

An aerial photograph of a city, likely Seattle, featuring a large body of water in the foreground. In the center, a prominent white domed building, the Washington State Capitol, is visible. The city is densely packed with buildings, and mountains are visible in the background under a clear blue sky.

ECAP ad hoc Community Advisory Committee

Transportation Deep Dive

July 23, 2019

Burning fossil fuels is the primary driver of the climate crisis

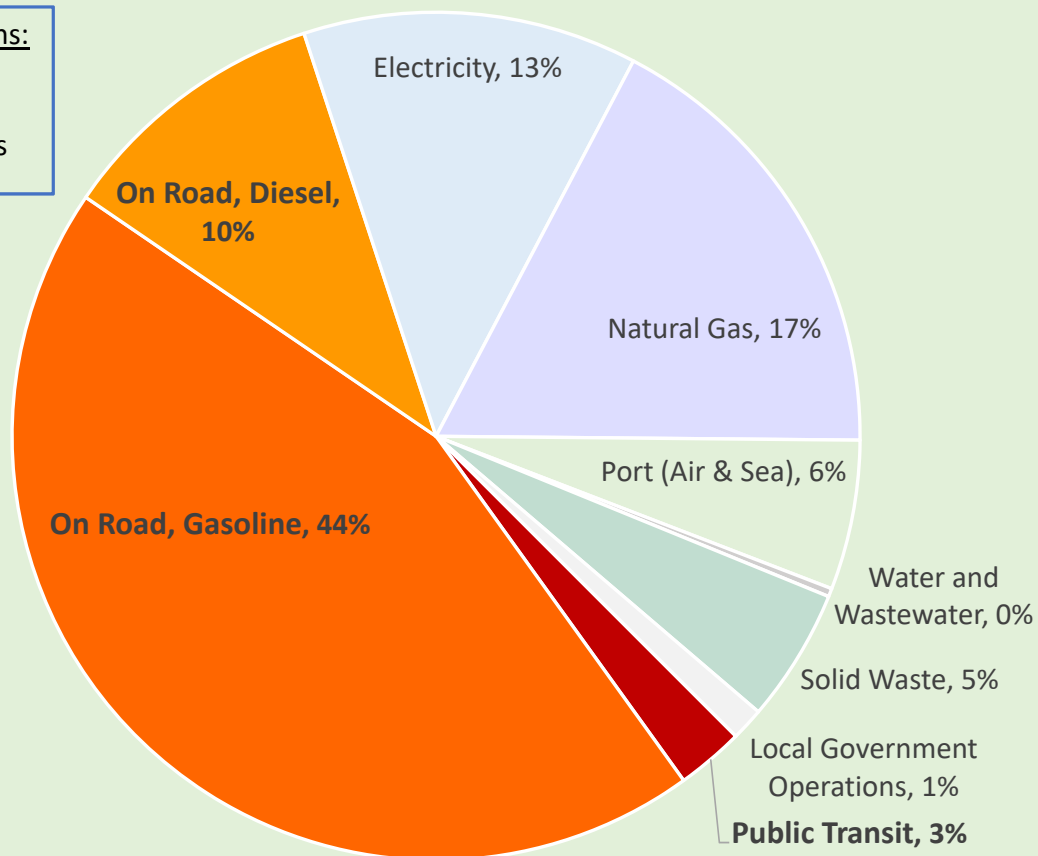


- In Oakland, we primarily burn petroleum (oil) and natural gas
 - Natural gas, which is mostly methane, can be used for electricity generation, powering some vehicles, and **buildings**
 - Oil (gasoline, diesel, jet fuel) powers most of our **transportation**

