



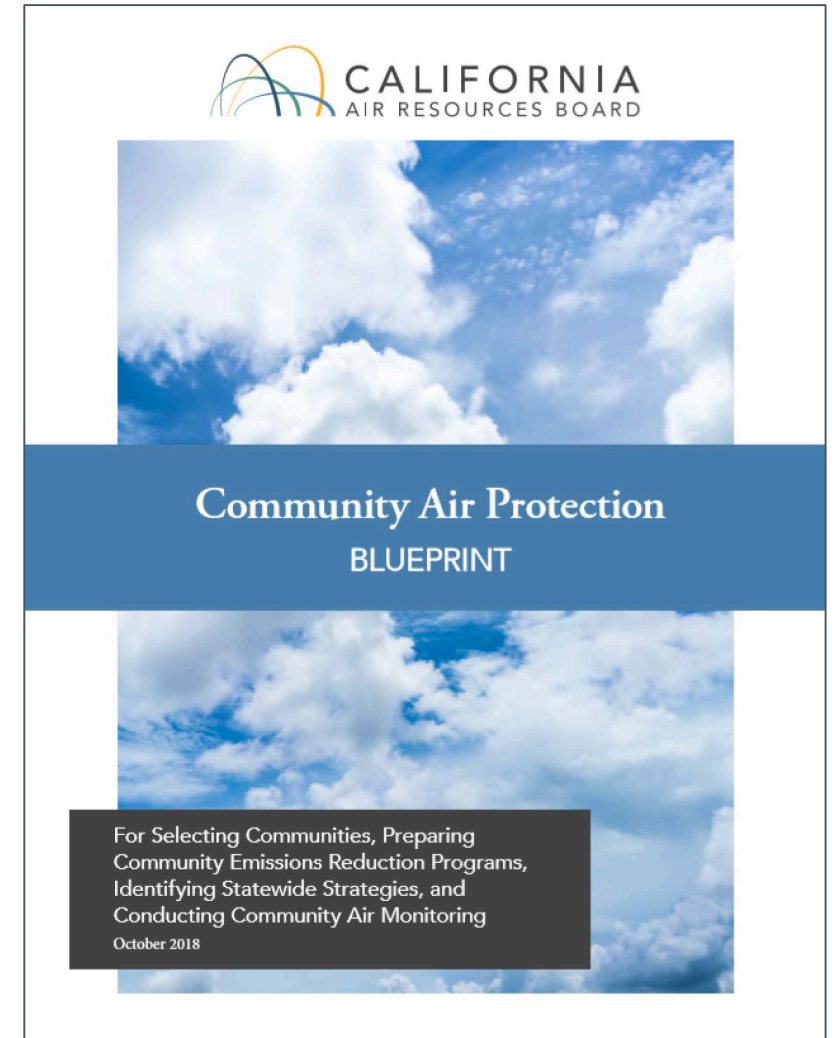
Arvin/Lamont DRAFT AB 617 Community Emission Inventory

**Arvin/Lamont CSC Meeting
September 22, 2021**

Emission Inventories Foundation of Air Quality Programs

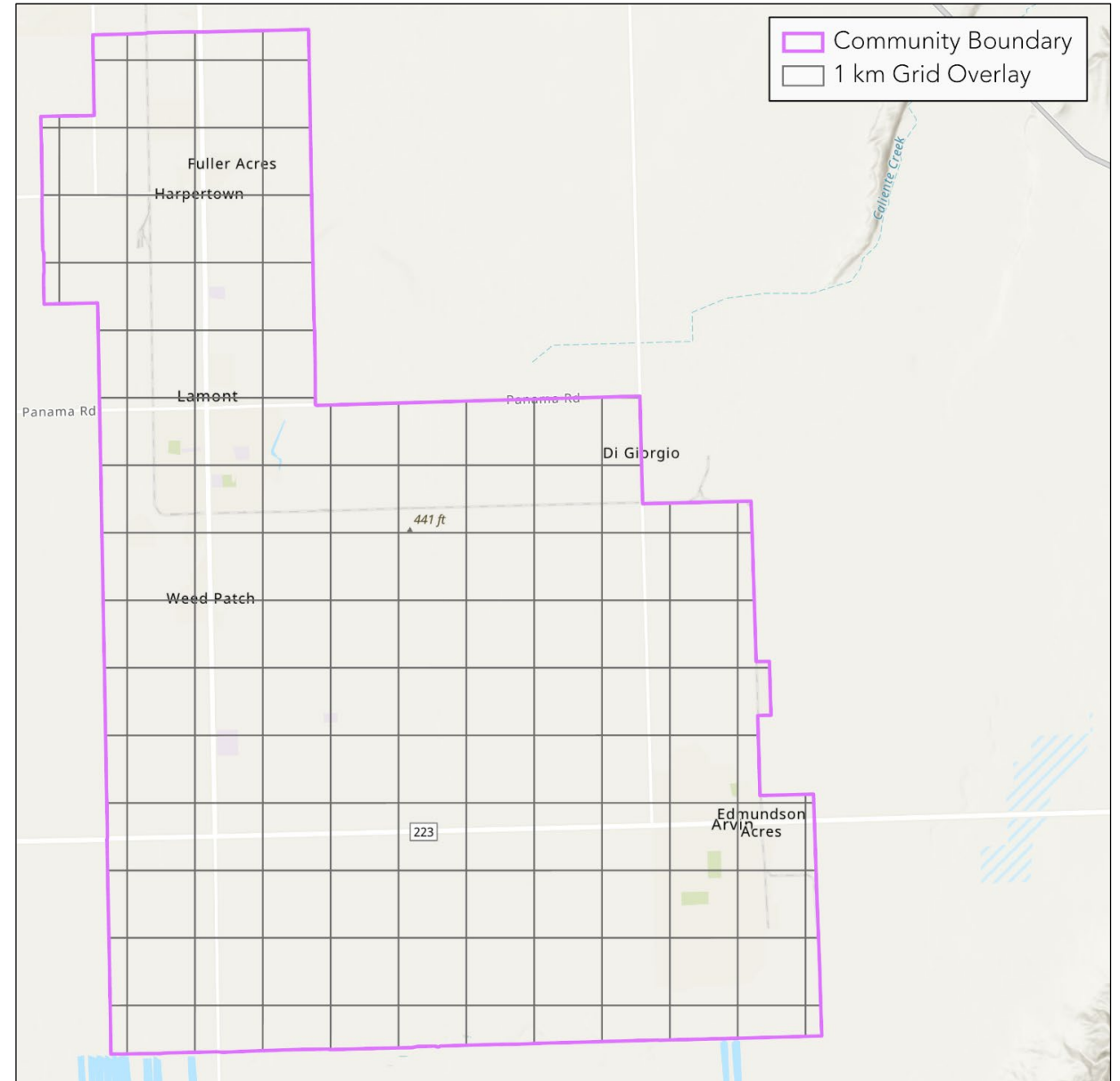
CARB's Community Air Protection Blueprint calls for the use of emission inventories in community emissions reduction programs to:

- Identify emission sources
- Establish baseline emissions
- Set emission targets and reduction measures
- Track emission reductions



Arvin/Lamont Community Boundary

The draft community emission inventory presents air emissions from air pollution sources within the community boundary



What is an Emission Inventory?

- An emission inventory estimates the amount of air pollutants discharged into the atmosphere by emission sources in a geographical area and within a specified time span (e.g., calendar year)
- Emission inventories are developed with the best data available, and are updated over time to reflect sound science and robust new data
- Emission sources are broadly classified into four major categories



Air District & CARB Staff Collaboration



Stationary Sources:
Fixed sources of air pollution.
Example: manufacturing facilities, autobody shops, and gas stations.

District



Areawide Sources:
Emissions originating from sources spread over a wide geographic area like consumer products, fireplaces and farming operations.

CARB/District



On-Road Mobile Sources:
Any air pollution emitted by motor vehicles on roadways including passenger cars, trucks, and motorcycles.

CARB



Off-Road Mobile Sources:
Sources include small off-road engines and equipment, farm and construction equipment, off-road recreational vehicles, airplanes, and trains.

CARB

August - September 2021

DRAFT 2019 Emission Inventory for Arvin/Lamont

Source Category	NOx		ROG		PM _{2.5}		DPM	
Stationary	55.1	15%	130.5	9%	18.5	23%	0.1	1%
Areawide	24.3	6%	1,164	84%	49.7	61%	0.3	4%
Off-Road Mobile	102.3	27%	46.5	3%	4.8	6%	4.6	57%
On-Road Mobile	193.2	52%	47.1	3%	8.0	10%	3.0	38%
Total* (tons/year)	375	100%	1,388	100%	81	100%	8	100%

NOx: Nitrogen Oxides

ROG: Reactive Organic Gases

PM_{2.5}: Particulate Matter 2.5 Microns or Smaller

DPM: Diesel Particulate Matter

The community-scale emission inventory includes emissions for all criteria pollutants and air toxics. Only subset summarized here.

