AIR QUALITY MITIGATION

(AQI) Values	Concern	
When the AQI is in this range:	*...air quality conditions are:*	*...as symbolized by this color:*
0 to 50	Good	Green
51 to 100	Moderate	Yellow
101 to 150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

Created on 5th, September 2024 |
Last updated on May 18, 2025

SRI | (408) 666-1906 | sri@srinivasan-m.com

Dear Emergency Council Board Members, Fire Chief, Sheriff, and Team,

I am writing to highlight a growing concern that continues to impact the health and air quality of Santa Clara and neighboring communities—air pollution stemming from persistent wildfires and agricultural activity across Northern and Central California.
The recurring wildfire residues from regions such as Sacramento, Sequoia & Kings Canyon National Parks, Sequoia National Forest, and the Sierra National Forests release fine particulate matter and toxic compounds that travel through wind currents into our city. In addition to wildfire smoke, pollutants from oil extraction operations and agricultural fertilizers in these areas compound the problem, adding chemical particulates that compromise the quality of the air we breathe and the health of our environment.

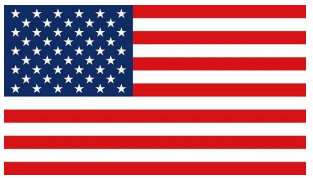
To address this, I propose the strategic installation of **wind-powered windpump sprinklers and mist sprayers** in open spaces, public parks, and buffer zones around vulnerable city areas. These systems would serve two vital purposes:

- **Air Particle Suppression:** By releasing a fine mist, they can capture airborne particles and wildfire debris, reducing the spread and settling of harmful pollutants in our urban zones.
- **Soil Regeneration:** The mist can also aid in rehydrating dry soil and promoting better nutrient absorption, converting polluted or arid soil into more fertile land over time.

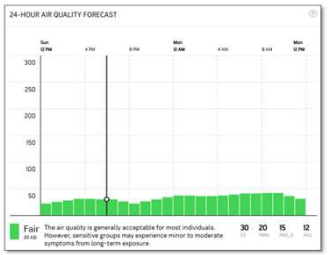
This is an opportunity to take a proactive, nature-powered approach to mitigating pollution while enhancing local green space sustainability. I look forward to exploring this proposal further and working together to strengthen Santa Clara's resilience against environmental threats.

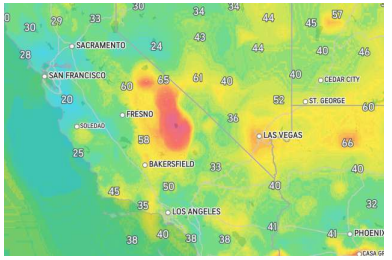
Thank you for your time and dedication.
Sincerely,

