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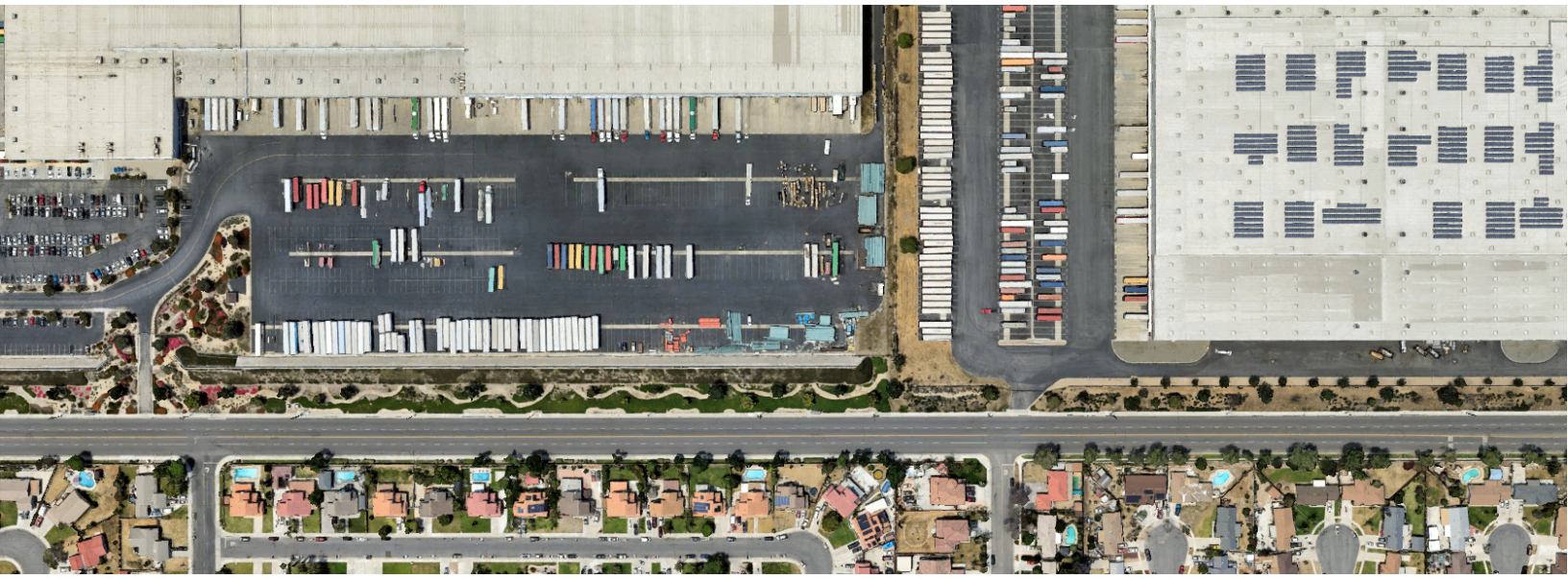
Goods Movement and Environmental Justice Policy Pathologies



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UC Irvine Law
Center for Land, Environment
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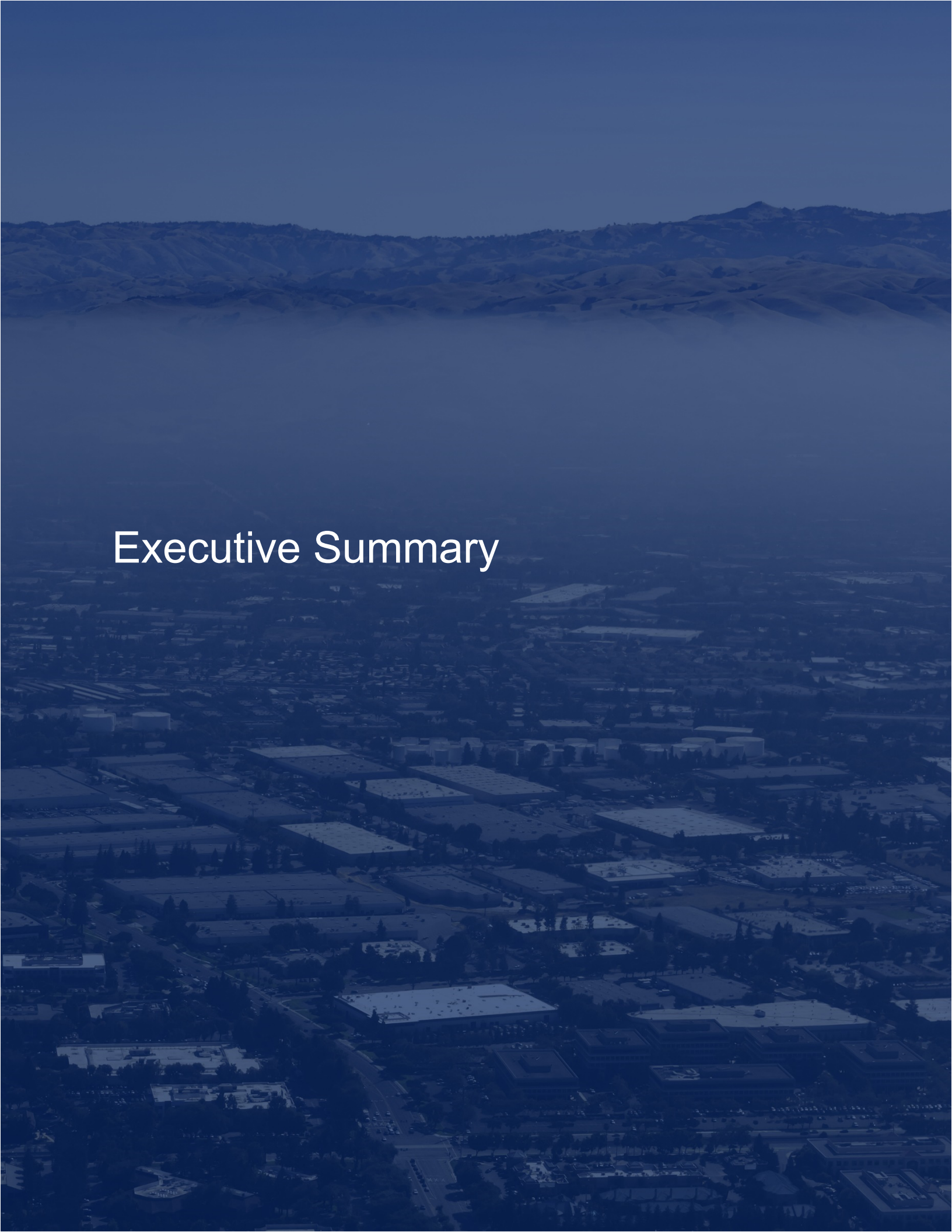

Executive Summary

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In 1998, the Environmental Protection Agency (EPA) issued its first major decision under Title VI of the Civil Rights Act of 1964. The complaint was filed according to Section 602 of the statute and EPA regulations. Under the rules, the public can submit an administrative complaint to EPA when the acts of a recipient of federal funds result in discriminatory effects. The process is deceptively simple: a letter, submitted within 180 days of an alleged violation of a community's civil rights, can trigger a preliminary investigation.

The complaint involved a steel recycling mill near Flint, Michigan. It argued that the Michigan Department of Environmental Quality's (MDEQ) decision to issue a Clean Air Act permit to Dunn Industrial Group for the facility would result in disparate impacts to Black residents who lived nearby. The immediate area surrounding the mill already included roughly 267 polluting facilities. MDEQ was a recipient of EPA financial assistance. Therefore, it was subject to the requirements of Title VI and EPA rules issued under the statute.

St. Francis Prayer Center v. Michigan Department of Environmental Quality or "*Select Steel*," as the complaint came to be known, triggered waves of criticism in the press, resistance from state legislators and members of Congress, and harsh words from the Governor. Despite the fact that EPA's Title VI regulations had been in place for decades, dozens of complaints filed with the agency languished in boxes and file drawers without investigation. Meanwhile, EPA issued its own Environmental Justice Strategy in 1995, which affirmed its commitment that "No segment of the population, regardless of race, color, national origin, or income…suffer disproportionately from adverse human health or environmental effects."

In the Environmental Justice Strategy, EPA also committed to "identify and respond to any regulatory gaps in the protection of covered populations." Needless to say, there was considerable interest in how EPA would ultimately process a disparate impact claim under Title VI. Bowing to media pressure and critiques of the "anti-business" nature of the *Select Steel* complaint, EPA's Office of Civil Rights (OCR) processed and dismissed the complaint in 74 days. OCR found no violation of the community's civil rights under Title VI. The decision included a finding that the community faced no "adverse effect" of the steel facility, because its operation would not result in the violation of a National Ambient Air Quality Standard (NAAQS) under the Clean Air Act.

The finding is one of environmental justice policy's original sins: the urge to conflate compliance with environmental standards, including standards under the Clean Air Act that concern an entire region, with lack of impact or harm to individuals or protected classes of people under civil rights law. Under this perversion of the law, a facility that emits over 38 tons of volatile organic compounds in a predominantly Black community was considered "in compliance" with Title VI, because the additional VOCs would not bring a region into non-attainment with a national air quality standard. This practice by EPA's Office of Civil Rights – the *presumption* that there is no need to consider the disparate impact of decisions made by a state agency or other recipient of federal funds when it meets existing environmental standards – was one of many procedural hurdles that hundreds of communities had to face for decades to come.

The presumption fell in and out of favor over the years among federal officials. Yet the mismatch between standards enforced regionally, and localized harms to low-income communities and communities of color, persisted. In the decades that followed enactment of the Clean Air Act of 1970, emissions of criteria air pollutants, for which NAAQS are set and enforced, declined by 78% while regions such as California's San Joaquin Valley failed to meet certain air quality standards and

hundreds of overburdened communities faced a growing suite of pollution hotspots, clusters, and corridors. Notably, regions such as the San Joaquin Valley endured waves of extractive industry, from agriculture to oil and gas to logistics and warehousing, during that time.

The goods movement industry, as it spreads across the Inland Empire, San Joaquin Valley, Bay Area, and other regions, presents a more recent iteration of the tension that achieved notoriety under *Select Steel*, namely between enforcing air quality standards under the Clean Air Act and addressing localized or neighborhood-scale effects under civil rights law. Through on-site emissions and "indirect" emissions from heavy-duty truck traffic that makes its way to and from a region's warehouse footprint, goods movement contributes to ozone, particulate matter, and other air quality challenges. In regions that attract area sources such as warehouses and distribution centers and, indirectly, high concentrations of truck traffic along freight corridors, the modern air pollution control system breaks down. Specifically, the cumulative impact of mobile (e.g., truck traffic) and underregulated area sources can result in poor air quality, even as facilities comply with existing air quality and emissions standards.

Of course, warehousing's impacts – the footprint of which is estimated at over 1 billion square feet in the Inland Empire alone – stretch far beyond VOC, diesel particulate matter, or other air pollutants. Its impacts include "24/7" operations; infrastructure damage; truck idling; total cancer risk, asthma, cardiovascular and respiratory disease, chronic exposure, and weakened immune systems; sensitive receptors who need air filters, vegetative barriers, and other protections; school safety and disruption; landscape and wildlife change; stormwater capture and impervious surface challenges; housing displacement; workplace health; urban heat island effects; electric grid stress; cycles of poverty for temporary and contract workers; aesthetic change; and "unaccounted for" costs.

These impacts, particularly in overburdened or, under California law, "disadvantaged communities," raise the stakes for balancing regional air quality and localized impacts further. Fortunately, there are underutilized areas of law, including Section 110 of the Clean Air Act, that can address both regional nonattainment with existing air quality standards and the neighborhood-scale, disparate impacts of industry operations and practices. Under Section 110 and state police power, regional air districts can adopt "indirect source review" (ISR) programs for sources, such as warehouses, railyards, and intermodal facilities, that attract emissions from mobile sources. The statute defines "indirect source" as "a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution." An indirect source review program is a "facility-by-facility review of indirect sources of air pollution." ISR can be structured to achieve ozone, particulate matter, or other criteria air emissions reduction goals. One of the advantages of ISR lies in its ability to address existing sources, new or modified sources, or both.

This report considers the rise and renewal of ISR in California, its basis in law, its design and enactment in the San Joaquin Valley and Southern California, and its promise for adoption in other regions across the country. We find that ISR is not only a legal imperative, but also an opportunity for regional air districts, state regulators, and communities to rebalance the benefits and costs of land use, including public health and equity concerns, and to overcome the presumption, adopted by regulators years ago, that air quality in a surrounding community will presumptively be considered protective in areas that comply with certain air quality standards.

Importantly, the *Select Steel* presumption is not the only administrative practice that plagues environmental law in general and environmental justice policy in particular. If we are to address the concerns of disadvantaged communities under environmental and civil rights law, we must be attuned to and overcome other limits to the state's response to environmental justice claims.

This is where our report begins. First, we consider the history of environmental justice policy in California, with a focus on the 1990s and passage of SB 115, the only "general environmental justice legislation in effect" in the United States at that time. We outline four pathologies of administration that took root shortly after SB 115: **(1)** the sidelining of cumulative impact, **(2)** stalled land use policy integration, **(3)** failure to design and implement continuous improvement mechanisms, and **(4)** tensions between environmental enforcement and state and federal civil rights law. Then we discuss the place of ISR within the modern air pollution control framework as well as the development of ISR programs in two California regions.

This report is a case study of how regional air districts and local governments, with state support, can better balance regional growth and localized impact. Warehousing tests the limits of a state's ability to address cumulative impact, land use stasis, policy inertia, and civil rights compliance. We find the persistence of these administrative pathologies within the most comprehensive rulemaking record for an ISR program to date – Rule 2305, which was promulgated by the South Coast Air Quality Management District.