Total Local Emissions by Category - 2005

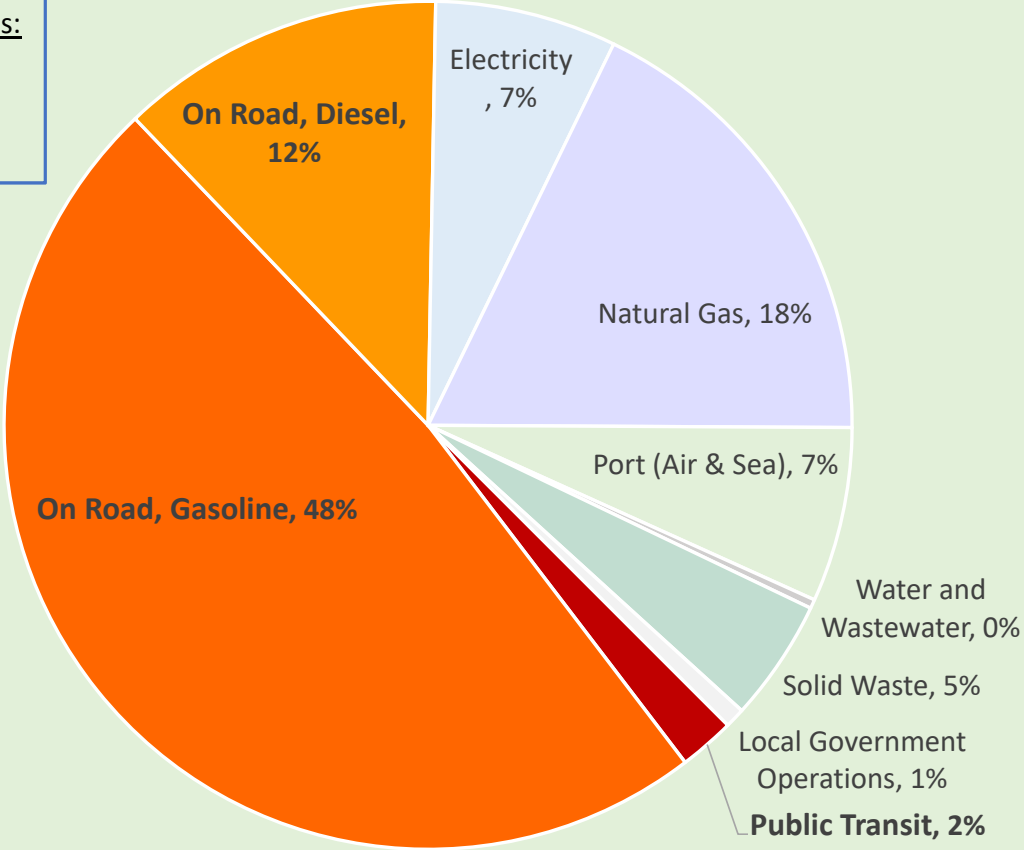
Total transportation emissions:

2,062,000 metric tons
57.5% of total local emissions



Total Local Emissions by Category - 2017

Total transportation emissions:
1,706,200 metric tons
62.8% of total local emissions



