

Air Pollution Sources Overview

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January 24, 2019

Types of Air Pollutants

Criteria Pollutants

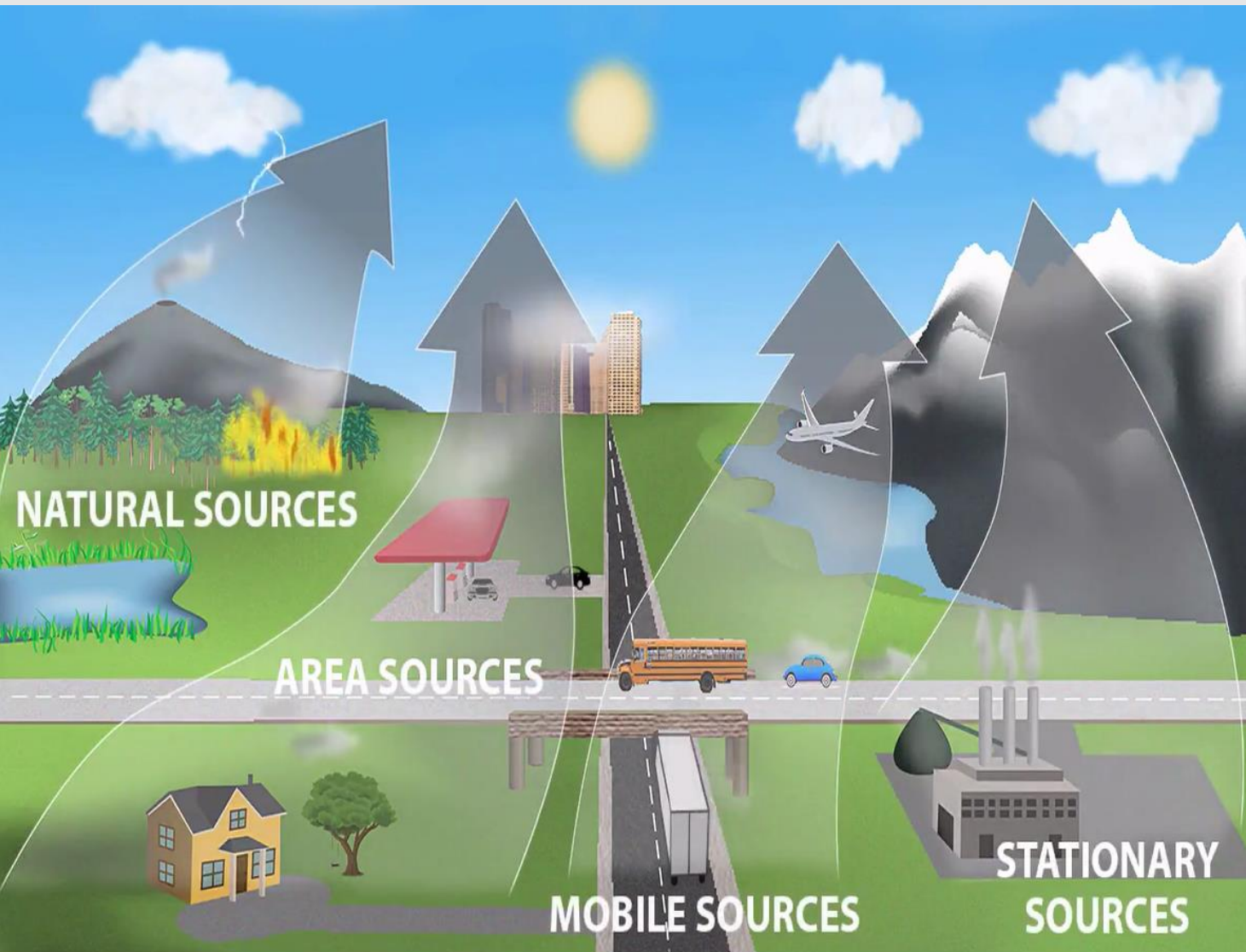
- Particulate Matter
- Nitrogen Dioxide
- Ozone
- Carbon Monoxide
- Lead
- Sulfur Dioxide

Other Air Pollutants

- Volatile Organic Compounds
 - e.g. gasoline, paints, benzene
- Metals
 - e.g. lead, mercury, arsenic
- Greenhouse Gases
 - e.g. carbon dioxide, methane
- Toxic air pollutants

¹ <https://www.epa.gov/haps/what-are-hazardous-air-pollutants>

Sources of Air Pollutants



Sources can be grouped into:

- Mobile sources
- Stationary sources
- Area Sources
- Natural sources

Source: EPA 2018 Trend Report, <https://gispub.epa.gov/air/trendsreport/2018/#sources>

