Cumulative Impacts

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Background

- South Coast AQMD began assessing cumulative impacts in 1997 based on input received during townhall and community meetings
- Over the past two decades, there have been significant advancement in:
 - Monitoring techniques to better and more quickly identify "hot spots"
 - Approaches to reduce criteria pollutants, toxic air contaminants, and odors
 - Mapping tools to identify and prioritize cumulative impacts that incorporate environmental, health, and other population burdens
 - Grants and incentives to reduce emissions in overburdened communities
- Over the past two decades, the average health risk in the South Coast Air Basin has reduced from 1,400 to 454 in a million

Layers and Complexity of Cumulative Impacts



Cumulative impacts can affect:

• Localized group of residents and/or sensitive receptors

 Neighborhood or community



Air pollution sources can be:

- Mobile sources
- Stationary sources
- New or expanded projects such as railyard or warehouse

	PM	Cumulative air pollution
	Cr+6	 Criteria pollutants
	H2S	 Toxic air contaminants
		 Nuisances such as odors

Of greatest concern... cumulative impacts that are adversely affecting overburdened communities that are disproportionately impacted



Factors that Can Contribute to Areas with Higher Cumulative Impacts

- Decades of incompatible land use decisions
- Prevalence of freeways and other transportation corridors
- Massive freight corridors and intermodal facilities
- Population density
- Dominance of diesel-powered trucks, locomotives, and other non-road equipment
- Stationary sources that are not well controlled
- Lack of strong enforcement programs

Complexity of Cumulative Impacts

Identification and prioritizing impacted areas
 Quantification of cumulative impacts is complex

- Source data for multiple pollution sources
- Complex health risk assessments and air dispersion modeling
- Thresholds to require addressing cumulative impacts
- Approaches to reduce cumulative impacts

First Decade Addressing Cumulative Impacts

- South Coast AQMD Board approved Environmental Justice Initiatives
- Cumulative impacts raised in Town Hall Meetings

1997

2000

- South Coast AQMD's Multiple Air Toxics Exposure II (MATES II) showed average Basin-wide risk 1,400 in a million
- Expanded environmental Justice to include cumulative impacts
- Board formed cumulative impacts committee

2002

2003

- Board approved the Cumulative Impacts White Paper
- Multifaceted approach to address cumulative impacts

About South Coast AQMD's Multiple Air Toxics Exposure Study (MATES)

- MATES is a complex analysis that quantifies the regional air toxics health risks in the South Coast Air Basin
- Cumulatively quantifies health risks from mobile and stationary sources
- First MATES study was conducted in 1987
- MATES V is the most recent study, completed in August 2021 – Diesel particulate matter main risk driver
 - MATES IV Basin average cancer risk: 997 in-a-million
 - MATES V Basin average cancer risk: 454 in-a-million
- Goods movement and transportation corridors have highest air toxics risk
- Diesel particulate remains the main driver of health risk
- Recently initiated development of MATES VI



Early approaches to address cumulative impacts were from a regulator's lens Strategies focused on rules to reduce toxic air contaminants from: Chrome plating Perc dry cleaning **Diesel back up engines** Regulatory approaches benefited all communities In general, no community-specific measures

Next Decade Addressing Cumulative Impacts

- South Coast AQMD Board approved Clean Communities Plan
- Included
 Community Based Pilot
 Program

2010

2010

- California Office of Environmental and Human Health Assessment (OEHHA) forms Cumulative Working Group
- OEHHA develops CalEnviroScreen
- First mapping tool that layers environmental and population burdens

2013

2017

• California approves AB 617 South Coast AQMD's Clean Communities Plan looked at cumulative impacts from the lens of the community

- Focused on two communities: Boyle Heights and San Bernardino
- Air quality issues and actions were identified and prioritized by the community



CalEnviroScreen

- In 2013 the California Office of Environmenta Human Hazard Assessment developed CalEnviroScreen
 - Online mapping tool that layers environmental, public health and socioeconomic data in California's 8,000 census tracks
 - Provides cumulative pollution burdens and population characteristics in communities







 CalEnviroscreen was a transformative tool

anil

Moorpark_

Thousand

Oaks

Simi Valley

Adoura Hills

Calabasa

Malibu

- Mapped the magnitude pollution, health, and economic indicators
- Helped to prioritize environmental justice communities



CalEnviroScreen's Population Burdens and Characteristics

Pollution Burdens

- Ozone
- PM2.5
- Diesel Particulate Matter
- Drinking Water Contaminants
- Children's Lead Risk from Housing
- Pesticide Use
- Toxic Releases from Facilities
- Traffic Impacts
- Cleanup Sites
- Groundwater Threats
- Hazardous Waste
- Impaired Waters
- Solid Waste Sites



- Asthma
- Cardiovascular Disease
- Low Birth Weight
- Education
- Housing Burden
- Linguistic Isolation
- Poverty
- Unemployment

Assembly Bill 617 Program

- Signed into state law in 2017
- Most robust and comprehensive cumulative impacts program to date
- Addresses disproportionate air pollution impacts in environmental justice communities
- Cumulative impacts are addressed at the community level from the perspective of the community
- Agencies work with a Community Steering Committee (CSC) to develop a Community Emission Reduction Plans (CERPs) which includes a community-identified actions

Community Emission Reduction Plans (CERPs)

Community Air Monitoring Plans (CAMPs)

Community Air Protection Incentives

Approaches to Reduce Cumulative Impacts



South Coast AQMD's Implementation of AB 617

- MATES and CalEnviroScreen used to identify communities
- Similar approach as the 2010 Clean Communities Plan on a much larger scale and significant funding
- Requires community participation
- South Coast AQMD has worked with six communities to develop CERPs and CAMPs
- Over 200 air quality priorities for the six CERPs



Vallev

South Los Angeles

Conclusion

- Cumulative impacts is complex various layers and facets
- Good analytical tools are needed to identify and prioritize impacted areas
- South Coast AQMD's and the state of California's ability to address cumulative impacts has evolved over the decades
- Programs such as AB 617 help to address cumulative impacts, but are resource intensive
- Regulatory enhancements are a good start to reducing cumulative impacts
- Even with these advancements, more is needed to reduce air pollution in communities that are overburdened and disproportionately impacted