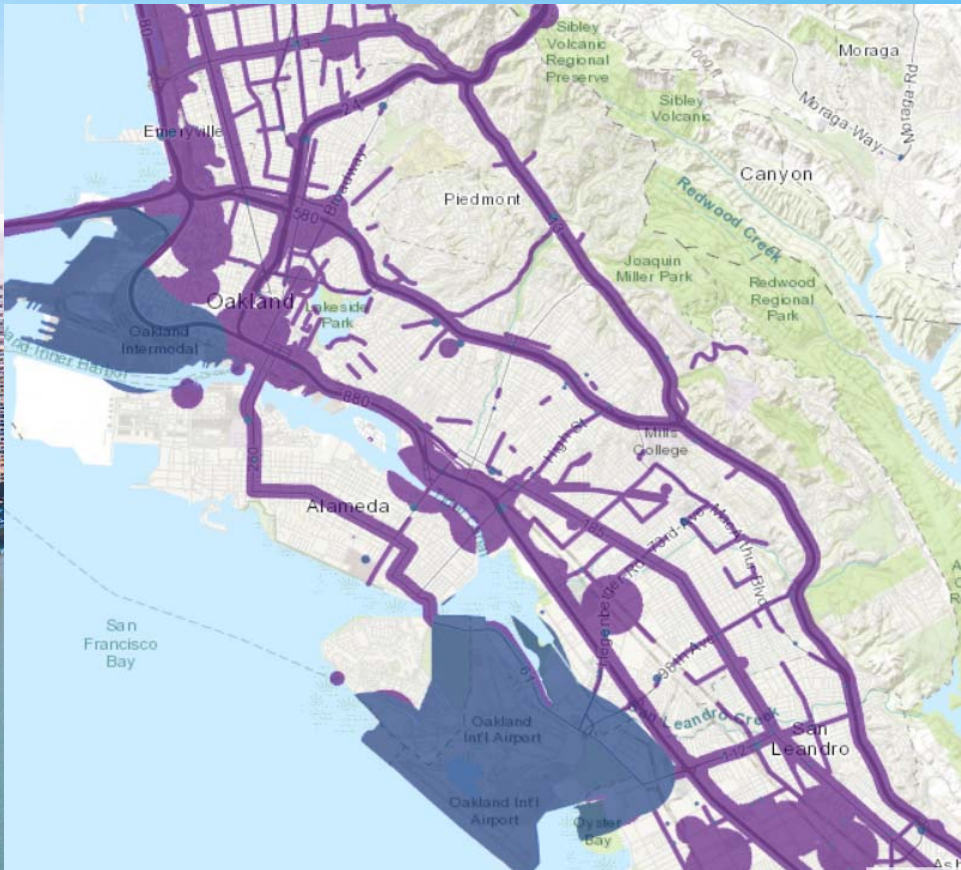
Public Health Impacts

Transportation-Related Pollution & toxicity:

- Asthma rates
- Life expectancy
- Lung cancer
- Heart disease



Transportation is top source of climate *and* air pollution

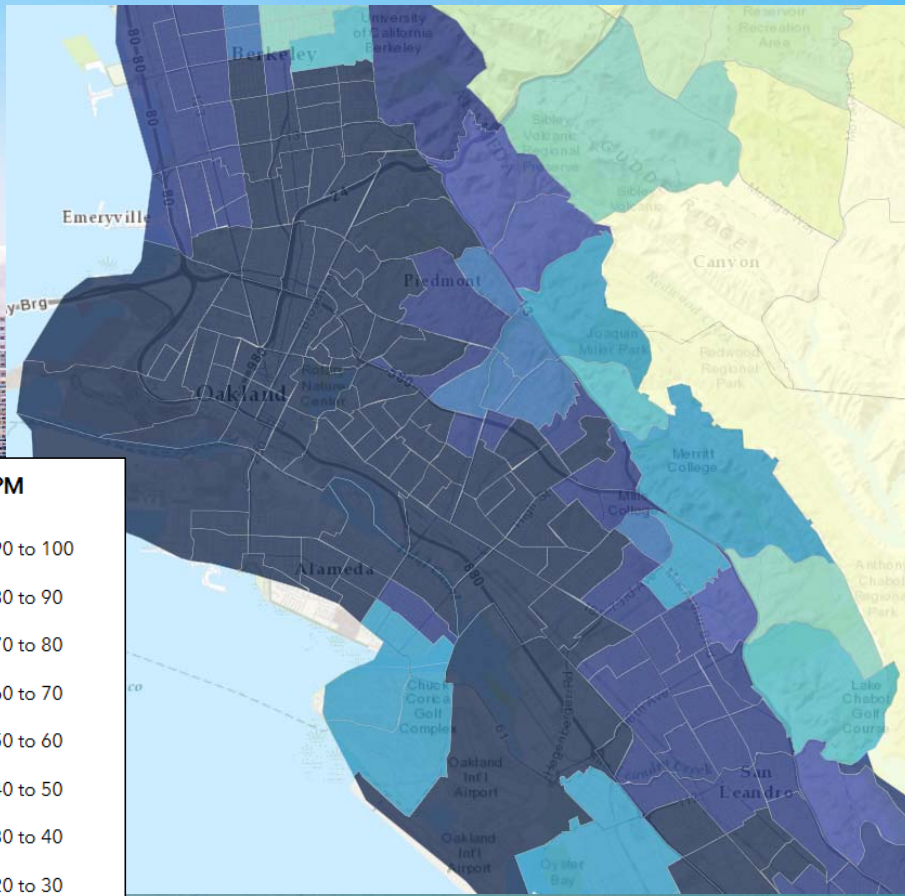


Map: [BAAQMD](#). Purple indicates elevated levels of fine particulates and/or toxic air contaminants

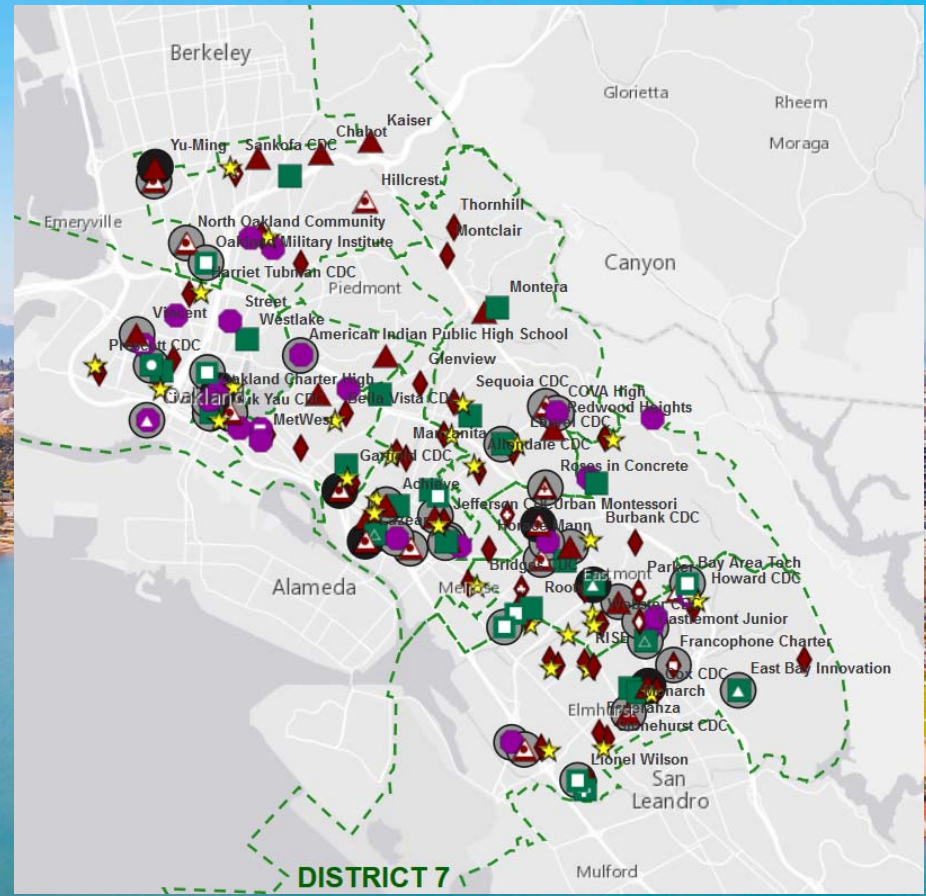
- Gasoline cars = CO₂, NO_x, & smog
- Diesel drives major sources of localized air pollution:
 - Dispersed particulate matter (PM 2.5)
 - Local diesel particulate matter (DPM)—toxic within 1500-2000 feet of highways¹
- State-wide, Trucks = 4% of vehicles, 9% of GHGs, 60% of particulate matter
- DPM is carcinogenic and exposure varies greatly even within a city block²

¹ Zhou and Levy (2007). [Factors influencing the spatial extent of mobile source air pollution impacts: a meta-analysis](#),
² Apte et al. (2017). [High-Resolution Air Pollution Mapping with Google Street View Cars](#).