Air Pollution

Chemical Reactions

e.g. PM, NO_x, CO,
Enhanced O₃

Mobile Sources

Cars, Trucks, Buses,
Trains, Aircraft, Boats,
Farm Equipment

e.g. CO, NO_x, VOCs,
Benzene, Formaldehyde

Area Sources

Residential Wood
Burning, Coatings,
Construction, Dust,
Cooking

e.g. PM, VOCs

Natural Sources

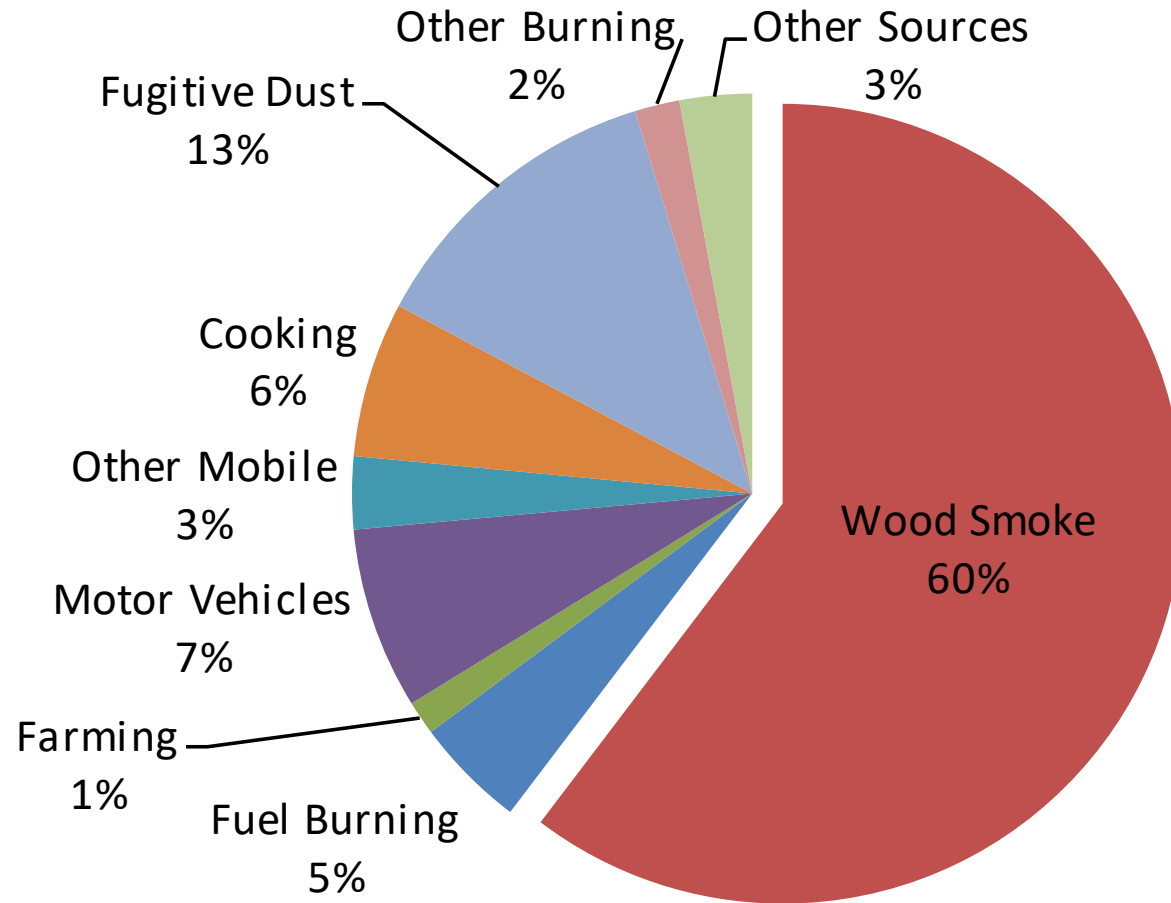
Wildfire, Prescribed
Burning, Volcanoes,
Dust

Stationary Sources

Electric Utilities,
Refineries,
Food/Ag Industrial
Processes

e.g. Ammonia, PM,
CO, VOCs, NO_x

Regional Pollutants – Particulate Matter



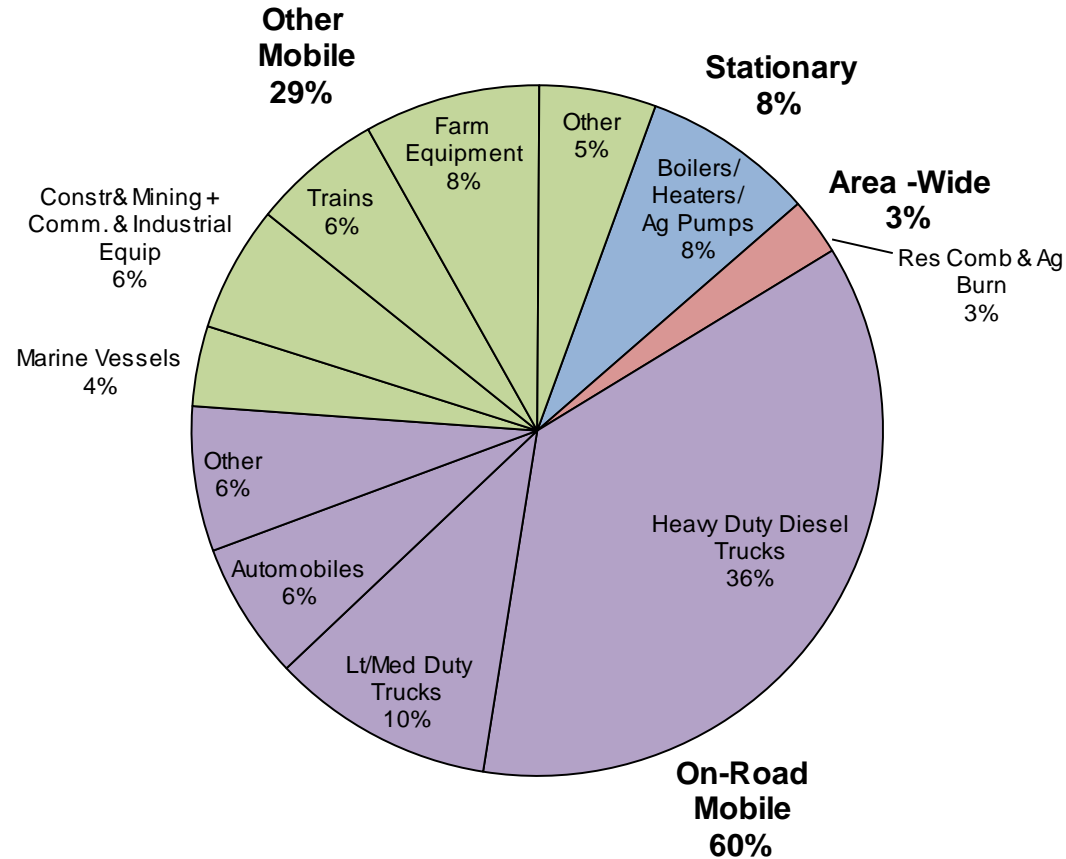
“[Particulate matter] is a mixture of substances that include ... carbon and metals ... nitrates, organic compounds, sulfates, and complex mixtures such as diesel exhaust and soil. Some particles are emitted directly into the atmosphere. Others ... result from ... physical and chemical processes in the atmosphere.”¹

