

# Reducing impacts of heavy duty trucks in communities of color

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# Project Overview

## Objective

- Reduce environmental impacts of freight traffic

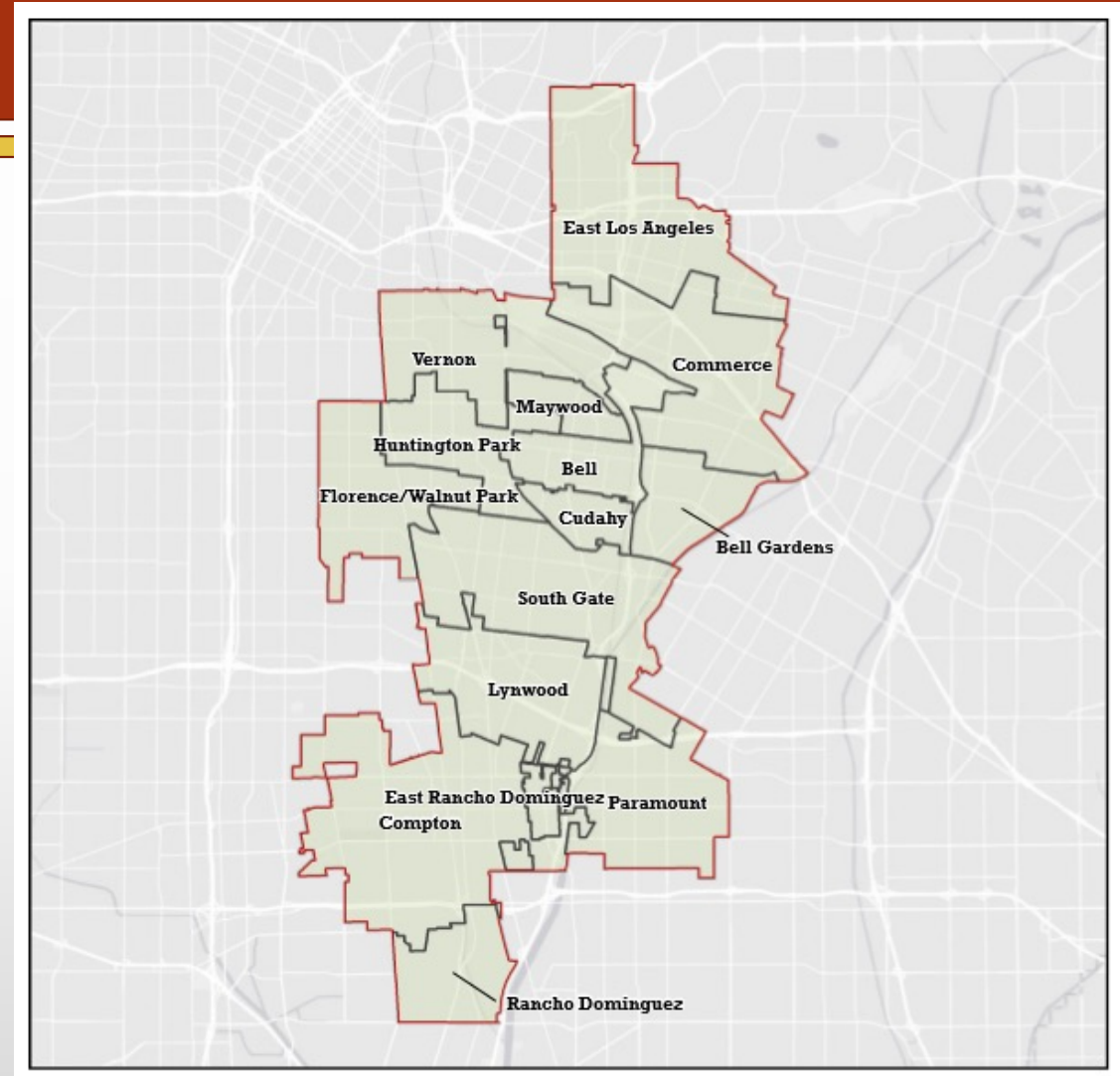
## Partners

- USC + SELA Collaborative + UCD + CSULA Pat Brown Institute + public agencies + other community stakeholders