Diesel Particulate Matter Intensity



Map of Oakland DPM (CalEnviroScreen)

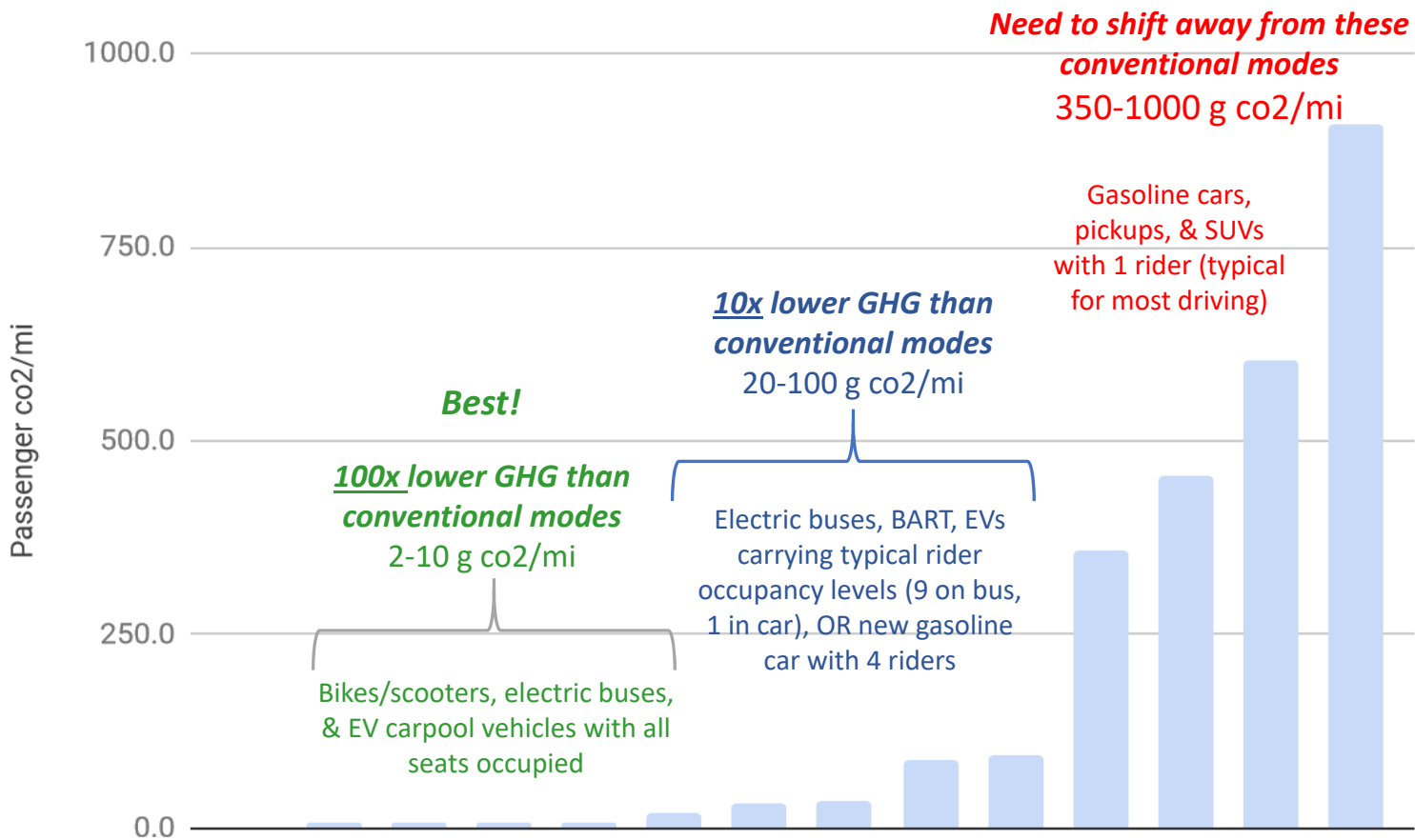


Map of Oakland Schools ([OUSD](#))

