## Testing – Emeryville



# Conclusions

- Multiple examples were discovered where direction and magnitude of outcomes were questionable
- Some results may be counterintuitive
- Better calibration is needed
  - Local calibration may improve results
  - Should calibration be based on unconstrained user perspectives?

# Questions to consider

- How useful is the tool for measuring mitigation benefits?
- How legally defensible is the tool?
- What about time and cost of data collection?
- Do the results support our local values, policies, and investment priorities?



OPWV

OPWV

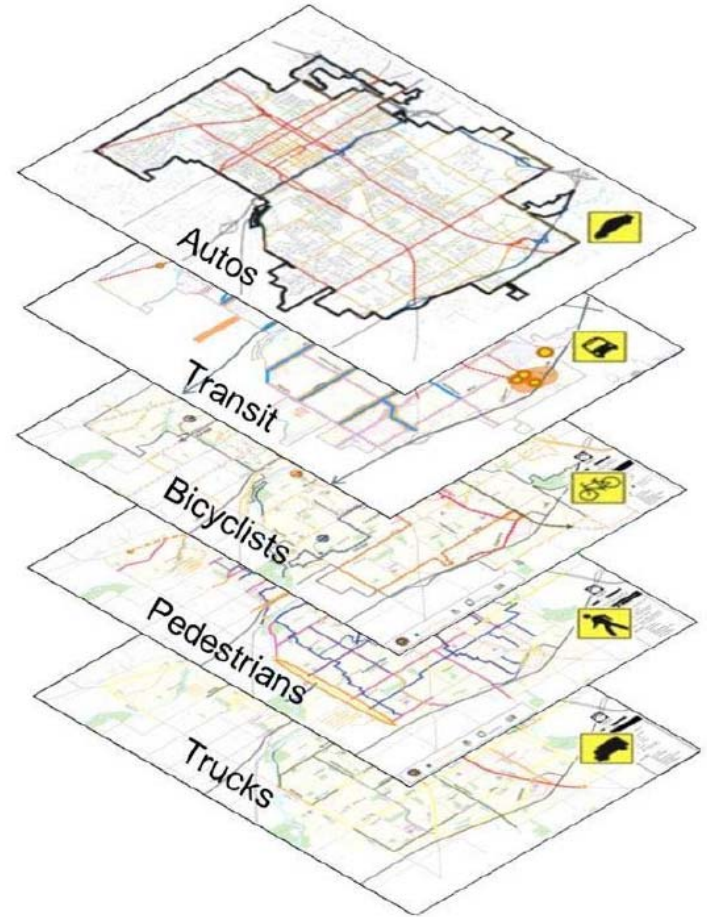
Wahrheitsdicke

TAXI

JD777

Wahrheitsdicke  
1960  
Wahrheitsdicke





Pendler  
commuter  
30 km

Geschäftstermin  
business appointment  
625 km



Weg  
on foot



Fahrad  
bicycle



Motorisierter  
Individualverkehr  
(IMV)  
individual  
motor car traffic



3,2kg CO<sub>2</sub>

Partieller  
Personenverkehr  
(PMV)  
public  
transport



0,7kg CO<sub>2</sub>

18 km

1,3kg CO<sub>2</sub>

25 km

0,0 kg CO<sub>2</sub> / 0,5 km

0,0 kg CO<sub>2</sub> / 2 km

0,2 kg CO<sub>2</sub> / 2,5 km



# Contributors

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