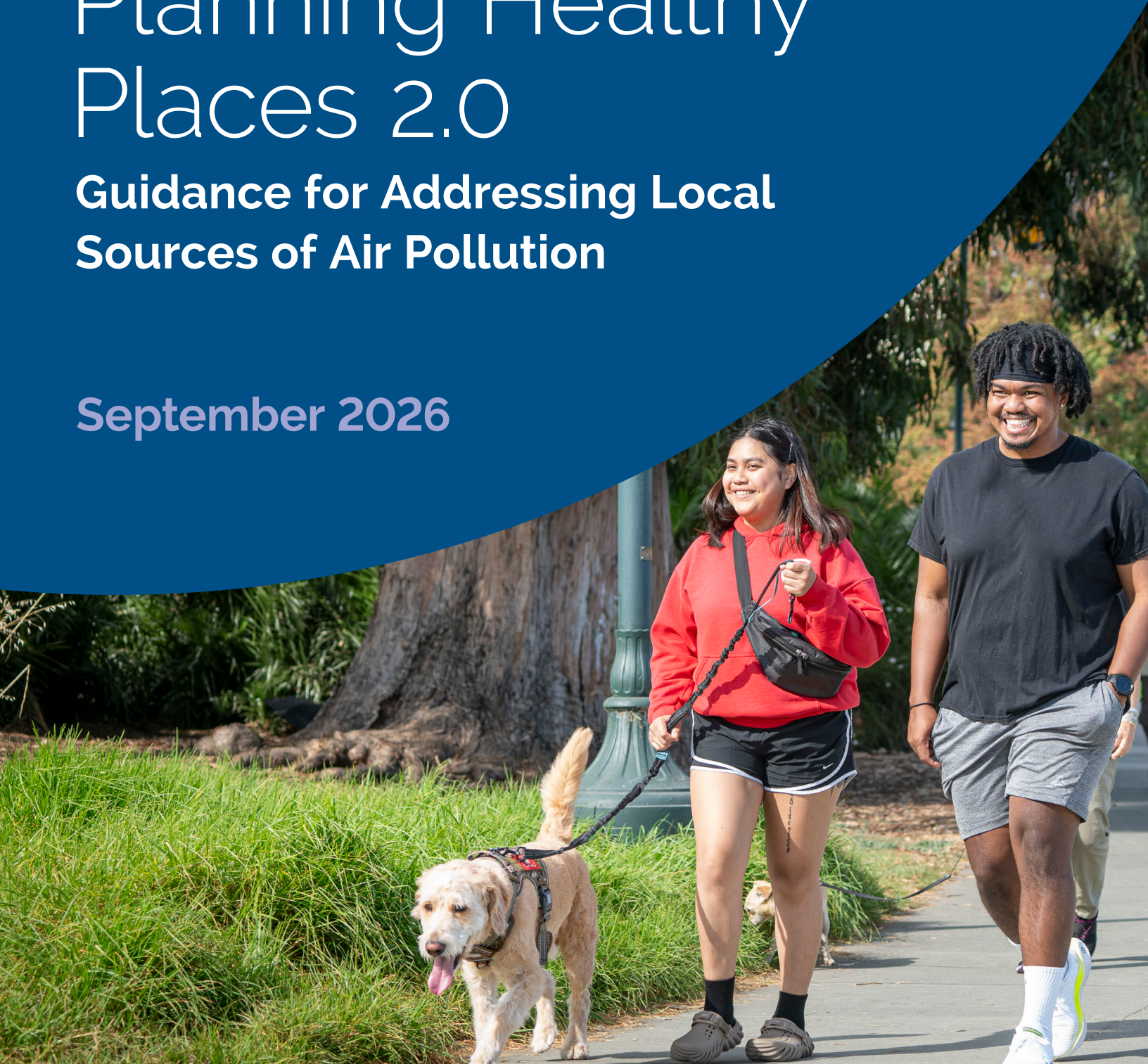


BETA DRAFT

Planning Healthy Places 2.0

Guidance for Addressing Local Sources of Air Pollution

September 2026



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Guidance for Addressing Local Sources of Air Pollution

This report is for information purposes only. Recommendations are advisory and should be followed by local governments at their own discretion. This report may inform local land use planning in the Bay Area but does not commit local governments or the Air District to any specific course of action.

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LAND USE, PLANNING, AIR POLLUTION, AND COMMUNITY HEALTH

Purpose of Planning Healthy Places Guide

The purpose of this guide is to provide resources to support local governments in air quality and health-protective planning efforts. They include mapping resources to identify communities overburdened by air pollution and other environmental, health, and socioeconomic stressors (generally referred to as “communities” in this document), as well as examples of health-protective mechanisms from air pollution exposure (generally referred to as “health-protective mechanisms” in this document). Before presenting these resources, this guidance describes the health impacts of exposure to local air pollution in communities, the evolution of *Planning Healthy Places*, and the Air District’s role in advancing this work.

Clean air underpins public health, well-being, and quality of life in the San Francisco Bay Area (Bay Area). Although regional air quality has improved overall in the Bay Area in recent decades, exposure to air pollution at the local level remains unevenly distributed across the region, disproportionately impacting the health of communities that already experience environmental, health, and socioeconomic burdens.

These disparities are the result of historical discriminatory policies and practices that shaped land use patterns and concentrated pollution sources near certain communities. In addition, local jurisdictions often face the challenge of balancing industrial and economic development activities with the need to protect public health, particularly in areas where residential and industrial uses sit adjacent to one another. While addressing these challenges within existing land use patterns can be complex, there are steps that local governments can take within current planning and regulatory frameworks to improve community health outcomes while still achieving economic vitality.

Disproportionate Impacts of Local Air Pollution

Air pollution is often concentrated near busy roadways, major transportation corridors, ports, industrial facilities, and other pollution sources that are disproportionately located in lower-income and Black, Indigenous, and People of Color (BIPOC) communities.^{i,ii} Across the United States, BIPOC communities experience higher levels of air pollution, regardless of their income.ⁱⁱⁱ Research shows that, although air quality in the U.S. has generally improved in recent decades, Black and Latinx/Hispanic Americans remain exposed to higher levels of air pollution than the national average.^{iv} These national trends are also true for the Bay Area’s lower income and BIPOC communities.

Cumulative Impacts and Health Disparities

Unequal exposure to air pollution translates directly into unequal health outcomes. One of the air pollutants imposing the largest health burden is fine particulate matter (PM_{2.5}), which includes diesel particulate matter (DPM), a toxic air contaminant, and carcinogen.^v Extensive scientific research links exposure to particulate matter (PM), as well as nitrogen oxides (NO_x) and other toxic air contaminants (TACs), to increased risks of cardiovascular and pulmonary disease, including heart attacks, stroke, asthma, bronchitis, and emphysema, as well as diabetes and dementia.^{vi} These health impacts are often intensified in communities already

facing multiple non-environmental stressors, including economic insecurity, inadequate housing, limited access to health care, and linguistic isolation.^{vii}

These health impacts are compounded over time by overlapping environmental, health, and socioeconomic stressors. The Office of Environmental Health Hazard Assessment (OEHA) defines cumulative impacts as “the combined effects of pollution exposures and associated public health or environmental effects within a geographic area, taking into account populations that are especially sensitive, such as young children and people with asthma, as well as socioeconomic factors, including poverty, race and ethnicity, and education.”^{viii} These impacts arise as individual decisions and actions by private businesses or government agencies accumulate over time, negatively affecting community health, well-being, and quality of life. Because populations face greater risk from air pollution and other environmental hazards depending on factors such as neighborhood characteristics, income, education, and access to resources, and because many communities already face economic insecurity, inadequate housing, limited access to health care, and linguistic isolation, the cumulative impact of air pollution exposure often falls disproportionately on lower-income communities of color.