Oakland has one of the highest levels of exposure to DPM in the state

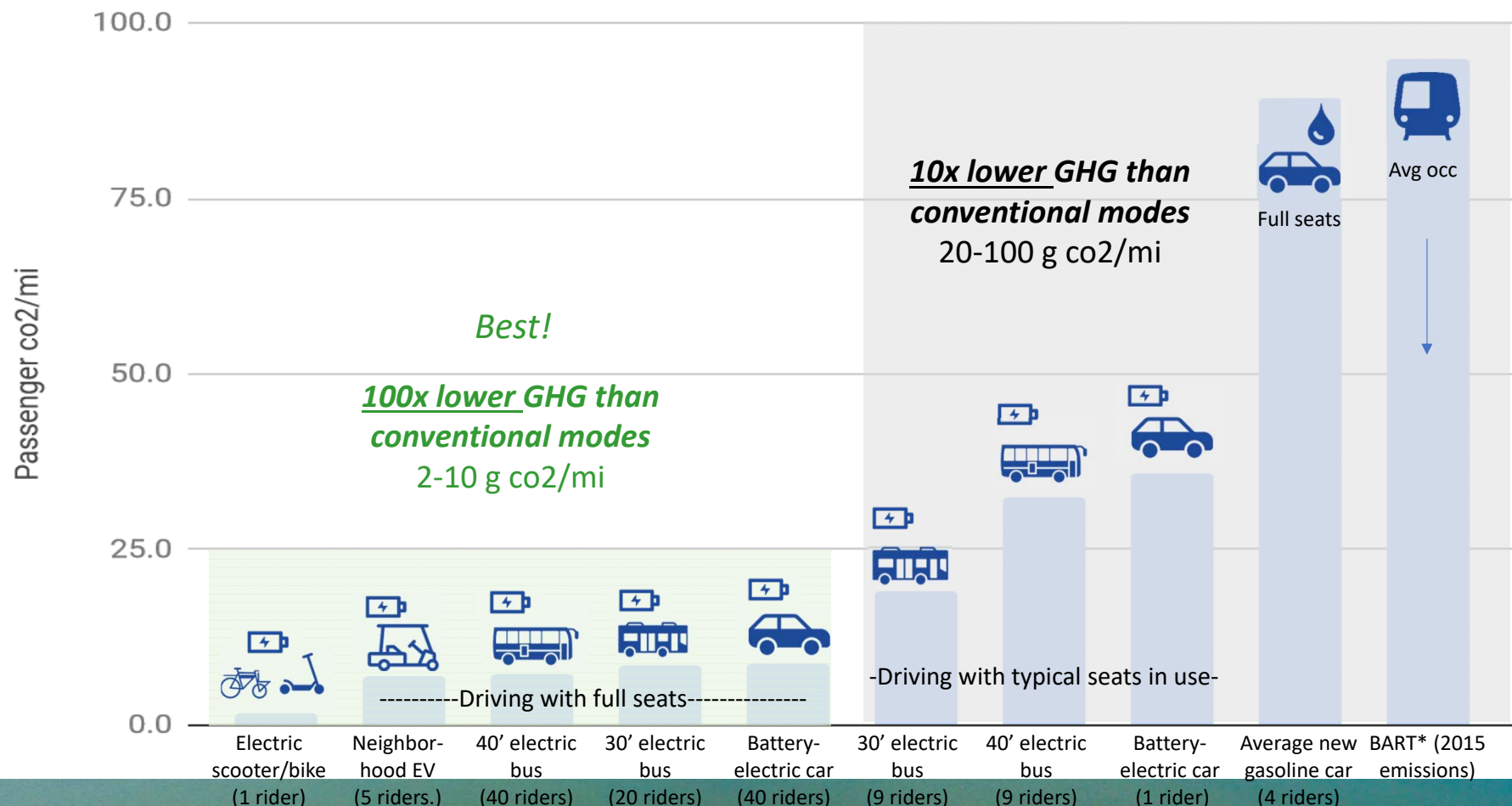
Climate Emissions from Passenger Travel

Understanding Oakland's dominant source of emissions



Modes for Equitable, Low-GHG Mobility ¹

Oakland can reduce passenger-mile CO2 10-100x by supporting active transportation, electric transit, and electric carpooling



Facts

- Cars cost \$8,000-\$9,000 per year on average
- Time spent in cars is hazardous to health, upward mobility, and safety to others¹
- About ½ of auto trips are 3 miles or less – even though bikes, scooters, and other light EVs can cover the distance almost as fast, at 10-100 times lower cost, and with public health *benefits*²

¹ Large body of research covers various aspects of this. Some starting points: [WebMD](#), [NY Times](#), [Streetsblog](#)