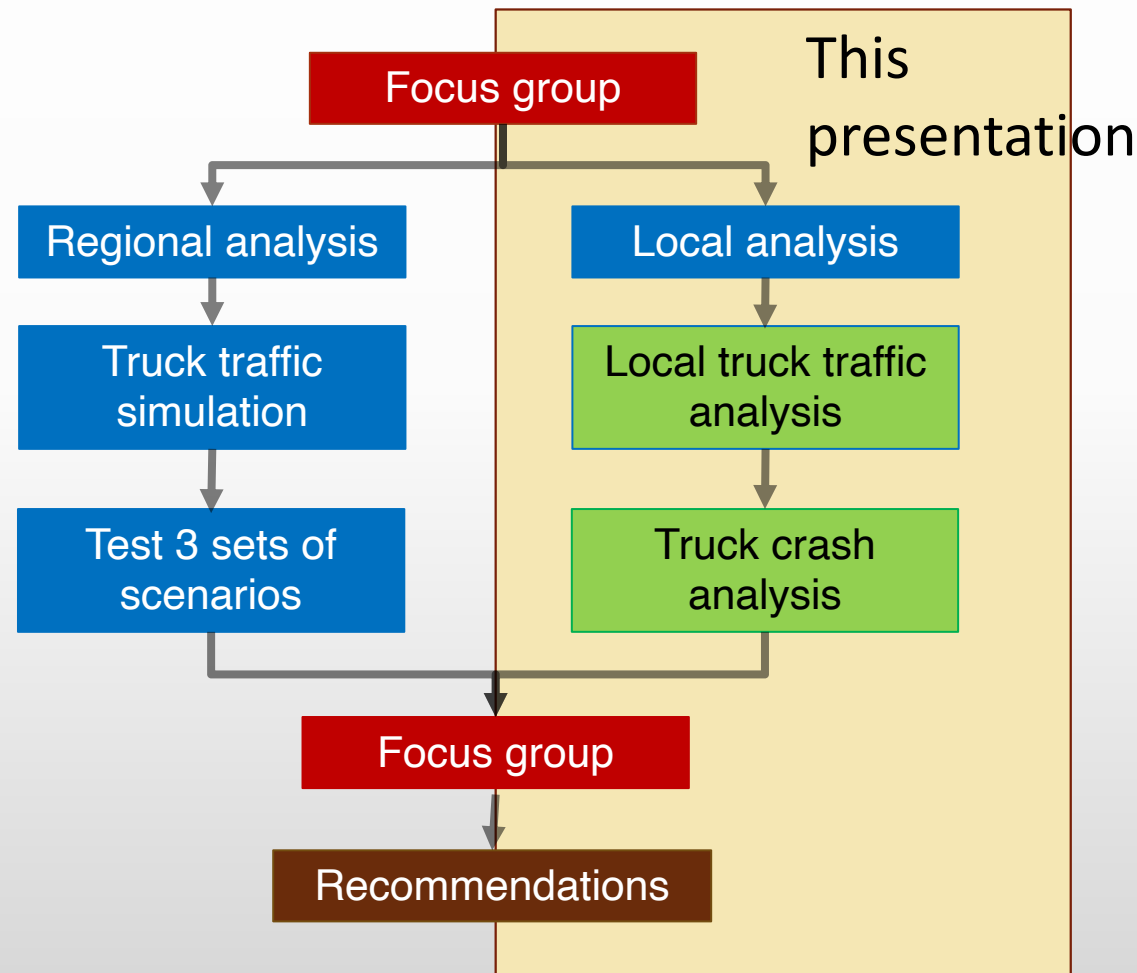


# Study Area

- 750,000 population, 62 mi<sup>2</sup>
- 11 cities + unincorporated areas
- Density about 12,000 pop/mi<sup>2</sup>
- Majority Hispanic
- CalEnviroScreen high pollution and high population burden
- Traversed by several freeways, Alameda rail corridor
- Ports to the south, intermodal rail yards to the north



# Freight impact analysis



# Theory

## Environmental Justice

- Spatial segmentation
- Lack of political power
- Location of noxious facilities
- Air pollution
- Long term impacts

## Community engagement

- Planners as advocates
- Arstein's ladder of participation
- Participatory action research
- Community engagement for community solutions



## Community Engagement

**SELA**  
COLLABORATIVE

- Southeast Los Angeles Collaborative major partner
- Project advisory committee
- Focus groups to launch research

# First focus group

What comes to mind when you see this?