See Figure 1 below for a summary of key concepts for environmental health and equity.

Figure 1: Environmental Health and Equity - Key Concepts^{ix}

Health Disparities

Health disparities are the “differences in health status among distinct segments of the population, including differences that occur by gender, age, race or ethnicity, sexual orientation, gender identity, education or income, disability or functional impairment, or geographic location, or the combination of any of these factors.”

Systemic Racism

Health disparities stem from a long history of racial exclusion and discrimination. Policies such as redlining and chronic disinvestment have marginalized BIPOC communities, concentrating economic and social disadvantage over time.

Land Use Planning

Land use decisions have shaped unequal environments. Zoning and development practices have placed pollution-generating industries in certain neighborhoods, historically those where BIPOC communities were forced to reside, while limiting the availability and access to green space, and clean infrastructure.

Intersection: Ongoing Health Disparities

Together, systemic racism and inequitable land use planning have concentrated environmental burdens in low-income and BIPOC communities. This has led to great exposure to pollution, reduced access to healthy environments, and persistent disparities in health outcomes across the Bay Area.

The Role of Local Jurisdictions

Local jurisdictions play a critical role in addressing air pollution-related health disparities through land use planning and decision-making. Intentional and health-protective planning is needed to improve health outcomes in the region’s communities. While addressing the long-term effects of

historical redlining and disinvestment will take time, local jurisdictions can take meaningful near-term actions to address air pollution exposure inequities and improve community health.

Planning Healthy Places 2.0 (PHP 2.0) provides information, resources, and examples to help local jurisdictions strengthen how they incorporate air pollution and health disparities into plans, policies, and project decisions, including siting, design, and permitting.^x

PLANNING HEALTHY PLACES 2.0

The Evolution of Planning Healthy Places Guidance

In 2016, the Bay Area Air District (Air District) published *Planning Healthy Places* (PHP), a guidebook to help local governments integrate land use, air quality, and public health considerations in support of infill development, while promoting clean, healthy air for existing and future residents. PHP 2.0 updates and replaces this guidance to reflect current planning needs and priorities. PHP 2.0 also expands the focus beyond new development to include existing land use patterns and recommends an updated approach to identifying communities overburdened by air pollution and other stressors (generally referred to as “communities” in this document).

PHP identified communities impacted by air pollution by using the Air District’s Community Air Risk Evaluation (CARE) program. The CARE program identified areas where air pollution contributed the most to health impacts and where populations were most sensitive to air pollution based on emissions data for toxic air contaminants and PM_{2.5} from stationary and area sources and from health data.^{xi} While these maps helped target emission and exposure reduction strategies, planning and public health practices have evolved over the past decade to recognize that additional key factors influence health outcomes from air pollution exposure.

Contemporary approaches take a more holistic view that considers how multiple factors can cumulatively exacerbate the ways in which air pollution affects community health and environmental justice. The Air District has used CalEnviroScreen to support the classification and designation of certain areas for enhanced regulatory requirements, prioritized and/or enhanced resource allocations, and the development of localized emission reduction plans.^{xii,xiii} CalEnviroScreen is also used to help characterize local socioeconomic and environmental conditions, and to estimate the extent to which programmatic investments are directed to certain communities. The development of localized emission reduction plans is currently executed through the Air District’s Community Health Protection Program (C. Garcia, Chapter 136, Statutes of 2017) for the following communities: West Oakland, Richmond-North Richmond-San Pablo, East Oakland, and Bayview Hunters Point/Southeast San Francisco.^{xiv} This cumulative impacts approach recognizes that community health and well-being are shaped by multiple, overlapping factors.

Alignment with the Air District's Mission and Role

PHP 2.0 advances the Air District’s mission to improve air quality, reduce environmental inequities, and mitigate climate change. For more than 70 years, the Air District has worked to advance this mission through air monitoring and modeling, emissions regulations, enforcement, grants and incentives for cleaner technologies, and community outreach. The Air District also works in partnership with local governments across the Bay Area through its Local Government

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Support Program, which supports jurisdictions to meet clean air, climate, and equity goals in their communities.

PHP 2.0 also advances the Air District's 2024-2029 Strategic Plan, which commits the Air District to provide tools to help local jurisdictions incorporate environmental justice, air quality, and climate priorities into planning and permitting.^{xv} It also responds to priorities outlined in *A Call to Action: Charting a New Course Toward Environmental Justice at the Bay Area Air Quality Management District*, which calls for meaningful assistance to jurisdictions working to reduce pollution burdens in the communities most affected.^{xvi}

PHP 2.0 builds on this work by giving local governments a practical guide to integrate air quality and environmental justice priorities into land use planning decisions that shape where pollution sources that can directly impact communities are located.

What Planning Healthy Places 2.0 Provides

PHP 2.0 provides local jurisdictions with practical guidance to reduce air pollution emissions and exposure in the region's communities. The guidance brings together air quality, public health, and environmental justice information, mapping resources to help identify communities, and examples illustrating planning mechanisms used by jurisdictions in the Bay Area and across California. These various resources provide a template that can be adapted by local jurisdictions to protect health in their communities. PHP 2.0 is designed to support and encourage integration of these approaches into local plans, policies, ordinances, zoning, and project decisions, while recognizing that addressing air quality is one of several interconnected factors that can support healthy and equitable communities.

INTEGRATING AIR QUALITY, PUBLIC HEALTH, AND ENVIRONMENTAL JUSTICE INTO LOCAL PLANNING

How to Plan for Healthy Communities

While the Air District regulates stationary sources of air pollution across the nine-county San Francisco Bay Area, local jurisdictions have authority over land use planning and therefore play a significant role in shaping where and how development occurs, and the level of community exposure to air pollution.

Local land use planning is critical for protecting communities overburdened by air pollution and other environmental, health, and socioeconomic stressors (or communities). The planning process serves as the ongoing, collaborative framework through which local governments, planners, and the public shape how a community grows and changes, surfacing needs, building consensus, and tailoring decisions to specific local conditions. The plans that emerge are adopted by local governing bodies and serve as the formal framework guiding both new development and changes to existing development over time, as well as transportation and open space, among other local planning priorities. Together, these foster consistency and transparency, reducing the need to address air quality and health impacts (and other local priorities) on a project-by-project basis and enabling jurisdictions to proactively reduce exposure in communities already facing compounding environmental, health, and socioeconomic stressors.

The sections that follow provide resources to help local governments put this proactive, health-protective approach to land use planning into practice, beginning with mapping resources to help jurisdictions identify communities. Subsequent sections present examples from Bay Area and California jurisdictions that have used policy, municipal codes, zoning, permitting, and project approvals to implement health-protective land use strategies that address air pollution exposure. These examples can be adapted to the local context and specific community needs.

Identifying Communities

To support land use planning that meaningfully benefits communities, jurisdictions must first identify where these communities are located and understand the cumulative health, environmental, and socioeconomic conditions they face, including air pollution exposure.

In response to California Senate Bill 1000 (SB 1000), many jurisdictions across California have developed local environmental justice community maps to inform planning decisions and reduce disproportionate burdens. One example is Marin County's Health Equity Zone Dashboard, which maps five communities within Marin County using eleven health, environmental, and socioeconomic indicators, including pollution burden.^{xvii,xviii}

In addition, several state and regional mapping resources support identification of communities most burdened by air pollution and other stressors by incorporating cumulative health, environmental, and socioeconomic data. These include, but are not limited to: CalEnviroScreen 5.0, the California Healthy Places Index (HPI) Map, the Air District's Overburdened Communities Map, Local Government Support Geospatial Data and Map Portal, and the Air District Public Data Catalog, as described in more detail in Table 1 below.