SRI
A Proud Resident of City of Santa Clara

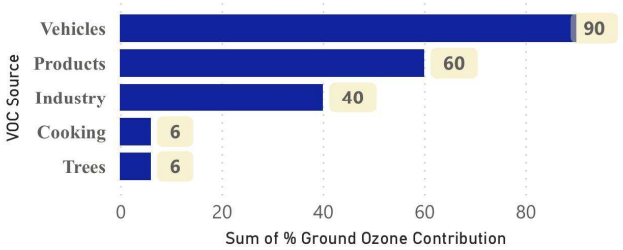


AIR QUALITY MITIGATION

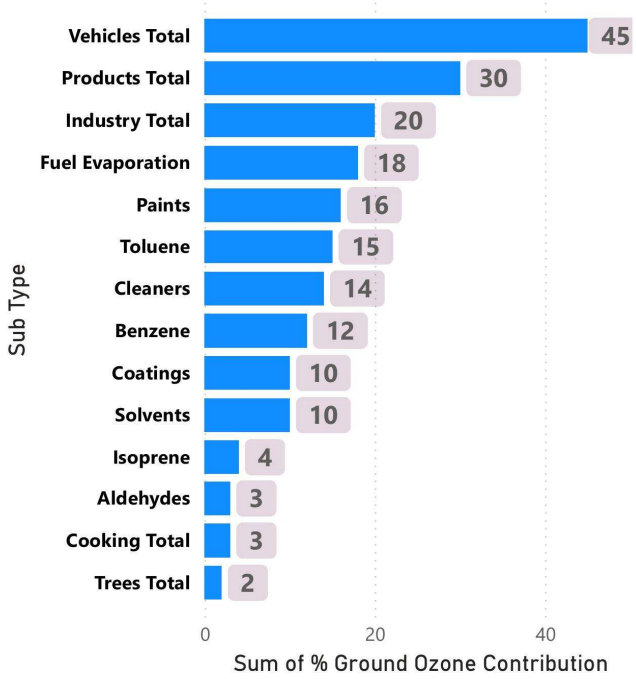




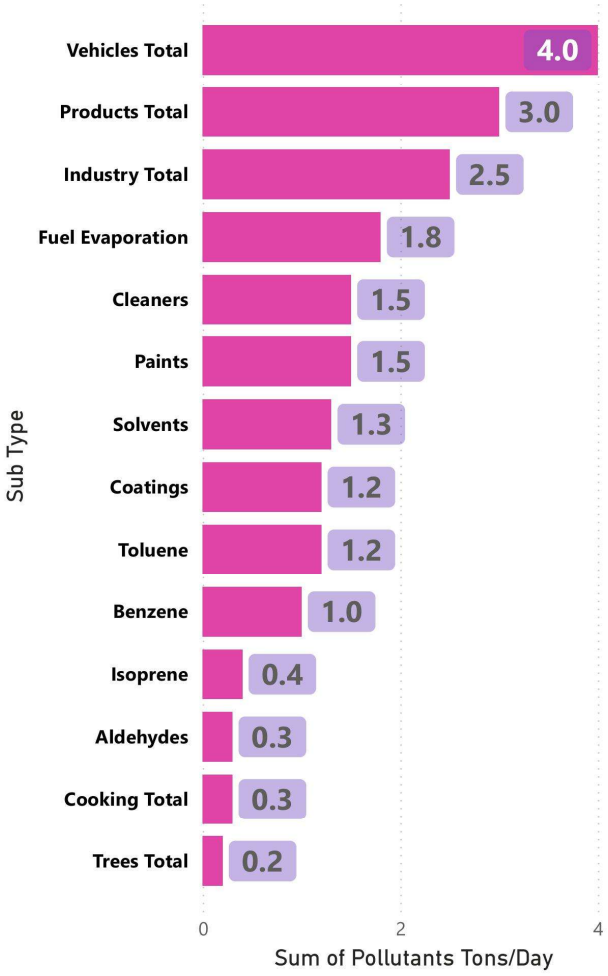
Sum of % Ground Ozone Contribution by VOC Source



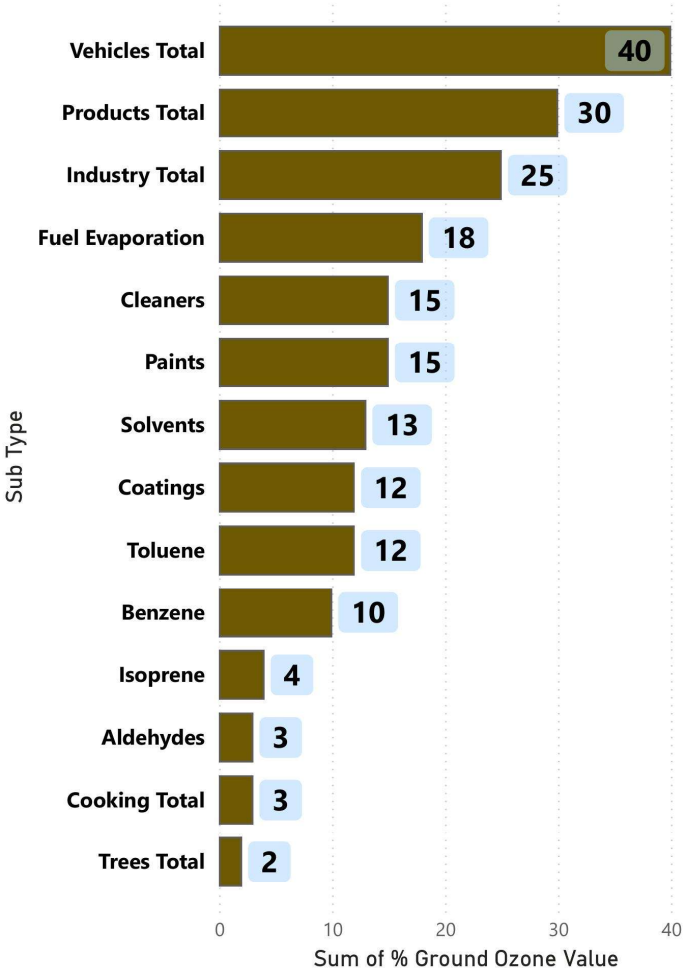
Sum of % Ground Ozone Contribution by Sub Type