Source: SMAQMD Emission Inventory

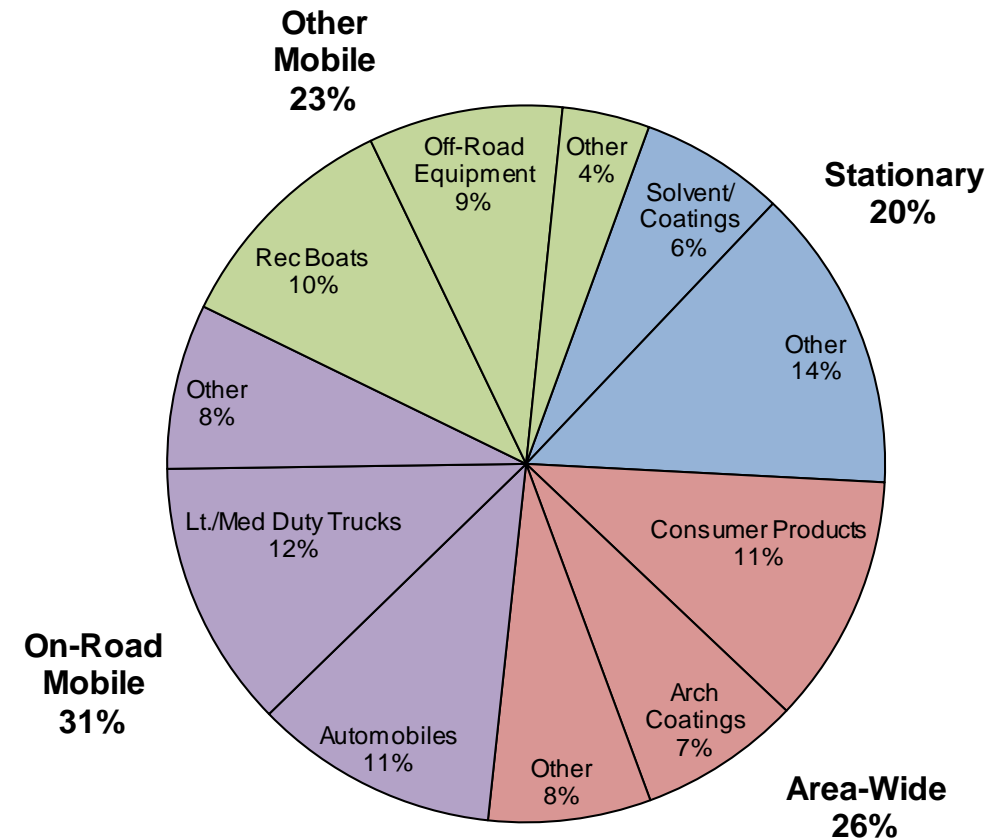
¹ <https://www.arb.ca.gov/pm/pm.htm>

Regional Pollutants – NO_x and VOCs

NO_x Planning Inventory
Sacramento Nonattainment Region
101 Tons Per Day



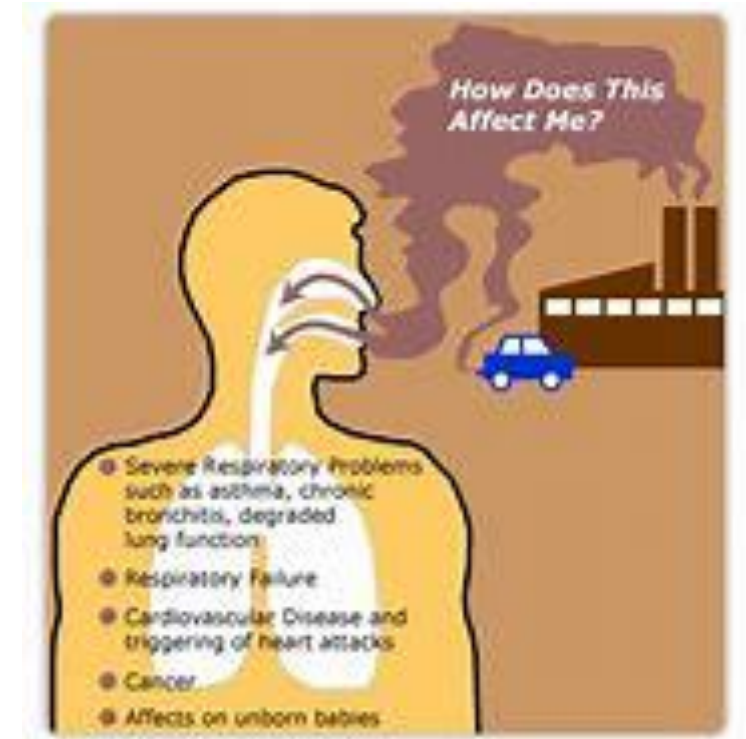
VOC Planning Inventory
Sacramento Nonattainment Region
110 Tons Per Day



Source: 2018 Updates to the California State Implementation Plan, CARB: <https://www.arb.ca.gov/planning/sip/2018sipupdate/2018update.pdf>

Health Impacts from Air Pollutants

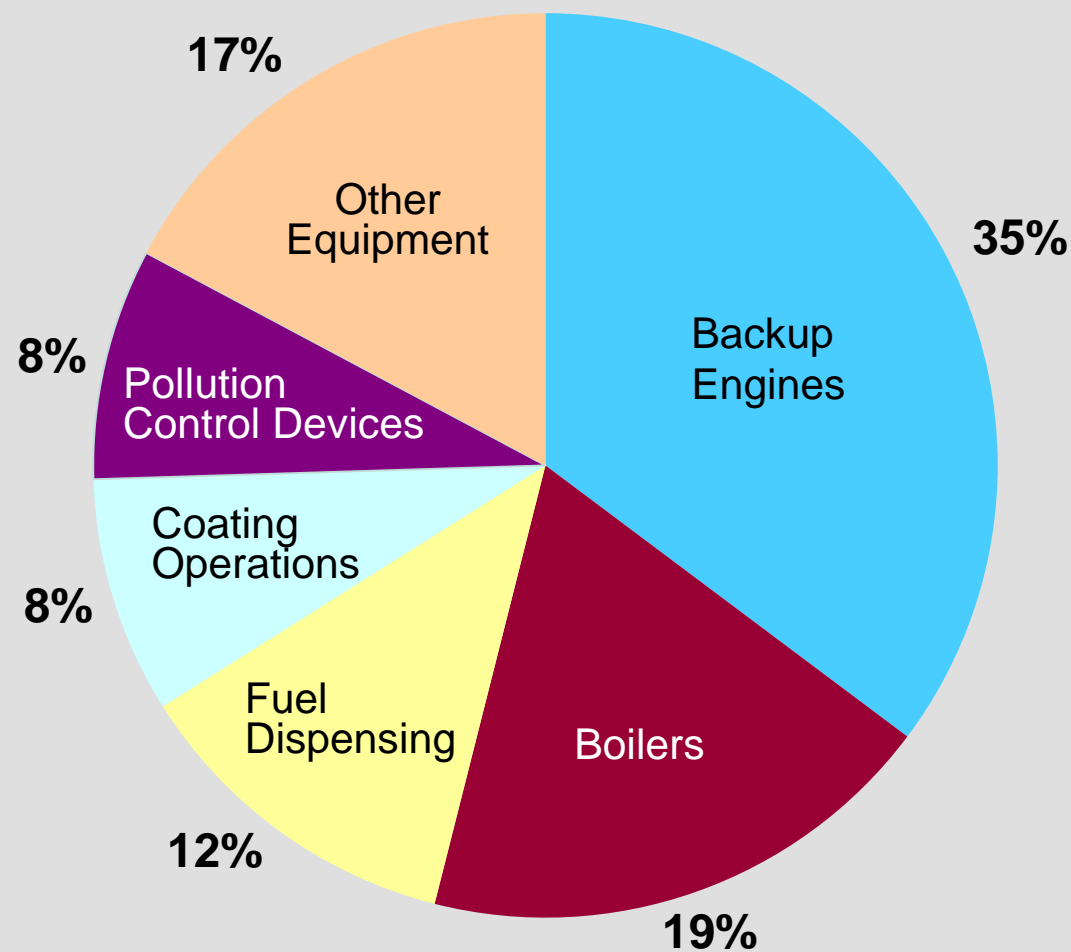
- Air pollution is harmful
 - Lung disease, toxic effects, heart attacks
- Children and elderly are most susceptible
 - Short-term and long-term affects
 - Asthma
 - Shortens life expectancy
- Air pollution effects our economy and quality of life