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Table 1: State and Regional Mapping Resources to Identify Communities Overburdened by Air Pollution and other Environmental, Health, and Socioeconomic Stressors

Map Scale	Map Name	Map Details	Map Link
State	The Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen 5.0	<i>Description of Map:</i> It integrates environmental indicators, health outcomes, and socioeconomic factors to produce cumulative scores for each census tract in California, allowing for consistent comparison across communities.^{xix} <i>What Makes this Map Unique:</i> It produces a cumulative score that includes a pollution burden (exposure and environmental effects) and population characteristics (sensitive populations and socioeconomic factors) for each census tract at a statewide scale. <i>When to Use this Map:</i> It provides census tract-level percentile scores that allow jurisdictions to compare cumulative pollution burdens, or scores, across communities. In addition to an overall cumulative score, the map breaks down scores by component, including pollution burden indicators (such as air quality, hazardous waste, and drinking water) and population characteristics (such as poverty, housing burden, and health outcomes), making it possible to identify not just which communities are most overburdened by air pollution and other environmental, health, and socioeconomic stressors, but underlying drivers of that cumulative burden. Users should note that CalEnviroScreen percentile scores reflect statewide rankings. A census tract in the Bay Area may face significant local pollution burdens while scoring at a lower statewide percentile, because rankings reflect conditions relative to all census tracts in California, including regions with higher overall pollution levels. Bay Area jurisdictions should interpret scores with this statewide context in mind.	https://oehha.ca.gov/calenviroscreen
State	California Healthy Places Index (HPI) Map	<i>Description of Map:</i> It combines more than 20 community characteristics across eight domains: economic, education, social, transportation, clean environment, healthcare access, housing, and neighborhood, into a single score available at the census tract, zip code, county, city, and other geographies. Scores run from 0 to 100, where 0 is least advantaged, and 100 is most advantaged, reflecting a community's relative access to the social and environmental conditions linked to life expectancy. Users can filter results by indicator and by race/ethnicity. The map also includes decision-support layers, such as adaptive capacity for climate change and tree canopy, alongside policy opportunities to improve community health outcomes. Additional HPI mapping resources include datasets on projected heat exposure for California and key COVID-19 measures.	https://map.healthplacesindex.org/?redirect=false

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		<i>What Makes this Map Unique:</i> HPI centers the broader social determinants of health. The map provides decision-support layers and policy recommendations tailored to community needs, and allows filtering by race, ethnicity, and country of origin, including historic redlining data. The HPI applies a positive frame to focus on assets a community can build on, rather than what it is lacking. <i>When to Use this Map:</i> It can be used by jurisdictions across California to compare the health and well-being of communities, identify health inequities, and quantify the factors that shape health.	
Regional	Air District Overburdened Communities Map	<i>Description of Map:</i> It identifies overburdened communities, as defined by the Air District's <i>Regulation 2, Rule 1: General Requirements</i>, Section 2-1-243. An overburdened community is a community located within a census tract identified by CalEnviroScreen 4.0 as having an overall score at or above the 70th percentile or located within 1,000 feet of any such census tract.^{xx,xxi} <i>What Makes this Map Unique:</i> It is based on the Air District's definition of overburdened communities and uses both CalEnviroScreen 4.0 percentile scores and a 1,000-foot buffer to capture both potential air pollution sources and populations sensitive to air pollution outside the identified census tract boundary. This buffer reflects the Air District's approach to health risk assessments (HRAs), where a 1,000-foot buffer is standard practice for identifying populations sensitive to air pollution near air pollution sources, particularly those near larger industrial sources such as refineries, power plants, and chemical plants, as well as freeways, highways, major roads, rail lines, marine ports, ferries, and airports. <i>When to Use this Map:</i> It can be used by Bay Area jurisdictions seeking to align with a regulatory definition used by a regional agency for overburdened communities, such as the Bay Area Air District's regulatory definition, referenced here.	https://www.baaqmd.gov/en/about-air-quality/interactive-data-maps
Regional	Local Government Support Geospatial Data and Map Portal	<i>Description of Resource:</i> This Air District's Data and Map portal hosts three interactive maps designed to support CEQA lead agencies and practitioners in environmental review, as well as local governments in land use planning, policy, and environmental analysis. <u>Mobile Source Screening Tool:</u> Visualizes cumulative cancer risks, PM_{2.5} concentrations, and non-cancer health hazards from roadways and rail lines across the Bay Area, using	https://experience.arcgis.com/experience/89ba715c4dc7427f85e2d2fc5b8175ff/page/Overview

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		2022 (roadway) and 2024 (rail) emissions data. Eight toggleable layers are available covering roadways and rail. <u>Stationary Source Screening Tool</u>: Provides emissions data and screening-level health risk and hazard estimates for all Air District permitted stationary sources. Users can generate downloadable reports for sources within a user-defined area; the Air District recommends evaluating all sources within 1,000 feet of a proposed project for CEQA purposes.^{xxii} <u>Project Location Screening Tool</u>: Provides toggleable layers to identify whether a project is located in an overburdened, AB617, or state-identified disadvantaged community. The Air District's CEQA Guidelines, Chapter 2 provides further guidance on using this tool, as well as best practices on centering environmental justice, health, and equity in the siting, design, and development of projects under the California Environmental Quality Act (CEQA).^{xxiii} <i>What Makes this Resource Unique</i>: It is the only Air District resource that integrates mobile and stationary source health risk screening tools alongside community designation layers in a single portal. <i>When to Use this Resource</i>: Use this portal when evaluating air quality impacts from nearby roadways, rail lines, or permitted stationary sources in a CEQA review or local planning context, or when determining whether a project falls within a designated overburdened or environmental justice community.	
Regional	Air District Public Data Catalog	<i>Description of Resource</i>: It includes curated publicly available data from the Air District, with a focus on data layers created to support Assembly Bill 617 (C. Garcia, Chapter 136, Statutes of 2017) Community Emissions Reduction Plans (CERPs) for the following communities: West Oakland, Richmond-North Richmond-San Pablo, East Oakland, and Bayview Hunters Point/Southeast San Francisco.^{xxiv} Examples of data included in the catalog are: • Community boundary maps and maps of sensitive land uses, such as childcare centers, among other resources, (see “Administrative Boundaries”) • 2024 stationary source screening map data, among other resources, (see “Environment”) • AB617 East Oakland age distribution, among other resources, (see “Land and People”)	https://datacatalog.baaqmdsf.org/

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		• AB617 East Oakland industrially zoned land, among other resources, (see “Policy”) • Commuter ferry routes within the AB617 Path to Clean Air, among other resources, (see “Transportation”) The catalog can be explored using the following filters: Demography, Environmental Justice, Equity, Infrastructure, Jurisdiction Boundaries, Land & People, Land Use, Pollution, Roadways, Service Areas, and Transportation. <i>What Makes this Resource Unique:</i> The Air District's Public Data Catalog includes curated data sources selected or developed in direct partnership with community members. This work came from the Air District's earlier CARE program and progressed with AB617 communities who represent some of those most heavily burdened by air pollution in the Bay Area. Since this planning was community-driven, the data sources selected or developed offer on-the-ground insight that can be especially valuable for local jurisdictions. <i>When to Use this Resource:</i> It can be used by a local jurisdiction with an AB617 community boundary to identify neighborhoods to be prioritized for air pollution reduction efforts. It can also be used by local jurisdictions to identify and address sources of air pollution most likely to impact sensitive land uses such as daycare centers.	
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Creating and Updating Policies

Local jurisdictions can create or update policies to address air pollution-related health disparities through general plans or specific plans, which may include, for example, an environmental justice element. Policies are most effective for establishing health-protective priorities, considering stressors that have a cumulative impact, and laying the groundwork for future zoning or code changes without immediately imposing enforceable standards. Policies may be adopted more quickly and with fewer procedural constraints than zoning or code changes and can be well-suited for responding to emerging issues as they often serve as a precursor to regulatory action. For example, a local jurisdiction could adopt a policy prioritizing protection of populations that are more sensitive to air pollution exposure by not allowing new pollution sources within a certain distance from homes, schools, or other sensitive land uses.

