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Improving On-road Vehicle Emission Estimates in Portside Environmental Justice Neighborhoods

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Outline

I. Vehicle Emissions
II. Improving Fleet Characteristics Assumptions
III. Results from a Pilot Test in West Sacramento
IV. Proposed Locations for Discussion
V. Logistics
VI. Summary & Next Steps

Estimating Vehicle Emissions

Exhaust Emissions from On-Road Vehicles

Emissions while vehicles are running

Emissions while vehicles are idling

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Estimating Vehicle Emissions

Estimating emissions from on-road vehicles requires us to know:

1. What is the fleet make-up (e.g., light-duty, heavy-duty)? What fraction are diesel trucks? How old are these vehicles? *We can use county level data, but are they representative?*

2. How much they operate within our community? How many miles they drive and how many hours they idle? *We can use data from Metropolitan Planning Organizations (MPO) and other data sources such Telematics Service Providers*

3. How many grams of pollutants they emit per unit activity? *We get these estimates through extensive laboratory emissions testing*

Improving Fleet Characteristics Assumptions

- **How can we improve our assumptions?** Use vehicle specific data collected within communities to refine:
  - ✓The fraction of light- vs heavy-duty vehicles
  - ✓Model year distribution and therefore age
  - ✓Traffic counts
- **What is the benefit of this data collection?** We can validate and/or refine our on-road vehicle emission estimates using this data

Method: Camcorder + Automated License Plate Reader (ALPR) Software

- Collect footage of on-road traffic within the community using camcorders
- Use ALPR software to read license plates
- Use DMV Registration data and other databases to link license plate to vehicle information

This is a Data Collection Exercise to Support Technical Analysis

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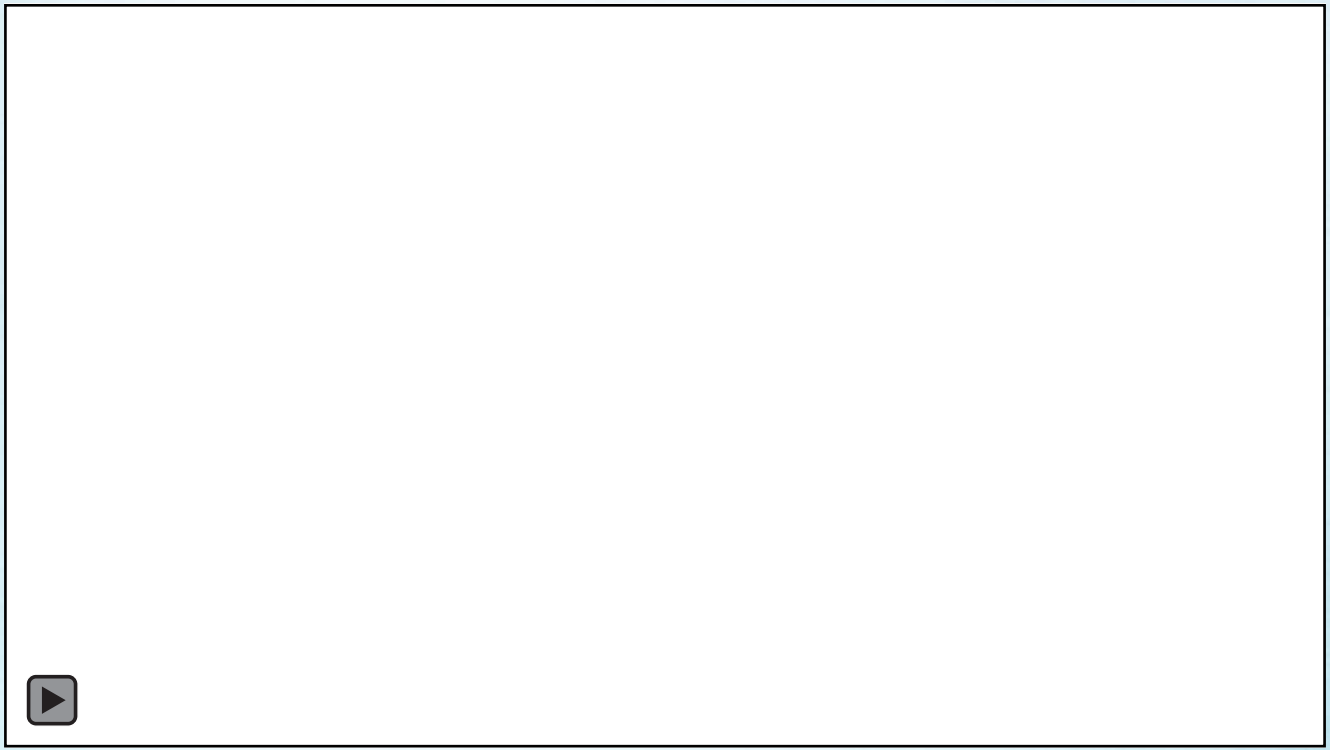
Method: Camcorder + ALPR Software