Sum of Pollutants Tons/Day by Sub Type



Sum of % Ground Ozone Value by Sub Type



SRI | SRI@SRINIVASAN-M.COM | 12th APRIL 2025

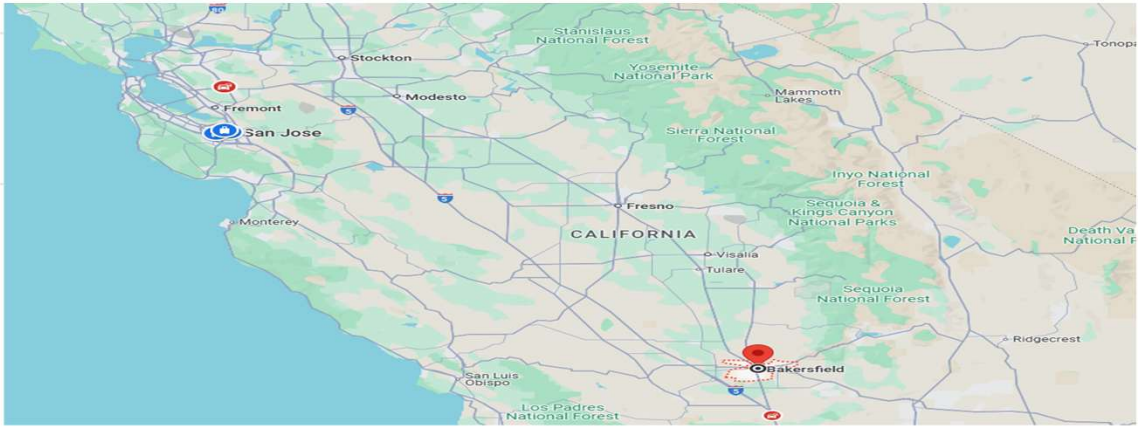
Source: Lung.org

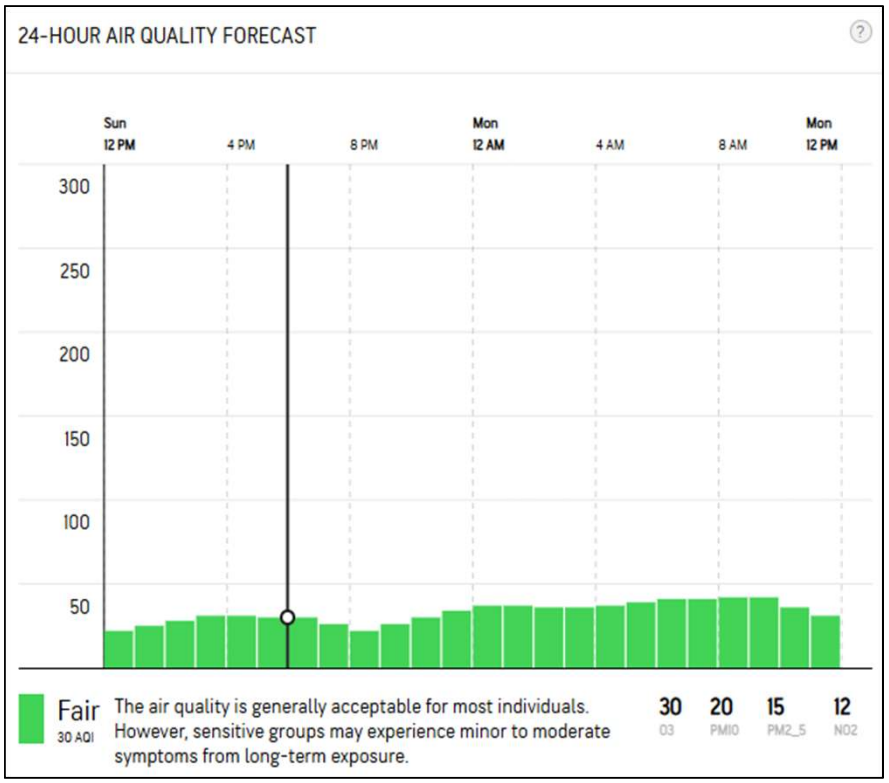
"A Primary Source of Air Pollution"