The following examples illustrate how policies can further the goal of protecting public health from air pollution exposure through amortization, overlay zones, addressing truck pollution, and urban greening.

Amortization

In this context, amortization refers to a process to terminate a nonconforming use after a period of time that is sufficient to allow the owner of the property and/or business to recover their investment in the use/business.^{xxv}

City of Oakland's Policy EJ-A.5 Amortization Pilot in AB617 Areas^{xxvi}

The City of Oakland's Environmental Justice Element of the 2045 General Plan includes a policy to implement an amortization pilot in AB617 areas. An excerpt from this policy is included below. See the City of Oakland's Environmental Justice Element for additional health-protective policy examples.

As part of a feasibility study implement an amortization pilot in AB617 areas, which allows the City to identify and prioritize nonconforming land uses (which could include existing polluting industries, truck-intensive uses, autobody uses, recycling uses, etc.) to phase out over time prioritizing areas within 1,000 feet of primarily residential impacted areas.^{xxvii}

City of National City Amortization of Non-Conforming Pollution Land Use Policy^{xxviii,xxix}

The City of National City adopted an amortization ordinance granting it the authority to discontinue incompatible land uses in areas with populations sensitive to air pollution exposure and help transition the industrial area to a green industrial park.^{xxx} It focuses on the blocks with auto body, car repair, and industrial uses adjacent to residences, the freeway, the Port of San Diego, and a large industrial base.^{xxxi} The ordinance allows for a reasonable amount of time before the business must leave that location, unless the nonconforming use is an imminent threat to public health or safety, and in that case it must be terminated immediately.^{xxxii} Excerpts of the policy are included below. Practitioners are encouraged to review the full Municipal Code Chapter 18.11 Nonconforming Uses for more information on the factors considered in recommending a reasonable amount of time and additional

language from the ordinance, as well as a map of existing uses, prior zoning, and a ranking list of nonconforming uses, among other resources related to this ordinance.

18.11.010 - Purpose.

Within the zones established by this title, there exist uses, structures and lots which were lawful before the Land Use Code was adopted or amended, but which would be prohibited under the terms of this title or future amendment to this title. It is the intent of this title to permit these nonconforming uses to continue until they are terminated, but not to encourage their expansion. To avoid undue hardship, nothing in this chapter shall be deemed to require a change in the plans, construction, or designated use of any building where a building permit has been issued prior to the effective date of the Land Use Code, provided such permit construction is diligently carried to completion.

18.11.020 - Continuance.

Any lawful nonconforming use existing at the time of adoption of the Land Use Code may be continued, provided such use is continually maintained and occupied. A nonconforming use in either a conforming building or a nonconforming building, structure, or portion of either shall neither be extended to any portion of the building or structure not so used nor be enlarged or extended to any other portion of the lot not actually so occupied at the time said use became nonconforming, except as otherwise provided in this chapter.^{xxxiii}

Overlay Zones

An overlay zone is a “zoning district which is applied over one or more previously established zoning districts, establishing additional or stricter standards and criteria for covered properties in addition to those of the underlying zoning district.”^{xxxiv}

Contra Costa County's Policy SC-A1.3 Impacted Communities Overlay Zone^{xxxv}

Contra Costa County's 2045 General Plan includes policies that protect community health from air pollution exposure within the Health and Safety, Stronger Communities, and Land Use Elements. Policy SC-A1.3 in the Stronger Communities Element is an example of how a policy can lay the groundwork for zoning, and more specifically, for an overlay zone, to protect public health. This example also specifies it should be created with input from residents of Impacted Communities, which is a best practice in designing policies for communities overburdened by air pollution and other environmental, health, and socioeconomic stressors (or communities), referred to in the policy as impacted communities. The text from Policy SC-A1.3 is included below. See Contra Costa County's 2045 General Plan, and specifically the Health and Safety, Stronger Communities, and Land Use Elements, for more policies to protect public health from air pollution exposure, which could be adapted to other local jurisdictions.

With input from residents of Impacted Communities, amend County Ordinance Code Title 8 – Zoning to create an Impacted Communities Overlay Zone that applies to areas within and adjacent to Impacted Communities.^{xxxvi}

Los Angeles Clean Up Green Up (CUGU) Overlay District^{xxxvii}

The City of Los Angeles's Clean Up Green Up (CUGU) Overlay District, established through Ordinance No. 184246 in 2016, creates supplemental use districts in three communities overburdened by air pollution and other environmental, health, and socioeconomic stressors: Boyle Heights, Pacoima/Sun Valley, and Wilmington, to reduce cumulative health impacts from industrial land uses incompatible with nearby homes and schools. The ordinance establishes tiered development standards based on project context, including mechanical enclosure of emissions-generating equipment, solid masonry buffer walls, mandatory "No Idling" signage at diesel truck access points, building height limits, yard setbacks, and landscaped buffers. An excerpt from Sec. 13.18 is included below. See the City of Los Angeles's Clean Up Green Up Overlay District for additional regulatory examples that can be adapted to other jurisdictions to protect the health of communities from cumulative industrial pollution.

The purpose of the CUGU District is to reduce cumulative health impacts resulting from land uses including, but not limited to, concentrated industrial land use, on-road vehicle travel, and heavily freight-dominated transportation corridors, which are incompatible with the sensitive uses to which they are in close proximity, such as homes, schools and other sensitive uses.^{xxxviii}

Addressing Truck Pollution

Trucks are a source of DPM, a toxic air contaminant and carcinogen, which contributes to disparate air pollution exposure. Businesses that attract frequent truck traffic (truck-attracting businesses), such as warehouses and logistics centers, as well as truck routes, are often located within or adjacent to communities. Many heavy-duty trucks are diesel-powered with emissions often at or near ground level. Therefore, truck traffic is an important driver of human exposure to harmful pollutants. Truck-related policies mainly focus on reducing air pollution exposure from heavy-duty truck activity.

City of Oakland's Policy EJ-1.2 Truck Emissions and Pollution Exposure^{xxxix}

The City of Oakland's Environmental Justice Element of the 2045 General Plan includes a policy related to truck emissions and pollution exposure, Policy EJ-1.2, that seeks to minimize the air pollution from trucks and exposure to truck-related pollution on sensitive land uses, such as schools or homes. An excerpt from Policy EJ-1.2 is included below. See the City of Oakland's Environmental Justice Element for additional policy examples from a general plan that can be adapted to other jurisdictions to protect the health of communities from sources of air pollution.

Minimize air pollution and exposure of sensitive land uses to truck pollution, particularly in EJ communities and other areas most burdened by air pollution, while recognizing the Port of Oakland's role as the highest-volume shipping port in Northern California.^{xl}

Urban Greening

Urban greening policies integrate nature-based solutions, such as tree planting, green buffers, green roofs, and parks, into the built environment to address climate and environmental health goals, including helping to reduce exposure to air pollution. In the context of environmental justice, urban greening is an important equity consideration, as low-income and overburdened communities often have less access to green space and lower tree canopy coverage. As a result, these communities bear a disproportionate share of heat, air pollution, and stormwater impacts. Common municipal goals for adopting urban greening policies include reducing urban heat island effects, managing stormwater runoff, improving air quality, and sequestering carbon. One urban greening example is included here; an additional example appears in the following section.

City of San José's Policies MS-21.1-MS-21.4 Community Forest^{xli}

The City of San José's *Envision San José 2040 General Plan* includes a set of policies under Goal MS-21 related to the City's Community Forest, including San José's network of trees on public lands, street rights-of-way, and private property. These policies seek to preserve, protect, and expand the urban tree canopy to achieve environmental goals including heat reduction, stormwater retention, carbon sequestration, and water and energy conservation. Excerpts from Policies MS-21.1 through MS-21.4 are included below. See the City of San José's *Envision San José 2040 General Plan* for additional policy examples from a general plan that can be adapted to other jurisdictions to reduce cumulative environmental health burdens and build community resilience through urban greening.