*Table reflects minor updates to stationary source emissions made on September 21, 2021.

Stationary Sources

- District oversees stationary point source emissions and submits facility emissions to CARB's Emissions Inventory Development and Reporting System (CEIDARS)
- CARB provides public access to facility emissions through the Facility Search Tool webpage and CARB Pollution Mapping Tool
- District's Permitted Facilities Mapping tool provides specific information for Arvin/Lamont

ARB Home Search Accessibility A-Z Index Contact Us

CA.GOV California Environmental Protection Agency AIR RESOURCES BOARD

FACILITY SEARCH ENGINE

Please read the [SEARCH HINTS](#) before using the Facility Search Engine
Fill out any or all of the fields below to search

Database: 2018 Criteria & Toxic plus Risk Data Air Basin: [dropdown]
Year: [dropdown] District: [dropdown] County: [dropdown]
Facility Name: [text] City: [text]
Zip Code: [text] Facility SIC Code: [text] Facility ID: [text]

Exclude Gas Stations, Print Shops, Autobody Shops and Dry Cleaners.

Show Criteria Pollutant data
 Show Toxic data
 Show Facilities that emit: [dropdown] or CAS Id [text]

Clear Form Submit

ARB Homepage

<https://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php>

CA.GOV CALIFORNIA AIR RESOURCES BOARD

CARB Pollution Mapping Tool

Start your Search Here

Maps Charts Data Help Caveats Document

Group by Facilities Map Layers Reset Maps

Welcome to CARB Pollution Mapping Tool

Sources in Your Community

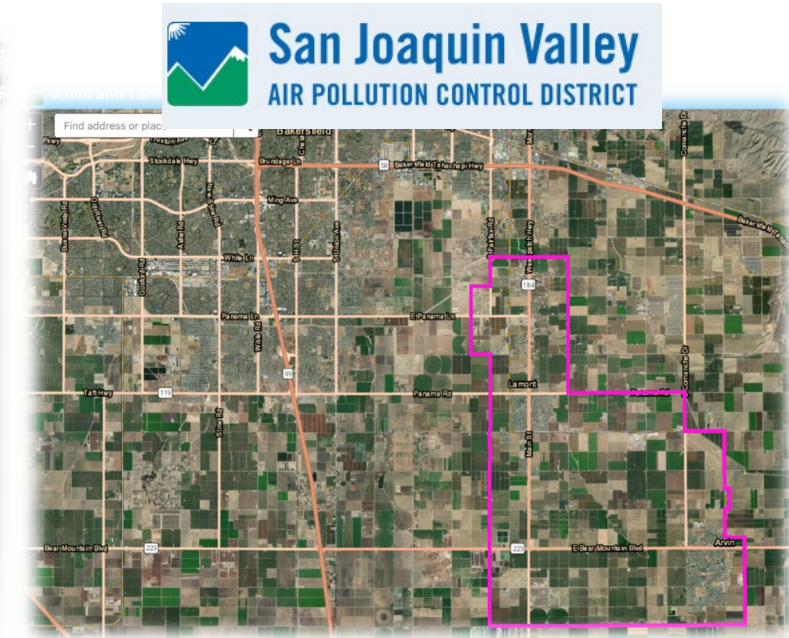
Pollution Mapping Tool Overview

1. The Pollution Mapping Tool enables users to locate, view, and analyze emissions of greenhouse gases (GHG), criteria pollutants and toxic air contaminants from large facilities in California. Please read the [Caveats Document](#) for important notes about differences in reporting requirements between the three programs and other limitations of the emissions data presented in the tool.
2. CARB is looking for your feedback on the data presented here and plans to update the tool periodically. Please [contact us](#) with your suggestions or questions about the emissions data.
3. For more information about the emissions data sources please visit [ARB's Emission Inventory](#) website.
4. Please read the [Legal Disclaimer](#) for information regarding "covered" GHG emissions.

Los Angeles Anaheim Long Beach San Diego

Air Products & Chemicals, Inc., Martinez
Air Products Carson Hydro Plant
Air Products Manufacturing

https://ww3.arb.ca.gov/ei/tools/pollution_map/



<http://community.valleyair.org/selected-communities/arvin-lamont/>

Areawide Sources

- CARB and District calculate areawide source emissions using approved emission estimation methodologies for each category
- Areawide sources include, for example, farming operations, residential fuel combustion, paved and unpaved road dust, architectural coatings
- Emissions are calculated at the county level using activity data and emission factors



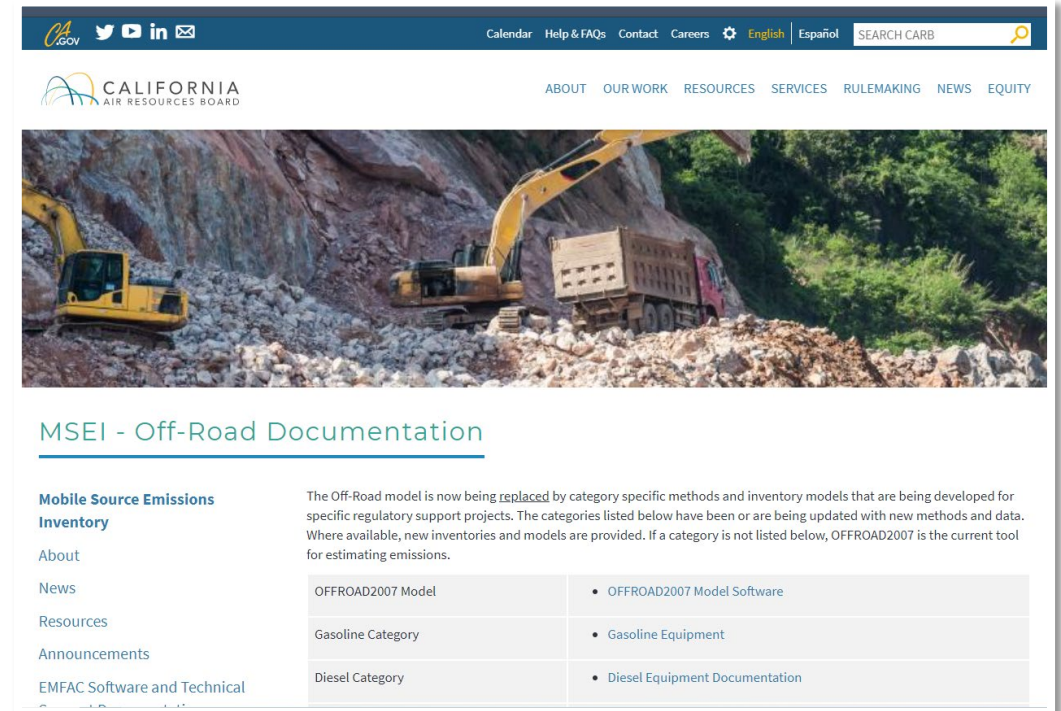
CARB Index of Methodologies by Major Category
(<https://ww2.arb.ca.gov/index-methodologies-major-category>)



Areawide Emissions Estimate Methodologies (valleyair.org)
(http://www.valleyair.org/Air_Quality_Plans/EmissionsMethods/EmissionsMethods.htm)

Off-Road Mobile Sources

- CARB calculates emissions at the county level for off-road mobile sources using activity data and emissions factors
- Activity data is collected from reported information, survey results, purchased data
- CARB's Methodologies for off-road categories can be found in the CARB website below



The screenshot shows the CARB website's 'MSEI - Off-Road Documentation' page. The page includes a navigation bar with links for 'Calendar', 'Help & FAQs', 'Contact', 'Careers', 'English', and 'Español'. Below the navigation bar is the CARB logo and a search bar. The main content area features a large image of construction equipment (excavators and a truck) at a quarry site. Below the image is the title 'MSEI - Off-Road Documentation' and a section titled 'Mobile Source Emissions Inventory'. The text explains that the Off-Road model is being replaced by category-specific methods and inventory models. A table lists the categories and their corresponding documentation:

Category	Documentation
OFFROAD2007 Model	<ul style="list-style-type: none">• OFFROAD2007 Model Software
Gasoline Category	<ul style="list-style-type: none">• Gasoline Equipment
Diesel Category	<ul style="list-style-type: none">• Diesel Equipment Documentation