We also find that the design of ISR programs and rules can be far more attuned to these concerns. Future ISR programs will have greater potential to take cumulative community-scale impacts into account. They will be able to drive dynamic land use policy change to ensure meaningful community consent to the continued operations of warehousing and other logistics facilities. ISR programs will, for the first time, be able to carefully balance regional dynamics, localized impact, and the compromises necessary to achieve a just transition in places where legacy infrastructure, complex land repurposing, clean energy development, and other challenges increasingly intersect. And regional air districts, in partnership with state officials, will continue to have the authority to mount a robust response to elements of structural racism that operate within the logistics industry, through ISR programs that are designed with proscribed forms of discrimination under civil rights law in mind.

Current approaches to ISR are insufficient to ensure that such programs avoid creating new or more intensive pollution hotspots. And an evolving suite of state-administered programs to meet greenhouse gas emissions reduction requirements and zero-emissions technology adoption will continue to leave considerable public health costs and burdens unaddressed, including excess mortality and morbidity. The state must respond to these costs regionally as well as within disadvantaged communities. We conclude with an exploratory analysis of the public health costs of warehousing in the Bay Area through 2045. We show that under best-case state climate and air quality policy adoption, substantial public health costs remain, as do health disparities.

The status quo warrants new actions beyond the traditional approach to air quality under the Clean Air Act. The surest way to achieve environmental justice is to apply existing laws in a manner that protects the lives and livelihoods of regions as well as disadvantaged communities. To do so, we must overcome not only *Select Steel's* original sin, but also other administrative pathologies that are unique to environmental policy in a given state and region. Only then can the persistent gap between the language of environmental law on the books, and the experience of threats to quality of life on the ground, be meaningfully addressed.

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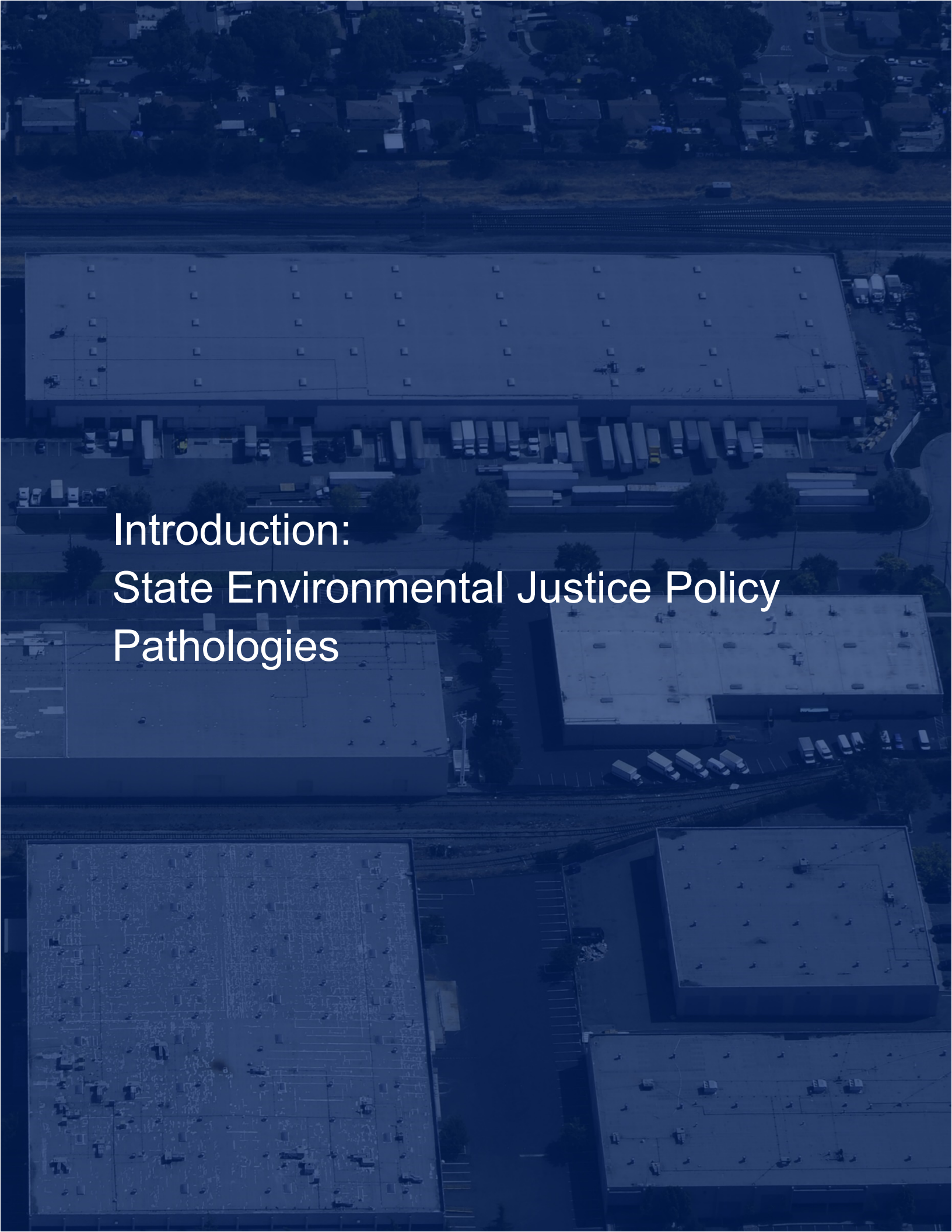

Introduction: State Environmental Justice Policy Pathologies

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Origins

California environmental justice policy is riddled with contradictions. The state enjoyed first mover advantage for decades. In 1989 – generations before the Green New Deal – environmental groups drafted a plan known as "Big Green." The proposed ballot initiative would at once limit pesticide use, offshore oil production, waterborne toxics, and carbon emissions.[1] The California State Legislature passed bills to increase public involvement in hazardous waste facility siting (the Tanner Act)[2] as well as the first statutory attempt to limit the impact of pollution hot spots.[3] Before the decade was out, the California Supreme Court upheld the authority of regional air districts to regulate air toxics.[4] These and other efforts were underway even as the environmental justice movement struggled to gain national attention.[5] They followed decades of organizing and movement work that advanced in waves, from hazardous waste to pesticides and other antitoxics campaigns to broader issues of pollution and access to environmental benefits.[6]

In the wake of the worst economic downturn since the Great Depression, the 1990s offered further promise. The California Air Resources Board adopted the single greatest regulatory contribution to the reduction of ozone forming compounds.[7] The South Coast Air Quality Management District (SCAQMD) approved a staff proposal to create the first market-based emissions trading program to reduce nitrogen and sulfur oxides.[8] But early victories meant that the state had to grapple with the limits and unintended consequences of each new policy. Big Green was defeated. The Tanner Act was a "failure."[9] Communities for a Better Environment (CBE) filed the first complaint to challenge emissions trading as a violation of Title VI of the Civil Rights Act of 1964.[10] A coalition led by the Center on Race, Poverty and the Environment (CRPE) alleged that the state violated civil rights law through siting, permitting, expansion, and operation of hazardous waste facilities. The complaint languished without a response for 17 years before it was dismissed.[11] In a push to expedite cleanup of contaminated sites, the state allowed the use of site controls that left pollution in place in industrialized communities.[12] The California Environmental Protection Agency (CalEPA), newly formed to oversee autonomous boards, departments, and offices (BDOs), issued a report on pollution and relative risk. One of the report's themes was the unequal distribution of environmental hazards.[13] CalEPA did not take any formal action based on its findings.

The 1990s added another contradiction. While California lawmakers recognized the need to codify environmental justice into legislation as early as the 1980s,[14] other states including Connecticut (1993),

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[1] California Environmental Protection Act of 1990, Initiative Stat. No. 480 (1989).
[2] Cal. Health & Safety Code §§ 25199-25199.14 (1986).
[3] Cal. Health & Safety Code §§ 44343, 44361, 44362 (1987).
[4] Western Oil and Gas Association v. Monterey Bay Air Pollution Control District, 49 Cal. 3d 408, 411 (1989).
[5] EILEEN MCGURTY, TRANSFORMING ENVIRONMENTALISM: WARREN COUNTY, PCBS, & THE ORIGINS OF ENVIRONMENTAL JUSTICE (2007).
[6] LAURA PULIDO, ENVIRONMENTALISM & ECONOMIC JUSTICE: TWO CHICANO STRUGGLES IN THE SOUTHWEST (1996).
[7] *Air Pollution: Reformulated Fuels Help Curb Ozone Pollution in California, State Environmental Officials Say*, 27 ENV'T REP. (BNA) 1439 (Nov. 8, 1996).
[8] *RECLAIM Development Report and Proposed Rules*, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (1993).
[9] Luke Cole, *The Theory and Reality of Community-Based Environmental Decisionmaking: The Failure of California's Tanner Act and its Implications for Environmental Justice*, 25 ECOL. L.Q. 733 (1999).
[10] Complaint and Memorandum of Points and Authorities for Relief from Environmental Justice Violations, Communities for a Better Environment v. South Coast Air Quality Management District, No. 10R-97-R9 (1997). *See also* Eileen Gauna, *The Environmental Justice Misfit: Public Participation and the Paradigm Paradox*, 17 STAN. ENVTL. L.J. 3 (1998).
[11] Complaint Under Title VI of the Civil Rights Act of 1964, Padres Hacia Una Vida Mejor v. Laidlaw, Inc., No. 01R-95-R9 (1994); Office of Civil Rights, U.S. EPA, Investigative Report for Title VI Administrative Complaint, File No. 01R-95-R9 (2012).
[12] *First Cleanup Under ERAP Program Complete*, 11 No. 19 CAL. ENVTL. INSIDER 1 (Mar. 16, 1998).
[13] *10 Years of Highlights from CEI*, 11 No. 1 CAL. ENVTL. INSIDER 4 (June 15, 1997).
[14] Caroline Farrell, *SB 115: California's Response to Environmental Justice – Process Over Substance*, 1 GOLDEN GATE U. ENVTL. L.J. 113 (2007).

New York (1993), and Pennsylvania (1995) were first to adopt such laws. The California State Legislature passed bills in 1991, 1992, 1997, and 1998 that were later vetoed.[15] Each attempt offers a window into a range of potential policy responses to environmental racism that worked their way through the halls of power. Themes emerged within these bills, including permitting and site demographics, data collection for high-impact projects, general plan amendments, impact assessment and mitigation under the California Environmental Quality Act (CEQA), and environmental loans and grants. Following a slew of rushed amendments and staff reports, SB 115 was enacted in 1999.[16] Its focus on procedural justice differed from laws in the Northeast that, while narrower in scope, tried at least in part to limit the concentration of hazardous waste or high-impact solid waste management facilities by geographic area.

The California approach to state environmental justice policy was shored up in quick succession in 2000 and 2001 (e.g., SB 89, SB 828, AB 1553, AB 1390).[17] Among CalEPA departments, CARB was first to adopt a written environmental justice policy in 2001.[18] CalEPA's Environmental Justice Advisory Committee completed its first recommendations for how the agency's BDOs should integrate environmental justice principles into decision-making in 2003.[19] Some recommendations, including recognition of the precautionary principle, consideration of cumulative impacts, and risk reduction, divided the committee.[20] The California Environmental Quality Act (CEQA) resurfaced as a locus of state environmental justice policy. SCAQMD, for example, considered establishing "localized significance thresholds" to determine when a proposed project would have a significant effect on the environment and require an environmental impact report (EIR).[21]

CalEPA finalized its first environmental justice strategy in 2004.[22] By then, California environmental justice policy operated through the following mechanisms: (1) consideration of environmental justice in isolated forms of decision-making (e.g., facility siting and project EIRs, preparing and issuing notices of violation); (2) consultation (e.g., Environmental Justice Advisory Committees under SB 89 and to inform Scoping Plan development under AB 32); (3) data collection (e.g., emissions, exposure, health risk) and indicators (e.g., AB 1360's requirement that the Office of Environmental Health Hazard Assessment (OEHHA) develop a system of indicators to assess and support environmental justice strategies); (4) fund allocation (e.g., AB 1390); (5) integration (with the Office of Planning and Research – now the Office of Land Use and Climate Innovation – to coordinate through mission statements, strategies, action plans, performance measures, and gap analysis); (6) small grants and capacity building (e.g., AB 2312, which established CalEPA's Environmental Justice Small Grant program); (7) pilot projects ("the primary mechanism for exploring the complex issues of cumulative impacts and precautionary approaches"); (8) public participation tools; (9) guidances (e.g., CARB's Air Quality and Land Use Handbook); and (10) place-specific programs (e.g., the California Port Community Air Quality Program under AB 2650).

These efforts were stood up in support of what the Public Law Research Institute called the only "general environmental justice legislation in effect" in the U.S. They were immediately criticized by environmental justice organizations, community leaders, and agency staff. A quarter century on, some

[15] Ellen Peter, *Implementing Environmental Justice: The New Agenda for California State Agencies*, 31 GOLDEN GATE U. ENVTL. L.J. 529 (2001).
[16] *Id.* at 553-554.
[17] *See, e.g.,* S.B. 89, 1999-2000 Leg., Reg. Sess. (Cal. 2000); S.B. 828, 2001-2002 Leg., Reg. Sess. (Cal. 2001); A.B. 1553, 2001-2002 Leg., Reg. Sess. (Cal. 2001); A.B. 1390, 2001-2002 Leg., Reg. Sess. (Cal. 2001).
[18] *Policies and Actions for Environmental Justice*, CALIFORNIA AIR RESOURCES BOARD (Dec. 13, 2001).
[19] *Recommendations of the California Environmental Protection Agency Advisory Committee on Environmental Justice to the Cal/EPA Interagency Working Group on Environmental Justice*, ADVISORY COMMITTEE ON ENVIRONMENTAL JUSTICE (2003).
[20] *Advisory Committee Releases Recommendations for Cal/EPA Programs*, 17 No. 4 CAL. ENVTL. INSIDER 13 (July 31, 2003).
[21] *SCAQMD Will Use CEQA to Promote Environmental Justice*, 17 No. 1 CAL. ENVTL. INSIDER 15 (June 16, 2003).
[22] *Intra-Agency Environmental Justice Strategy*, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY (Aug. 2004), https://calepa.ca.gov/wp-content/uploads/sites/6/2017/01/EnvJustice-Documents-2004yr-EnglishStrategy.pdf.

of the most pressing pathologies that were identified at the turn of the 21st Century have yet to be resolved.