Manage the Community Forest to achieve San José's environmental goals for water and energy conservation, wildlife habitat preservation, stormwater retention, heat reduction in urban areas, energy conservation, and the removal of carbon dioxide from the atmosphere.

Provide appropriate resources to preserve, protect, and expand the City's Community Forest.

Ensure that San José's Community Forest is comprised of species that have low water requirements and are well adapted to its Mediterranean climate. Select and plant diverse species to prevent monocultures that are vulnerable to pest invasions. Furthermore, consider the appropriate placement of tree species and their lifespan to ensure the perpetuation of the Community Forest.

Encourage the maintenance of mature trees, especially natives, on public and private property as an integral part of the community forest. Prior to allowing the removal of any mature tree, pursue all reasonable measures to preserve it.^{xlii}

Amending Municipal Code, Zoning, Permit Conditions, and Project Approvals

While policies establish health-protective priorities and set the stage for future action, the following mechanisms provide the means for jurisdictions to implement those priorities in practice. Municipal code and zoning, permit conditions, and project approvals determine local land use decisions and activities. Municipal code and zoning establish the baseline rules that govern where and how development may occur, while permitting and project approvals apply those rules to individual projects. Together, these mechanisms allow jurisdictions to prevent incompatible land uses, reduce exposure to air pollution, and protect public health across both long-range planning and day-to-day decision-making.

This section covers some of the primary mechanisms jurisdictions can use to reduce community exposure to air pollution: establishing baseline rules through municipal code and zoning; applying supplemental protections through overlay zones and special districts; managing the continuity and discontinuance of existing uses; and reviewing individual projects through permitting and project approvals. These mechanisms are most effective when used in combination, as each addresses different aspects of land use decision-making and air pollution exposure.

Mechanisms

Municipal Code and Zoning

The Municipal Code is the legislation adopted by a city or county that governs land use, development, and public health protections. These codes typically include zoning ordinances, environmental or performance standards, site development standards, and health and safety regulations. Zoning divides a jurisdiction into districts, such as residential, commercial, or industrial, with defined land use rules that apply across the jurisdiction.

Zoning and municipal code are key mechanisms that jurisdictions can use to prevent incompatible land uses, apply consistent health-protective standards across a geographic area, regulate ongoing exposure risks (such as heavy-duty truck routes), and establish enforceable requirements that do not rely on discretionary permit decisions (such as a zoning standard that requires a minimum buffer distance from freeways). These mechanisms are particularly useful for addressing existing incompatible uses, supporting gradual transitions away from high-impact activities, and limiting the expansion, intensification, or continuation of uses that pose health risks. Local jurisdictions may go further by adopting reach codes, which are local amendments that exceed minimum state codes, providing an additional layer of health-protective requirements tailored to local conditions and needs.^{xliii}

Overlay Zones and Special Districts

Overlay zones and special districts can add a supplemental layer of regulation in areas with heightened environmental, health, or land use concerns. Overlay zones add stricter standards and criteria on top of existing zoning districts, strengthening protections for covered properties without replacing the underlying base zoning. In contrast, special districts replace base zoning entirely with a tailored set of regulations designed to address unique local conditions or policy goals.

Overlay zones are often used to address air pollution along transportation corridors, near industrial areas, or in communities experiencing cumulative impacts. These mechanisms can establish buffers, require enhanced building standards, limit certain uses, or trigger additional review requirements in targeted locations.

Continuity and Discontinuance of Existing Uses

Municipal codes frequently address issues of continuity and discontinuance for conditional and nonconforming uses. Provisions may define when a use is considered discontinued due to inactivity, limit the expansion or intensification of existing uses, or require new approvals when a use changes or resumes after cessation. These mechanisms can be applied to air pollution-generating uses to prevent the re-establishment or expansion of sources that contribute to community exposure.

Local jurisdictions may also amend zoning codes to change uses from permitted to conditional in specific districts, allowing existing uses to continue while requiring new or expanded uses to undergo discretionary review. This approach creates a structured pathway for reducing high-impact activities over time and provides an opportunity to impose health-protective conditions, such as emission controls or buffer requirements, that limit air pollution exposure for nearby communities.

Permitting and Project Approvals

While municipal code and zoning establish the regulatory framework, permit applications and project approvals are the processes through which jurisdictions review individual development proposals for compliance. Through these processes, jurisdictions can issue permits, impose conditions of approval, or require adherence to adopted policies and standards.

Project approvals, including site plan reviews, development agreements, and discretionary actions such as rezonings or general plan amendments, provide additional opportunities to incorporate air pollution protections, require mitigation measures, and ensure consistency with health-protective policies before a project moves forward. After project reviews and any necessary studies, for example, jurisdictions can issue conditions of approval, or mitigation measures, when approving projects and issuing final permits.

Permitting allows jurisdictions to address site-specific air pollution considerations that cannot be fully anticipated through zoning alone, such as proximity to sensitive land uses, cumulative exposure burdens, or the operational characteristics of proposed uses.

Land Use Permits and Conditional Use Permits

Land Use Permits (LUPs) confirm that proposed development complies with existing zoning regulations and adopted development standards. Conditional Use Permits (CUPs), by contrast, allow land uses that are not permitted by right but may be appropriate under certain conditions. CUPs involve discretionary review, typically including public hearings, and enable jurisdictions to evaluate potential air quality, noise, traffic, or other public health impacts before a proposed use is permitted.

Through LUPs and CUPs, local jurisdictions may impose conditions of approval to minimize exposure to air pollution and protect public health. Examples of such conditions include

vegetative buffers, operational limits, enhanced air filtration or dust-control measures, truck routing or idling restrictions, and monitoring or reporting requirements.

Conditions of Approval

Conditions of Approval and project-specific conditions are requirements attached to a discretionary permit that a project must meet to receive or maintain approval. Tailored to the characteristics and impacts of an individual project, they can address health, equity, or compatibility concerns. They may also implement California Environmental Quality Act (CEQA) mitigation measures, which are requirements to avoid, minimize, or offset a project's significant environmental impacts, as set by a project's Mitigation Monitoring and Reporting Program where required.

Performance-Based Standards

Performance-based standards establish measurable outcomes that a project must achieve, regardless of how it gets there. Unlike zoning standards that prescribe specific design or use requirements, performance-based standards allow flexibility in how a project meets health-protective thresholds. These standards can be applied across multiple mechanisms, embedded in base zoning, incorporated into overlay zones, attached as conditions of approval, and may be required through CEQA mitigation measures.

Common examples include siting certain land uses a minimum distance away from populations sensitive to air pollution exposure, building design and orientation requirements, enhanced ventilation or filtration, landscaping or screening, truck routing standards, transportation demand management measures, and operational constraints. By focusing on outcomes rather than prescriptive requirements, performance-based standards can be tailored to site-specific risks while ensuring consistent health protection.

Examples

The following examples illustrate how local jurisdictions have applied these mechanisms in practice, including building codes and reach codes, green landscaping ordinances, air quality overlay zones, and conditional use permits and discontinuance, often in combination, to reduce community exposure to air pollution and support healthier communities.