*Fear*

*Safety*

*Accidents*

*Pedestrians at risk*

*Noise*

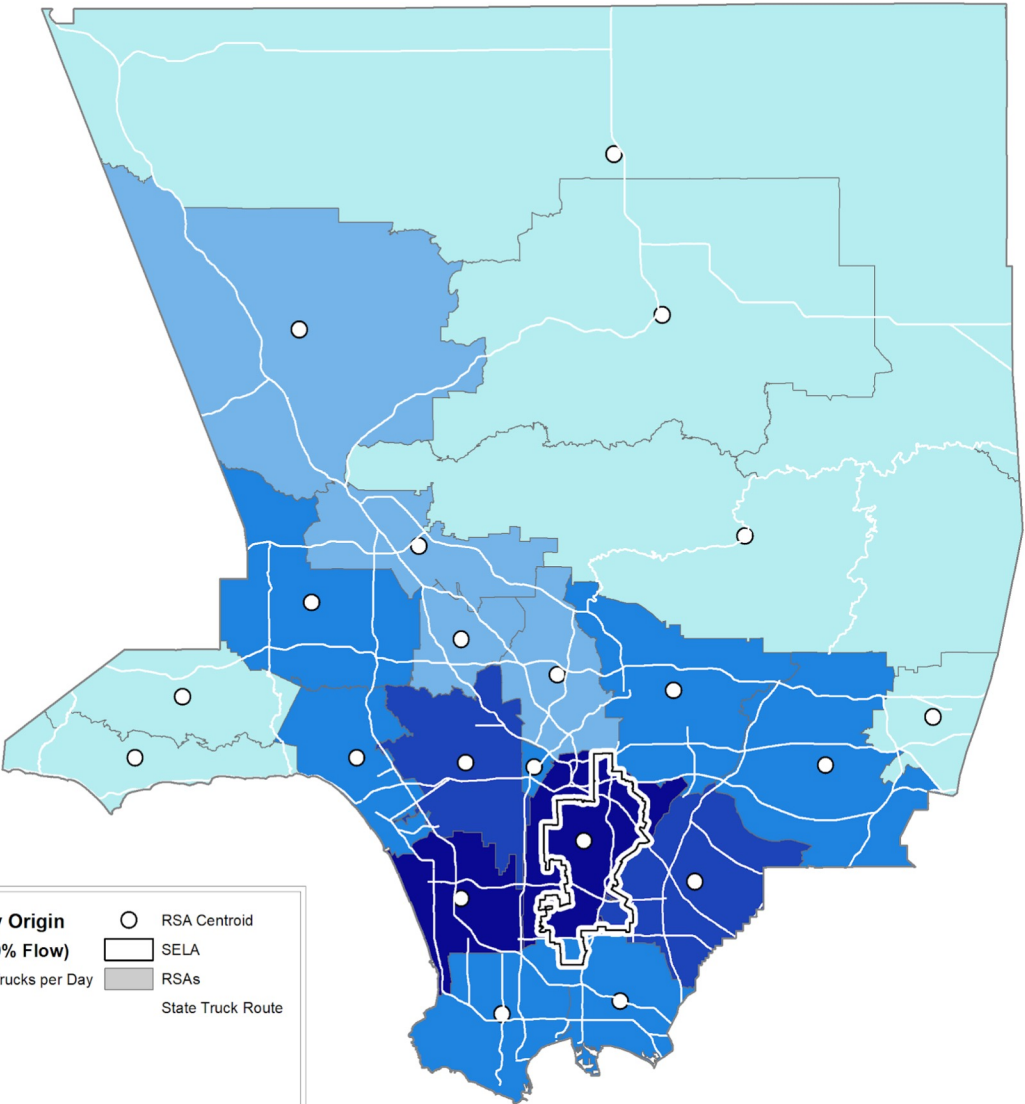
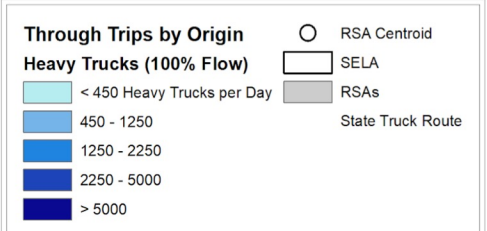
## Stories

- Truck jumped a curb
- Trucks on residential streets
- I don't drive where there are lots of trucks
- Children at risk walking to school

# Origin-Destination Analysis

Trip Type	All HDTs	Share Regional Trips
O-Ds Within SELA Trips	17,727	1.89%
SELA Origin Trips	36,123	3.85%
SELA Destination Trips	36,110	3.85%
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Trips Through SELA	104,839	11.17%
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All Regional Trips	938,381	100.00%