Cumulative Impact Sidelined

In CalEPA's first environmental justice strategy, the agency adopted what it called a "two-pathway" approach to integrating environmental justice within the planning process of CalEPA boards and departments.[23] CalEPA's Secretary instructed the agency to initiate "short-term, action-focused" processes to advance agency priorities while "the formal, long-term strategic planning process mandated by [statutes such as SB 115 and SB 89]" and review of programs, policies, and activities continued.[24] The "short-term interim process" is found in CalEPA's 2004 Action Plan, which "provides opportunities for CalEPA and its BDOs to take initial steps toward addressing complex environmental justice issues such as precautionary approaches and cumulative impacts," two of four items targeted for immediate action.[25] Led by OEHHA and CalEPA's Integrated Waste Management Board (IWMB, now CalRecycle), respectively, these "initial steps" to adopt precautionary approaches and address cumulative impacts had similar workflows.

For cumulative impact, the sequence of steps included: (1) develop a common, objective definition for multi-media cumulative impacts; (2) inventory current cumulative impact studies, protocols, and tools, and identify needs to be addressed; (3) develop criteria and protocols for identifying and addressing environmental justice gaps in standard risk assessment; and (4) develop guidance on multi-media cumulative impact analysis, prevention, and reduction and recommend implementation options, including proposals for policy, regulatory, and statutory change.[26] For precautionary approaches, the process included: (1) identify where and how precautionary approaches are used, or could be used, in CalEPA programs; evaluate whether additional precaution is needed to address or prevent environmental justice problems; and identify obstacles to precautionary actions; (2) identify reasonable, cost-effective approaches to prevent or minimize adverse environmental impacts; and (3) develop guidance on precautionary approaches and recommend implementation options, including proposals for policy, regulatory, and statutory change.[27] OEHHA and IWMB formed a single working group in 2007 to pursue these issues. Early agency-specific environmental justice policies also focused on cumulative impact; much of CARB's first policy, for example, was devoted to the subject.[28]

Far from encouraging early action, the two-pathway process siphoned off critical concepts and postponed difficult decisions. Even today, cumulative impact is viewed by agency staff as "a CEQA thing," "a newer area," a process for which entire groups such as planners are "not trained to think," and a goal that offices are "not at the level of achieving."[29] Reducing cumulative impact is a mandate with "not a lot of specificity" that is "not yet implemented," for which agencies must "use existing resources," and for which "statutory fixes" or "tweaks" must occur before meaningful progress can be made.[30] Surprisingly, some aspects of the 2004 early action items are no longer viewed as matters of ongoing concern. For example, risk assessment attuned to the unique concerns of disadvantaged communities is "not quite there" or "a few years off"; aside from protecting children as a surrogate for

[23] *Environmental Justice Program Update*, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY 23-26 (Sept. 2004), calepa.ca.gov/wp-content/uploads/sites/6/2016/10/EnvJustice-ActionPlan-PhaseI-March2005-EJrptSept2004.pdf.
[24] *Id.* at 10.
[25] *Id.* at 26.
[26] *Id.* at 24.
[27] *Id.*
[28] *Policies and Actions for Environmental Justice*, CALIFORNIA AIR RESOURCES BOARD (Dec. 13, 2001) ("Publicly release and place on the [Air Resources Board] web-site maps showing estimated cancer health risks on a regional basis…noting the limitations and uncertainty associated with data and methodologies…Develop technical tools for performing assessments of cumulative emissions, exposure, and health risk on a neighborhood scale…").
[29] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[30] *Id.*

vulnerable subpopulations, there is "no other quantitative way" in which risk assessment takes environmental justice into account.[31] Staff would have cumulative impact serve as a "stronger component" of siting, permitting, and other decisions.[32] At the same time, the definition of "cumulative impact" as in flux, accommodating not only exposure, but also aspects of susceptibility and social determinants of health. Some agencies go beyond mortality and hospitalization and consider additional health endpoints. Other agencies make do with CalEnviroScreen as an "initial screen" for cumulative impact and engage in unique forms of what they call "CES+" analysis.[33]

State agency staff are even less certain about the fate of precautionary approaches. The precautionary principle garnered broader acceptance in California just as CalEPA finalized its first environmental justice action plan. For example, the City and County of San Francisco, Los Angeles Unified School District, and other entities each adopted the precautionary principle as policy by 2003.[34] Aside from acknowledging that CalEnviroScreen is built on a "precautionary base" – results are continuous rather than based on health outcome or other thresholds – staff were unable to point to the fate of "implementation options," guidance on precautionary approaches, or ongoing discussions that mirror the work outlined for the Cumulative Impact and Precautionary Approaches (CIPA) Work Group.[35] One exception is DTSC's Safe Consumer Products program, described as "built on the precautionary principle."[36] The need to revive or restart elements of the CIPA Work Group's interim process continues to grow. Disadvantaged communities have a more comprehensive view of cumulative impact than CalEnviroScreen is able to approximate, one that implicates many more departments, agencies, and elements of local government plans; unique pathways, stressors, and impacts; and life-giving practices and responses to trauma.

Land Use Stasis

CalEPA's Strategic Vision, published in July 2000, was the first to include an environmental justice goal. It stressed the importance of a whole-of-government response to environmental racism. To achieve the goal of "reduc[ing] or eliminat[ing] the disproportionate impacts of pollution on low-income and minority populations," CalEPA pledged to, among other actions, "assist Office of Planning and Research and local land-use authorities in developing model local land-use ordinances" and "assist the California Department of Education in developing model school siting policies to avoid exposing children to pollution."[37] Today, historically underserved communities are reframing the concept of "just transition" in a decarbonizing economy – and what it should mean for communities that at once endure extraction and exploitation – in ways that mirror a whole-of-government response.[38] Just transition concerns not only managed decline of oil and gas production, storage, transmission, refining, and other facilities but also policies to address elements of structural racism that undergird extractive industries such as agriculture and oil and gas.[39] To achieve just transition, policies must target extractive as well as exploitative processes such as dispossession, devaluation, and degradation.

In addition, there is a vibrant literature on the impacts of structural racism on community health, such as the relationships among residential segregation, health, and disaster-related loss.[40] Dynamics

[31] *Id.*
[32] *Id.*
[33] *Id.*
[34] *Id.*
[35] *Id.*
[36] *Id.*
[37] *Strategic Vision,* CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY (July 2000).
[38] J. Mijin Cha & Manuel Pastor, *Just Transition: Framing, Organizing, and Power-Building for Decarbonization*, 90 ENERGY RESEARCH & SOCIAL SCIENCE 102588 (2022).
[39] Xinxin Wang & Kevin Lo, *Just Transition: A Conceptual Review*, 82 ENERGY RES. & SOC. SCI. 102291 (2021).
[40] Margaret Weden et al., *Health Disparities in the U.S. Gulf Coast: The Interplay of Environmental Disaster, Material Loss, and Residential Segregation*, 14(2) ENVTL. JUSTICE 110 (2021).

include, but are not limited to, spatially concentrated housing and residential disadvantage, education and healthcare segregation, and discrimination in the provision of government benefits.[41] For example, CalEPA's racial equity team overlayed CalEnviroScreen maps as a proxy for cumulative impact with California Home Owners Loan Corporation designations from the 1930s as an indicator of the ongoing effects of housing discrimination through redlining.[42] Agency staff are interested in exploring structural racism indicators that influence quality of life, such as exclusionary and expulsive zoning,[43] redlining,[44] legacy contamination,[45] legacy infrastructure (e.g., oil and gas pipelines, abandoned wells),[46] eco-gentrification,[47] flood insurance,[48] long-standing practices to provide access to extractive sites that limit access to public lands,[49] and policies that increase heat island effects, flooding, and other climate hazards.

Agency staff are interested in models of whole-of-government response to the challenge of just transition that may have been drafted or proposed, as well as available approaches to address extraction as well as ongoing exploitation in disadvantaged communities. They would like to better understand how just transition demands departure from prior cross-agency coordination of environmental justice policy, which focused on enforcement. And they would like to revisit what CARB, Strategic Growth Council, and other attempts to link climate and air quality goals to local and regional land use, transportation, housing, and other policies (e.g., SB 375, AB 617) can teach them about policy design for just transition.[50]

Yet local "land use stasis," as staff call it, is considered a central limiting factor for environmental justice policy integration.[51] CARB's first environmental justice policy declared that it was the board's policy "to work with local land-use agencies, transportation agencies, and air districts to develop ways to assess, consider, and reduce cumulative emissions, exposures, and health risks from air pollution through general plans, permitting, and other local actions."[52] Also in 2001, AB 1553 required the Office of Planning and Research to develop guidelines to address environmental justice in city and county general plans.[53] The first CalEPA Advisory Committee on Environmental Justice, appointed in December 2001, included staff from local and regional land use planning agencies among its thirteen members.[54] In 2002, a National Academy of Public Administration panel found that California "intends to link environmental justice and local land-use issues in a practical way through land-use guidelines, consultations between state environmental agencies and local land-use authorities, and city policies and plans."[55]

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[41] *See, e.g.,* Vanessa Lopez-Littleton & Carla Jackie Sampson, *Structural Racism and Social Environmental Risk*, *in* THREE FACETS OF PUBLIC HEALTH AND PATHS TO IMPROVEMENTS (1st ed. 2020).
[42] *Pollution And Prejudice, Redlining and Environmental Injustice in California*, CALEPA (Aug. 16, 2021), https://storymaps.arcgis.com/stories/f167b251809c43778a2f9f040f43d2f5.
[43] Benjamin Rajotte, *Envtl. Justice in New Orleans: A New Lease on Life for Title VIII?*, 21 TULANE ENVTL. L.J. 51 (2007).
[44] Anthony Nardone et al., *Historic Redlining and Urban Health Today in U.S. Cities*, 13 ENVTL. JUSTICE 109 (2020).
[45] Robin Kundis Craig, *Cleaning Up Our Toxic Coasts: A Precautionary and Human Health-Based Approach to Coastal Adaptation*, 36 PACE ENVTL. L. REV. 1 (2018).
[46] Scott Hemmerling et al., *Tracing the Flow of Oil and Gas: A Spatial and Temporal Analysis of Environmental Justice in Coastal Louisiana from 1980 to 2010*, 14(2) ENVTL. JUSTICE 134 (2021).
[47] Sarah Dooling, *Ecological Gentrification*, 33(3) INT'L J. OF URBAN & REG'L RES. 621 (2009).
[48] Alice Kaswan, *Domestic Climate Change Adaptation and Equity*, 42 ENVTL. L. REP. NEWS & ANALYSIS 11125 (2012).
[49] Ricardo Olea & James Coleman, *A Synoptic Examination of Causes of Land Loss in Southern Louisiana as they Relate to the Exploitation of Subsurface Geological Resources*, 30 J. OF COASTAL RES. 1330 (2014); A.R. Siders, *Social Justice Implications of US Managed Retreat Buyout Programs*, 152(2) CLIMATIC CHANGE 239 (2019).
[50] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[51] Juliana Maantay, *Environmental Justice and Fairness, in* THE ROUTLEDGE COMPANION TO ENVIRONMENTAL PLANNING (1st ed. 2019).
[52] *Policies and Actions for Environmental Justice*, CALIFORNIA AIR RESOURCES BOARD (Dec. 13, 2001).
[53] A.B. 1553, 2001-2002 Leg., Reg. Sess. (Cal. 2001).
[54] *Environmental Justice Program Update*, California Environmental Protection Agency (Sept. 2004), https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/EnvJustice-ActionPlan-PhaseI-March2005-EJrptSept2004.pdf.
[55] *Models for Change: Efforts by Four States to Address Environmental Justice*, NATIONAL ACADEMY OF PUBLIC ADMINISTRATION 85 (June 2002), https://www.epa.gov/sites/default/files/2015-02/documents/napa-epa-model-4-states.pdf.