ALPR Data Processing

ALPR Outputs:

- ✓ State
- ✓ Plate Number
- ✓ Plate Country

DMV / IRP (International Registration Plan)

- ❑ Model Year
- ❑ Weight Class
- ❑ Make / Model

ALPR Privacy and Usage Policy

- Agencies that collect and process ALPR data will comply with 2015 Senate Bill 34 (SB 34) Automated License Plate Recognition Act requirements
- Agencies must maintain reasonable security procedures and practices to protect ALPR info and implement a usage and privacy policy for ALPR info
- Sections 1798.29 and 1798.82 also require any agency or business in California to disclose in specified way any breach of the security of the system or data
- CARB's ALPR privacy and usage policy: https://www.arb.ca.gov/enf/arb_alpr_privacy_usage_policy_050317.pdf

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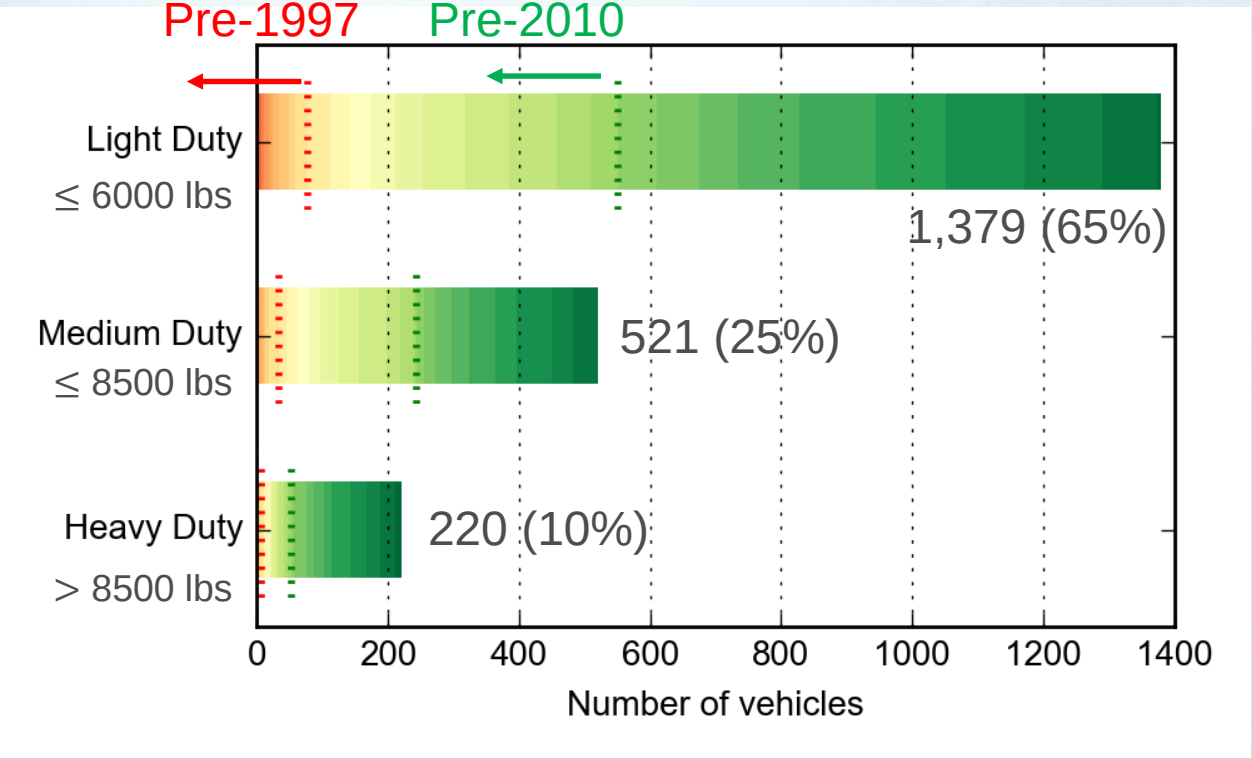
Results from a Pilot Test in West Sacramento