CARB Mobile Source Emissions Inventory - Off-Road Documentation
(<https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-road-documentation-0>)

Areawide and Off-Road Mobile Sources: Method

Emissions (County)

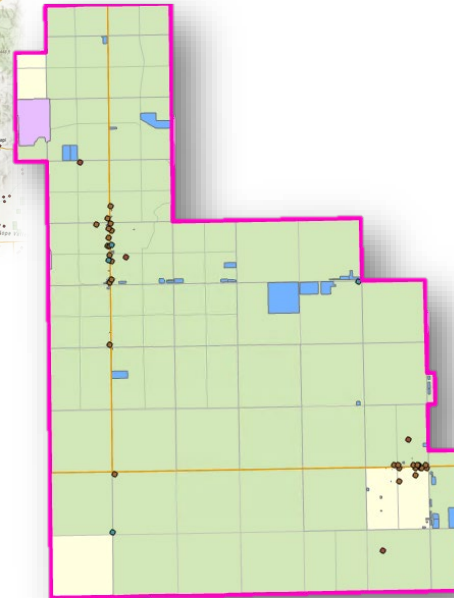
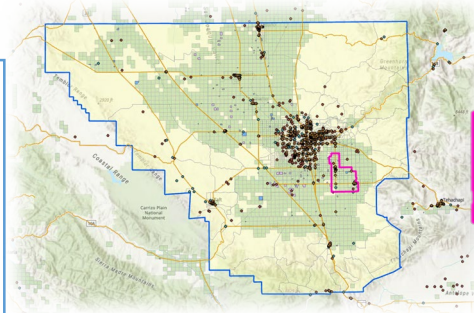
Activity Data

- e.g., Fuel Consumption, consumer product sales, vehicle miles traveled, population and activity based on survey data, vessel visits

Emission Factor

- e.g., US EPA, CARB

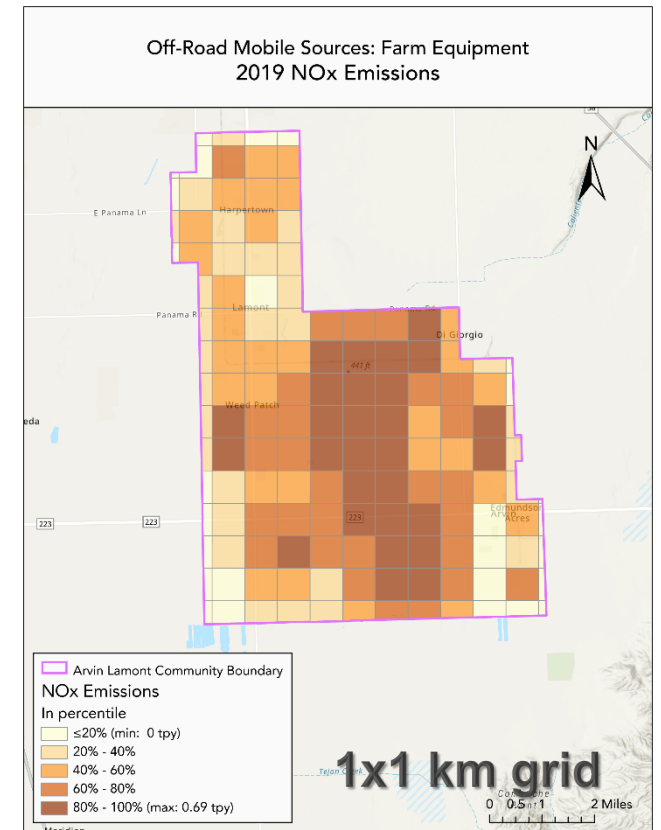
Spatial Surrogate



e.g., population, employment, housing, roads, location of building & road constructions

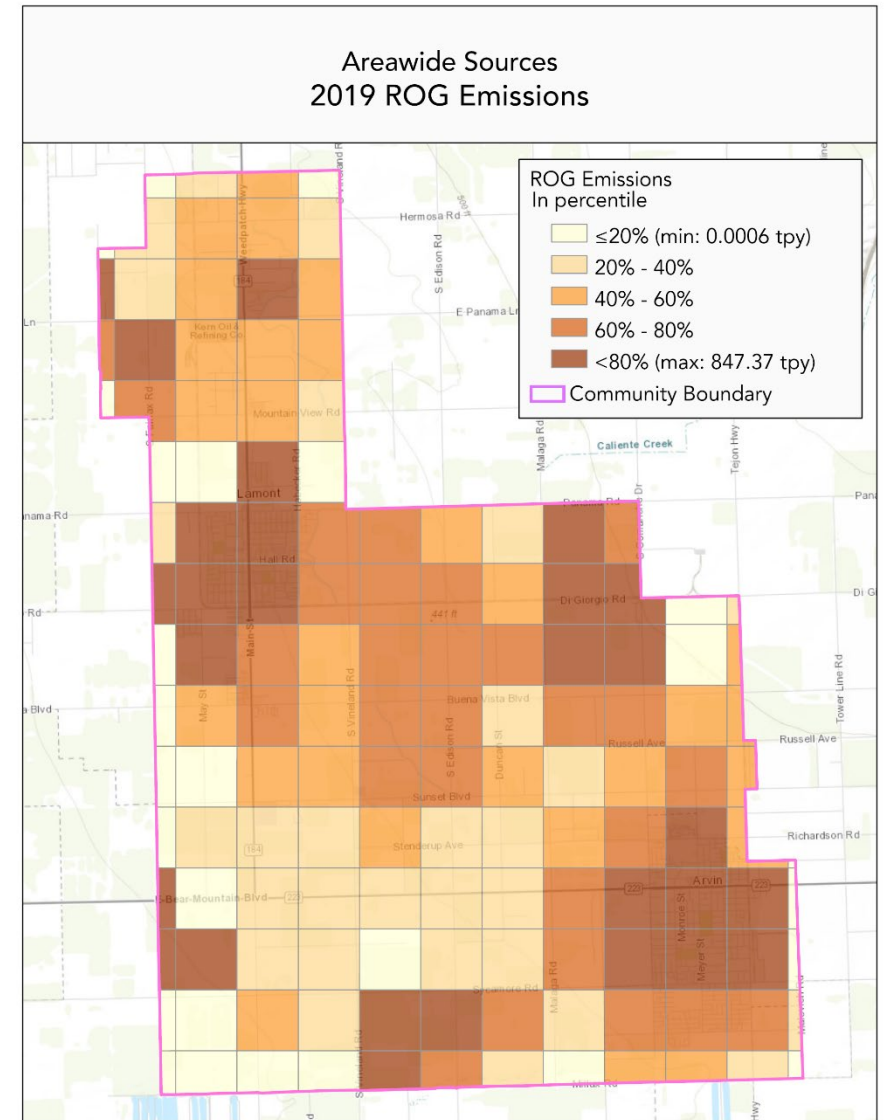
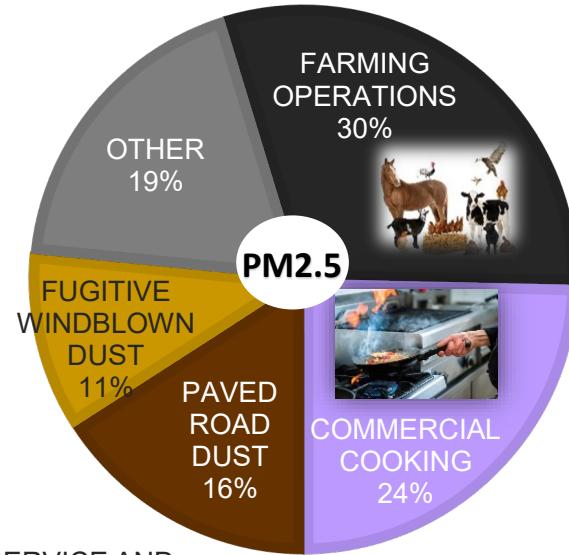
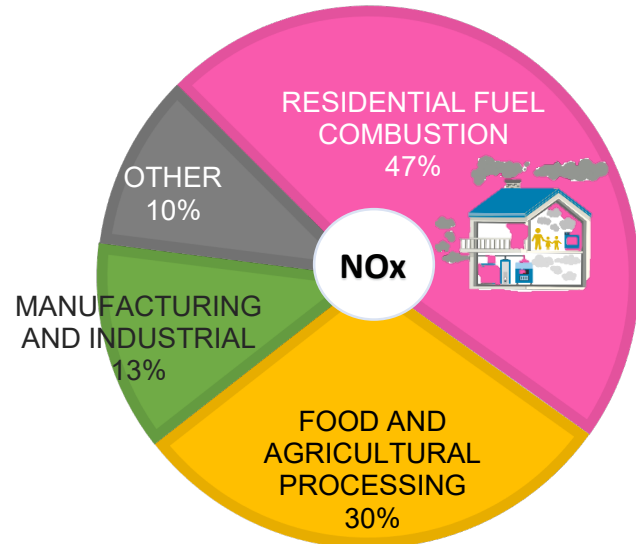
Emissions (Community)