Today, the decision to drop language regarding environmental justice considerations under CEQA from the final version of SB 115 continues to haunt state policy.[56] Attempts to sync environmental justice with housing policy and consider public nuisance and other common law causes of action are two potential responses to this oversight that agency staff describe. But actionable nuisance claims mask a more expansive set of problems that do not rise to the level of a breach of legal duty, and "good neighbor" policies often lack legal teeth.[57] In addition, some of the entities that are closely tied to the ongoing effects of structural racism, such as air districts, may not be inclined to make creative use of authority to address localized impacts. Much of CARB's first environmental justice policy outlined challenges posed by recalcitrant air districts: it included objectives such as: "Work with local air districts to develop control measures to reduce diesel particulate matter from stationary, portable, and marine diesel engines…Work with the local air districts to implement incentive programs in communities…Work with the local air districts to develop enhanced complaint resolution processes…Work with the local air districts to improve accessibility of information regarding enforcement activities and actions…Assist local air districts on specific issues of community concern…"[58] Community experience with AB 617 steering committees that develop emissions reduction plans suggests that these dynamics have not been realized. A more recent set of aspirations to overcome land use stasis can be found in Appendix D of the state's Scoping Plan for Achieving Carbon Neutrality.[59]

Policy Inertia vs. Continuous Improvement

Post-Solis legislation including SB 89 (2000)[60] and SB 828 (2001)[61] required CalEPA to assess potential gaps that limit progress in reaching the state's environmental justice goals. This work was described in CalEPA documents and Environmental Justice Advisory Committee proceedings. CalEPA's first Intra-Agency Environmental Justice Strategy includes the following among its statutory duties under Public Resources Code sections 71110-71113: "Develop an agency-wide strategy for identifying and addressing any gaps in existing programs, policies, or activities that may impede the achievement of environmental justice."[62] This "review of environmental programs, policies, and activities" with an eye toward gap analysis is within the purview of "each of CalEPA's [boards, departments, and offices]."[63] Agency staff are not aware of whether internal audits or procedures to identify gaps in policy continue or remain in place. They "don't know" about such a process, claim that it "has not yet been done," say that "there are no resources for evaluation," express interest in carrying out "needs assessment" within and across BDOs, or suggest that such work continues informally.[64] Staff point to office-specific annual reports as a stand-in for an internal audit. For example, in CARB's annual enforcement reports, staff include indicators of *activity* such as the fraction of inspections that occur within disadvantaged communities, which allow for basic trend analysis year over year.[65] At DTSC, indicators such as number of sites, workforce development, and technical assistance and revitalization grants are tracked, but not much else is tied to environmental justice.[66] At the State Water Board, "very concrete metrics" with quarterly reporting exist under the Safe and Affordable Funding for Equity and Resilience program;

[56] Caroline Farrell, *California's Response to Environmental Justice – Process over Substance*, 1 GOLDEN GATE UNIV. ENVTL. L. REV. 113, 188-121 (2007).
[57] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[58] *Policies and Actions for Environmental Justice*, CALIFORNIA AIR RESOURCES BOARD (Dec. 13, 2001).
[59] *2022 Scoping Plan for Achieving Carbon Neutrality*, CALIFORNIA AIR RESOURCES BOARD (Dec. 2022).
[60] S.B. 89, 1999-2000 Leg., Reg. Sess. (Cal. 2000).
[61] S.B. 828, 2001-2002 Leg., Reg. Sess. (Cal. 2001).
[62] *Intra-Agency Environmental Justice Strategy*, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY 2 (Aug. 2004), https://calepa.ca.gov/wp-content/uploads/sites/6/2017/01/EnvJustice-Documents-2004yr-EnglishStrategy.pdf.
[63] *Id.* at 6.
[64] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[65] *See 2021 Annual Enforcement Report*, CALIFORNIA AIR RESOURCES BOARD (June 2022), https://ww2.arb.ca.gov/sites/ default/files/2022-06/2021_Annual_Enforcement_Report.pdf.
[66] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.

surface water quality impairment and recycled water projects also include indicators that are monitored according to statute. Otherwise, "we are not tracking outcomes."[67]

What is necessary are procedures to ensure continuous improvement, offices "designed so that they could identify deficiencies," or simple steps to "identify areas that due to resource constraints were just put in a queue."[68] In that vein, another feature of environmental justice policy that was more prevalent in the 1990s and early 2000s – performance measures – is making a comeback. This is in part due to pledges found in federal and state racial equity policies.[69] Performance measures were part of CalEPA's "long-term environmental justice strategic planning process" from the beginning; in 2004, agencies were told to translate the Secretary's goals and CalEPA's strategic plan into implementation plans, with "performance measures that include specific commitments and deadlines…identified in the plan to demonstrate the BDO's progress…"[70] Performance measures were to be designed with an eye toward "science-based approaches, cost-effectiveness, and programmatic solutions."[71] As with early federal environmental justice planning,[72] performance measures predominate in early archives and, at several offices, only recently reappear. Natural resource agencies are in conversation with external groups about performance measures "that make sense" and could be developed within a few years; others revisit performance measures as part of updated strategic plan initiatives and action plans.[73]

Another dynamic set for revival and greater uptake across agencies would script internal policies for agency acceptance of community-driven data, or "integrating community knowledge into decision-making."[74] It would proceed program-by-program, include narrative and empirical data along with appropriate quality assurance and quality control and protocols for combined use with regulatory monitoring, emissions factors, and consultant-generated data. Programs would have to identify critical sources of community data to incorporate, such as biopathways and traffic and cleanup observation. Such policies "have not been developed yet."[75]

Staff declare that they are "ready to institutionalize our environmental justice structure," to "embed it within the fabric of the agency" so that the work is "protected" and "resists political winds."[76] "We need anti-backsliding for this kind of change." "Consideration of environmental justice in all programs remains minimal." "There are few examples where our efforts are linked to resources." Staff called for "internal data analysis of what our workforce looks like," an assessment of "who has the EJ titles, who does EJ-adjacent work." "The [leadership] needs to know how oversubscribed we are."

Dynamic processes such as continuous improvement and periodically updated performance measures should feature prominently in these efforts. But they call for a clearer sense of what constitutes environmental justice policy. Staff find such policy in everything from an environmental justice "goal" in a strategic plan, to items in an action plan, to an unpublished memorandum. A few staff recall detailed Program Inventories of, for example, State Water Board programs that were compiled periodically by staff.[77] Hints of these inventories are found in CalEPA Program Updates. The first program update focused on the following priorities for the State Water Board: staff language assessment, grants to

[67] *Id.*
[68] *Id.*
[69] *Id.*
[70] *Intra-Agency Environmental Justice Strategy*, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY 18 (Aug. 2004), https://calepa.ca.gov/wp-content/uploads/sites/6/2017/01/EnvJustice-Documents-2004yr-EnglishStrategy.pdf.
[71] *Id.*
[72] *See, e.g., 1996 Environmental Justice Implementation Plan*, U.S. ENVIRONMENTAL PROTECTION AGENCY (April 1996), https://www.epa.gov/sites/default/files/2015-02/documents/implementation_plan_ej_1996.pdf.
[73] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[74] *Id.*
[75] *Id.*
[76] *Id.*
[77] *See, e.g., California Water Boards EJ Program Inventory*, STATE WATER BOARD (Oct. 2013), www.waterboards.ca.gov/board_reference/2013fall/docs/ej_prgm_inventory.pdf.

address infrastructure issues in low-income and minority neighborhoods, coordination with Calexico on raw sewage entering the New River, testing a Neighborhood Action Kit to guide community leaders working on storm drain pollution, and a public participation guide.[78] Ten years later, two areas of focus are described: internal and external education resources and "weighing environmental justice factors when considering applications for community water project funding."[79] Then, the work expands dramatically: continuous community engagement, identifying safe drinking water issues, addressing nitrate contamination of groundwater, and many others.[80]

The inventories described some programs as "not having a strong nexus to EJ principles," such as stormwater. Others, such as site cleanup and brownfields, are described as having already "incorporated" environmental justice principles – even in 2004. Ten years later, staff presentations note broad areas of regulatory practice – the National Pollutant Discharge Elimination System, Total Maximum Daily Loads, water quality standards, underground storage tanks, groundwater monitoring, land disposal, and water basin planning, to name a few – that "could consider EJ principles."[81] However, declaring programs "in place" or with a "strong" or "not strong" nexus to environmental justice did not facilitate program evaluation. First-generation policy at multiple agencies was not helpful in this regard: it featured "general principles and guidelines" that were "hard to translate into action" and influence over daily work.[82]

Also contributing to policy inertia was the fact that some early policy integration was simply "lost." A "lost decade" was referenced by staff, a span of time that varied by board or department (e.g., "2008 to 2018," "2003 to 2017").[83] Many reasons were given for these gaps – change in administration, energy crisis, lame duck administration, and recession among them. The official history of environmental justice and timetables at certain agencies skips over many years. In a budget change proposal, DTSC noted that "over the last 10 years, DTSC's ability to carry out its mission has been compromised by administrative, organizational, programmatic, and fiscal deficiencies."[84] During that time, staff were "doing environmental justice on top of their day job." But "five people can't provide guidance for 1700 people."[85]

Budget change proposals, described as "when people start to get interested" in environmental justice, were sometimes turned down.[86] Office staff could double then halve within the span of a few years. Critical staff left without an attempt to backfill their positions. Early guidances are unknown to certain staff. Results of investigations led by, for example, DTSC's Assistant Director for Environmental Justice and Tribal Affairs to "identify[ ] systemic problems" and "hidden biases" in agency programs are unclear to staff.[87] Elements of high-profile efforts such as the Community Air Protection Program under AB 617 were tried years before under other programs and guises. Commissions were first required to consider environmental justice – and drafted detailed siting protocols – decades ago. For example, the California Energy Commission developed a *Staff Approach to Environmental Justice for Power Plant Licensing*

[78] *Environmental Justice Program Update*, California Environmental Protection Agency 45-46 (Sept. 2004), calepa.ca.gov/wp-content/uploads/sites/6/2016/10/EnvJustice-ActionPlan-PhaseI-March2005-EJrptSept2004.pdf.
[79] *Environmental Justice Program Update,* California Environmental Protection Agency 61 (Feb. 2014), https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/Publications-Reports-2014yr-EJUpdateRpt.pdf.
[80] *Environmental Justice Program Update 2016-2018*, California Environmental Protection Agency 20-22, 30-31, 37-38, 40, 45-46 (2018), https://calepa.ca.gov/wp-content/uploads/sites/6/2020/10/ej_report_2016-2018_a.pdf.
[81] Gita Kapahi, *Environmental Justice and the Water Boards: Our Toolbox and Current Actions*, State Water Board (Oct. 25, 2013), https://www.waterboards.ca.gov/board_reference/2013fall/docs/presentations/kapahi_ej.pdf.
[82] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[83] *Id.*
[84] *Budget Change Proposal, Fiscal Year 2020-2021*, Department of Toxic Substances Control (Request No. 3960-047-BCP-2020-GB) (2020), https://esd.dof.ca.gov/Documents/bcp/2021/FY2021_ORG3960_BCP3895.pdf.
[85] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[86] *Id.*
[87] *Initial Report to the Governor and the Legislature Pursuant to Health and Safety Code Section 57014(F)*, Independent Review Panel, Department of Toxic Substances Control (Jan. 28, 2016), https://dtsc.ca.gov/wp-content/uploads/sites/ 31/2018/04/SignedFinal.pdf.

following enactment of SB 115.[88] It included demographic screening, public outreach, and identifying high and adverse impacts as well as mitigation measures. This and other documents and protocols are no longer publicly available.

Staff share an uneven sense of pivotal litigation by environmental justice coalitions in the 1990s and 2000s that pushed back against the status quo where agencies "did the bare minimum" of what was legally required. The same holds true for high-profile, community-led attempts to reform agency practice, such as the People's Senate report and recommendations for contaminated site remediation.[89] Staff suspect that, when they speak to community groups about a given policy, "they might have talked to us twenty times before" and already done yeoman's work beyond pro forma analysis of issues of concern. Organizational memory of external partners is central to an agency's "fundamental rethinking" as staff "start looking at deeper-seated barriers" to policy integration.[90]

Enforcement and Civil Rights Tension

When staff search for examples of whole-of-government response to cumulative impact, land use stasis, or the need for continuous improvement, they often speak about enforcement. Monitoring and enforcement feature prominently among the stages of policymaking described in the state's definition of environmental justice. These stages concern the "development, adoption, implementation, and enforcement of environmental laws, regulations, and policies."[91] For example, early cross-departmental work included environmental monitoring in Kettleman City "in which scientists from each of CalEPA's [boards, departments, and offices] assessed potential contaminants and tested for chemicals that could cause birth defects and other adverse health effects."[92] For years, staff at DTSC, CARB, and other agencies viewed environmental justice as enforcement. First-generation performance measures emphasized enforcement, such as "40% of all DTSC inspections, complaint investigations, and enforcement actions" in disadvantaged communities,[93] because they were relatively easy to achieve given industrial location and corridors that traverse disadvantaged communities. Enforcement tailored to environmental justice was among the first post-SB 115 practices to be assigned multiple full-time equivalent (FTE) employees and program managers. The Environmental Justice Compliance and Enforcement Working Group, superseded by the CalEPA Environmental Enforcement Task Force in 2016, promoted cross-media compliance among relatively distinct, autonomous CalEPA agencies in "areas that contain multiple sources of pollution."[94] Pilot programs took the form of targeted geographic initiatives in Fresno, Pacoima, Boyle Heights, and East and West Oakland.[95] These differed from earlier pilots that were assigned to departments according to primary jurisdiction.[96]

A key element of the Task Force's work involved "external and internal" coordination among state and federal environmental agencies. This reflected findings of early IWMB, DTSC, and other assessments of opportunities and threats in response to state environmental justice laws. Key concerns outlined in those reports included relationships among agencies and local enforcement, lack of clarity in complaint

[88] Anita Milman, Environmental Justice? An Analysis of Air Pollution and Power Plants in California 9 *et seq.* (2004) (Master of Arts thesis, Univ. of California, Berkeley).
[89] *The People's Senate: Building a New Vision for DTSC*, CENTER ON RACE, POVERTY, & THE ENVIRONMENT (Aug. 2014).
[90] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[91] Cal. Gov. Code. § 65040.12(e).
[92] *Environmental Justice Program Update,* CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY 25 (Feb. 2014), https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/Publications-Reports-2014yr-EJUpdateRpt.pdf.
[93] *Id.* at 44.
[94] *Environmental Compliance and Enforcement Report,* CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY 3 (2018), https://calepa.ca.gov/wp-content/uploads/sites/6/2020/01/enforcement_report_2018_WEB.pdf.
[95] *Environmental Justice Program Update 2016-2018*, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY 9-12 (2018), https://calepa.ca.gov/wp-content/uploads/sites/6/2020/10/ej_report_2016-2018_a.pdf.
[96] *Environmental Justice Action Plan*, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY 6 (Oct. 2004), calepa.ca.gov/wp-content/uploads/sites/6/2016/10/EnvJustice-ActionPlan-Documents-October2004-ActionPlan.pdf.

processes, and the absence of complaint resolution protocols across jurisdictions.[97] Another Task Force priority involved creating "opportunities for residents in disadvantaged communities to provide input regarding local environmental problems" and integrating it into inspections and enforcement.[98] It should come as no surprise that community-driven programs such as Identifying Violations Affecting Neighborhoods (IVAN) are raised as a model for enforcement and "front-end supplemental environmental projects" are described as a means to increase community involvement.[99]

Enforcement as the early embodiment of environmental justice strategic plan goals and action items raised a host of questions: When is focusing on disadvantaged communities through targeted geographic initiatives better than adopting a sectoral approach? What data infrastructures[100] are necessary to integrate community-driven and regulatory monitoring and maintain cutting-edge fenceline and other monitoring systems? In order to achieve epistemic justice,[101] what can be learned from missed opportunities such as a GIS-based tool to display facility-specific data from the air districts (considered and shelved prior to enactment of the Regulation for the Reporting of Criteria Air Pollutants and Toxic Air Contaminants[102]) and an AB 617-mandated BACT/BARCT Technology Clearinghouse that stalled due to contractor issues? To what extent can compliance scoring by facility under SB 673 be improved and inform other practice areas?[103] Where do activities such as inspection, monitoring, enforcement, and settlement privilege industry's ability to appeal findings or provide data vis-à-vis the community? How can supplemental environmental project lists and inventories be more dynamically generated and updated, encourage improvement over baseline conditions, and track reduced health disparities? Where does enforcement push labor onto communities, as did a *Greenaction* and *El Pueblo* Title VI settlement with DTSC?[104] And what rifts are exposed by cross-agency enforcement that point to areas in need of statewide policy change (e.g., agriculture and drinking water, pesticide use and notification, dairy digesters and climate)?