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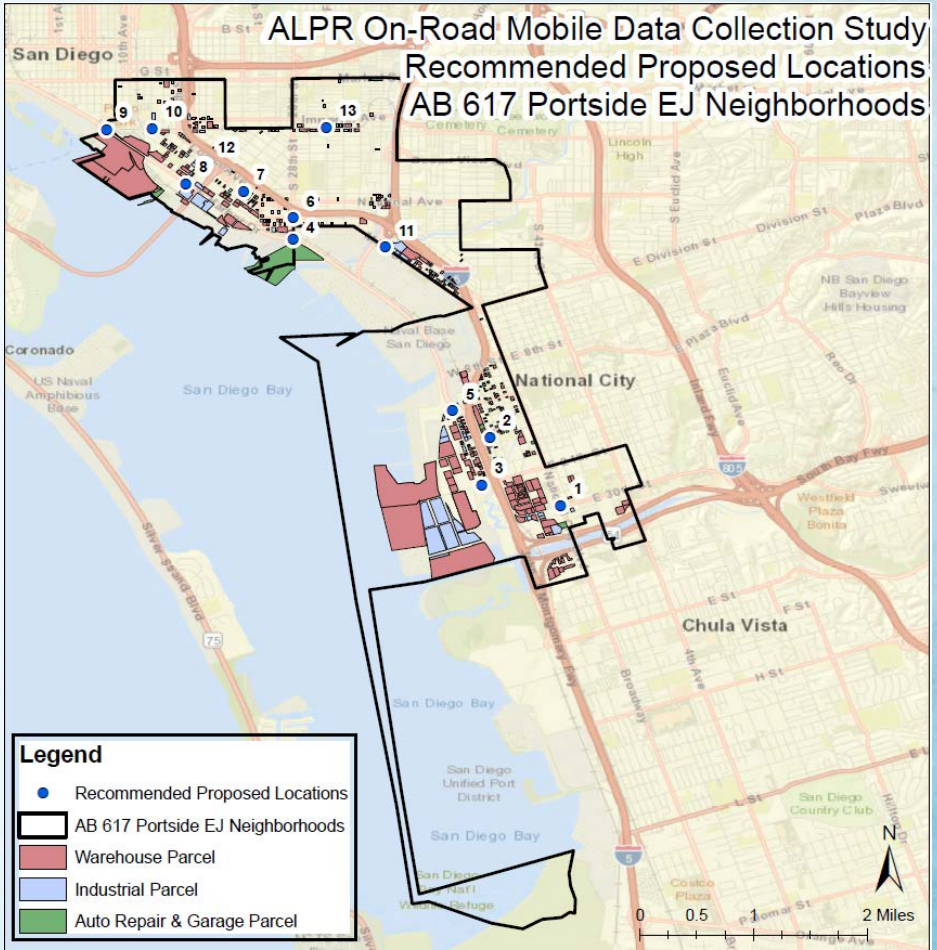
Initial Proposed Locations for Discussion

Location	Cross Streets	Justification
1	E 30th Street & National City Blvd	Near industrial zone, warehouses, and shopping centers
2	W 18th St & Wilson Ave	Near industrial zone, auto repairs, and school
3	Bay Marina Dr & Cleveland Ave	Near freeway, industrial zone, warehouses, and rail
4	Harbor Dr & S 28th St	Near industrial zone, shipyard, and rail. Location proposed by District.
5	Civic Center & Cleveland Ave	Near freeway, industrial zone, and warehouses
6	Boston Ave & S 28th St	Near freeway, industrial zone, warehouses, recycling center, and naval base. Location proposed by District.
7	National Ave & Sampson St	Near industrial zone, warehouses, and fuel terminals. Location proposed by EHC.
8	E Harbor Dr & Cesar E. Chavez Pkwy	Near freeway, industrial zone, warehouses, and rail
9	E Harbor Dr & Park Blvd	Near industrial zone, warehouses, fuel terminals, and shopping center
10	Commercial St & National Ave	Near industrial zone, warehouses, and rail
11	Main St & Rigel St	Near freeway, industrial zone, warehouses, shipyard, and recycling facility. Location proposed by EHC.
12	National Ave & Cesar E. Chavez Pkwy	Near freeway, industrial zone, and community park. Location proposed by District.
13	Commercial St & 30th Street	Near freeway, industrial zone, warehouses, and recycling facility



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Field Logistics

- Approximately 2 weeks of video footage collection
- 3 teams of 2 collecting footage from 8:00 AM to 5:00 PM, 1 extra person as relief
- ~3 days of data collection per location
- Multiple cameras per intersection to capture multiple directions of traffic
- Collect data throughout the year to understand differences in vehicle types and activity during different times of day and during different seasons

Summary & Next Steps

- Plate data from camera footage can be used to estimate:
  - ✓ Number of light- vs heavy-duty vehicles
  - ✓ Number of out-of-state trucks
  - ✓ Model year distribution
- Validate community-level on-road vehicle emissions estimates
- *Longer-term*: improve on-road mobile source inventory for the Portside EJ Neighborhoods
- Work with the air district to collaborate with local transportation agencies and local community groups

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Thank you!
Questions and Discussion