- Freight impacts come mostly from through trips that do not begin or end in SELA
- Local freight hotspots and the high number of regional trips yield the need for mitigation recommendations

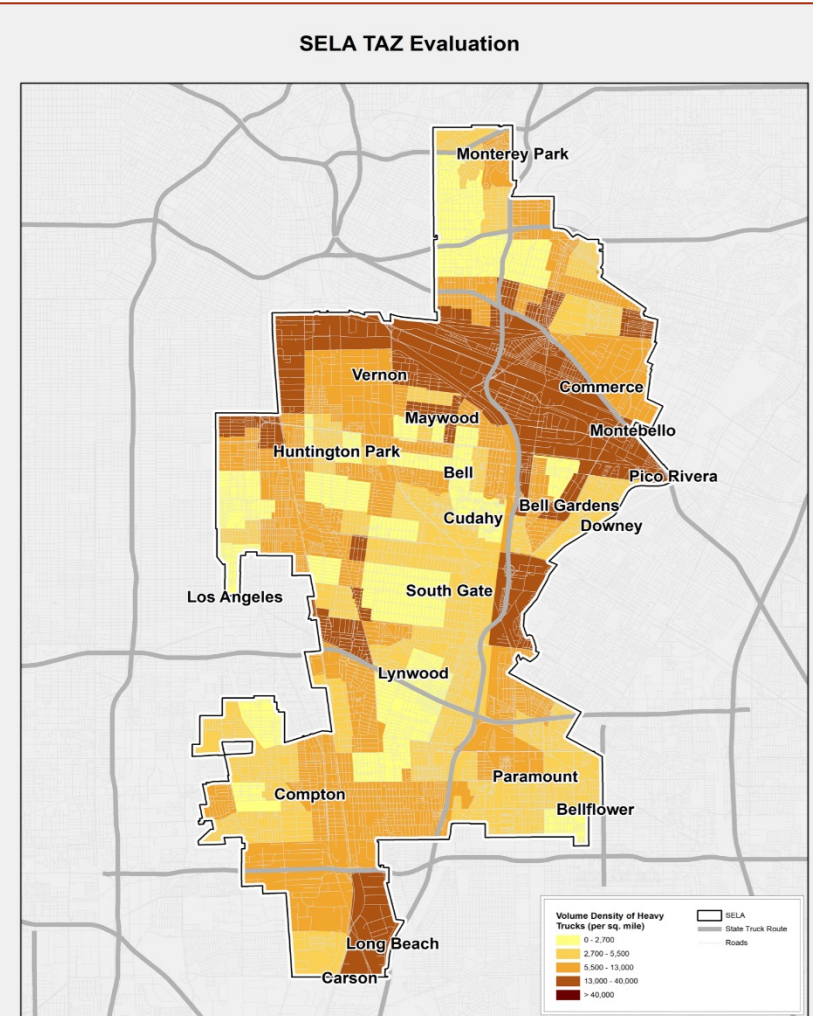
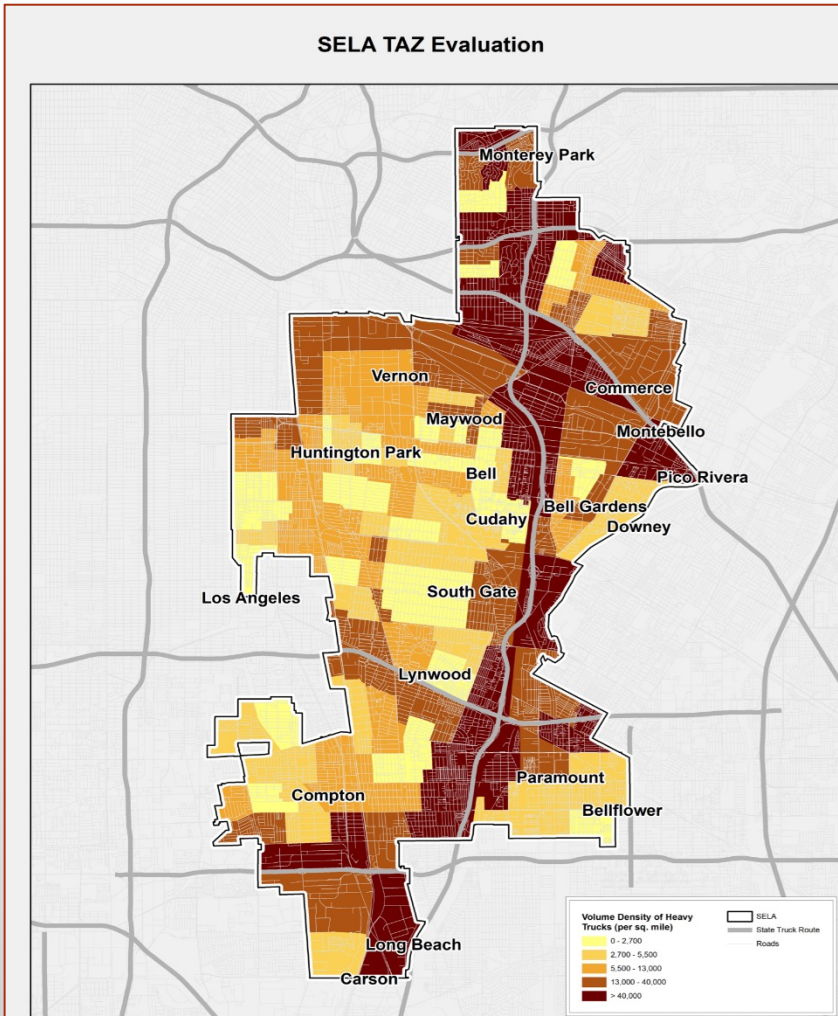