² Average driving speed in Oakland is ~30 MPH...and much slower during peak times and in high traffic areas

Progress in Oakland to Date

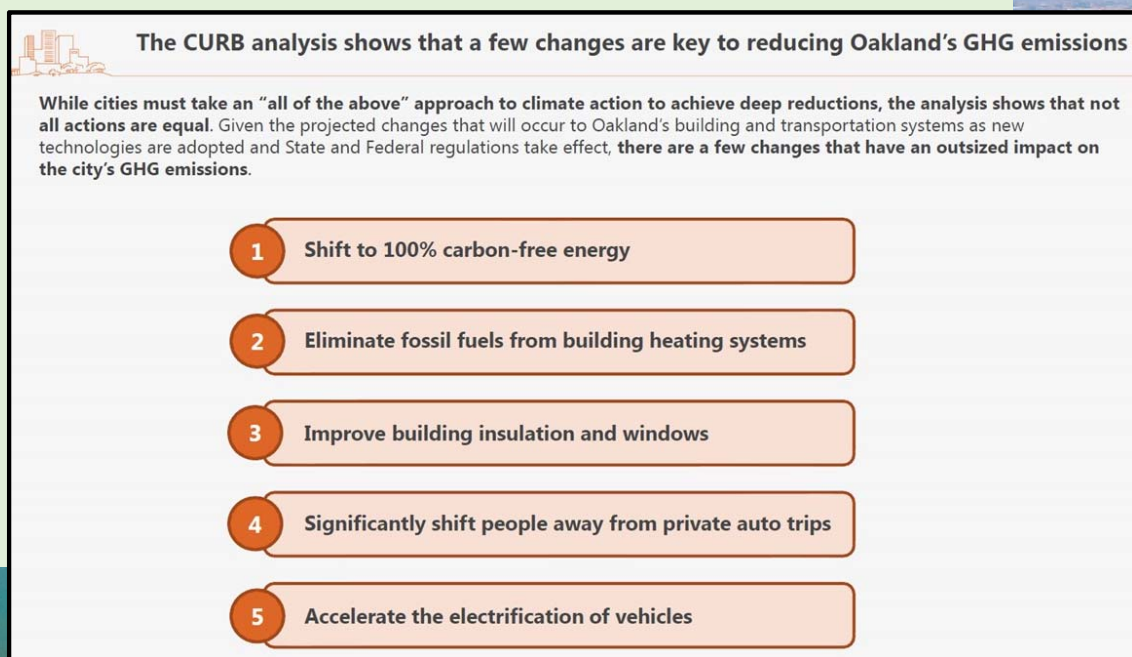
- Focus on VMT rather than congestion impacts for CEQA
- Shared mobility focus (car & bike)
- 150+ bikeway miles; Bike & Ped plans
- New OakDOT, equity focus
- BRT
- Diesel particulate filters in big-rigs
- PEV Readiness codes, curbside charging pilots
- No parking minimums downtown, reduced along transit corridors
- City fleet

Transportation: Where We Need to Go

Two Main goals:

- Significantly shift people away from single-occupancy vehicles
- Electrify remaining vehicles

...but how do we do it rapidly, efficiently, and equitably?