Off-Road Mobile Sources: Farm Equipment 2019 NOx Emissions

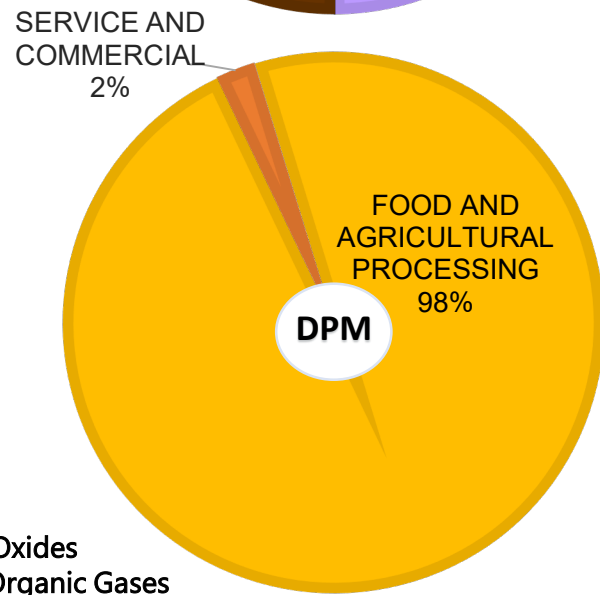
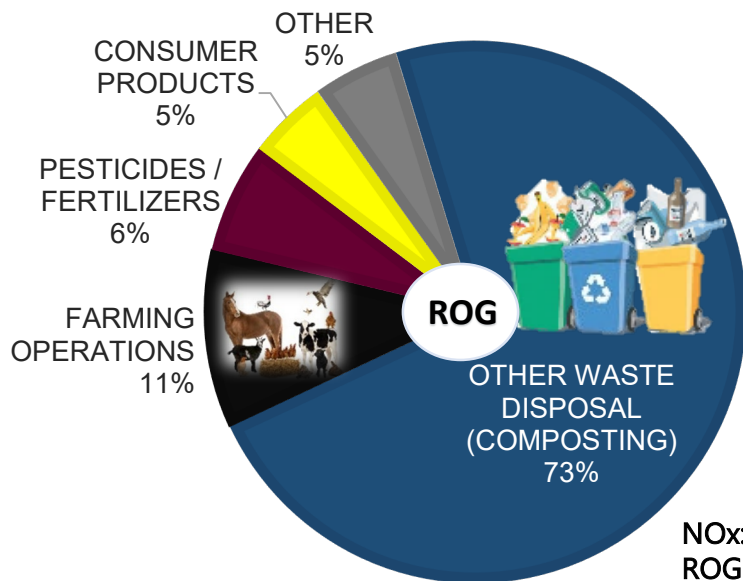


County-level emissions are distributed to the 1km x 1km grids using the fraction of spatial surrogate data in each grid = weighted emissions. Emissions are distributed by a spatial surrogate that best represents location of emissions.

DRAFT 2019 Areawide Source Emissions for Arvin/Lamont

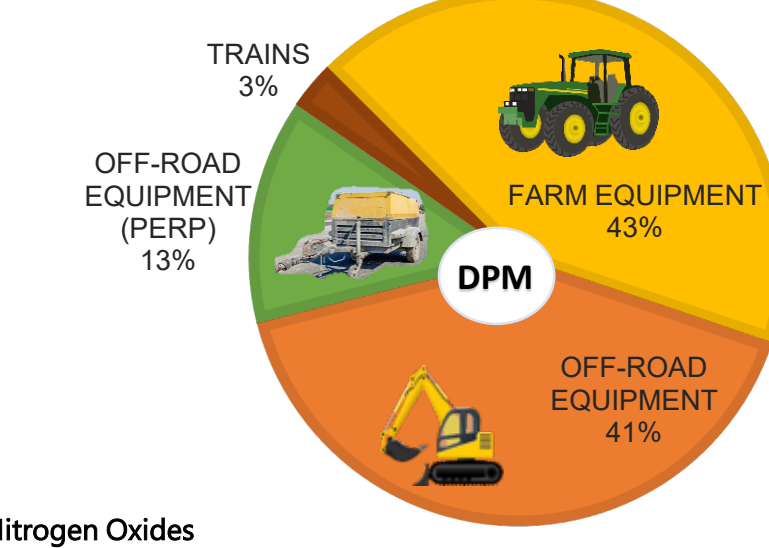
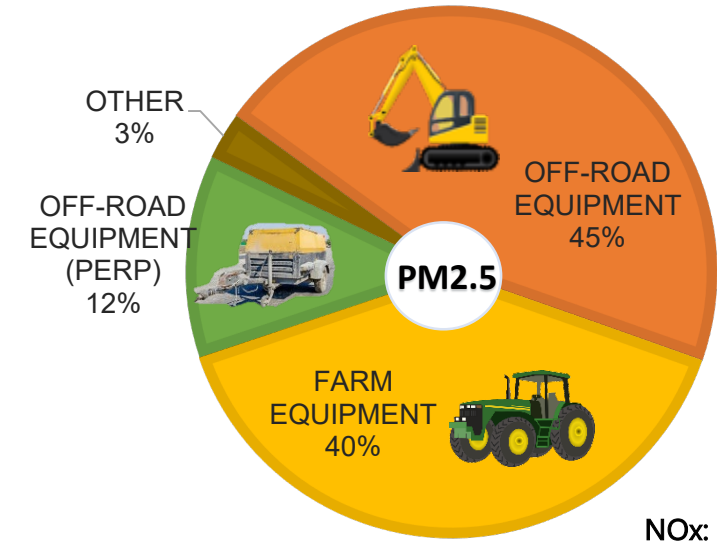
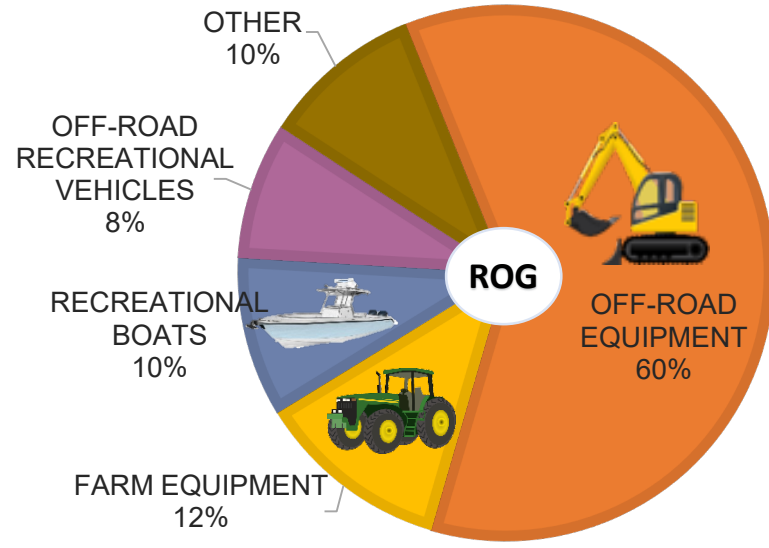
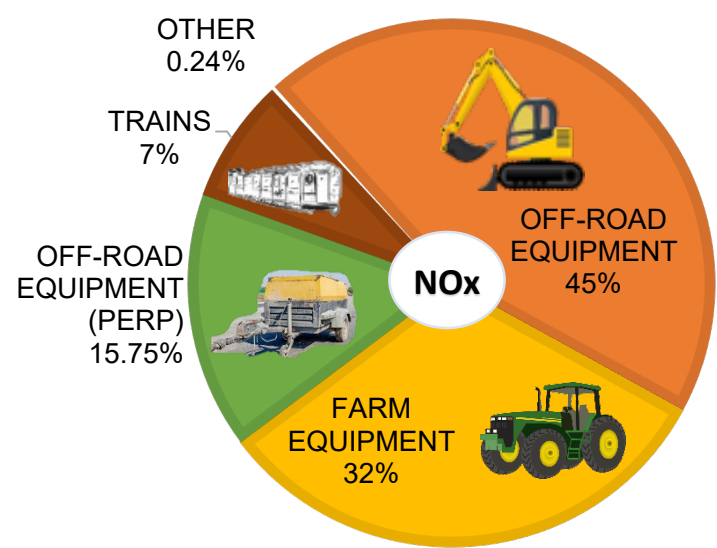


* Map shows area-weighted emissions for grids that are only partially within the community boundary.