# Freight volume density

With freeways

Without freeways



Trucks/day/mi<sup>2</sup>

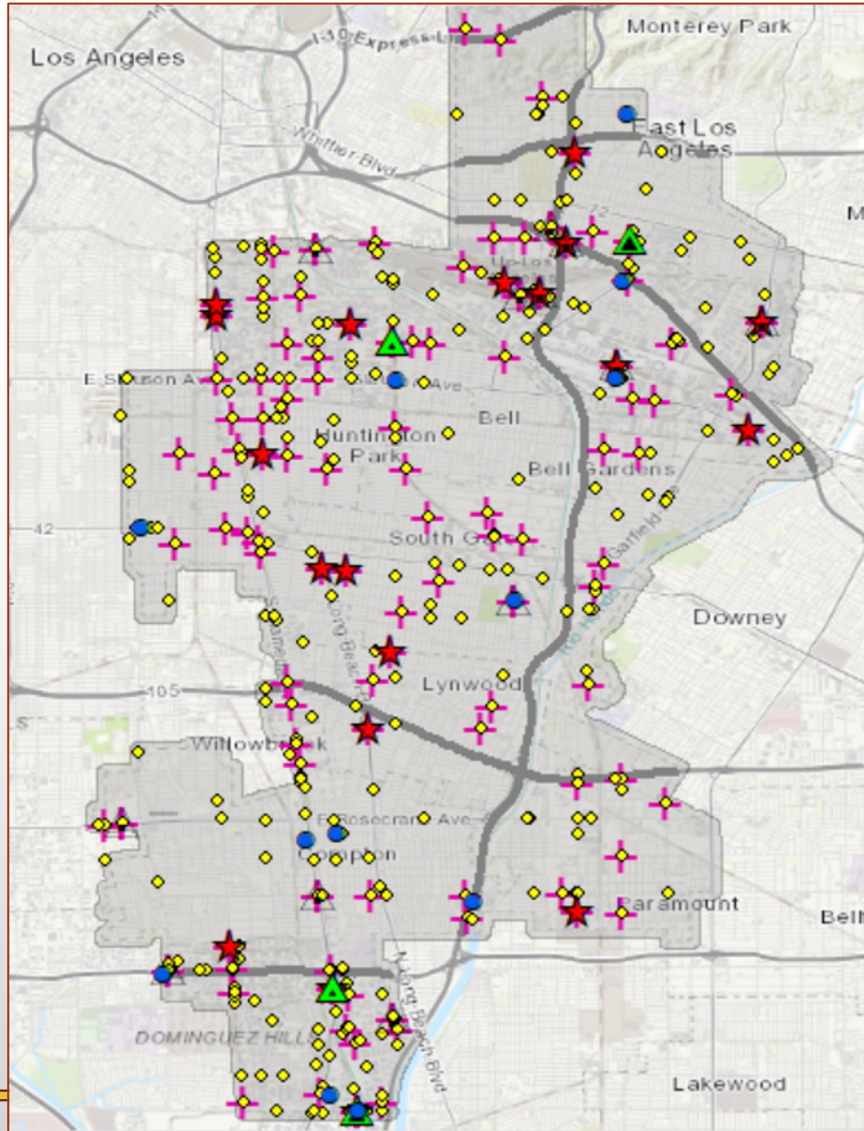
With freeways	
SELA	40,000
County	25,500
Without freeways	
SELA	14,000
County	9,000