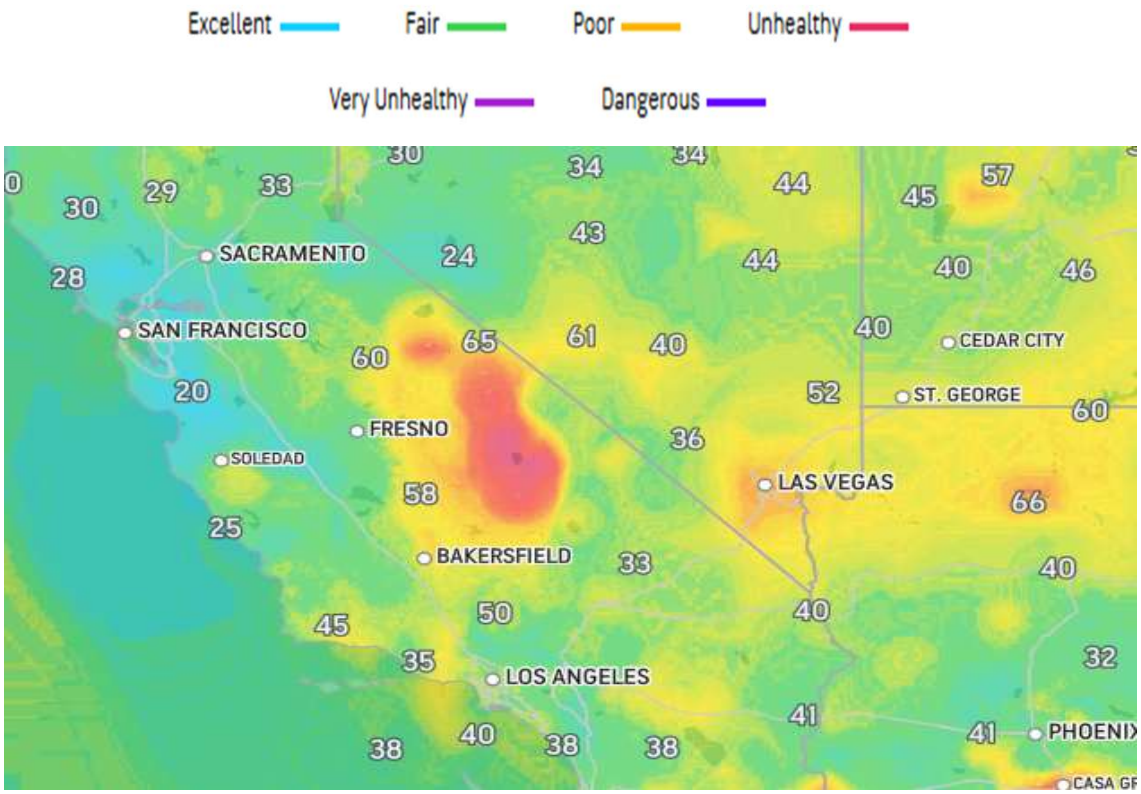
All Pollutants

23	PM2.5 (Particulate matter less than 2.5 microns) Good 5.71 µg/m3	2	CO (Carbon Monoxide) Good 260 µg/m3
4	NO2 (Nitrogen Dioxide) Good 8.18 µg/m3	12	O3 (Ozone) Good 65.81 µg/m3
6	PM10 (Particulate matter less than 10 microns) Good 7.66 µg/m3	1	SO2 (Sulfur Dioxide) Good 2.8 µg/m3