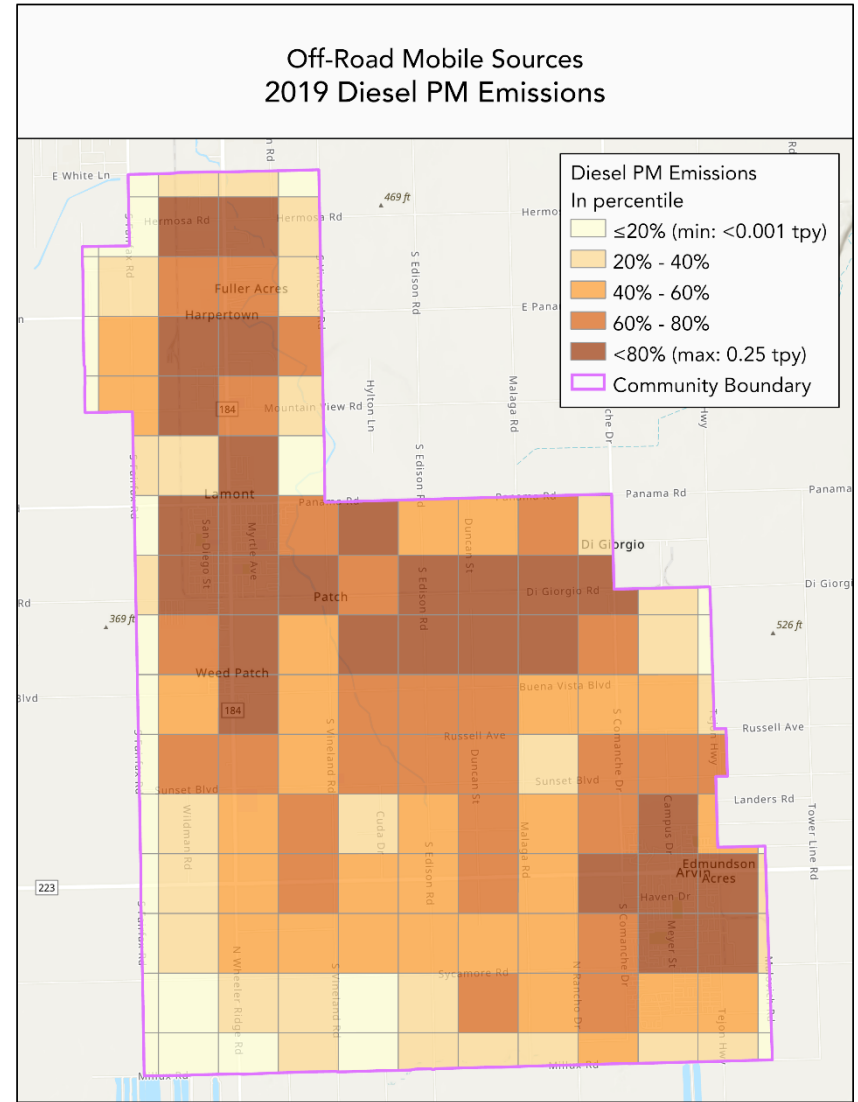


NOx: Nitrogen Oxides
 ROG: Reactive Organic Gases
 DPM: Diesel Particulate Matter
 PM2.5: Particulate Matter 2.5 Microns or Smaller

DRAFT 2019 Off-Road Mobile Source Emissions for Arvin/Lamont



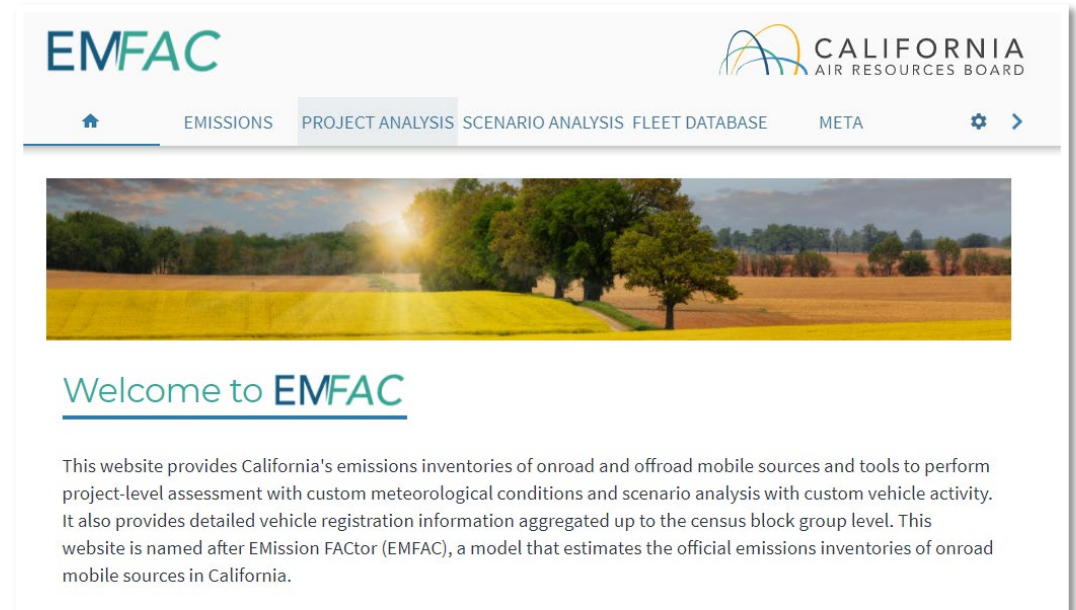
NOx: Nitrogen Oxides
 ROG: Reactive Organic Gases
 PM2.5: Particulate Matter 2.5 Microns or Smaller
 DPM: Diesel Particulate Matter



* Map shows area-weighted emissions for grids that are only partially within the community boundary.

On-Road Mobile Sources

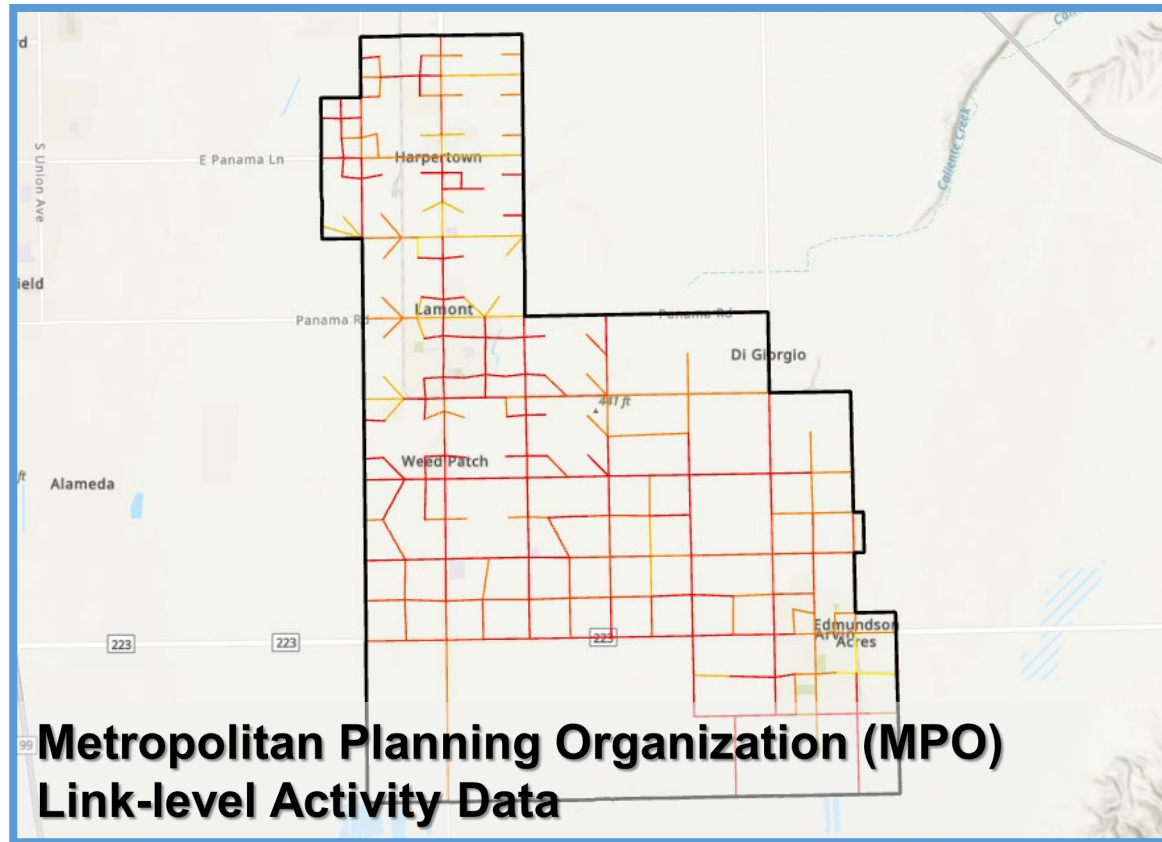
- CARB calculates on-road emissions at the road-link level using vehicle emission factors and vehicle activity data
- Emission factors are obtained from EMFAC2017* and depend on speed, temperature, and relative humidity
- Vehicle activity at the road-link level is obtained from the regional Metropolitan Planning Organization (MPO)