Types of Permitted Stationary Equipment in Sacramento

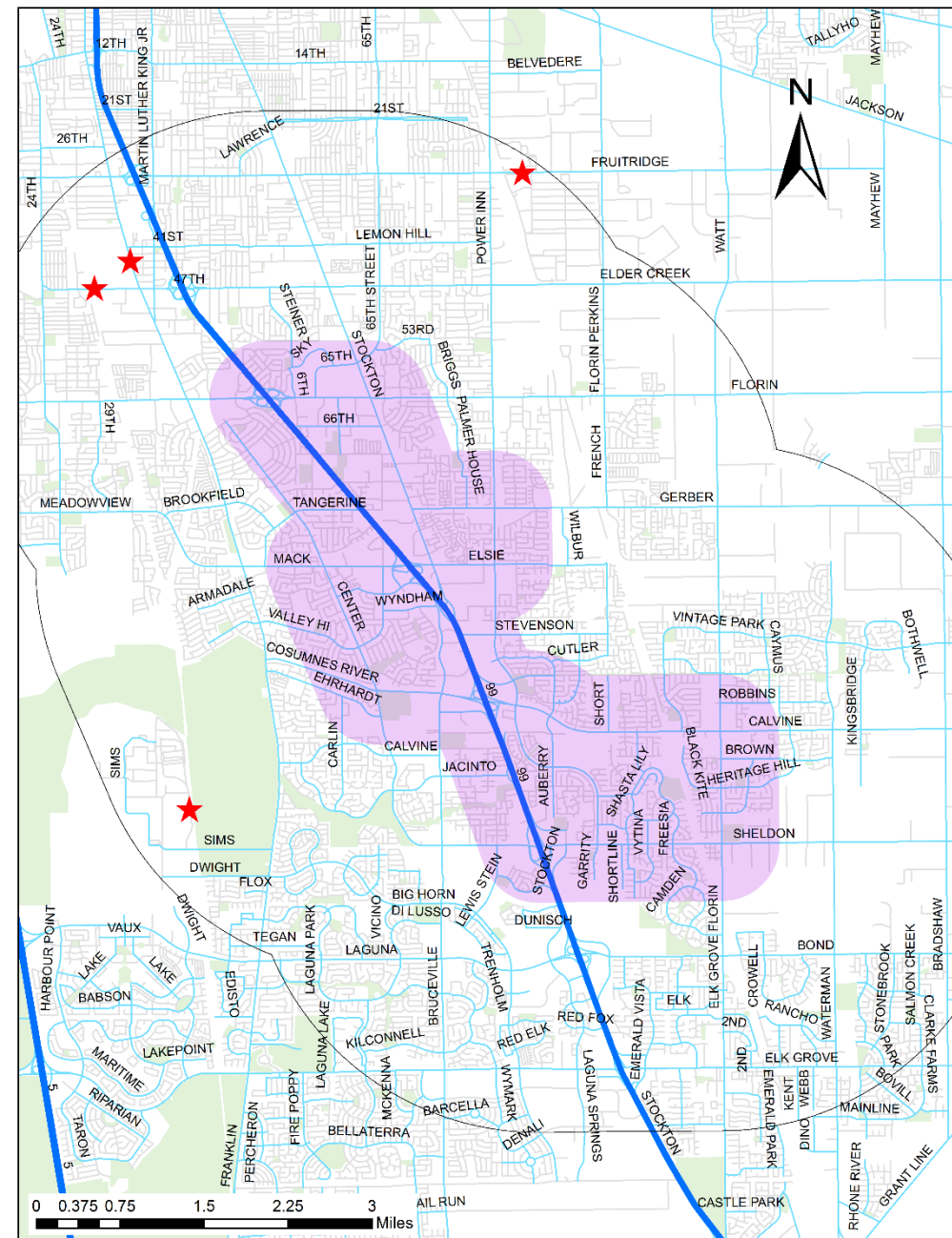
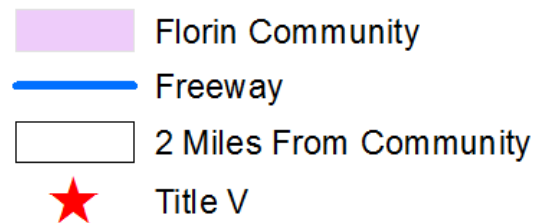
Permit Level:

Equipment capable of emitting ≥ 2 pounds in any 24-hr period



Permitted Facilities within 2 Miles of Florin

Title V (“major sources”¹)