Air Quality Index







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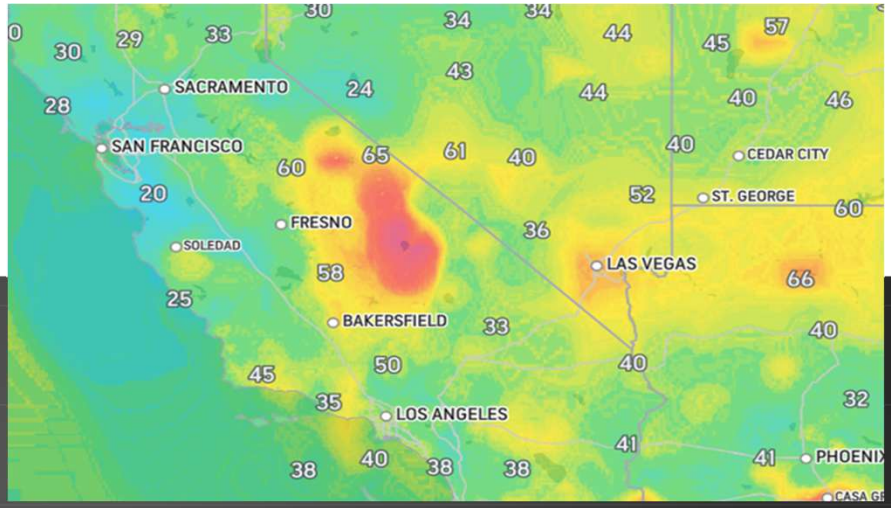
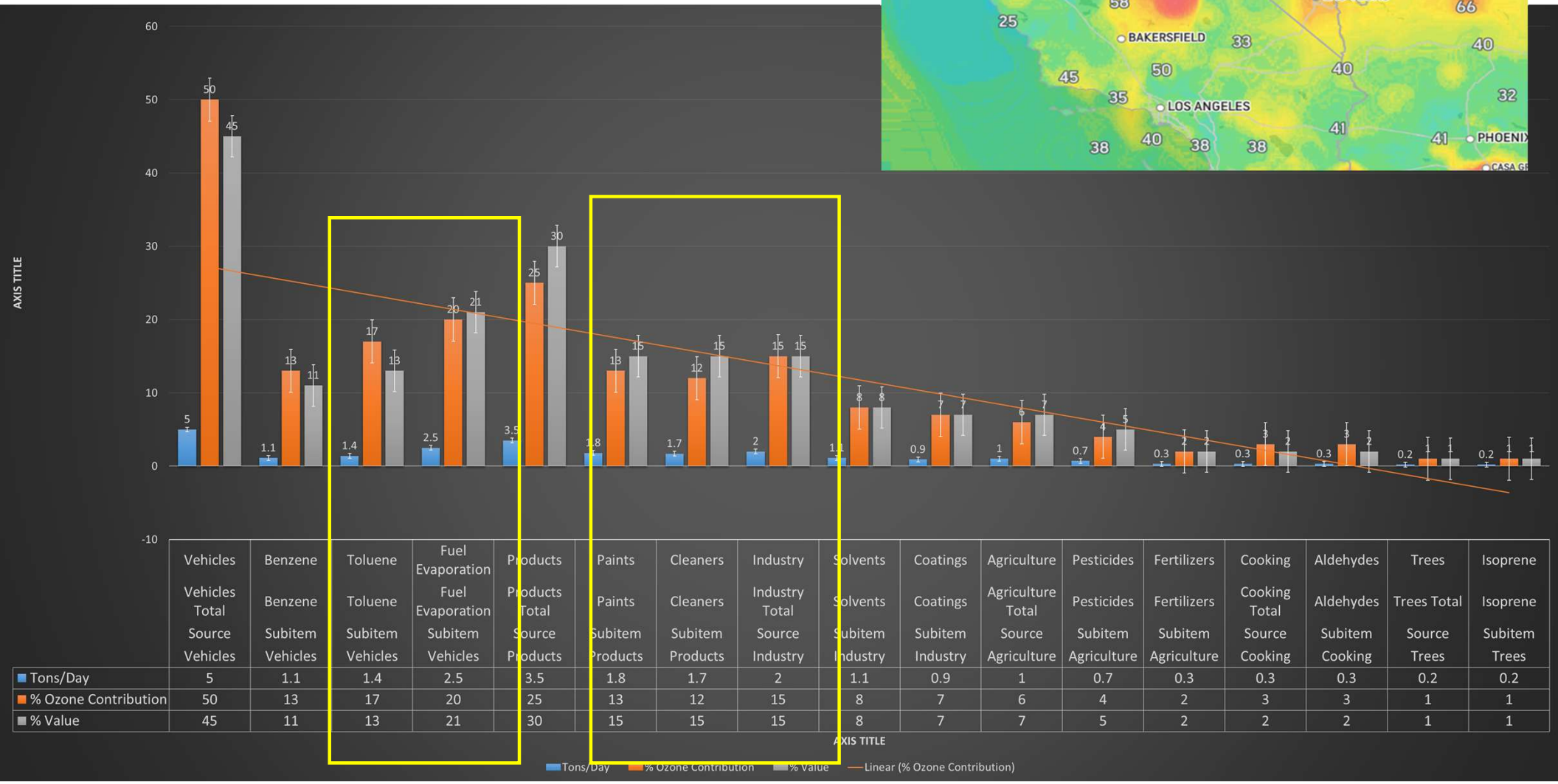




	Vehicles	Benzene	Toluene	Fuel Evaporation	Products	Paints	Cleaners	Industry	Solvents	Coatings	Agriculture	Pesticides	Fertilizers	Cooking	Aldehydes	Trees	Isoprene
	Vehicles Total	Benzene	Toluene	Fuel Evaporation	Products Total	Paints	Cleaners	Industry Total	Solvents	Coatings	Agriculture Total	Pesticides	Fertilizers	Cooking Total	Aldehydes	Trees Total	Isoprene
	Source	Subitem	Subitem	Subitem	Source	Subitem	Subitem	Source	Subitem	Subitem	Source	Subitem	Subitem	Source	Subitem	Source	Subitem
	Vehicles	Vehicles	Vehicles	Vehicles	Products	Products	Products	Industry	Industry	Industry	Agriculture	Agriculture	Agriculture	Cooking	Cooking	Trees	Trees
Tons/Day	5	1.1	1.4	2.5	3.5	1.8	1.7	2	1.1	0.9	1	0.7	0.3	0.3	0.3	0.2	0.2
% Ozone Contribution	50	13	17	20	25	13	12	15	8	7	6	4	2	3	3	1	1
% Value	45	11	13	21	30	15	15	15	8	7	7	5	2	2	2	1	1

VOC Source	% VOC Emissions	Tons/Day	% Ozone Contribution
Vehicles	40	4.0	45
Products	30	3.0	30
Industry	25	2.5	20
Cooking	3	0.3	3
Trees	2	0.2	2