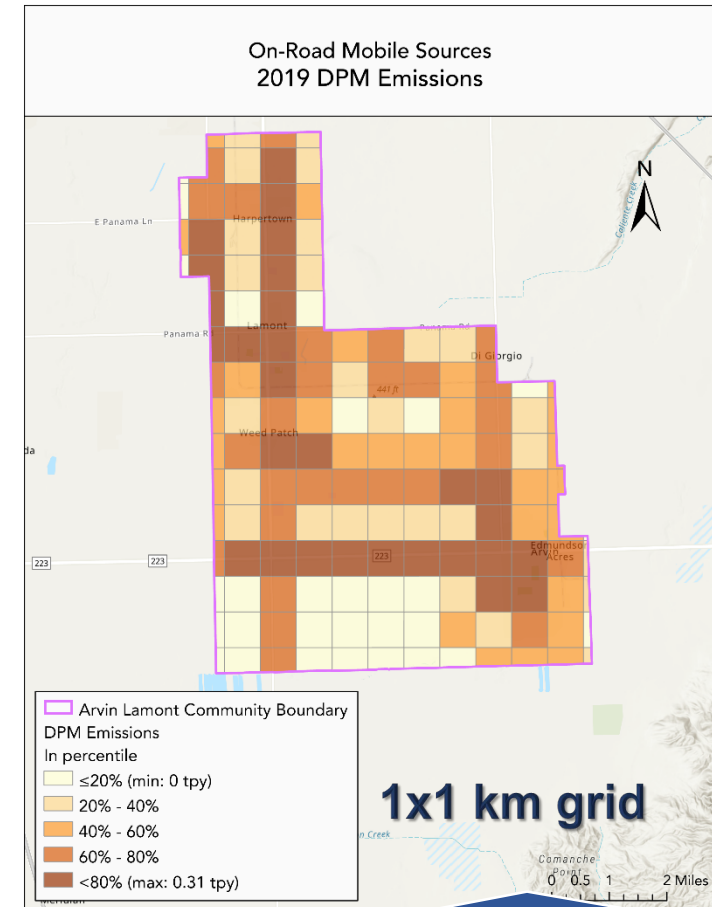
CARB Emission Factor Model (EMFAC)
(<https://arb.ca.gov/emfac/>)

* On-road data will be updated from EMFAC2017 to EMFAC2021 emission factors

On-Road Mobile Sources: Method

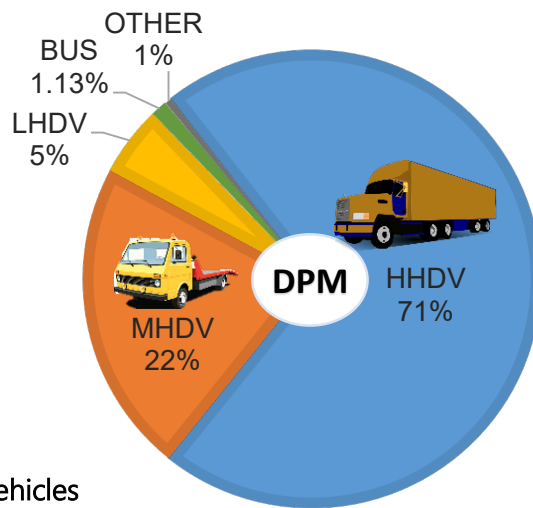
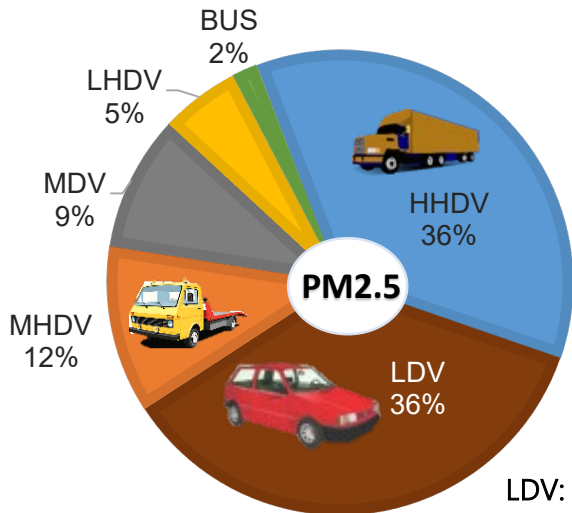
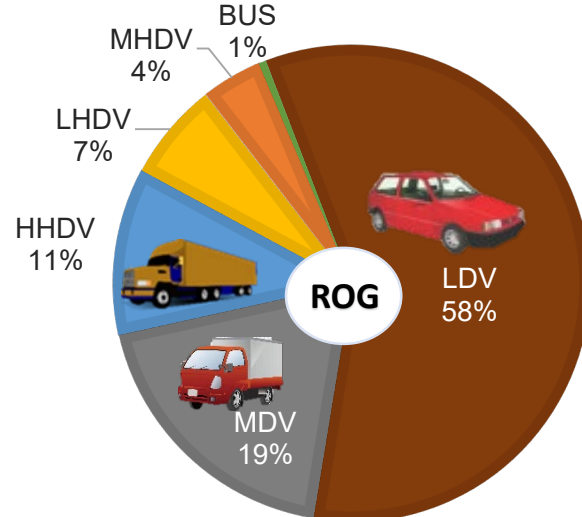
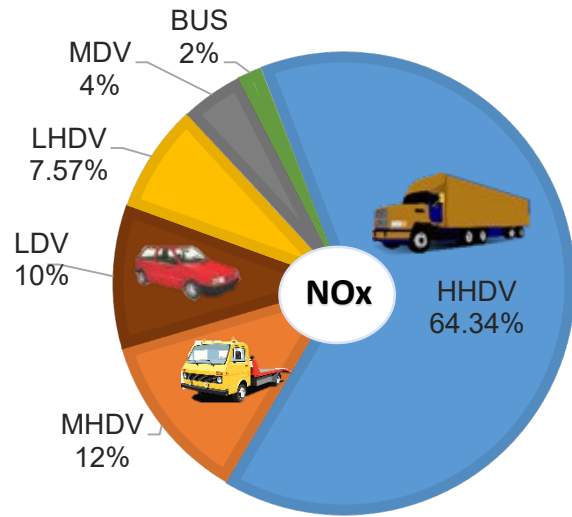