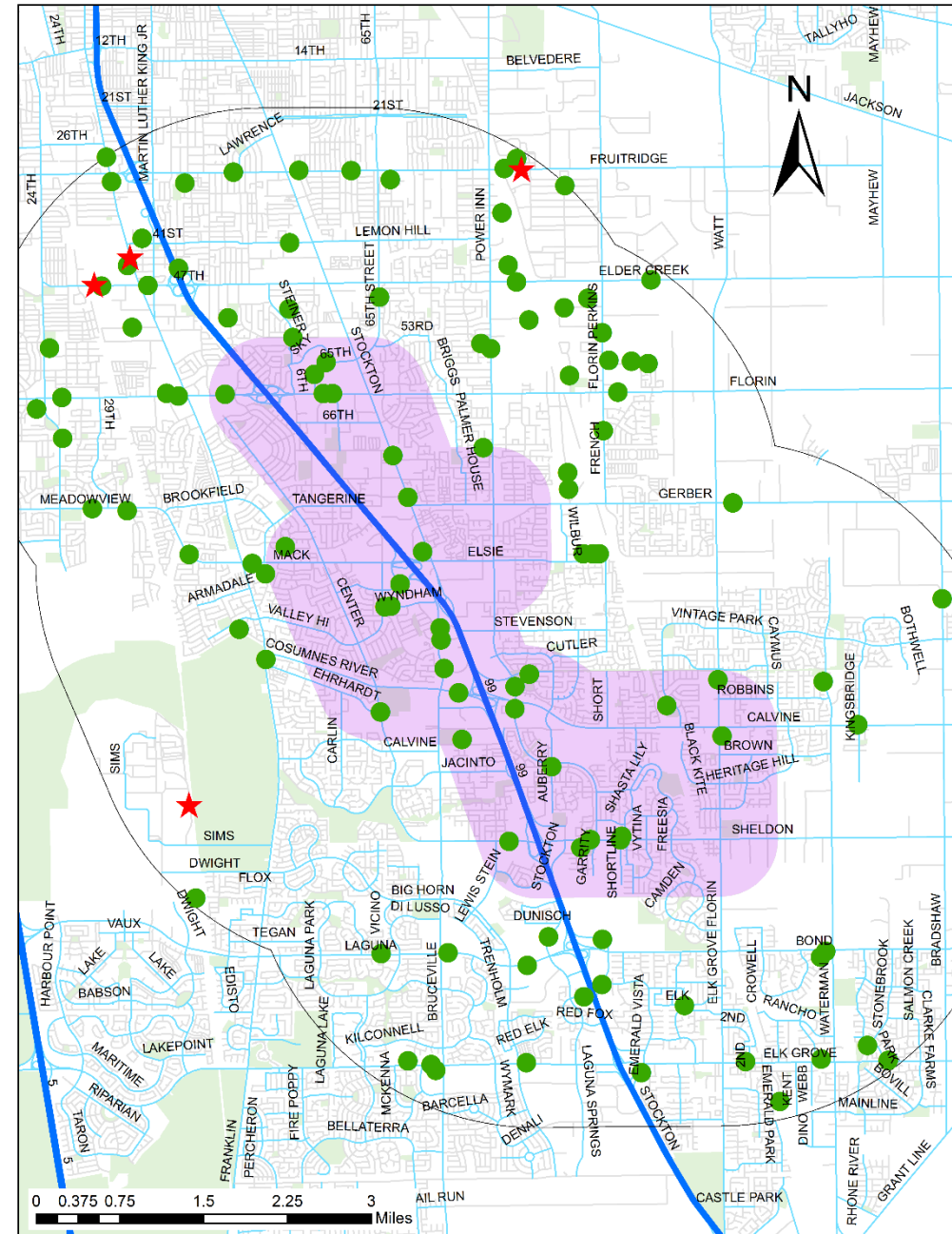
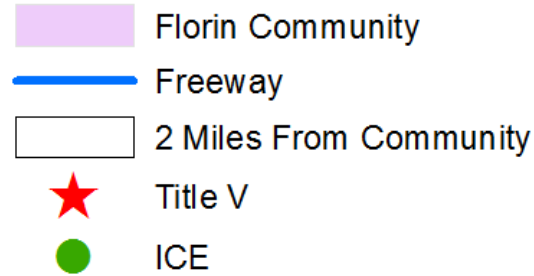


¹ EPA defines a major source as a facility that emits, or has the potential to emit (PTE) any criteria pollutant or hazardous air pollutant (HAP) at levels equal to or greater than the Major Source Thresholds (MST).

Permitted Facilities within 2 Miles of Florin

Title V (“major sources”¹)

Internal Combustion Engines (ICE)



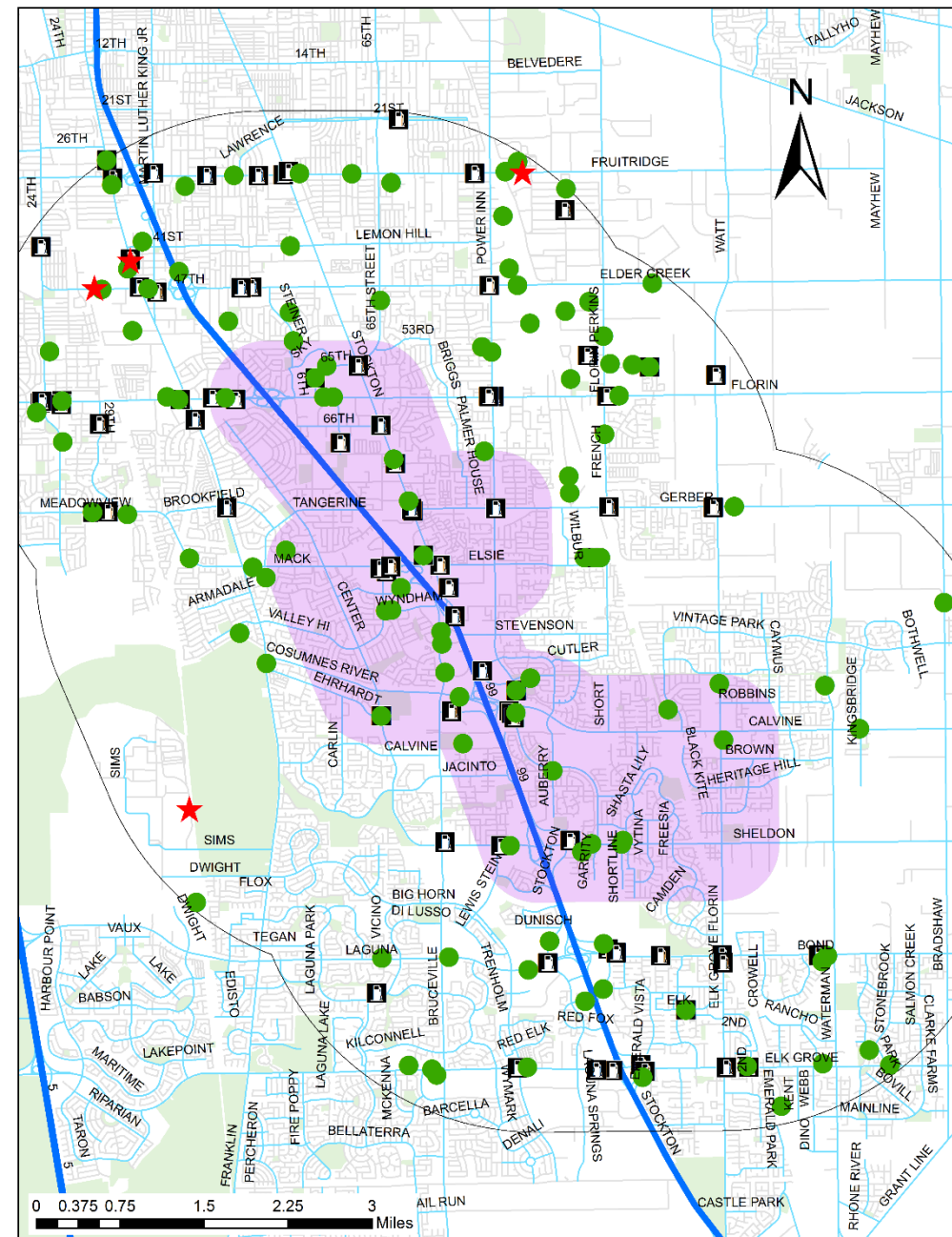
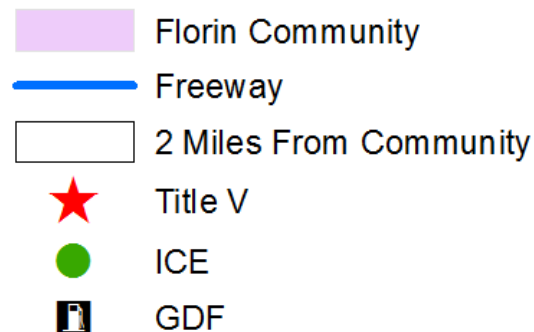
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Permitted Facilities within 2 Miles of Florin