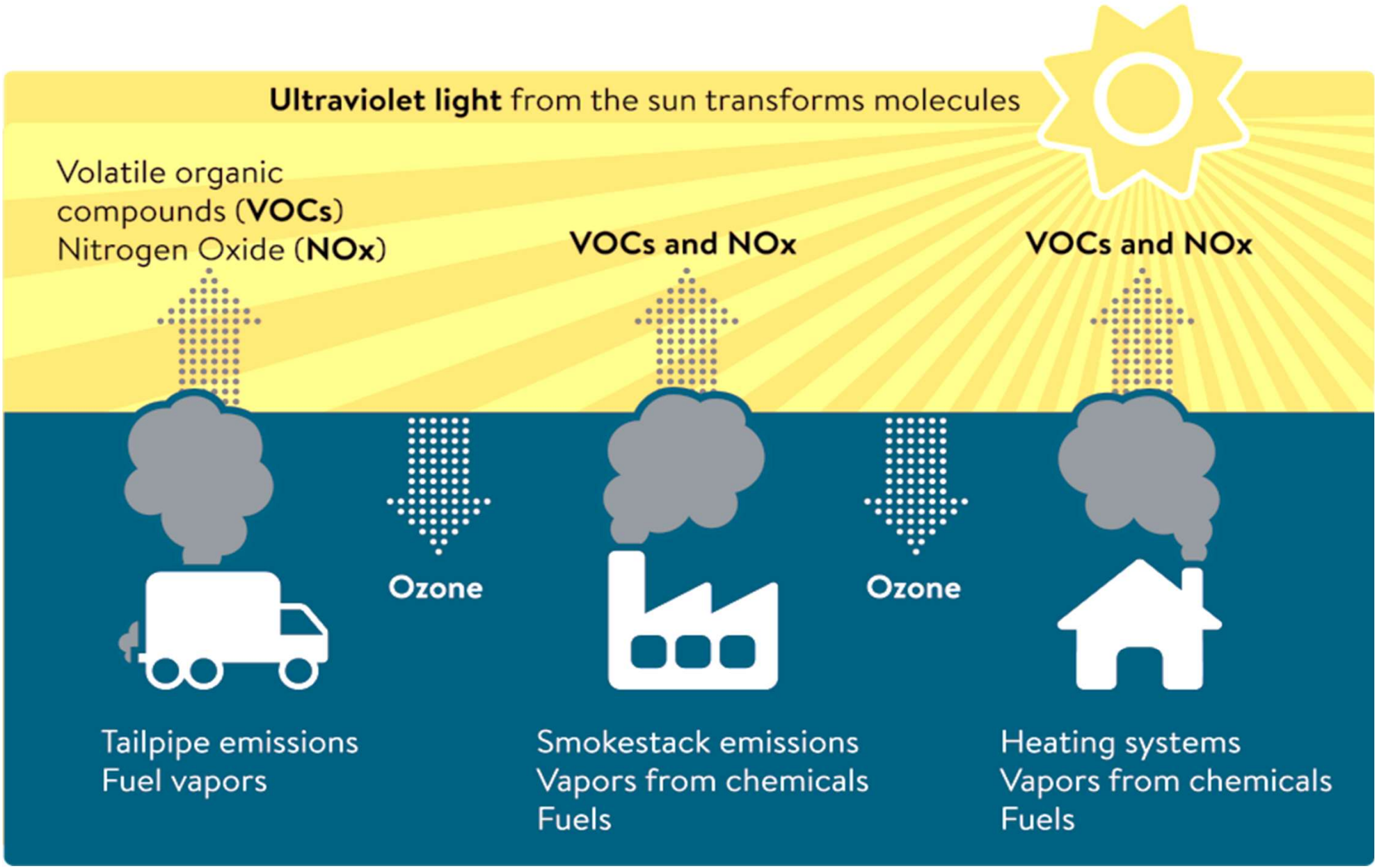
Top Contributors to VOCs and Ozone (O_3) in Santa Clara

Notes

- **Total VOC Emissions**: ~10 tons/day in Santa Clara.
- **Ozone Contribution**: VOCs account for ~50% of ozone formation.
- **Context**: Ozone averages 20–30 ppb, with peaks up to 80 ppb in summer.