Table 2: Mechanisms Mapped to Examples

Example	Municipal Code & Zoning	Overlay Zone & Special Districts	Continuity & Discontinuance	Permitting & Project Approvals	LUPs & CUPs	Performance-Based Standards
San Francisco (SF) Enhanced Ventilation (APEZ)	X					
SF Green Landscaping Ordinance	X					
San Pablo Air Quality Overlay Zone	X	X		X	X	
Oakland Industrial & Truck Code Amendments	X		X	X	X	X

City and County of San Francisco Enhanced Ventilation Requirement for Air Pollution Exposure Zone (APEZ)^{xliv,xlv}

Article 38 of the San Francisco Health Code, Enhanced Ventilation Required for Urban Infill Sensitive Use Developments, establishes requirements for projects located within an APEZ. Section 3807 of Article 38 mandates that new developments or major renovations within the APEZ that include populations sensitive to air pollution exposure, such as housing or preschools, install ventilation systems capable of effectively removing fine particulate matter (PM_{2.5}), using MERV 13 or equivalent filtration and providing positive pressure in all units and common areas. An excerpt from Article 38 is included below. Practitioners are encouraged to review Article 38 for additional specific language of Section 3807, requiring enhanced ventilation, as well as the specific criteria used to determine and designate San Francisco's APEZ.

The Enhanced Ventilation Proposal shall explain how the project will achieve the standards mandated by this Article 38 and accompanying Rules and Regulations as described and updated according to Section 3809 of this Article 38, Section 1202.6 of Chapter 12 of the San Francisco Building Code, and any relevant amendments or revisions thereto. The Enhanced Ventilation Proposal shall include a statement signed by the person who prepared it, in accordance with the requirements of Section 3807(a), certifying that in the person's judgment, the ventilation system proposed will be capable of achieving the protection from particulate matter (PM_{2.5}) equivalent to that associated with MERV 13 filtration (as defined by ASHRAE standard 52.2) and maintaining Positive Pressure within dwelling units and habitable spaces. Where maintaining Positive Pressure within dwelling units and habitable spaces is infeasible and only Balanced Pressure is able to be maintained, the person submitting the Proposal shall provide documentation of the infeasibility, and shall certify that the ventilation system proposed will be capable of maintaining Positive Pressure in all adjacent common areas.^{xlvi,xlvii}

City of San Francisco Green Landscaping Ordinance^{xlvi, xlix}

The City of San Francisco Green Landscaping Ordinance amends the Planning Code and Public Works Code to include a provision for permeable surfaces, amends the controls to landscaping areas, and introduces new triggers for the requirements. Though this ordinance has the goal to increase permeability, reduce stormwater runoff, and create aesthetically pleasing front yards, this type of mechanism could be adapted for urban greening efforts focused on pollution exposure reduction. An excerpt from the Urban Forestry Council resolution supporting the ordinance is included below. Practitioners are encouraged to review the ordinance in full, as well as the *Guide to the San Francisco Green Landscaping Ordinance*, to learn more.

WHEREAS, the Ordinance impacts various landscaping issues, including street tree matters such as (1) increasing the triggers where street trees would be required; (2) increasing the zoning districts where street trees would be required; (3) increasing the size of the street tree required; (4) increasing the requirements for large Planned Unit Developments (PUD); (5) adding a street tree requirement for parking lots; and (6) adding an interior tree requirement for parking lots.¹

City of San Pablo Air Quality Health Risk Overlay Zone Amendment^{li, lii}

The City of San Pablo's Zoning Code includes Section 17.38.050, the Air Quality Health Risk Overlay District, which protects populations sensitive to air pollution exposure from toxic air emissions along the Interstate 80 corridor within a 500-foot buffer on both sides of the freeway. The original overlay prohibited a range of sensitive uses outright but was seen as overly broad by City staff and lacked specific guidance on appropriate project-level mitigation measures.

In January 2026, the City of San Pablo Planning Commission approved an amendment to revise the purpose, add definitions, allow sensitive uses under certain circumstances with enhanced ventilation requirements, and add special conditional use permit criteria. An excerpt from the amended overlay district is included below, specifically regarding the change to allow for sensitive uses under certain circumstances. Practitioners are encouraged to visit the links to the resolution with the amended language to review all the changes to the Air Quality Health Risk Overlay District.

Sensitive Uses as defined in Section 17.38.050.C which are located in the Air Quality Health Risk Overlay District (D3) must obtain a conditional use permit unless the Sensitive Use is required by State Law to be permitted by right or is considered a residential use by this Zoning Ordinance or State Law. Sensitive Uses are also subject to the requirements in Section 17.38.050.E.

City of Oakland Industrial and Truck-Related Code Amendments^{liii}

The City of Oakland updated its Planning Code in 2023 and 2024 through the adoption of Ordinance Nos. 13812 and 13763 to reduce community exposure to truck-related emissions and strengthen protections for populations sensitive to air pollution exposure.^{liv,lv} Specifically, the City of Oakland amended Planning Code Sections 17.103.065, 17.114.050, 17.134.130, and 17.73.020 as detailed below.^{lvi}

The Conditional Use Permit (CUP) Section 17.103.065 gives the Planning and Building Department authority to review truck-related impacts from new industrial businesses and require mitigations. Section 17.114.050 dictates that once a nonconforming truck-intensive industrial use closes, changes ownership, or is purposefully abandoned, the right to continue that use expires and may not resume unless it qualifies as an allowable change under the applicable zoning code. Section 17.134.130 requires that conditionally permitted truck-intensive businesses have a six-month window to transfer their vested operating rights to a new business. After that period, the new business must obtain its own CUP. Section 17.73.020 states that several truck-related and recycling uses in the CIX-2 Zone that were previously permitted outright are now conditionally permitted, requiring Planning Department review using objective criteria related to truck impacts.

See below for excerpts from the City of Oakland Planning Code. Practitioners are encouraged to review the City of Oakland's updated Planning Code Sections for specific language and changes made. The City of Oakland's Standard Conditions of Approval and Equitable Climate Action Plan (ECAP) Consistency Checklist provide additional implementation guidance.^{lvii,lviii}

17.103.065: Conditional Use Permit for "Truck-Intensive" Uses^{lix}

The City of Oakland created a new Conditional Use Permit (CUP) for "truck-intensive" uses within six hundred feet of a Residential Zone boundary, and a requirement to adhere to the new "truck intensive activity" CUP permit criteria and performance standards. Related to the new CUP, the City of Oakland also created a new industrial activity type called "Truck Intensive Industrial Activity," to apply new rules to businesses, now categorized as "truck-intensive," as well as a new "sensitive receptor locations" definition. The City also created a standard buffering and landscaping condition for truck-intensive industrial activities in certain zones, detailing that a combination of wall and vegetative buffer shall be used as a method to block diesel and other emissions from sensitive receptor locations.^{lx}

17.114.050: Discontinuance for Non-Conforming Truck-Intensive Activities^{lxi}

The City of Oakland updated the discontinuance timeframes for non-conforming "truck-intensive industrial activities." This change dictates that: "Whenever a nonconforming Truck-Intensive Industrial Activities as defined in Section 17.103.065, Trucking and Truck-Related Industrial Activity, or Recycling and Waste-Related Industrial Activity" in certain zones "discontinues active operation for more than zero (0) days, based on purposeful abandonment, the right to continue the nonconforming use shall expire immediately upon discontinuance of use." However, if another activity has replaced it, the former activity may thereafter only be resumed if and only if such resumption would constitute an allowable change under Subsection 17.114.070.A. Section 17.114.060 shall also apply.^{lxii}

17.134.130: Termination of Conditional Use Permit (CUP)^{lxiii}

Conditional Use Permit (CUP) granted pursuant to the provisions of this Chapter that permits an activity shall not be of any force or effect if the following is true: With the exception of closures required to repair damage or destruction to the facility containing the activity, the subject activity is nonresidential and has ceased, or has been suspended, for a consecutive period of three (3) or more years. In the M-40, CIX, IG, IO, D-DT-JLI, D-CE-5, D-CE-6, D-CO-5, and D-CO-6 Zones, the subject Truck-Intensive Industrial Activity (as defined in Section 17.103.065) has ceased, or has been suspended, for a consecutive period of six (6) or more months.