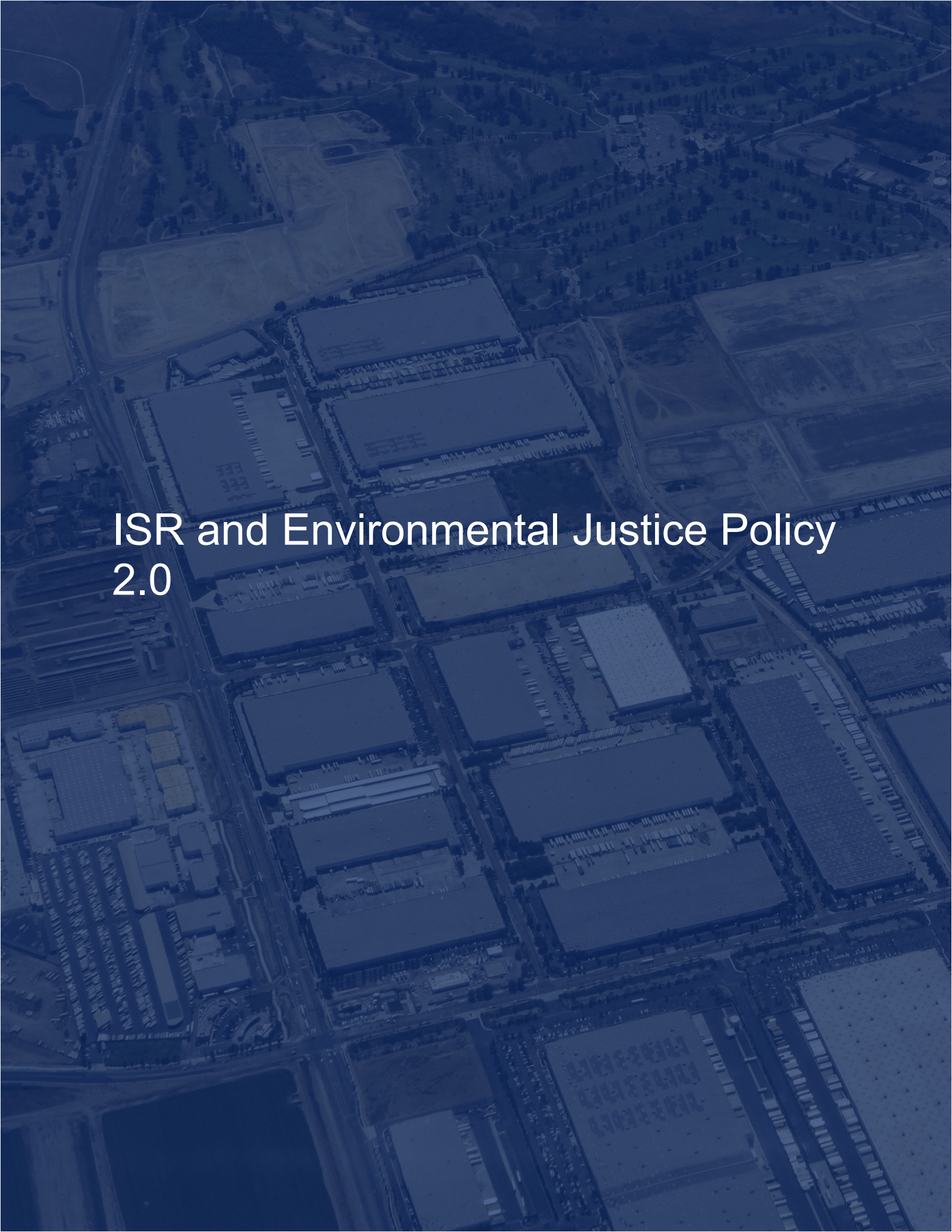
Nowhere is the state of environmental enforcement as undefined as in the case of civil rights law. There is no shortage of California state programs and activities that yield significantly adverse, disproportionate impacts according to race, national origin, ethnic group identification, sex, or disability. But state, city, and county capacity to define, identify, measure, and track disparate impact and violations of civil rights law is limited. For example, the *People's Blueprint* for the Community Air Protection Program makes clear that following enactment of AB 617, "the state of justice, environmental and otherwise, has evolved and changed in very significant ways" and "policies seen as forward leaning in 2017 must be reconsidered."[105] The document demanded that the Community Air Protection Program more closely align with and further the Principles of Environmental Justice. It also noted that as a state program, AB 617 must comply with applicable legal requirements, including civil rights obligations under state law. Implementing AB 617 must include efforts to "operationalize compliance" with laws such as California Government Code § 11135, to ensure that programs redress disparate impacts, track improvement over time, and anticipate who will experience the burdens and benefits of recommended actions.[106] As *People's Blueprint* authors pointed out, the term "environmental justice" does not appear

[97] See, e.g., *Environmental Justice Opportunity Assessment and Analysis*, INTEGRATED WASTE MANAGEMENT BOARD (Dec. 2004).
[98] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[99] *Id.*
[100] Gwen Ottinger & Elisa Sarantschin, *Exposing Infrastructure: How Activists and Experts Connect Ambient Air Monitoring and Environmental Health*, 3 ENVIRONMENTAL SOCIOLOGY 155 (2017).
[101] Gwen Ottinger, *Epistemic Innovation and the Dilemmas of Protest*, *in* IN THE SHADOW OF THE PETROCHEMICAL SMOKESTACK (Renaud Bécot & Gwenola Le Naour, eds.) (2021).
[102] *Unofficial Version of the Regulation for the Reporting of Criteria Air Pollutants and Toxic Air Contaminants*, CALIFORNIA AIR RESOURCES BOARD (Jan. 2022), ww2.arb.ca.gov/sites/default/files/2022-02/Unofficial%20CTR_Jan2022_0.pdf.
[103] *Violations Scoring Procedure*, DEPARTMENT OF TOXIC SUBSTANCES CONTROL (2022), https://dtsc.ca.gov/violations-scoring-procedure/#:~:text=Based%20upon%20the%20Facility%20VSP,to%20or%20greater%20than%2040.
[104] Letter from Maricela Mares Alatorre, Bradley Angel, and Miguel Alatorre to Jared Blumenfeld and Meredith Williams re: CalEPA and DTSC Ongoing Violations of Kettleman City Title VI Settlement (July 8, 2019).
[105] *California Community Air Protection: A.B. 617 People's Blueprint*, CALIFORNIA AIR RESOURCES BOARD WRITER'S GROUP 9 (Sept. 2021).
[106] *Id.* at 11.

in certain statutes such as AB 617. Nor is there guidance on how principles of environmental justice and civil rights law should shape decision-making. Without better metrics to identify and track disparate impacts as well as the benefits and burdens of programmatic decisions, AB 617 could "reproduce historic systems of racial and ethnic discrimination."[107]

Staff expressed concern that they were not using civil rights law "in tandem with regulatory strategy."[108] They were not trying to "specifically name the connections" between environmental justice and civil rights to "police ourselves."[109] "We can't have environmental justice strategies in a vacuum," one staff member said.[110] Others claimed that the "definition of equity should be clarified": "I don't know if there is a definition of 'disparate impact' as with environmental justice."[111] Capacity limits abound. There is "no bandwidth to do that."[112] Among one department's attorneys, "none are assigned to look at it."[113] One agency's staff includes "a lot of land agents, scientists, fiscal, and boundary agents but few, if any equity analysts."[114] Lack of capacity is papered over with boilerplate, as in environmental review documents that indicate an agency "is unable to demonstrate" lack of compliance.[115] This is concerning to staff, in that billions of dollars are distributed through, for example, an agency's financial assistance department and "we haven't done any enforcement of disparate impact."[116] There is "not a lot of understanding" of civil rights law. Civil rights claims are "not in common discussion" and, with regards to state civil rights law in particular, complaints "lack visibility."[117] State agencies "need guidance" similar to the memorandum that accompanied Executive Order 12898 at the federal level.[118] They are not "aware of any policy or document" that could help them; statutes such as SB 673 "don't say anything about [civil rights.]"[119] Even staff at agencies that were the target of civil rights litigation for decades by El Pueblo,[120] Greenaction, Padres Hacia Una Vida Mejor,[121] and others find that "11135 expertise is sorely lacking."[122] They, too, find it challenging to "gauge disparate impacts of programs or decisions."[123]

[107] Jonathan K. London et al., *Community Engagement in AB 617*, UNIVERSITY OF CALIFORNIA, DAVIS 22-23 (June 2020).
[108] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[109] *Id.*
[110] *Id.*
[111] *Id.*
[112] *Id.*
[113] *Id.*
[114] *Id.*
[115] *Id.*
[116] *Id.*
[117] *Id.*
[118] Exec. Order 14096, 88 Fed. Reg. 25251 (Apr. 21, 2023) ("Revitalizing Our Nation's Commitment to Environmental Justice for All"). *See also* Jean Chemnick, *Biden to Update "Sacred" EJ Order that Never Really Worked*, CLIMATE WIRE (June 6, 2022, 6:30 AM).
[119] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[120] *See, e.g.,* Settlement Agreement, Greenaction for Health and Environmental Justice and El Pueblo para el Aire y Agua Limpia and the California Envtl. Protection Agency and Department of Toxic Substances Control (Aug. 10, 2016).
[121] *See, e.g.,* Complaint Under Title VI of the Civil Rights Act of 1964, Padres Hacia Una Vida Mejor, No. 01R-95-R9 (1994); Investigative Report for Title VI Administrative Complaint, File No. 01R-95-R9, at 12 (2012).
[122] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[123] *Id.*



ISR and Environmental Justice Policy 2.0

ISR and Environmental Justice Policy 2.0

The surest way for state, regional, and local agencies to counter environmental racism is to directly apply existing laws to protect disadvantaged communities – and the air, lands, and waters upon which they rely – from harm. It is also important for creative use of existing laws to address each of the above environmental justice policy pathologies, from lack of cumulative impact policy integration to land use stasis to the absence of continuous improvement to civil rights enforcement deficits.

"Indirect source review" (ISR), which centers regional air districts but requires close coordination with local planners and state regulators, offers one such opportunity to advance "environmental justice policy 2.0" in California and beyond. Its use in two regional air basins to address a regulatory gray area – the impacts of warehousing, freight corridors, and goods movement on communities and landscapes – offers a case study of how regional districts and local governments, with the support of the state, can better balance regional growth and localized impact. We consider the rise and renewal of ISR in California, its basis in law, its design and enactment in the San Joaquin Valley and Southern California, and its promise for use elsewhere. We find that ISR is not only a legal imperative, but also an opportunity for a post-SB 115 cultural shift in how state governments rebalance the benefits and costs of land use – including public health and equity concerns – in a changing climate.