Title V (“major sources”¹)

Internal Combustion Engines (ICE)

Gasoline Dispensing Facilities (GDF)



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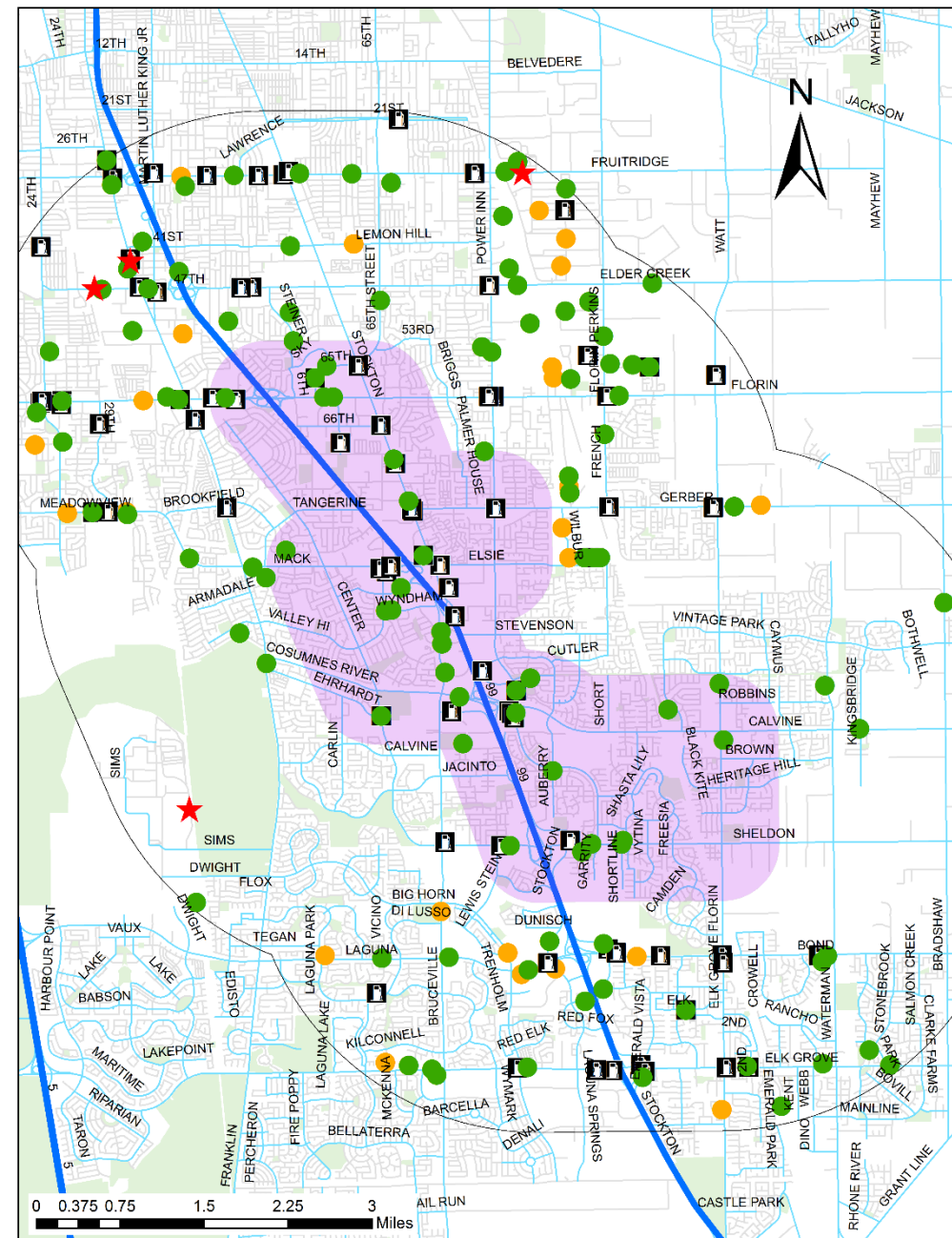
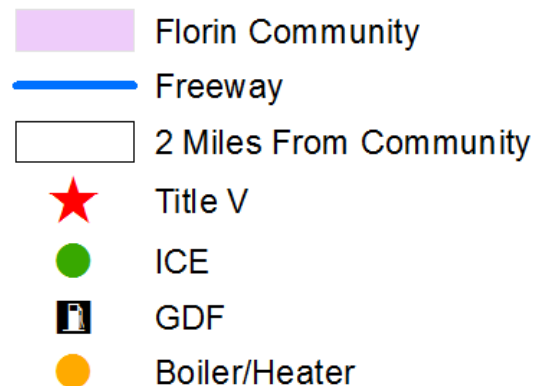
Permitted Facilities within 2 Miles of Florin

Title V (“major sources”¹)

Internal Combustion Engines (ICE)

Gasoline Dispensing Facilities (GDF)

Boilers or Heaters



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Permitted Facilities within 2 Miles of Florin