A single, one-year extension of the period described in subsection (A) may be granted by, and at the discretion of, the Director of the Bureau of Planning, or his or her designee. The request for the extension shall be: 1) in writing, 2) made by the applicant or owner of the subject site, and 3) made prior to the three (3) year period described in subsection (A). Notwithstanding the above, no extension request shall be granted for Truck-Intensive Industrial Activities (as defined in Section 17.103.065) in the M-40.^{lxiv}

RECOMMENDED STEPS TO CREATE HEALTH-PROTECTIVE MECHANISMS IN LOCAL JURISDICTIONS

To help local jurisdictions assess which mechanisms, such as policy, municipal code, zoning, permitting, and project approvals, are most effective in their local context, the Air District recommends the following steps. The Air District has previously used these steps to help Bay Area jurisdictions identify and apply the most appropriate mechanisms.

Before Beginning: Establish Accessible and Equitable Community Engagement Infrastructure

Prior to initiating any planning process, jurisdictions should establish the conditions necessary for meaningful community participation throughout each of the below steps.^{lxv} Meaningful community engagement is critical for equitable planning, as those communities most burdened by air pollution and other stressors are experts in both the issues impacting their communities and the solutions that would protect them. This includes engaging communities overburdened by air pollution and other environmental, health, and socioeconomic stressors, and ensuring outreach materials are available in languages spoken in these communities, with particular attention to monolingual speakers of languages other than English and individuals with limited English proficiency. Jurisdictions should also ensure that all engagement activities and materials are accessible to people with disabilities, including those with visual, hearing, cognitive, or mobility impairments, in compliance with the Americans with Disabilities Act. Accessibility should also be considered in the implementation of mechanisms. Establishing partnerships with trusted community-based organizations early in the process can help ensure outreach reaches those most affected.

Step 1: Conduct a zoning or land use study to evaluate which types of allowed land uses may contribute to disproportionate air pollution exposure burdens in residential neighborhoods, with a particular focus on communities and populations more sensitive to air pollution exposure.

Step 2: Upon conclusion of a zoning or land use study, evaluate whether current land use policy, code, and zoning regulations sufficiently protect people in these communities living nearby air pollution from permitted sources. Jurisdictions with AB617 CERPs should reference these plans for community feedback on sources of pollution.

Step 3: Update the policy and zoning regulations as needed, using mechanisms described in this document.

For example, possible mechanisms to address air pollution exposure from truck-attracting businesses could include:

- Update **permitted, conditionally permitted, and prohibited status** of various uses within a zoning district with air quality impacts, for example, changing from permitted to conditionally permitted for certain uses;
- Update **distance thresholds** for truck-attracting businesses;^{lxvi}
- Use **performance standards** to:
 - Limit the hours of operation of a facility to avoid excess emissions exposure or odors to nearby individuals;
 - Require that an applicant/tenant has a traffic circulation map illustrating best access routes and providing alternate routes for truck operations that discourage

- detours into residential neighborhoods, and periodic outreach to truckers to encourage use of truck routes;
- Post no idling signs; and
- Require that an applicant/tenant properly maintains and tunes equipment in accordance with manufacturer specifications.
- Use **Conditions of Approval** to:
 - Require electric infrastructure for transport refrigeration units;
 - Place vents away from population centers and increase the stack height so that emissions disperse to reduce the emissions impact on surrounding homes; and^{lxvii}
 - Stipulate that the applicant/tenant shall not use diesel back-up generators on the property unless absolutely necessary, and if absolutely necessary, generators shall have Best Available Control Technology that meets California Air Resources Board's Tier 4 emission standards or meet the most stringent in-use standard, whichever has the least emissions.
- Use uniform **design guidelines** (in an overlay zone) to:
 - Require setbacks between the project fence line and residential areas or other sensitive land uses;
 - Install sound walls and/or vegetation, when appropriate, to effectively block air pollution emissions from nearby residential areas or other sensitive land uses; and
 - Include prominent entrances, signage, quality windows on street fronting building sides, etc.

THE PATH FORWARD

Meaningful change requires specific action by local practitioners. PHP 2.0 provides resources and examples to support the integration of air quality, public health, and environmental justice considerations into local planning. By adapting this guidance to local conditions, jurisdictions across the Bay Area can take concrete steps to reduce air pollution exposure and advance more equitable land use patterns for the region's communities most overburdened by air pollution and other environmental, health, and socioeconomic stressors.

Health-protective land use decision-making will vary by jurisdiction and is inherently shaped by local context. Overlay zones, conditional use permit requirements, or other mechanisms that are effective in one community may not be appropriate or feasible in another. However, by drawing on lessons learned from examples across the region, communities can strengthen health-protective mechanisms even within the constraints of legacy zoning and existing land use patterns.

Protecting public health, air quality, and the climate is central to the Air District's mission, but progress depends on strong partnerships with local jurisdictions that hold local land use authority. Working together, local jurisdictions, the Air District, and community partners can leverage planning mechanisms, education, incentives, and other resources to reduce air pollution exposure, address historic inequities, and support lasting improvements in community health for current and future generations.

The Air District encourages local jurisdictions to consider opportunities to implement mechanisms discussed throughout this guide, and to share this document with colleagues, constituents, and networks. Reach out to discuss how the Air District can best support local implementation of health-protective mechanisms presented in this guide at planning@baaqmd.gov and visit the Air District's Local Government Support Program page for more resources, including the Resource Library: <https://www.baaqmd.gov/en/plans-and-climate/local-government-support>.

GLOSSARY

AB617 – Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017) directs the state, in consultation with local air districts, to select communities in California that are exposed to high levels of air pollution. Selected communities will work with local air districts on action plans to reduce people’s exposure to particulate matter and toxic air contaminants, and/or to develop community air monitoring plans.

Air District or Bay Area Air District – The regional air pollution control agency with jurisdiction over the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, Santa Clara, San Mateo, and the southern portions of Solano and Sonoma counties. The Air District oversees policies and adopts regulations for the control of air pollution from stationary sources, adopts clean air plans, offers incentives for emission reductions from mobile sources, enforces air quality rules, and collects, monitors, and models air quality data.

Area Sources – Stationary sources of air pollutants that individually emit relatively small quantities of air pollutants, but that may emit considerable quantities of emissions when aggregated over a large area. Examples include water heaters, lawn maintenance equipment, and consumer products.

Communities – When communities are referenced throughout this document, the reference is to communities overburdened by air pollution and other environmental, health, and socioeconomic stressors.

Criteria Air Pollutants (CAPs) – Criteria air pollutants are defined by the U.S. EPA and include six air pollutants that the Clean Air Act directs the U.S. EPA to set standards for: particulate matter, photochemical oxidants (including ozone), carbon monoxide, sulfur oxides, nitrogen oxides, and lead. These pollutants are found all over the U.S. They can harm human health and the environment, and cause property damage.

Cumulative Air Quality Impact – A cumulative air quality impact is an environmental impact which results from the incremental impacts of an action or project when added to other past, present, and reasonably foreseeable future actions. For example, a manufacturing facility, a high-traffic freeway, and a construction site may each have an air quality impact that is not substantial when considered by itself but may have a substantial cumulative air quality impact when all three are considered together.

Diesel particulate matter (DPM) – Diesel particulate matter is the solid material in diesel exhaust. Diesel particulate matter is typically composed of carbon particles (“soot,” also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. DPM is a toxic air contaminant.

Discriminatory Real Estate Lending Practices – Government policies to create and maintain housing segregation, primarily through lending practices like the Federal Housing Administration’s (FHA’s) redlining (denying credit to predominantly Black neighborhoods).^{lxviii}

Environmental Justice (EJ) – Scholar Robert Bullard, the father of Environmental Justice, defines environmental racism as “any policy, practice, or directive that differentially affects or

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disadvantages (whether intended or unintended) individuals, groups, or communities based on race.”^{lxix}

Fine Particulate Matter (PM_{2.5}) – See particulate matter.