Top Contributors to VOCs and Ozone (O_3) in Santa Clara

VOC Source	Type	Sub Type	Value	Tons/Day	% Ozone Contribution	% Value
Vehicles	Source		Vehicles	4.0	45	40
Vehicles	Component	Benzene	Benzene	1.0	12	10
Vehicles	Component	Toluene	Toluene	1.2	15	12
Vehicles	Component	Fuel Evaporation	Fuel Evaporation	1.8	18	18
Products	Source		Products	3.0	30	30
Products	Component	Paints	Paints	1.5	16	15
Products	Component	Cleaners	Cleaners	1.5	14	15
Industry	Source		Industry	2.5	20	25
Industry	Component	Solvents	Solvents	1.3	10	13
Industry	Component	Coatings	Coatings	1.2	10	12
Cooking	Source		Cooking	0.3	3	3
Cooking	Component	Aldehydes	Aldehydes	0.3	3	3
Trees	Source		Trees	0.2	2	2
Trees	Component	Isoprene	Isoprene	0.2	2	2

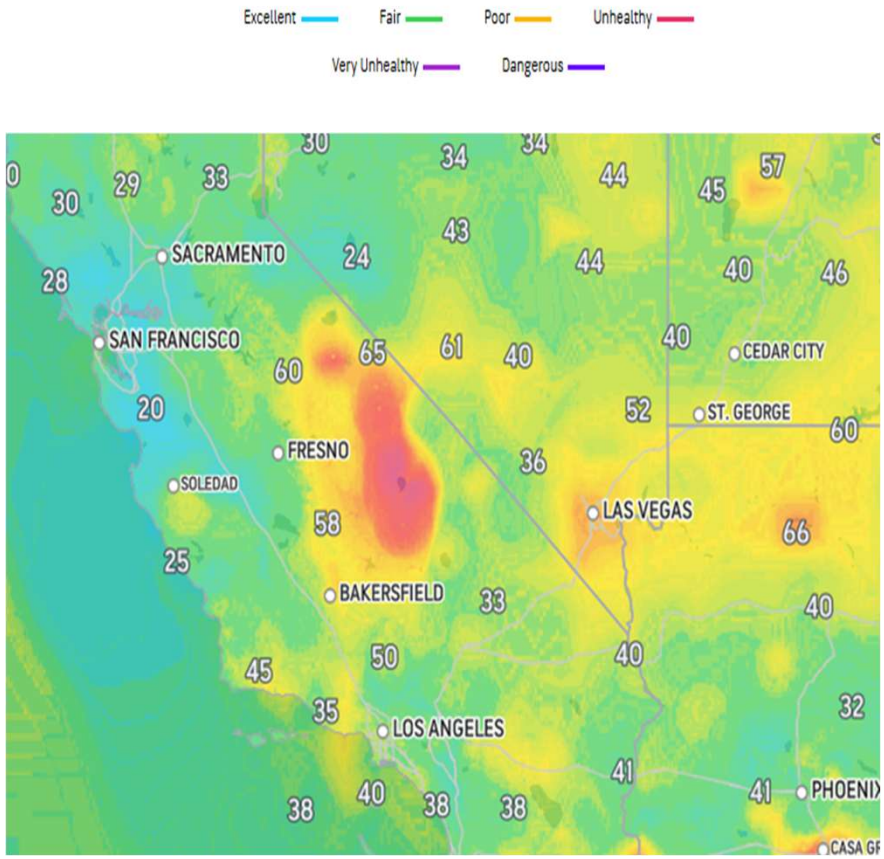

Ultraviolet light from the sun transforms molecules
Volatile organic compounds (VOCs)
Nitrogen Oxide (NOx)
VOCs and NOx
VOCs and NOx
Ozone
Ozone
Tailpipe emissions
Fuel vapors
Smokestack emissions
Vapors from chemicals
Fuels
Heating systems
Vapors from chemicals
Fuels