The CURB analysis shows that a few changes are key to reducing Oakland's GHG emissions

While cities must take an "all of the above" approach to climate action to achieve deep reductions, the analysis shows that not all actions are equal. Given the projected changes that will occur to Oakland's building and transportation systems as new technologies are adopted and State and Federal regulations take effect, there are a few changes that have an outsized impact on the city's GHG emissions.

- 1 Shift to 100% carbon-free energy
- 2 Eliminate fossil fuels from building heating systems
- 3 Improve building insulation and windows
- 4 Significantly shift people away from private auto trips
- 5 Accelerate the electrification of vehicles

How do we reduce cars on the roads (“shift people away from single-occupancy vehicles”)

- Public transit: Free transit, Transit-only routes (like BRT)
- Active mobility (Aggressive Bicycle and Pedestrian improvements, focus on frontline community investments & deep input)
- Safe Routes to School (encouraging walking & biking)
- Shared mobility regulation (reduce single-rider trips, especially along transit corridors)
- Autonomous/electric shuttle service along key corridors
- Ciclovía (Open Streets Festival)

How do we electrify all remaining vehicles

- Zero Emission Vehicle Action Plan (addressing cars, buses, trucks, heavy-duty equipment, & micromobility)
 - Expand charging infrastructure to enable vehicle demand (public, apartment buildings, fleets, Port, Airport)
 - Resilience integration
 - Help people get electric vehicles (Clean Cars for All, EPIC, etc)
- Accelerate Electric Bus Fleet Adoption
- Increase use of Intelligent Transportation Systems (signal syncing technology to preference clean modes and public transit)
- Require Autonomous Vehicles be Electric

How do we enable/support these changes?

- Funding: Price parking to disincentivize driving; use fee to fund clean alternatives
- Subsidize carpool/rideshare services or EV ride hailing service (within income qualifications)
- Expand access to electric neighborhood car share
- Congestion pricing (certain corridors, single-use ride-hailing)
- Review and refine TDM requirements for New Development and Major Employers
- Resilient land use, Planning & zoning strategies (e.g. 90% of community members live within walking distance of daily needs)

Factors in deciding priority actions

- Does it enhance racial, social, economic equity?
- Does it achieve significant GHG mitigation?
- Is it within our sphere of control?
- Is it strategically linked to other City priorities to magnify impact?
- Is it feasible within 10 years?
- Is it flexible to accommodate political/technological changes?

District 2 Census Tract: 6001406000 * Population: 3,450

CES 3.0 Percentile: 85-90% (Higher percentile = higher relative burden.)

Pollution Burden Percentile: 78

- Ozone: 8
- PM 2.5: 31
- Diesel: 95
- Pesticides: 0
- Toxic Releases: 43
- Traffic: 87
- Drinking Water: 4
- Cleanups: 98
- Groundwater Threats: 99
- Hazardous Waste: 95
- Impaired Water: 98
- Solid Waste: 12

Population Characteristics Percentile: 87

- Asthma: 91
- Low Birth Weight: 75
- Cardiovascular Disease: 37
- Education: 79
- Linguistic Isolation: 99
- Poverty: 86
- Unemployment: 62
- Housing Burden: 89

Race/Ethnicity:

- Af-Am: 12%
- White: 17%
- Hispanic: 21%
- As-Am: 47%
- Other: 3%