Estimate Vehicle Miles Traveled (VMT)
based on vehicle activity in the
community

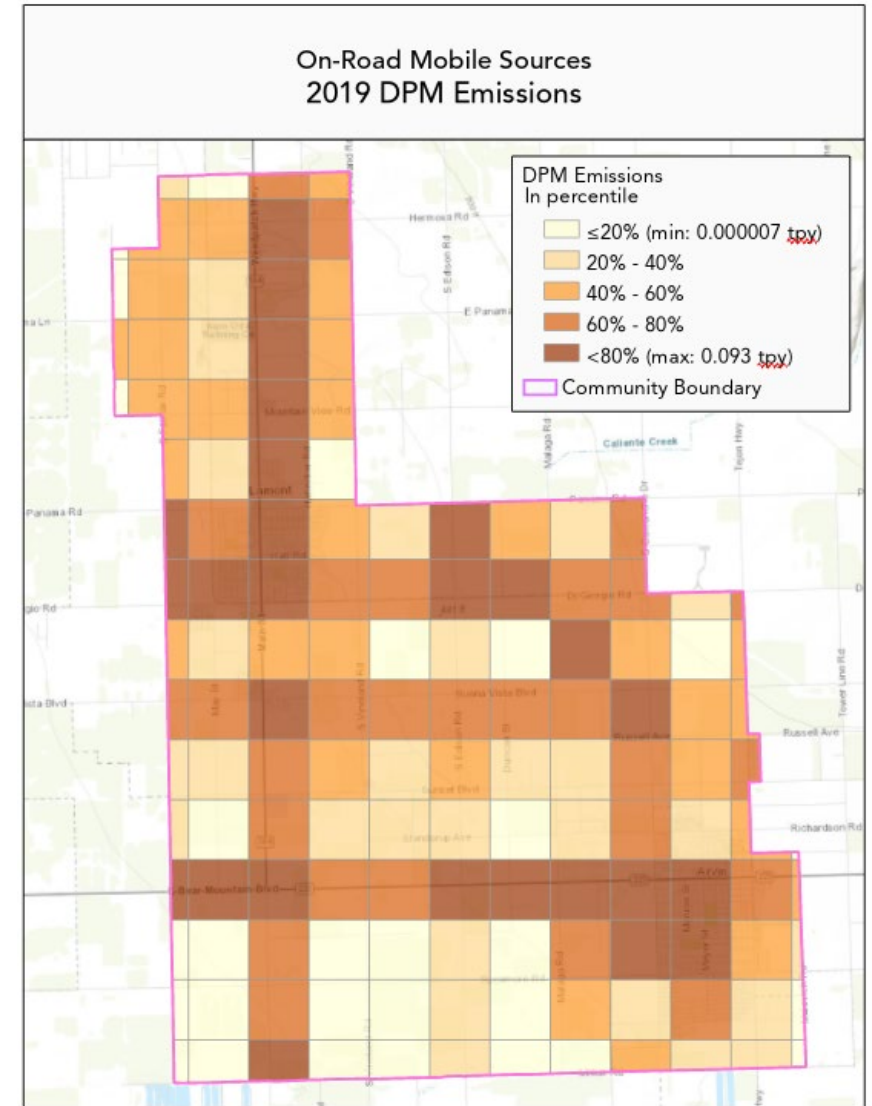


Apply emission factors to VMT
to calculate emissions

DRAFT 2019 On-Road Mobile Source Emissions for Arvin/Lamont

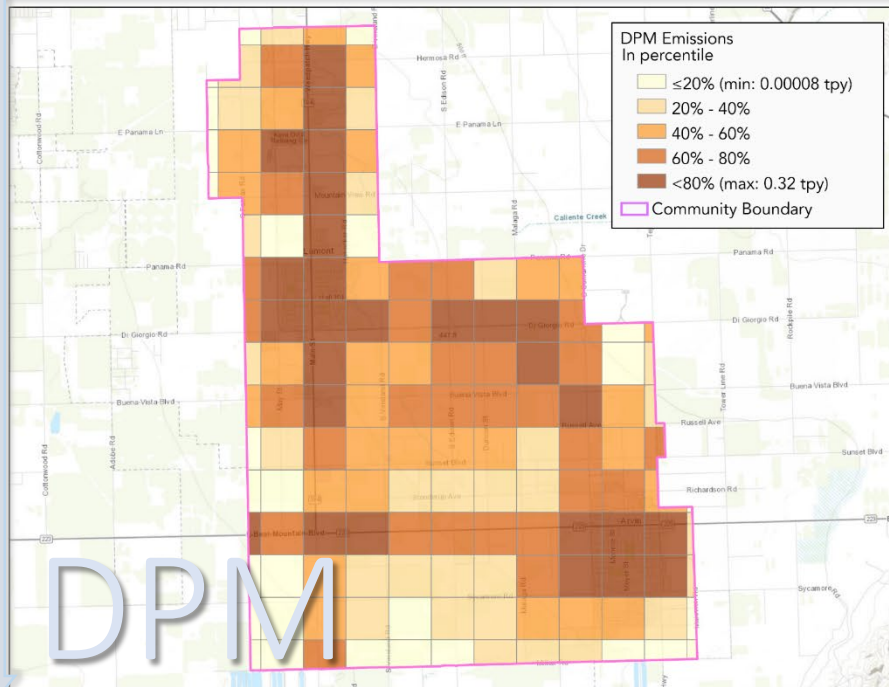
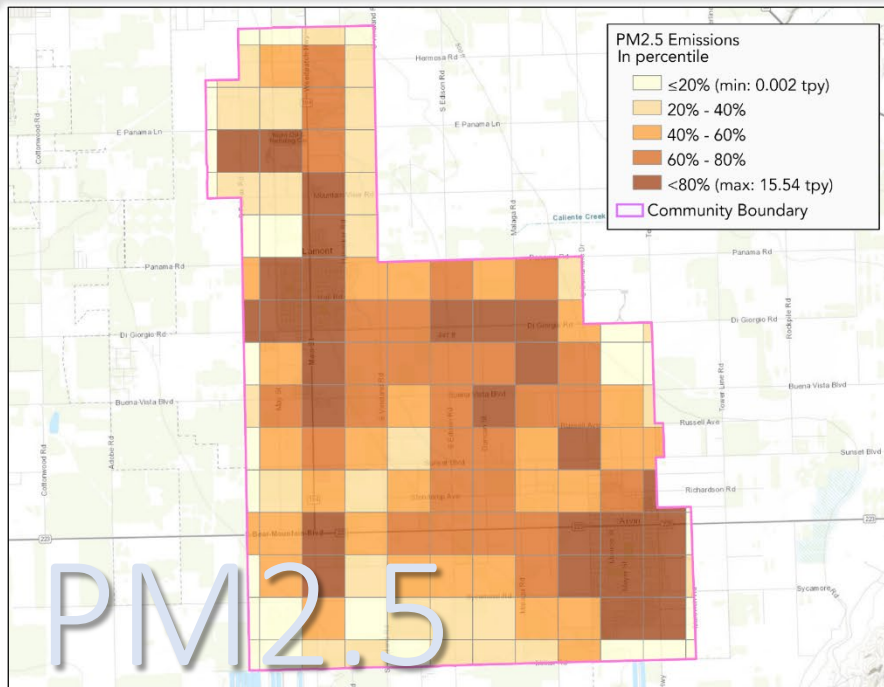
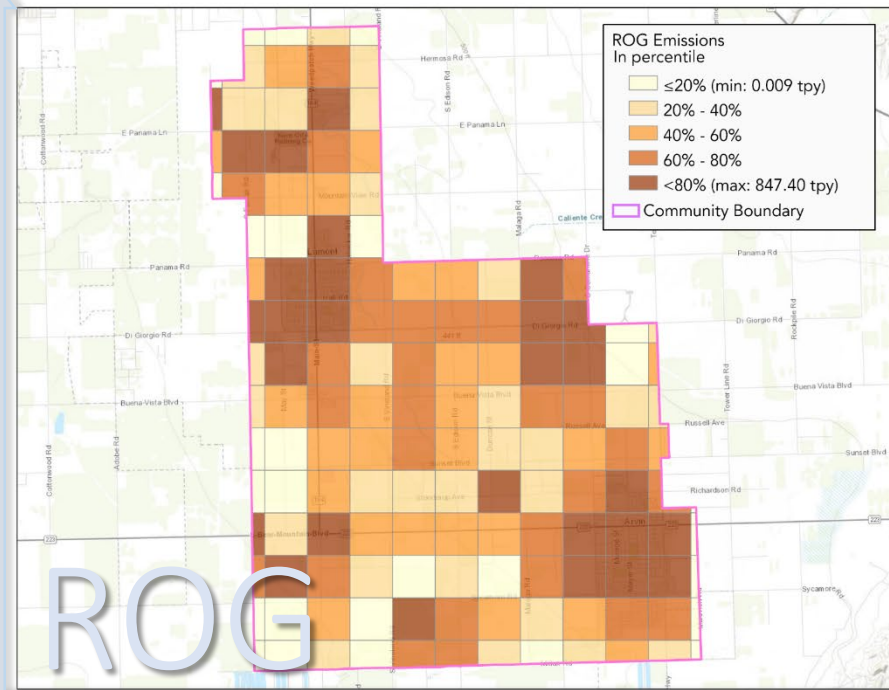
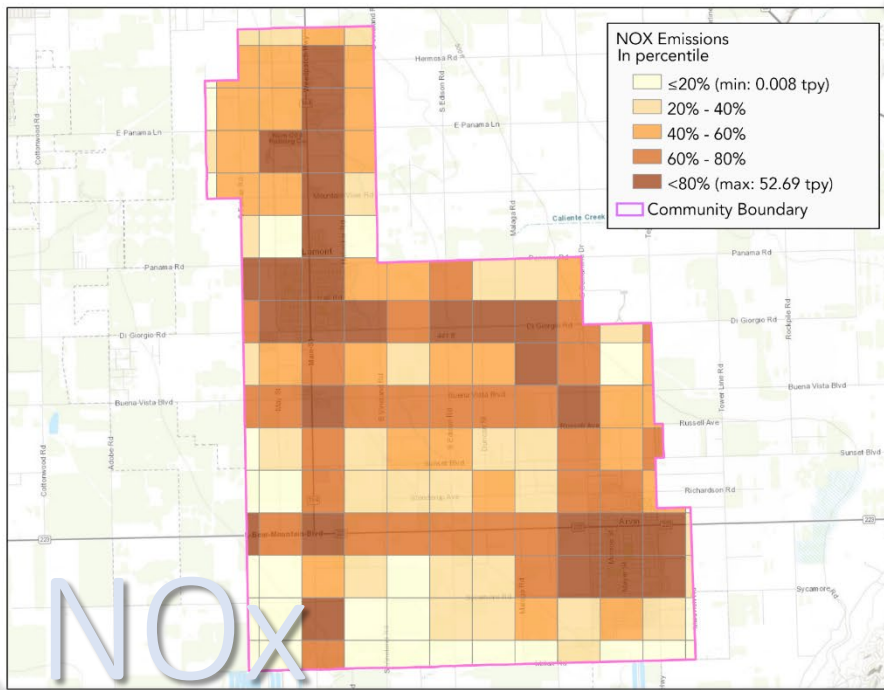