# Crash analysis

- Heavy truck collision data 2015 – 2018
  - Source: Transportation Injury Mapping System (TIMS)
  - All reported collisions from local and gov't agencies
- Crashes within SELA
  - 45% on freeways, 55% on local roads, mostly major arterials
  - Most frequent crash causes: unsafe speed, automobile right of way, improper turning (together account for 60% of all crashes)

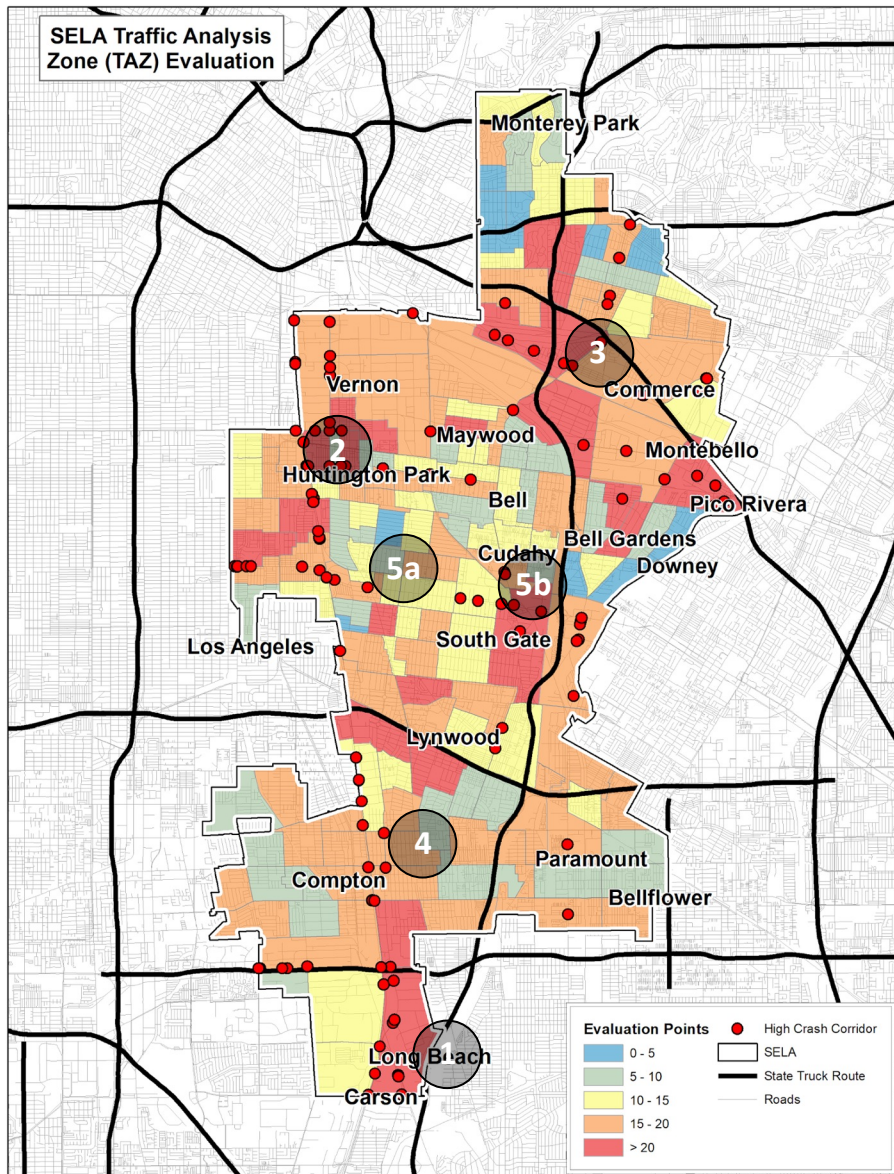
	SELA area	City of Los Angeles	Los Angeles County
Total crashes	743	2,674	7,935
Crashes per sq mi	11.4	5.7	2.0
Total fatalities	24	62	232
Fatalities/crash	3.2%	2.3%	2.9%