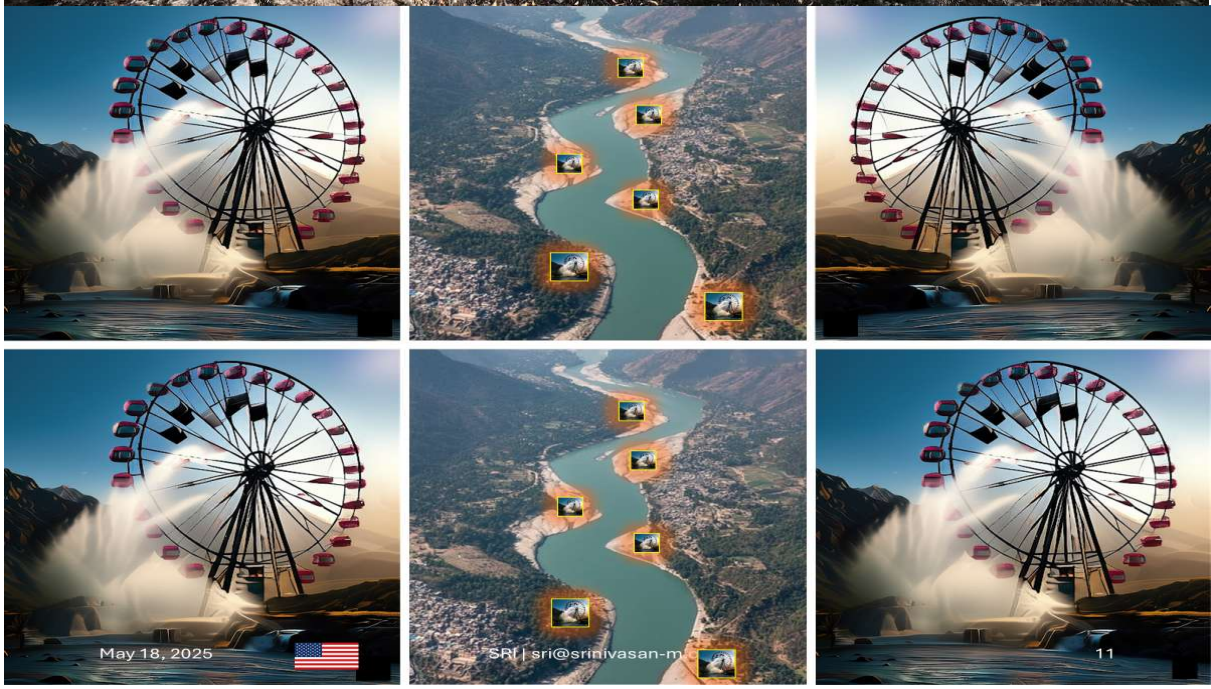

OXYGEN
NOx
(combustion process)
VOCs
(paints, solvents fuels, vegetation)
SUN
OZONE

VOC Source	Detail Type	Value	Estimated % of Total VOC Emissions	Metric (Tons/Day)	% Contribution to Ozone (O_3) Formation	Notes
Transportation Emissions	Description	Emissions from vehicle exhaust and fuel-related processes	40%	4.0	45%	Dominant due to high traffic on US-101 and I-280; highly reactive VOCs drive ozone formation.
	Benzene	Benzene emissions from gasoline exhaust		~1.0		Aromatic VOC, highly reactive in ozone formation, prevalent in rush-hour traffic.
	Toluene	Toluene emissions from gasoline exhaust		~1.2		Key VOC, significant ozone precursor, emitted during vehicle operation.
	Fuel Evaporation	Evaporative emissions from fuel handling and vehicle operation		~1.8		Includes emissions from refueling, hot-soak, and diurnal processes.
Volatile Chemical Products (VCPs)	Description	Emissions from consumer and commercial products used in households and offices	30%	3.0	30%	Significant in tech offices and homes; diverse compounds contribute to ozone.
	Alcohols	Ethanol and other alcohols from cleaning agents and personal care products		~1.0		Common in disinfectants and cosmetics, moderate reactivity with NOx.
	Esters	Ethyl acetate and other esters from paints and coatings		~0.8		Prevalent in architectural coatings, contributes to urban ozone.
	Aromatic Hydrocarbons	Xylene and other aromatics from adhesives and sealants		~1.2		Highly reactive, used in office and residential settings.
Industrial Activities	Description	Emissions from manufacturing, construction, and chemical processes	25%	2.5	20%	Tech manufacturing and construction drive emissions; less reactive than transportation VOCs.
	Alkanes	Hexane and other alkanes from solvent cleaning		~0.8		Used in semiconductor processes, moderate ozone contribution.
	Ketones	Acetone and other ketones from coatings and cleaners		~0.9		Common in construction and manufacturing, variable reactivity.
	Chlorinated Solvents	Trichloroethylene and other chlorinated compounds from industrial cleaning		~0.8		Lower ozone-forming potential but persistent in tech industries.
Cooking Emissions	Description	Emissions from commercial and residential cooking activities	3%	0.3	3%	Minor but concentrated in dining areas; contributes locally to ozone spikes.
	Aldehydes	Acetaldehyde and other aldehydes from high-heat cooking		~0.1		Released from frying and grilling, moderate ozone precursor.
	Alkenes	Ethylene and other alkenes from cooking oils		~0.1		Emitted during high-temperature cooking, reacts with NOx.
	Fatty Acid Derivatives	Fatty acid-based compounds from oil-based cooking		~0.1		Low but measurable contribution from commercial kitchens.
Biogenic Sources	Description	Natural emissions from urban vegetation	2%	0.2	2%	Low urban impact but reacts with NOx in summer; varies with temperature.
	Isoprene	Isoprene emissions from deciduous trees		~0.1		Highly reactive, emitted in warm conditions by urban trees.
	Terpenes	Alpha-pinene and other terpenes from eucalyptus and conifers		~0.08		Moderate ozone-forming potential, common in city parks.
	Sesquiterpenes	Sesquiterpene emissions from urban plants		~0.02		Minor emissions, low reactivity but present in Santa Clara's greenery.

Air Particle Suppression | Soil Regeneration

THE MOST POLLUTED & THE LOWEST AIR QUALITY ZONES





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