LDV: Light Duty Vehicles
 LHDV: Light-Heavy Duty Vehicles
 MHDV: Medium-Heavy Duty Vehicles
 HHDV: Heavy-Heavy Duty Vehicles
 BUS: Buses

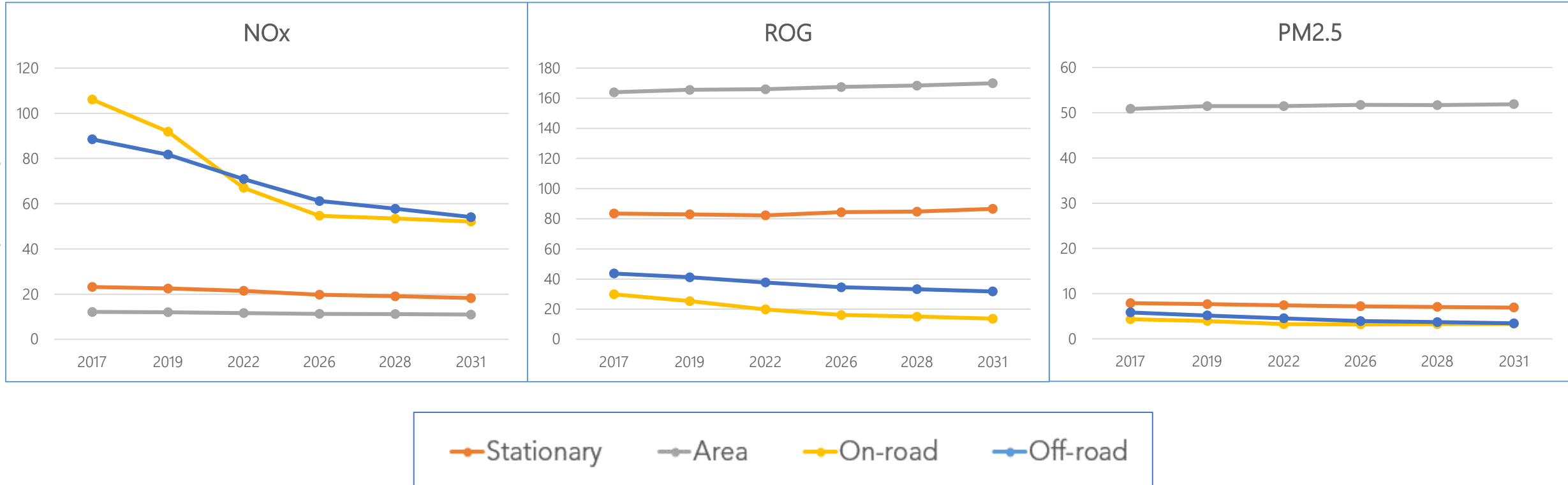


* Map shows area-weighted emissions for grids that are only partially within the community boundary.

Total Community Emissions

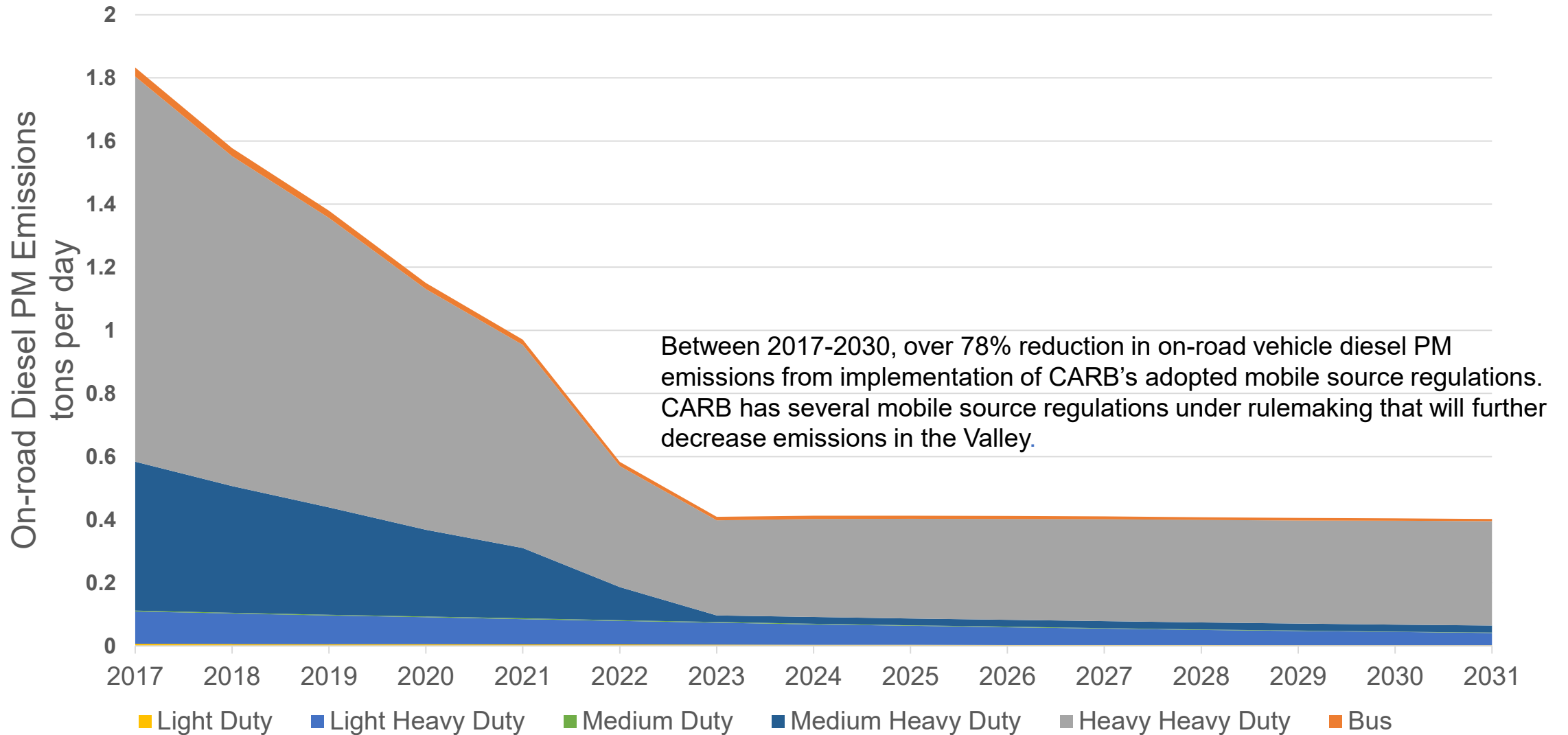


Emission Trends in the San Joaquin Valley Air Basin (tons per day)



- As required by the Blueprint, CARB is currently developing projected future emissions for the Arvin/Lamont community.
- The air basin emission trends above reflect currently adopted CARB and District rules. CARB has several mobile source regulations under rulemaking that will further decrease emissions in the Valley.

On-road Mobile Diesel PM Trend in the San Joaquin Valley Air Basin (tons per day)



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California Air Resources Board

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