The Clean Air Act's "Blind Spot"

We first consider ISR's traditional and tenuous place within the Clean Air Act (CAA). The CAA governs ambient air quality throughout the United States. It sets air quality standards and tasks federal and state governments with bringing outdoor air quality across the country within those standards. To achieve each standard, pollution control, broadly speaking, is concerned with stationary and mobile emissions sources. Stationary sources are facilities that are fixed in place.[124] Under the CAA, the role of regulating stationary sources is largely delegated to the states. EPA creates standards for different types of facilities (emissions standards) as well as concentrations of criteria air pollutants (ambient, health-based standards), and states implement standards that are at least as strict as those standards.[125] The primary mechanism for implementation is a permitting scheme[126] that is largely run by the states, that traditionally have the power to control land use within their borders.[127] In contrast to stationary sources, the federal government retains authority to regulate mobile sources, including various classes of vehicles such as heavy-duty trucks. Rather than issue permits, mobile sources are regulated through nationwide standards for engines and fuels.[128] The structure of federal regulation of mobile sources and state regulation of stationary sources prevails with the exception of California. California can qualify for a waiver that allows it to set its own standards for engines and fuels.[129] Other states may choose to adopt California standards for mobile sources.[130]

In the decades that followed the CAA's enactment and amendment, the nation witnessed improved air quality while regions such as the San Joaquin Valley in California failed to reach ambient air quality

[124] 42 U.S.C. § 7411 ("The term "stationary source" means "any building, structure, facility, or installation which emits or may emit any air pollutant.").
[125] 42 U.S.C. § 7410(a)(2) ("[A state implementation plan] shall… include…regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved").
[126] 42 U.S.C. § 7410(a)(2).
[127] Patrick Del Duca & Daniel Mansueto, *Indirect Source Controls: An Intersection of Air Quality Management and Land Use Regulation*, 24 LOY. L.A. L. REV. 1131, 1136 (1991) ("Local land use regulation is a component of the police power reserved to the states by the Tenth Amendment of the United States Constitution.").
[128] 42 U.S.C. § 7521 (Regulation of motor vehicle engines); 42 U.S.C. § 7545 (Regulation of fuels).
[129] 42 U.S.C. § 7543(b), 42 U.S.C. § 7545(c)(4)(B) ("Any State for which application of section 7543(a) of this title has at any time been waived under section 7543(b) of this title may at any time prescribe and enforce, for the purpose of motor vehicle emission control, a control or prohibition respecting any fuel or fuel additive.").
[130] 42 U.S.C. § 7507.

standards (National Ambient Air Quality Standards, or NAAQS) set under the law.[131] More recently, goods movement, freight, and logistics introduced new complications to the nonattainment problem. They are formidable sources of carbon emissions, nitrogen oxide (NOx), diesel particulate matter (DPM), and other ozone precursors in the San Joaquin Valley, Inland Empire, Southern California, Bay Area, and other regions.[132] The goods movement industry enjoyed substantial growth that accelerated during the COVID-19 pandemic.[133] Its contributions to ozone, particulate matter, and other ambient air quality challenges further stress the CAA's "blind spot" problem.[134] Specifically, in areas that attract land uses such as area sources or high concentrations of vehicle traffic, the modern air pollution control system breaks down. In regions that face a growing concentration of warehouses, distribution centers, and freight corridors, the cumulative impact of mobile and area sources as well as underregulated stationary sources can result in poor air quality, even as motor vehicles and stationary sources conform to existing standards.

EPA officials were aware of this gap problem from the beginning. In 1973, they noted that "stationary source controls and vehicle emission limits alone could not attain or maintain the NAAQS due to the future increase in mobile emission sources caused by increasing population growth, suburban development, and vehicle use."[135] What can be done to address this problem? Several options appear in the language and rules that govern the CAA, including transportation control measures (TCMs) such as traffic management. States do not have to implement TCMs unless they face "serious" or "extreme" nonattainment for ozone, or "serious" nonattainment for carbon monoxide within their borders.[136] The CAA states that within serious and severe ozone nonattainment areas, emissions due to "growth in vehicle miles traveled" must be offset, including through "reduction in motor vehicle emissions as necessary."[137] This requirement is narrowly interpreted by EPA, although litigation suggests that use of TCMs to control vehicle miles traveled (VMT) can be required based on growth of emissions due to an increase in VMT.[138] Nevertheless, TCMs are not triggered by a comparable rise in other criteria air pollutants (e.g., particulate matter) or toxic air emissions.

Other potential solutions to the CAA's gap problem are even more unlikely. For example, one could interpret the language of the CAA regarding NAAQS to read that ambient air quality standards must be sufficient to "protect the public health" within "an adequate margin of safety,"[139] meaning rulemaking should be directed to areas that experience substantial emissions increases and are not adequately covered by existing stationary and mobile source programs. For example, a new NAAQS could be promulgated for fine particulate matter concentrations near roadways, or freight corridors could be reinterpreted as "stationary sources."[140] These and other solutions to the gap problem would require a massive redirection of resources within EPA and state agencies, to say nothing of political feasibility, analytical capacity and other resources, monitoring and reporting challenges, and determining whether such a novel approach makes sense from a marginal cost standpoint.

Another option to address the CAA gap problem is "indirect source review." Section 110(a)(5) of the

[131] *Current Nonattainment Counties for All Criteria Pollutants*, U.S. ENVTL. PROT. AGENCY, https://www3.epa.gov/airquality/greenbook/ancl.html (last visited Aug. 10, 2024).
[132] *California Sustainable Freight Action Plan*, CALIFORNIA DEPARTMENT OF TRANSPORTATION, AIR RESOURCES BOARD, ENERGY COMMISSION, AND GOVERNOR'S OFFICE OF BUSINESS AND ECONOMIC DEVELOPMENT G-6 (July 2016), https://ww2.arb.ca.gov/sites/ default/files/2019-10/CSFAP_FINAL_07272016.pdf.
[133] *Pandemic Fuels Continued Growth of California Industrial Market*, NATIONAL LAW REVIEW (May 29, 2022), https://www.natlawreview.com/article/pandemic-fuels-continued-growth-california-industrial-market.
[134] Ann E. Carlson, *The Clean Air Act's Blind Spot: Microclimates and Hotspot Pollution*, 65 UCLA L. REV. 1036 (2018).
[135] Philip Rothschild, *The Clean Air Act and Indirect Source Review,* 10 UCLA J. OF ENVTL. L. & POL'Y 337, 341 (1992).
[136] *Air Quality, Transportation Conformity*, FED. HWY. ADMIN., https://www.fhwa.dot.gov/environment/ air_quality/conformity (last visited Aug. 10, 2024).
[137] 42 U.S.C. § 7511a(d)(1)(A).
[138] Association of Irritated Residents v. Environmental Protection Agency, 686 F.3d 668 (D.C. Cir. 2011).
[139] 42 U.S.C. § 7409(b)(1).
[140] *Supra* note 134, at 1085.

CAA notes that any state may adopt indirect source review (ISR) for sources that attract emissions from mobile sources.[141] The statute defines "indirect source" as "a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution."[142] An indirect source review program is a "facility-by-facility review of indirect sources of air pollution."[143] ISR can be structured to achieve ozone, particulate matter, or other criteria air emissions reduction goals.[144] One of the advantages of ISR lies in its ability to address existing sources, new or modified sources, or both.[145] For half a century, ISR's notoriety as a potential solution to new and evolving air quality challenges waxed and waned. It was included in the CAA in 1970,[146] required by EPA in 1974,[147] devolved to the states by Congress as voluntary authority in 1977,[148] considered anew under the Clean Air Act Amendments and California state law in the 1990s,[149] and, more recently, adopted in regions such as the San Joaquin Valley[150] and Southern California.

As the focus shifted, research on ISR's optimal design and inclusion within a portfolio of state-level mobile source emissions reduction programs received comparatively less attention. Instead, scattered research grappled with EPA's early experiment with ISR, the air quality modeling and data challenges that arose alongside EPA's focus on area-source and roadway effects in the 1970s,[151] removal of EPA's ability to require ISR through State Implementation Plan (SIP) approval in 1977,[152] the legality of attempts to target construction through ISR in the San Joaquin Valley,[153] and hints at ISR's use to address other complex sources.[154] Parallel to these developments, recognition of ISR's potential to not only facilitate NAAQS attainment but also limit near-source pollution grew.[155] For that reason, residents selected to participate in California's Community Air Protection Program under AB 617, where steering committees consider approaches to address neighborhood-scale pollution, discussed the importance

[141] 42 U.S.C. § 7410(a)(5)(A)(i).
[142] 42 U.S.C. § 7410(a)(5)(C).
[143] 42 U.S.C. § 7410(a)(5)(D).
[144] *Facility-Based Mobile Source Measures*, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, http://www.aqmd.gov/ home/air-quality/clean-air-plans/air-quality-mgt-plan/facility-based-mobile-source-measures. For example, AQMD concluded that "after considering all existing rules and regulations, an additional 45% reduction of NOx is needed by 2023, and a 55% reduction is needed by 2031. *Id.*
[145] The CAA does not limit the type of ISR program a state may adopt; rather, it defines an ISR program for purposes of setting out whether a state may include such a program in its State Implementation Plan. Compare 42 U.S.C. § 7410(a)(5)(D) and 42 U.S.C. § 7410(a)(5)(A)(i).
[146] Clean Air Act Amendments of 1970, Pub. L. No. 91-604, § 110(a)(2)(B), 84 Stat. 1676 (1970) (requiring state implementation plans to include "other measures as may be necessary to ensure attainment and maintenance of such primary or secondary standard, including, but not limited to, land-use and transportation controls").
[147] *See* 36 Fed. Reg. 15,186 (1971) (allowing states to consider the cost-effectiveness of indirect source rules); 38 Fed. Reg. 6279 (1973) (disapproving state-submitted state implementation plans for failure to include an ISR component); 38 Fed. Reg. 15,836 (1973) (requiring states to develop procedures to determine whether an indirect source would interfere with NAAQS attainment); 39 Fed. Reg. 7270 (1974) (requiring analysis of the impact of growth on air quality in potential non-attainment areas); 39 Fed. Reg. 7276 (1974) (defining indirect source for the first time and describing criteria to determine whether an indirect source would be subject to review); 40 Fed. Reg. 28,065 (1975) (suspending ISR procedures);
[148] Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 108(a)(2)(e) (1977) (codified as amended at 42 U.S.C. § 7410(a)(5)(A)(i)).
[149] Clean Air Act Amendments of 1990, Pub. L. No. 101-549, § 108(b), § 108(f)(1)(A)(xiv), 104 Stat. 2399, 2465-66 (codified at 42 U.S.C. § 7408(f)(1)(A)(xiv) (1991)) (altering transportation control measures list to include programs and ordinances to reduce vehicle travel "as part of transportation planning and development efforts of a locality, including programs and ordinances applicable to…centers of vehicle activity"); *Id.* § 102(b) (codified at 42 U.S.C. § 7502) (requiring nonattainment areas to include all "reasonable available control measures" in their SIPs). States were encouraged to adopt "all reasonable available control measures unless they are demonstrably not needed to bring an area into attainment or maintain a health[y] air quality level." 136 Cong. Rec. S16,956 (Oct. 27, 1990). *See also* Cal. Health & Safety Code §§ 40716(a)(1), 40440(b)(3).
[150] 2003 PM10 Plan, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (Dec. 18, 2003) (including a commitment that new residential and commercial development would be required to mitigate a portion of their emissions on-site through design features or by paying a mitigation fee); San Joaquin Valley Air Pollution Control District Governing Board, Resolution No. 05-12-16 (Dec. 15, 2005). *See also* 2006 Extreme Ozone Attainment Plan, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (Oct. 20, 2006) (including a commitment to reduce nitrogen oxide pollution through indirect source regulation).
[151] *See, e.g.,* James R. Pearson & Arthur R. Dammkoehler, *Indirect Source Review: Problems for the Air Pollution Control Agency*, 28(4) J. OF THE AIR POLL. CONTROL ASSOC. 367, 368-369 (1978).
[152] *See, e.g., supra* note 135.
[153] National Association of Home Builders v. San Joaquin Valley Unified Air Pollution Control Dist., 627 F.3d 730 (9th Cir. 2010) (Rule 9510 provisions regarding emissions from construction equipment not preempted by Clean Air Act § 209(e)).
[154] Center for Community Action and Environmental Justice v. BNSF Railway Co., 764 F.3d 1019 (9th Cir. 2014) (suggesting ISR may be one of the few mechanisms for regulating emissions from railyards).
[155] *Supra* note 134, at 1036, 1084-5.

of including ISR in community emissions reduction plans.[156] Given renewed attention to ISR and its applicability to vital commercial and industrial sectors over the past decade, now is the time to reconsider the approach, its use in light of the CAA's persistent gap problem, and its potential to improve quality of life for disadvantaged communities.

ISR Anticipated in State Law

EPAs first and only ISR rule under the CAA proved so politically challenging that its authority to require ISR rules in State Implementation Plans was removed from the statute in 1977.[157] Yet its promise as a gap filler remained, as Congress left open the possibility for ISR rules to be adopted by regional air districts.[158] In 1990, the CAA was amended to require states to incorporate "all reasonably available control measures" in their plans for nonattainment areas.[159] While the CAA prohibits EPA from requiring states to adopt ISR rules to comply with the statute, it allows EPA to enforce ISR rules when they are adopted by states.[160] Given that EPA may not require an ISR program, as well as the nonspecific nature of the CAA's definition of such programs ("facility-by-facility review of indirect sources of air pollution"), we turn to state law for further guidance.

California Health and Safety Code states that air districts may enact regulations to "reduce or mitigate emissions from indirect and areawide sources of air pollution."[161] This affirms air district authority to develop and administer ISR programs.[162] The California State Legislature also specifically directed air districts in the San Joaquin Valley and Southern California to address emissions from indirect sources. In 2003, the legislature adopted SB 709, which instructed the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) to develop an ISR rule.[163] State law instructs the district board to "adopt, by regulation, a schedule of fees to be assessed on areawide or indirect sources of emissions that are regulated, but for which permits are not issued, by the district to recover the costs of district programs related to these sources."[164] By comparison, the South Coast Air Quality Management District (SCAQMD) is directed more broadly to "provide for indirect source controls in those areas of the south coast district in which there are high-level, localized concentrations of pollutants or with respect to any new sources that will have a significant effect on air quality in the South Coast Air Basin."[165] SCAQMD first included ISR as a strategy to reduce emissions within the air district (in the form of "facility-based mobile source measures") in its 2016 Air Quality Management Plan.[166] A suite of measures appeared in later iterations of the plan.[167] Regulations, memoranda of understanding, and voluntary approaches for marine ports, airports, warehouses and distribution centers, railyards, and intermodal facilities are in varying stages of development. In this report, we focus on warehouse ISR programs.