# Hot Spot Locations Analysis – Non-Highway Crashes



★	Fatal or severe crashes
●	Pedestrians involved
+	Crash at intersection
△	2 crashes at same location
▲	3 crashes at same location
▲	4 crashes at same location
●	All other street crashes

# Recommended Locations for Analysis



1. Santa Fe Ave & Del Amo Blvd: intersection, mixed use
2. Alameda St. corridor: mixed use corridor, mixed use/school
3. Washington from Atlantic Blvd. to Downey Rd: freight corridor and mixed use
4. Elm St. & Santa Fe Ave: intersection, residential/schools
- 5a. Firestone Blvd. near Russell Elementary: mixed use corridor, mixed use/schools
- 5b. Southern Ave. from Long Beach Blvd. to San Carlos Ave” mixed use corridor, residential/schools

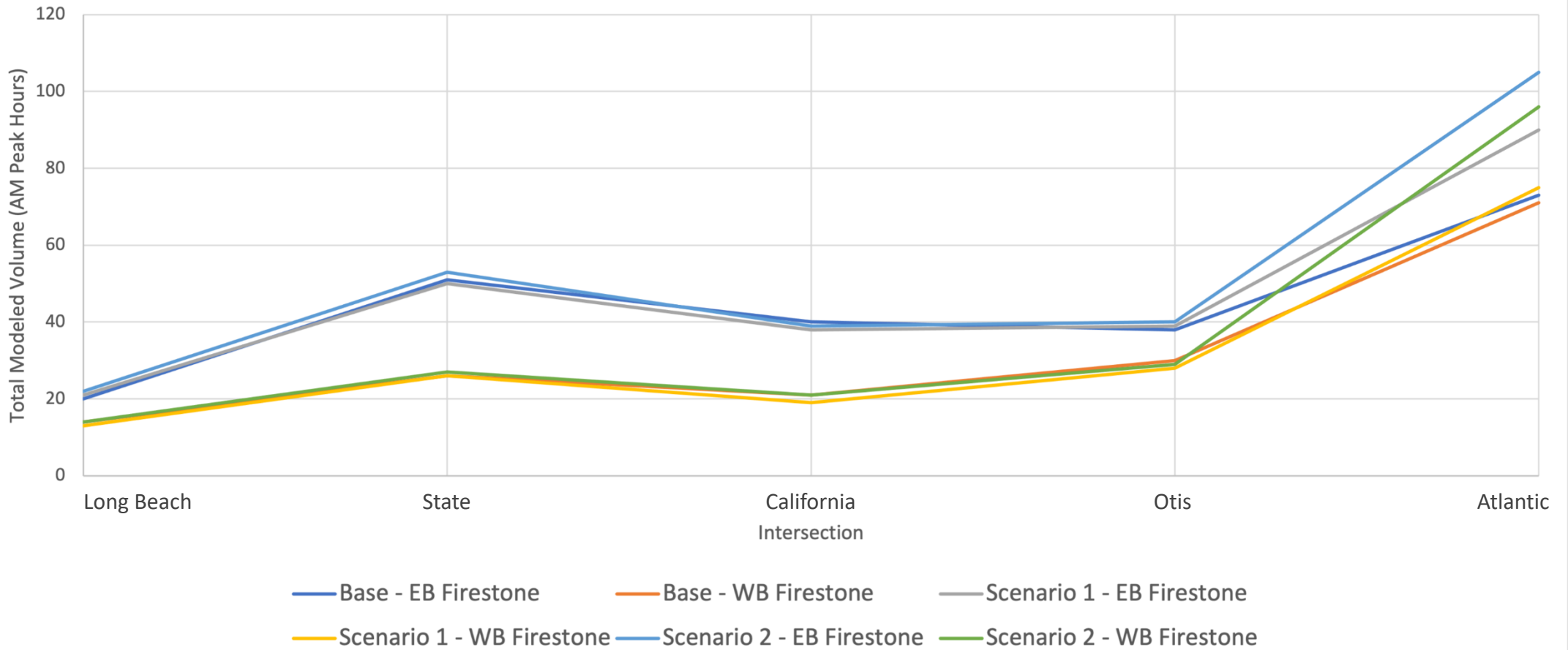


Case study: Firestone Blvd and Southern Ave

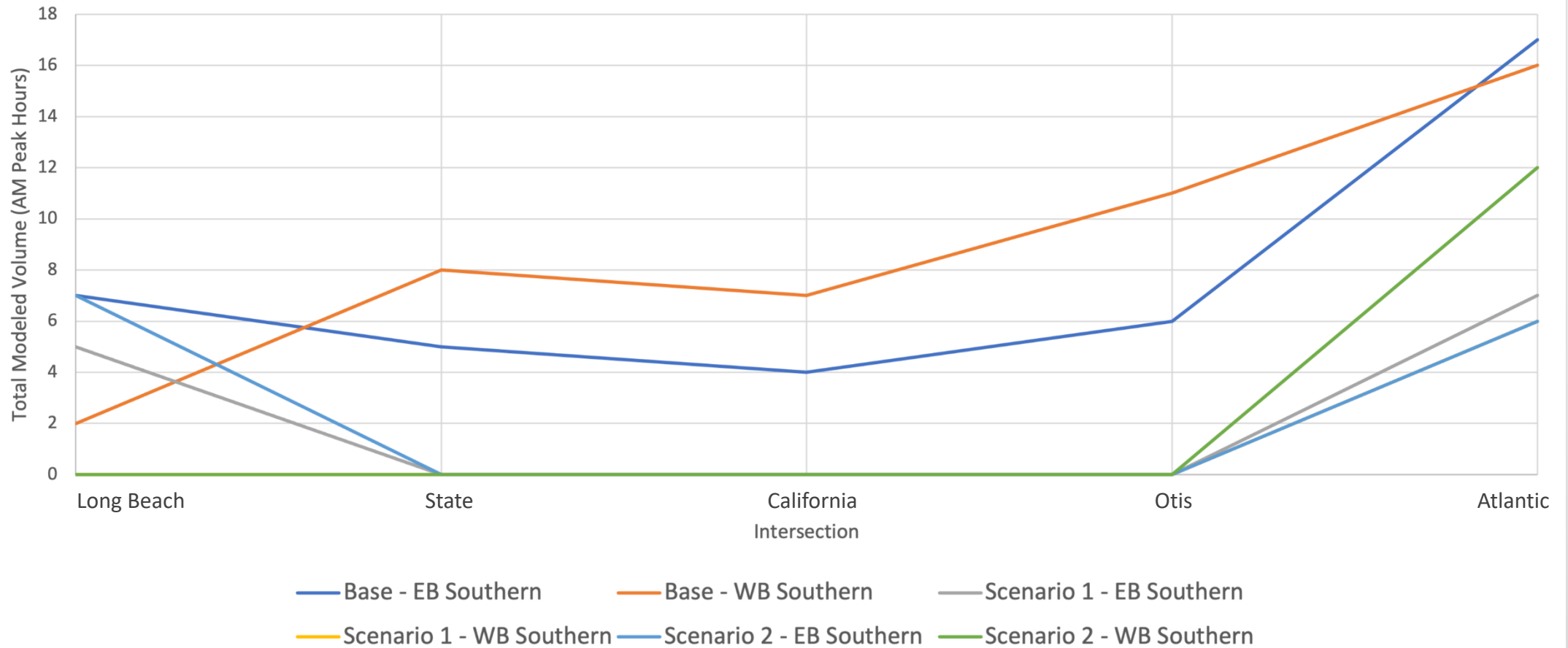
# Modeling: Prohibit trucks on Southern Ave

- PTV Visum (Mesoscopic/Macroscopic)
- SCAG Travel Demand Model used to collect TAZ & RSA Origin-Destination tables
- AM Peak Period from 7AM – 9:59:59AM
- Compare Firestone Boulevard and Southern Avenue, while considering intersection operations at Atlantic Avenue
- Scenario 1: No Trucks Allowed on Southern Ave
- Scenario 2: No Trucks Allowed on Southern Ave + Intersection/Capacity Improvements at Atlantic Ave

### Firestone Blvd Traffic Flow Volumes [Heavy Trucks] from Long Beach Blvd to Atlantic Ave (by Scenario; by Direction)



### Southern Ave Traffic Flow Volumes [Heavy Trucks] from Long Beach Blvd to Atlantic Ave (by Scenario; by Direction)





# Findings from simulation

- Simulation helps understand localized problem and impacts of potential mitigation strategies
- Route diversion most likely due to congestion on Firestone
- Prohibiting trucks on Southern has little effect on Firestone
- Adding intersection improvements does not improve performance
- Confirms community perceptions re route diversion
- Strengthens case for geofencing

# Thank you

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