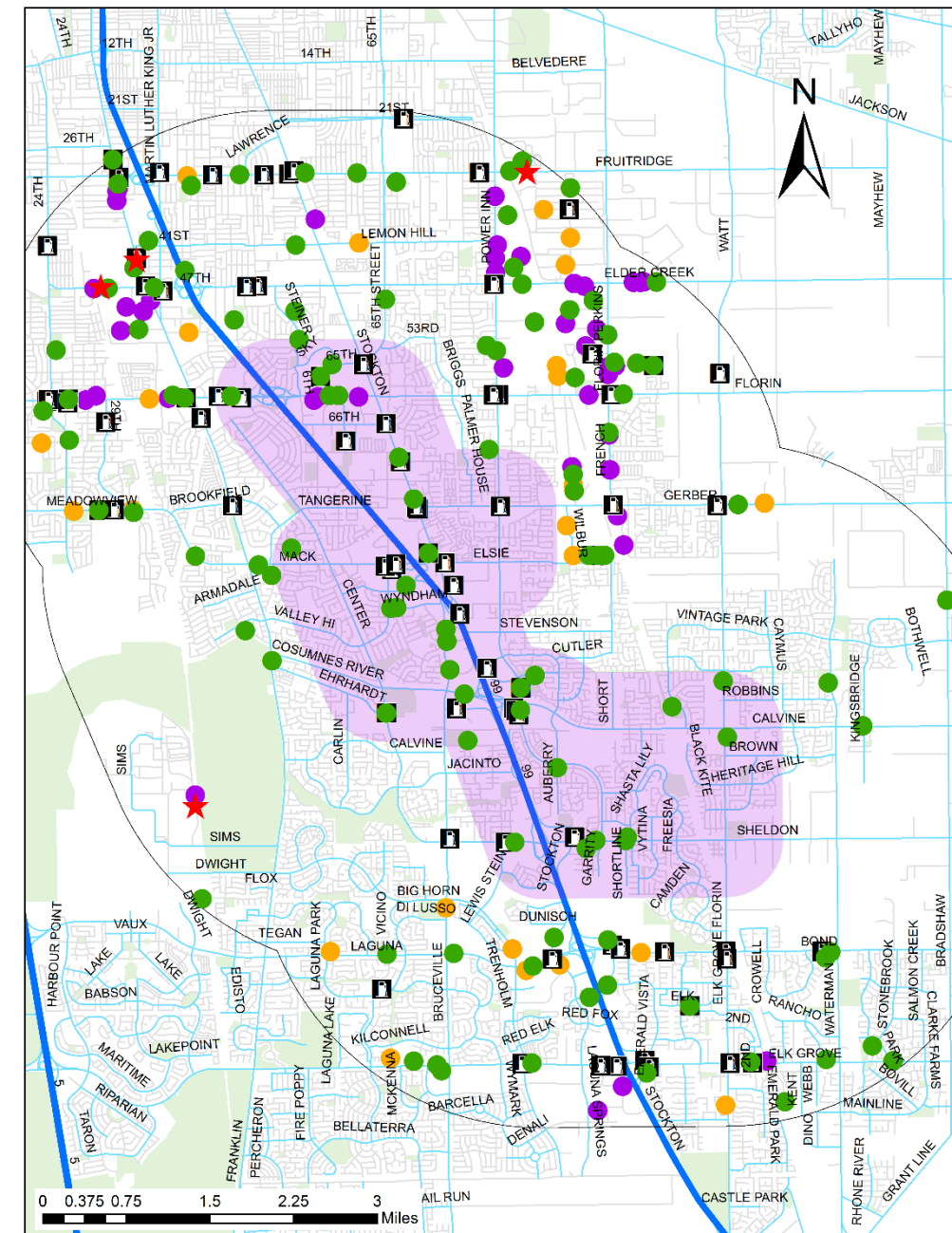
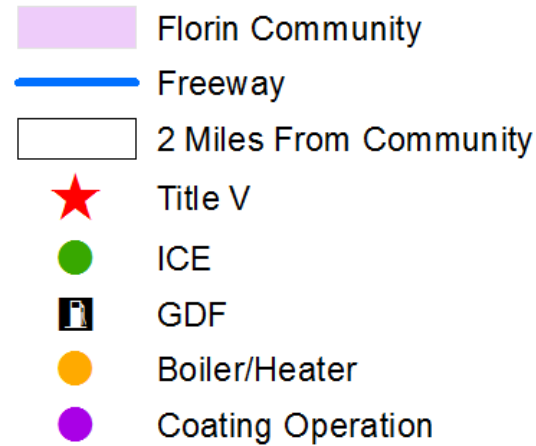
Title V (“major sources”¹)

Internal Combustion Engines (ICE)

Gasoline Dispensing Facilities (GDF)

Boilers or Heaters

Coating Operations



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Permitted Facilities within 2 Miles of Florin

Title V (“major sources”¹)

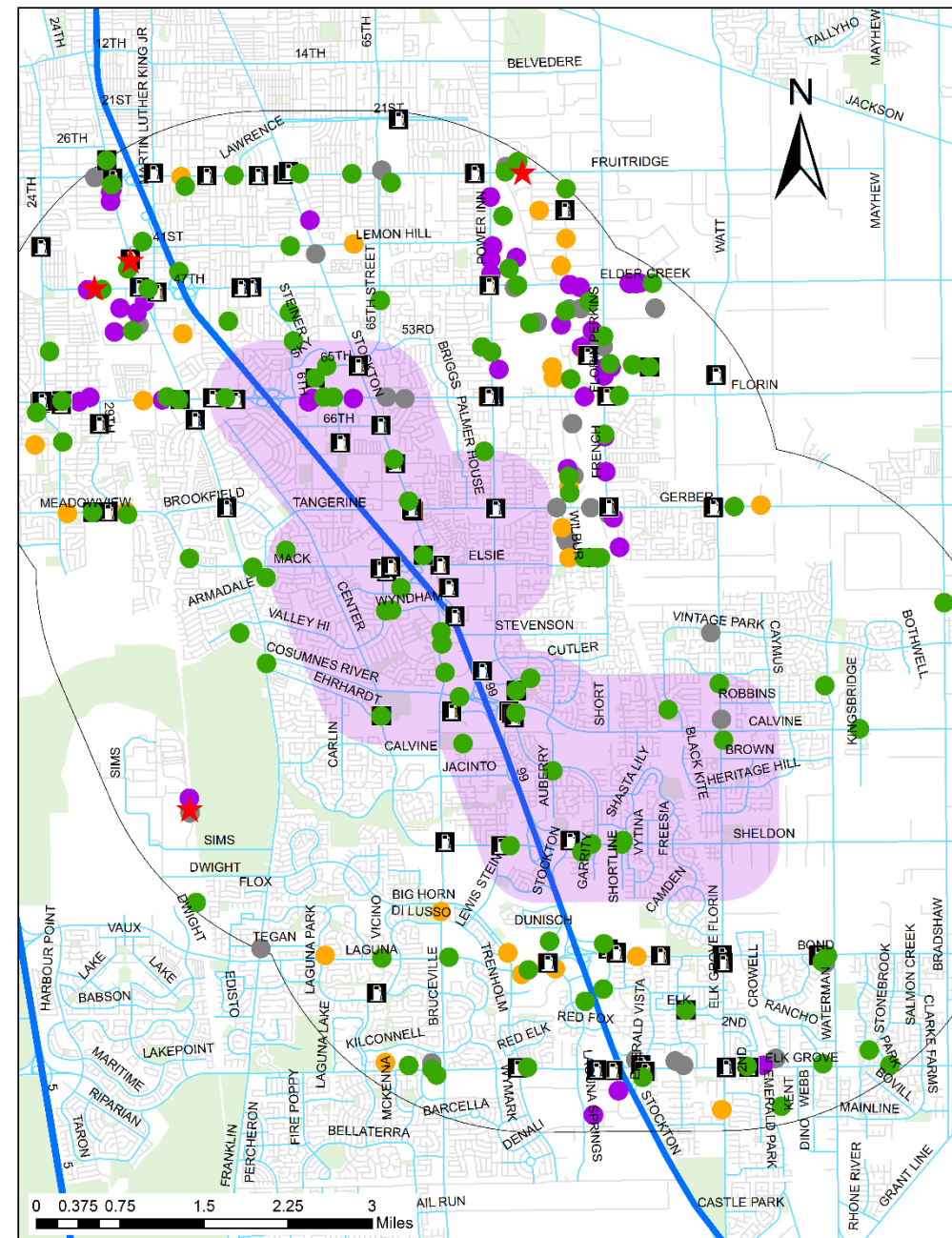
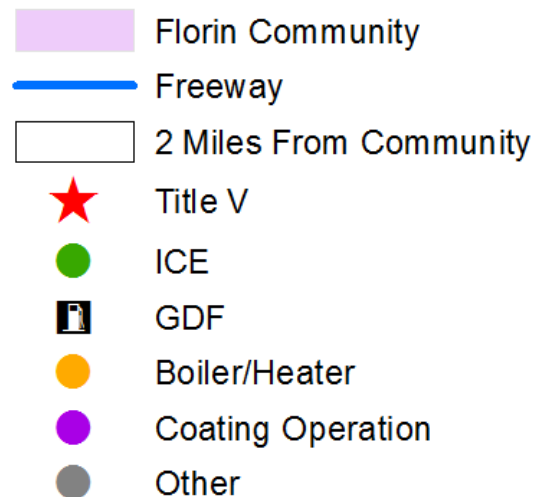
Internal Combustion Engines (ICE)