[156] *See, e.g.,* Draft Final Community Emissions Reduction Plan: East Los Angeles, Boyle Heights, West Commerce, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 5c-3 (Sept. 2019), http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-sep6-025b.pdf?sfvrsn=10.
[157] *Supra* note 135, at 346.
[158] Joy Herr-Cardillo, *Indirect Source Review: Is it a Strategy that Could Help Phoenix Finally Clear its Air?*, 42 ARIZ. ST. L.J. 735, 739 (2011) (citing 42 U.S.C. § 7410(a)(5)(C)).
[159] 42 U.S.C. § 7502(c)(1).
[160] 42 U.S.C. § 7410(a)(5)(A)(i).
[161] Cal. Health & Safety Code § 40716.
[162] *See* Final Draft Staff Report for Proposed Rule 9510 and Rule 3180, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT 2 (2005).
[163] *Id*. at 1.
[164] Cal. Health & Safety Code § 40604.
[165] Cal. Health & Safety Code § 40440.
[166] Final 2016 Air Quality Management Plan, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 4-25 (2017).
[167] 2022 Draft Air Quality Management Plan, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 1-15 (May 2022). *See also* Final Air Quality Management Plan, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 4-77 (March 2017).

Two Regional Experiments

After the California State Legislature instructed SJVUAPCD to develop an ISR rule, the district underwent a two-year rulemaking process that resulted in Rule 9510. The San Joaquin Valley's ISR program applies to new developments within the region, including residential, commercial, industrial, medical, general office, and government projects above certain square footage thresholds. Exemptions are provided for projects with less than two tons of annual PM_{10} and NO_x emissions combined, as well as for certain transportation projects and projects that are already regulated as stationary sources.[168] The rule includes emissions and reporting requirements.[169] Emissions requirements include emissions reductions during construction as well as operation.[170] Projects subject to the rule must emit 20% less NO_x and 45% less PM_{10} than the statewide average during construction. To accomplish this, emissions may be reduced through cleaner construction equipment or by paying a fee that is used by the air district to purchase off-site emissions reductions.[171] Upon completion, a project must reduce NO_x emissions by 33% and PM_{10} emissions by 50% over its first ten years of operation.[172] Again, emissions reductions are achieved through a combination of on-site reductions and off-site mitigation fees.[173] The rule allows for flexibility in terms of how emissions reductions are achieved, ranging from electric lawn and garden equipment to improved walkability design to building efficiency. A website provides a menu with over 50 emissions reduction compliance options.[174]

After SCAQMD included facility-based mobile source measures in its 2016 Air Quality Management Plan (published in 2017), the district spent a year seeking voluntary agreements with warehouse operators to control emissions of criteria air pollutants. When this did not succeed, staff set to work on their own ISR rule in 2018, pursuant to authority under Section 40440(b)(3) of the California Health and Safety Code.[175] The purpose of the rule is to "reduce local and regional emissions of nitrogen oxides and particulate matter, and to facilitate local and regional emission reductions associated with warehouses and the mobile sources attracted to warehouses in order to assist in meeting state and federal air quality standards."[176] Rule 2305, Warehouse Actions and Investments to Reduce Emissions (WAIRE), was adopted three years later.[177] The rule applies to warehouses with 100,000 square feet or more of indoor floor space in a single building.[178] One of its primary concerns is emissions from medium- and heavy-duty trucks that visit warehouses within the district; diesel trucks in particular accounted for 90% of NO_x emissions at warehouses at the time.[179] To address this concern, each warehouse in the region above the 100,000 square foot threshold incurs an obligation or "Points

[168] Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District, Rule 9510 §§ 2.2, 4.0.
[169] Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District, Rule 9510 § 5.
[170] Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District, Rule 9510 § 6.
[171] Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District, Rule 9510 § 10.
[172] Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District, Rule 9510 § 6.
[173] Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District, Rule 9510 § 6.2.
[174] Emission Reduction Clean Air Measures, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (2022), https://ww2.valleyair.org/media/ob0pweru/clean-air-measures.pdf (accessed Aug. 10, 2024).
[175] South Coast Air Quality Management District, Governing Board Meeting, Agenda No. 32, Potential Strategies for Facility Based Mobile Source Measures Adopted in 2016 AQMP, http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-may4-032.pdf?sfvrsn=2 (accessed Aug. 10, 2024).
[176] Rules of the South Coast Air Quality Management District, Rule 2305 (May 7, 2021) https://www.aqmd.gov/docs/default-source/rule-book/reg-xxiii/r2305.pdf?sfvrsn=211 (accessed Aug. 10, 2024).
[177] Rules of the South Coast Air Quality Management District, Rule 2305(a).
[178] Rules of the South Coast Air Quality Management District, Rule 2305(b). Staff considered whether the rule should apply to warehouses with 50,000 square feet of indoor space but concluded that they did not have the capacity to administer a program of such scope. Rule 2305 and Rule 316 Governing Board Package, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 949 (2021), https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10 (accessed Aug. 10, 2024) ("It is important to ensure that the program is properly administered before increasing its scope to include many thousands of new facilities."). The decision proved to be wise. The first phase of implementation of the WAIRE program included challenges getting warehouse operators to participate. Annual Report for the WAIRE Program, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 13 (Jan. 2023). The district describes a significant effort to alert warehouse operators of their new responsibilities under Rules 2305 and 316. *Id.* at 12-13.
[179] Rule 2305 and Rule 316 Governing Board Package, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 2 (2021), https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10 (accessed Aug. 10, 2024).

Burden" in proportion to the number of trucks that visit the warehouse in a calendar year.[180] Each facility operator is required to track the number of trucks that visit the warehouse per year and calculate the number of points they are obligated to earn per year to address related emissions.

A warehouse's annual WAIRE Points Compliance Obligation (WPCO, or "Points Burden") is determined according to an equation that multiplies the Weighted Annual Truck Trips ("WATT") by a Stringency Constant of 0.0025 points per WATT by an Annual Variable that increases each year (which in turn increases the total Points Burden) (see Figure 1).[181] The WATT is calculated one of two ways: (1) by adding the sum of all trips made by trucks excluding the largest truck class to 2.5 times the sum of all trips made by trucks of the largest class[182] or, (2) if truck types are unknown, by multiplying the days per year, the warehouse size in square feet, and a constant of 0.96, 0.67, or 2.17 trips per day for warehouses of 200,000 square feet, 100,000 square feet, or cold storage warehouses, respectively.[183]

Figure 1. Annual Variable for Calculation of Warehouse Points Burden under Rule 2305 (Source: SCAQMD).

Annual WAIRE Report Year*	Annual Variable		
	Phase 1	Phase 2	Phase 3
2022	0.33	0	0
2023	0.67	0.33	0
2024	1.0	0.67	0.33
2025	1.0	1.0	0.67
2026 and beyond	1.0	1.0	1.0

Upon calculating their annual Points Burden, a warehouse owner or operator can meet it in one of three ways. First, the owner or operator may complete actions or investments that are located in Rule 2305's "Table 3." This is a menu of points for actions or investments that correspond to emissions reduction or investment in low-emissions technologies. The menu includes points for actions that directly reduce emissions (e.g., visits to a warehouse by a zero-emission or near-zero emission truck) as well as for investments that indirectly result in emissions reductions (e.g., installing electric vehicle charging stations or the purchase of zero-emission or near-zero emission trucks) (see Figure 2). Menu items include, for example:

1. Acquiring Zero Emission ("ZE") or Near-Zero Emission ("NZE") trucks for use in the warehouse operator's fleet;
2. Having ZE/NZE trucks visit the warehouse;
3. Acquiring ZE yard trucks;
4. Using ZE yard trucks;
5. Installing onsite ZE charging or fueling infrastructure;
6. Using onsite ZE charging or fueling infrastructure;
7. Installing and energizing onsite solar panels;
8. Using onsite solar panels; and

[180] Rules of the South Coast Air Quality Management District, Rule 2305(d).
[181] Rules of the South Coast Air Quality Management District, Rule 2305(d)(1)(B).
[182] Rules of the South Coast Air Quality Management District, Rule 2305(d)(1)(A).
[183] Rules of the South Coast Air Quality Management District, Rule 2305(d)(1)(C).

9. Installing Minimum Efficiency Reporting Value (MERV) 16 or greater filters or filter systems in residences, schools, daycares, hospitals, or community centers.[184]

Figure 2. Actions and Investments to Achieve Annual Points Burden under Rule 2305 (Source: SCAQMD).

Action/Investment	Action/Investment Details	Reporting Metric	Annualized Metric	WAIRE Points per Annualized Metric	Discounted WAIRE Points Subparagraph (d)(6)(A)
Acquire ZE/NZE Trucks in Warehouse Operator Fleet	ZE Class 8	Number of trucks	One truck acquired	126	126
	ZE Class 4-7			68	68
	ZE Class 2b-3			14	14
	NZE Class 8			55	55
	NZE Class 4-7			26	26
ZE/NZE Truck Visits	ZE Class 8	Number of visits	365 truck visits	51	33
	ZE Class 4-7			12	9
	ZE Class 2b-3			9	6
	NZE Class 8			42	24
	NZE Class 4-7			12	9
Acquire ZE Yard Truck		Number of yard trucks	One yard truck acquired	177	177
Use ZE Yard Truck		Hours of use	1,000 hours	291	51
Install Onsite ZE Charging or Fueling Infrastructure	150-350 kW EVSE Acquisition	Number of EVSE purchased	One EVSE purchased	118	118
	51-149 kW EVSE Acquisition			51	51
	19.2-50 kW EVSE Acquisition			26	26
	Up to 19.2 kW EVSE Acquisition			5	5
	TRU Plug EVSE Acquisition			3	3
	Begin construction on 19.2-350 kW charger project	First day of construction	One construction project	9	9
	Begin construction on up to 19.2 kW charger project			5	5
	Begin construction on TRU Plug project			5	5
	Finalize 19.2-350 kW Level charger project	The latter of final permit sign off or charger energization	One construction project	59	59
	Finalize up to 19.2 kW charger project			5	5
	Finalize TRU Plug project			7	7
	Hydrogen (H_2) Station	Daily capacity of station in kilograms (kg)	One 700 kg/day station construction project	1,680	1,680
Use Onsite ZE Charging or Fueling Infrastructure	Vehicle Charging	Kilowatt-hours (kWh) of dispensed electricity	165,000 kWh	42	24
	TRU Charging		10,658 kWh	10	3
	H_2 Station Usage	Kg of dispensed H_2	6,152 kg	43	25
Install and Energize Onsite Solar Panels	Rooftop	Size of system in kW	100 kW system	15	15
	Carport			19	19
Use Onsite Solar Panels		Energy production in kWh	165,000 kWh	1	1
Install MERV 16 or greater Filters or Filter Systems in Residences, Schools, Daycares, Hospitals, or Community Centers	Install Stand-Alone System	Number of systems installed	25 systems	55	55
	Replace Filters	Number of filters replaced	200 filters	51	51

By design, the most cost-effective compliance measures are those that bring low-emission trucks to the facility. Other menu options, such as installing air filters, are more expensive. The same holds true for mitigation fees.[185] This creates incentives for warehouse operators to take actions that reduce emissions rather than mitigating the impacts of poor air quality. The second method for earning points to satisfy the Points Burden is through a custom program. Owners and operators of warehouses to which Rule 2305 applies can apply to SCAQMD for a custom program.[186] The third option to meet the Points Burden is for warehouse owners and operators to pay a mitigation fee, which the district uses to fund programs that offset emissions. The mitigation fee is set at $1000 per point.[187] Operators may transfer points, subject to limitations, in a quasi-cap-and-trade system.[188] Transfer may be done (1) between warehouses, provided an operator operates more than one warehouse and there are excess

[184] Rules of the South Coast Air Quality Management District, Rule 2305 Table 3.
[185] Rule 2305 and Rule 316 Governing Board Package, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 1719 (2021) (Total Cost Summary for All Scenarios) ("Because there are cheaper options for the warehouse operators to meet their WPCO, the current cost of the mitigation fee may not be the most cost-effective option for warehouse operators").
[186] Rules of the South Coast Air Quality Management District, Rule 2305(d)(4).
[187] Rules of the South Coast Air Quality Management District, Rule 2305(d)(5).
[188] Rules of the South Coast Air Quality Management District, Rule 2305(d)(6).

points at one site; (2) across compliance periods, so long as transfer occurs at the same warehouse; and (3) between a warehouse facility owner and operator, provided it is done at the same site.[189]

Early data suggest that approaches to compliance with Rule 2305 "differ substantially" among warehouse operators, based on factors such as whether they are publicly traded and face shareholder pressure, are located close to port terminals that generate more frequent truck visits, or seek flexibility and ease of use, which could lead to payment of mitigation fees over less expensive compliance menu items. Initial Site Information Reports submitted by warehouse operators suggest an intent to comply with facility-specific Points Burden by earning at least some points through acquisition of ZE/NZE trucks (31%), electric charger use (18%), solar panel use (17%), charger project construction (9%), charging station acquisition (6%), charger project completion (6%), and mitigation fee payment (31% of operators, with approximately 3.1% of WAIRE points achieved via fee payment across reporting operators).[190] For purposes of avoiding preemption under federal law, "no single compliance option was tentatively chosen by a majority of warehouses, nor was any single compliance option a majority of the WAIRE points anticipated to be earned."[191] These trends can be discerned from Annual WAIRE Reports filed by facility operators.

For a detailed comparison of the scope and applicability of Rules 9510 and 2305, see Appendix A. For a look at how legal challenges to these rules helped clarify the authority to develop ISR, see Appendix B.

Resolving Environmental Justice Policy Pathologies

Experience with rulemaking in the San Joaquin Valley and Southern California suggests that ISR programs are inherently flexible, exist soundly within federal and state law, and offer a promising, and under certain circumstances imperative, approach to address the CAA's gap problem. At the same time, the experience of regional air districts offers a cautionary note for those who consider the goods movement industry, freight corridors, and inland ports a new iteration of the CAA's inability to address environmental justice concerns. In addition, for twenty-five years, California agencies have been unable to correct for several administrative pathologies related to environmental justice policy. Warehousing further tests the limits of a state's ability to address cumulative impact, land use stasis, policy inertia, and civil rights compliance.