Health Disparities – Health disparities are the “differences in health status among distinct segments of the population, including differences that occur by gender, age, race or ethnicity, sexual orientation, gender identity, education or income, disability or functional impairment, or geographic location, or the combination of any of these factors.”^{lxx}

Health-Protective Mechanisms – “Health-protective mechanisms” throughout this document refers specifically to those related to air pollution exposure.

Health Risk Assessment (HRA) – A health risk assessment is the calculation of probable health impacts based on exposure to pollution. See also toxic air contaminants.

Indirect Sources – Indirect sources are land uses and facilities that attract or generate motor vehicle trips and thus result in air pollutant emissions, for example, shopping centers, office buildings, warehouses, and airports.

Industrial Land Use – Industrial land use is land designated by the local governing body for manufacturing, assembly, and distribution of goods; may include land uses such as ports, factories, warehouses, and repair and equipment maintenance shops.

Nitrogen Oxides (NO_x) – The oxides of nitrogen, or nitrogen oxides, comprise a group of highly reactive gases that includes nitrogen dioxide (NO₂), nitric oxide (NO), gaseous forms of nitrous acid, and other oxidized nitrogen compounds. NO₂ forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. In addition to contributing to the formation of ground-level ozone and fine particle pollution, exposure to oxides of nitrogen has been linked with a number of adverse human health effects, most notably on the respiratory system.^{lxxi}

Overburdened Community per Air District Rule 2.1 – As defined in the Bay Area Air District’s Rule 2.1, this term refers to an area located within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0, as having an overall CalEnviroScreen score at or above the 70th percentile, or located within 1,000 feet of any such census tract.^{lxxii}

Particulate Matter (PM) – Particulate matter includes a wide range of disparate particles that vary greatly in terms of their size and mass, physical state (solid or liquid), chemical composition, toxicity, and how they behave and transform in the atmosphere. PM is commonly characterized based on particle size. Ultrafine PM, or ultrafine particles (UFPs), includes the very smallest particles less than 0.1 micron in diameter (one micron equals one-millionth of a meter). Fine PM or PM_{2.5} consists of particles 2.5 microns or less in diameter (includes ultrafine PM). Coarse PM refers to particles between 2.5 microns and 10 microns in diameter. The term “coarse” particles may be misleading; it should be emphasized that even “coarse” particles are still very tiny, many times smaller than the diameter of a human hair. PM₁₀ consists of particles 10 microns or less in diameter (includes ultrafine, fine, and coarse PM).

Populations Sensitive to Air Pollution Exposure – Populations sensitive to air pollution exposure are people, including infants, children, the elderly, those with pre-existing conditions (such as asthma), pregnant women, and athletes (due to higher breathing rates) that are at greater risk than the general population to the adverse health effects of air pollutants. See also sensitive land uses.

Residential Land Use – Residential land use is land designated by the local governing body for dwelling units. Can include single-family and/or multi-family housing, often specifies the number of dwelling units allowed per lot or acre; for example, R-1 means the parcel is zoned for a single-family residence.

Sensitive Land Uses – Sensitive land uses are places where populations sensitive to air pollution exposure are most likely to spend their time, such as schools, playgrounds, daycare centers, nursing homes, medical facilities, and residential communities. See also populations sensitive to air pollution exposure.

Stationary Sources of Air Pollution – Stationary sources of air pollution are non-mobile sources of air pollution such as boilers, gas turbines, petroleum refining and processing units, and manufacturing equipment that emit air pollutants. A facility, such as a power plant or refinery, houses multiple sources within its property.

Toxic Air Contaminants (TACs) – Toxic air contaminants (also toxic air pollutants or air toxics) are those pollutants that cause, or may cause, cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental and ecological effects.

NOTES

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ⁱⁱⁱ Haley M. Lane, Rachel Morello-Frosch, Julian D. Marshall, and Joshua S. Apte, "Historical Redlining Is Associated with Present-Day Air Pollution Disparities in U.S. Cities," *Environmental Science and Technology Letters* 9, no. 4 (April 12, 2022): 345–50, <https://pubs.acs.org/doi/10.1021/acs.estlett.1c01012>.

^{iv} *Ibid.*

^v Bay Area Air District Advisory Council, *Particulate Matter: Spotlight on Health Protection: Advisory Council Particulate Matter Reduction Strategy Report* (San Francisco, CA: Bay Area Air District Advisory Council, December 16, 2020), https://www.baaqmd.gov/~media/files/board-of-directors/advisory-council/2020/ac_particulate_matter_reduction_strategy_report.pdf.

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^{vii} "CalEnviroScreen 4.0," Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, accessed August 3, 2026, <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>.

^{viii} *Ibid.*

^{ix} "Disparities," California Department of Public Health, accessed July 23, 2026, https://www.cdph.ca.gov/Programs/OHE/Pages/Disparities_Landing_Page.aspx.

^x For best practices on centering environmental justice, health, and equity in the siting, design, and development of projects, see Bay Area Air District, Chapter 2, "Best Practices for Centering Environmental Justice, Health, and Equity," in *California Environmental Quality Act (CEQA) Air Quality Guidelines* (San Francisco, CA: Bay Area Air District, 2022), https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa-guidelines-2022/ceqa-guidelines-chapter-2-environmental-justicefinal-pdf.pdf?rev=724445e52f394fe1ab3d3b1636b6d023&sc_lang=en.

^{xi} "Community Air Risk Evaluation (CARE) Program," Bay Area Air District, accessed April 10, 2026, <https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program>.

xii "CalEnviroScreen 4.0," Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, accessed August 3, 2026, <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>.

xiii "Community Health Protection Program," Bay Area Air District, last modified May 4, 2026, <https://www.baaqmd.gov/community-health/community-health-protection-program>.

xiv *Ibid.*

xv Bay Area Air District, *Bay Area Air District Strategic Plan, 2024–2029* (San Francisco, CA: Bay Area Air District, 2024), <https://www.baaqmd.gov/en/about-the-air-district/mission-statement/strategic-plan>.

xvi Community Advisory Council, Bay Area Air Quality Management District, *A Call to Action: Charting a New Course Toward Environmental Justice at the Bay Area Air Quality Management District* (San Francisco, CA: Bay Area Air District, November 2024).

xvii "SB 1000: Environmental Justice," California Department of Justice, Office of the Attorney General, accessed April 9, 2026, <https://oag.ca.gov/environment/sb1000>.

xviii "Zone Dashboard," Marin Health and Human Services, accessed April 9, 2026, <https://www.marinhhs.org/zone-dashboard>.

xix "CalEnviroScreen 5.0," Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, accessed August 3, 2026, <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-50>.

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xxi "Interactive Data Maps," Bay Area Air District, accessed April 9, 2026, <https://www.baaqmd.gov/en/about-air-quality/interactive-data-maps>.

xxii For more information on the 1,000 foot buffer, see Bay Area Air District, Appendix E, "Recommended Methods for Screening and Modeling Local Risks and Hazards," in *California Environmental Quality Act (CEQA) Air Quality Guidelines* (San Francisco, CA: Bay Area Air District, 2022), https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa-guidelines-2022/appendix-e-recommended-methods-for-screening-and-modeling-local-risks-and-hazards_final-pdf.pdf?la=en.

xxiii Bay Area Air District, Chapter 2, "Best Practices for Centering Environmental Justice, Health, and Equity," in *California Environmental Quality Act (CEQA) Air Quality Guidelines* (San Francisco, CA: Bay Area Air District, 2022), https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa-guidelines-2022/ceqa-guidelines-chapter-2-environmental-justicefinal-pdf.pdf?rev=724445e52f394fe1ab3d3b1636b6d023&sc_lang=en.

^{xxiv} "AB 617: Assembly Bill 617," California State Assembly, 2017–2018 Regular Session, accessed April 9, 2026, https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB617.

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