Gasoline Dispensing Facilities (GDF)

Boilers or Heaters

Coating Operations

Other (e.g. dry cleaning, concrete plant, oven/kiln)



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Vehicle Impacts on Community

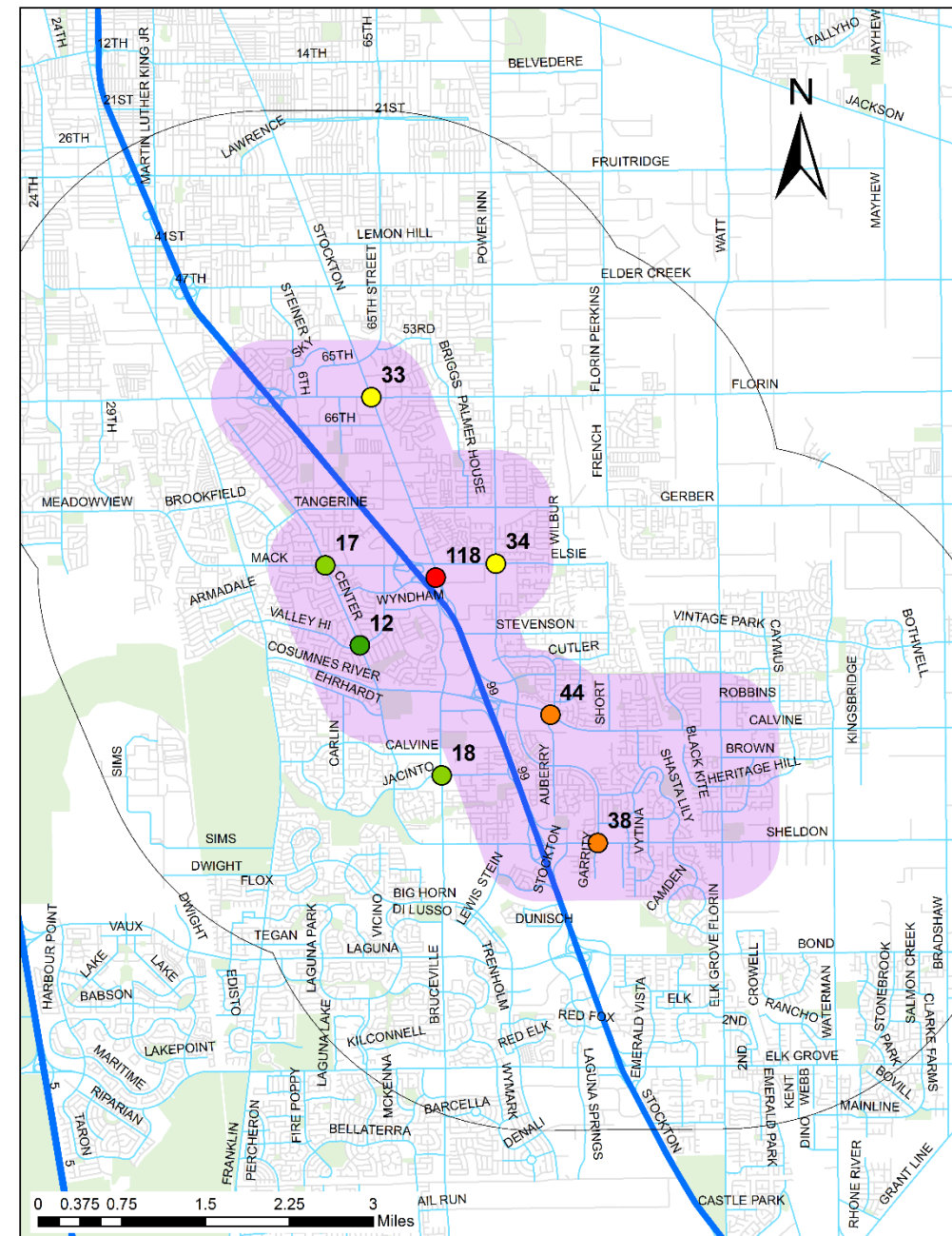
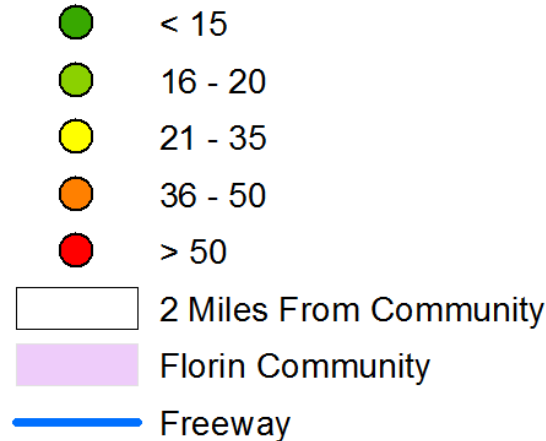
Previously, we showed a slide breaking out the contribution from mobile sources – cars, trucks, etc.

The District has developed a tool that estimates vehicle risk near busy roadways (highways)

<http://www.airquality.org/Residents/C-EQA-Land-Use-Planning/Mobile-Sources-Air-Toxics-Protocol>

Numbers displayed for some major intersections represent increased cancer risk in # per million people.

Cancer Risk (in one million)



Complaints in Florin Area from 2016-2018