The rulemaking record for Rules 2305 and 316 in the South Coast offers the most comprehensive account of warehousing as an environmental justice policy problem, as well as opportunities to design ISR programs that are more attuned to each pathology.[192] Throughout the rulemaking process, the public argued that the air district had the authority to create a "strong" and "equitable" rule that would keep emissions reduction closely tied to warehouse location.[193] Comments in support of the rule repeat the claim that in Southern California and the Inland Empire, areas impacted by warehouse-related emissions are disproportionately low-income communities and communities of color.[194] SCAQMD acknowledged this concern, which was expressed in great detail across dozens of comment letters. Notably, the socioeconomic report prepared by district staff for Rule 2305 found that communities near warehouses in the district were disproportionately disadvantaged communities as defined by the

[189] Rules of the South Coast Air Quality Management District, Rule 2305(d)(6)(A)-(C).
[190] Order re: Plaintiff's Motion for Summary Judgment as to Plaintiff's Complaint for Declaratory Judgment and Injunctive Relief, California Trucking Association v. South Coast Air Quality Management District et al. No. LA CV21-06341 at 15 (C.D. Cal., Dec. 14, 2023).
[191] *Id.*
[192] South Coast Air Quality Management District, PR 2305 Comment Letters, Vol. 1-5.
[193] *See, e.g.,* South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 24 ("Could there be some mechanism or language added to this section of the Proposed Rule that would restrict the transferring of WAIRE Points between warehouses with the same operator in a way that maximizes local benefits?").
[194] *See, e.g.,* South Coast Air Quality Management District, PR 2305 Comment Letters - Volume V, 55 ("So many of my neighbors of all ages suffer from asthma and other health conditions. We need environmental justice.").

state.[195] Further, staff found that communities located within a half mile of warehouses within the district were disproportionately burdened with environmental impacts according to the CalEnviroScreen environmental justice screening tool.[196] However, SCAQMD reverted to a common refrain, first brought to light in *Select Steel*, among agencies that fail to distinguish between the *general application* of an environmental standard and its continued, localized, and disproportionate impact. Staff argued that "Because of the high overlap between the vast majority of warehouses and communities with pollution burdens, the most practical approach to reduce these impacts is to ensure that all warehouse operators must take actions to benefit their local communities."[197]

Representatives, allies, and residents of disadvantaged communities offered assessments of warehousing as an environmental justice policy problem from before the air district included ISR programmatic language in its 2016 Air Quality Management Plan, to the enactment of Rule 2305 in 2021. We consider the record, supplemented by the results of semi-structured interviews with 25 experts in the logistics industry and its regional and localized impacts from academia, government, industry, non-profit organizations, and organized communities. Through analysis of these data, we find the persistence of the abovementioned policy pathologies as well as opportunities for ISR programs to address them.

Cumulative Impact

The rulemaking record is replete with calls for the air district to design an ISR program that "better reflect[s] the reality of warehouse operations" in a region, a concern often paired with apprehension over cumulative impact:

> Diesel pollution generated by transporting freight or cargo in the State continues to be the biggest contributor to the air toxics and criteria pollutants that affect everyone's quality of life. Communities near warehouses experience higher exposure to air pollution due to cumulative emissions from sources such as trucks, transport refrigeration units, and other freight equipment. The greater air pollution burden in these communities results in increased cases of asthma, hospitalizations, cancer, and even premature death related to heart and lung disease.[198]

> [T]he draft rule can do more to better reflect the reality of warehouse operations and the pollution crisis in the region. The Inland Empire has seen a proliferation of these facilities in recent years, and the Southern California Association of Governments projects even more warehouse space will be built or retrofitted in the future. These facilities continue to be sited in neighborhoods throughout the South Coast air basin that routinely show high levels of ozone and particulate matter. In fact, the region continues to rank as one of the most polluted areas of the country, recently receiving an "F" from the American Lung Association for ozone and fine particulate matter pollution.[199]

Public comments between 2019 and 2021 describe cumulative impacts of air pollution, truck traffic, and related noise and safety concerns as well as broader physical, environmental, ecosystem, and social stressors. Cumulative impact is described as including dimensions such as "24/7" operations; infrastructure damage; truck idling; total cancer risk, asthma, cardiovascular and respiratory disease, chronic exposure, and weakened immune systems; sensitive receptors who need air filters, vegetative

[195] 2305 and Rule 316 Governing Board Package, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 1697-1699 (2021), https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10 (accessed Aug. 10, 2024).
[196] Rule 2305 and Rule 316 Governing Board Package, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 132 (2021), https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10 (accessed Aug. 10, 2024).
[197] Rule 2305 and Rule 316 Governing Board Package, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 688 (2021), https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10 (accessed Aug. 10, 2024).
[198] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume IV, 17.
[199] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 14.

barriers, and other protections; school safety and disruption; landscape and wildlife change; stormwater capture and impervious surface challenges; housing displacement; workplace health; urban heat island effects; electric grid stress; cycles of poverty for temporary and contract workers; aesthetic change; and "unaccounted for" costs.

Warehouse-induced pollution and its impacts were well-known to communities in the Inland Empire during the comment period. Cumulative impacts create "a state of environmental injustice" and a "public health crisis" in counties such as San Bernardino and Riverside, "exacerbated" by the COVID-19 pandemic and "the worst smog season in decades."[200] Importantly, four South Coast Air Basin communities that were selected by the California Air Resources Board (CARB) to consider neighborhood-scale, cumulative impacts under AB 617 had already identified ISR programs as an emissions reduction strategy: "Failure to consider, adopt, and implement a warehouse ISR would break the commitments made to these communities [under AB 617]" and "set a bad precedent for other indirect sources, such as railyards, ports, and airports."[201]

The public implored the air district to use its authority to address "high-level, localized concentrations of pollutants"[202] as the science of near-source warehouse impacts progressed through its early stages of development. Academic and non-profit researchers prior to 2019 relied on an amalgam of studies, including CARB-funded air quality and health risk assessment research near railyards (2008), asthma and other environmental health research by Loma Linda University faculty and staff (2010s), labor impact reports for firms such as Amazon (late 2010s), and the American Lung Association's annual "State of the Air" reports on regional air quality (from 2000) and research that more recently pointed to the impacts of goods movement.[203] In the absence of "official data," they also leveraged student projects to generate data, such as a high school truck count study in Chicago and a graduate student-generated map based on ESRI summary statistics and reference points for warehouses in the Inland Empire.[204]

The student map evolved into "Warehouses, Pollution, and Social Disparities" (2021), a report by Ivette Torres and Anthony Victoria of the People's Collective for Environmental Justice and students in a University of Redlands environmental studies course.[205] The report benefited from access to an earlier version of the California Office of Environmental Health Hazard Assessment's (OEHHA) CalEnviroScreen as well as data sources from SCAQMD.[206] With these data, the authors could generate comparative statistics and consider the colocation of warehouses with toxic facilities, demographics, traffic percentiles, and 640 schools in the air basin.[207] As with a growing number of environmental justice studies at the time, Torres et al. relied on CalEnviroScreen as a proxy for cumulative impacts beyond the effects of warehousing.[208] For example, they found that the City of Ontario, California had the highest concentration of warehouses as well as a higher toxic pollution

[200] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume V, 660-661.
[201] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume II, 93.
[202] Cal. Health & Safety Code § 40440.
[203] *See, e.g.,* Health Risk Assessment for the Union Pacific Railroad Colton Railyard, CALIFORNIA AIR RESOURCES BOARD (Apr. 2008), https://ww2.arb.ca.gov/sites/default/files/classic/railyard/hra/up_col_hra.pdf (accessed Aug. 27, 2024); Rhonda Spencer-Hwang et al., *Respiratory Health Risks for Children Living Near a Major Railyard*, 40(5) J. OF COMMUNITY HEALTH 1015 (2015); *Too Big to Govern: Public Balance Sheet for the World's Largest Store*, ECONOMIC ROUNDTABLE (Nov. 2019), https://economicrt.org/wp-content/uploads/2023/05/Too-Big-to-Govern-final.pdf (accessed Aug. 27, 2024); *2024 State of the Air Report Reveals Most "Hazardous" Air Quality Days in 25 Years*, AMERICAN LUNG ASSOCIATION (Apr. 24, 2024), https://www.lung.org/media/press-releases/sota-2024 (Accessed Aug. 27, 2024).
[204] *See, e.g.,* Chicago Truck Data Portal, *Little Village Environmental Justice Organization*, https://apps.cnt.org/truck-count-tracker/ (Accessed Aug. 27, 2024) ("An AP Statistics class from Infinity Math, Science and Tech High School collaborated with LVEJO to conduct truck counts outside their school campus at W 31st St. and S. Kostner Ave.").
[205] Ivette Torres, Anthony Victoria (People's Collective for Environmental Justice), Dan Klooster, and Environmental Studies 277 students (University of Redlands), *Warehouses, Pollution, and Social Disparities: An Analytical View of the Logistics Industry's Impacts on Environmental Justice Communities Across Southern California* (Apr. 2021), https://earthjustice.org/wp-content/uploads/warehouse_research_report_4.15.2021.pdf (accessed Aug. 27, 2024).
[206] *Id.* at 21.
[207] *Id.* at 6, 7, 14, 16, 18, 25, 26 et seq.
[208] *Id.* at 4.

burden than over 97% of California census tracts.[209] The report's school proximity maps are the most striking. For example, Torres et al. generated a map that shows "six of the eight schools in the Bloomington community sit, or will sit, right next to a warehouse."[210]

Importantly, "Warehouses, Pollution, and Social Disparities" argues that, "[u]ntil now, no industry, research institution, or agency found it necessary to map warehouse locations with vital correlations to socio-economic demographics."[211] The Torres et al. report changed that. For the first time, its maps gave a visual representation of "the severity of our region's air pollution woes" and the "urgency for important policies such as the Indirect Source Rule…and other air quality management and community emissions reduction plans" to address the rise of goods movement in the region.[212] It also "opened the door for the impacts of warehousing to be talked about nationally," including in newspaper articles and op-eds. An atmospheric scientist read an op-ed in the *Los Angeles Times* by a professor of environmental analysis at Pitzer College.[213] The two decided to work together. They partnered to address questions such as how to characterize the "size of the goods movement industry" in Southern California and whether public data undercount the number of warehouses in regions such as the Inland Empire. The result was the Warehouse Cumulative Impact Tool for Community (CITY), the first cumulative impact analysis tool to focus on warehouse size, location, and operations in the United States.[214] The foundation for Warehouse CITY was Assessor Parcel Data from Los Angeles County (2006-2021); groundtruthed over hundreds of hours to verify or correct for dates, footprint, and other data; supplemented by anticipated development via CEQAnet and open data from Riverside, San Bernardino, Los Angeles, and Orange Counties; and overlayed with user-selected CalEnviroScreen, rail, jurisdiction, and distance radii. Warehouse CITY also includes advanced user options such as floor-area ratio, truck trips per 1000 square feet, truck trip length, and emissions estimates for diesel particulate matter, NO_x, and CO_2 based on fleet-average estimates from SCAQMD and truck trip estimates.[215]

Warehouse CITY became the standard-bearer for warehouse cumulative impact research. It informed public comments for environmental review, opposition letters during the development of city plans, press articles, student and academic research, and a Title VI complaint filed under the Civil Rights Act of 1964 on behalf of the People's Collective for Environmental Justice against San Bernardino County.[216] It was also used to prepare a more sophisticated working paper, "A Region in Crisis,"[217] which was appended to a request by over sixty organizations for the Governor of California to declare a public health state of emergency for the Inland Empire.[218] The report and letter led with an updated Warehouse CITY-generated estimate of the warehouse industry's footprint in the Inland Empire: 1 billion square feet, "with an additional 170 million square feet currently approved or pending."[219]

With Warehouse CITY, planners and researchers could finetune and extrapolate the "alarming statistics" that accompany 1 billion square feet of warehouse space, including criteria and carbon

[209] *Id.* at 6.
[210] *Id.* at 9.
[211] *Id.* at 4.
[212] *Id*. at 5.
[213] Susan A. Phillips, "We Mapped the Warehouse Takeover of the Inland Empire. The results are Overwhelming," LOS ANGELES TIMES (May 1, 2022: 3:10 AM PT), https://www.latimes.com/opinion/story/2022-05-01/inland-empire-warehouse-growth-map-environment (Accessed Aug. 27, 2024).
[214] *Warehouse CITY*, RADICAL RESEARCH LLC, https://radicalresearch.shinyapps.io/WarehouseCITY/ (Accessed Aug. 27, 2024).
[215] *Id*. (Readme).
[216] *See, e.g.,* Complaint Under Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000d 12 (June 26, 2024).
[217] *A Region in Crisis: The Rationale for a Public Health State of Emergency in the Inland Empire*, CENTER FOR COMMUNITY ACTION AND ENVIRONMENTAL JUSTICE (Jan. 2023), https://www.ccaej.org/regionincrisis (Accessed Aug. 27, 2024).
[218] Letter to Governor Gavin Newsom Re: Over Sixty Organizations Urge Gov. Newsom to Declare a Public Health State of Emergency in the Inland Empire (Jan. 24, 2023), https://www.ccaej.org/_files/ugd/2a4f33_535d5a32a3734461b36664 ae7756921d.pdf (accessed Aug. 27, 2024).
[219] *Id.* at 2.

emissions, traffic, and health and safety concerns.[220] For example, "Warehouses, Pollution, and Social Disparities" describes the City of Ontario as having the "largest" number of warehouses by city as well as non-warehouse pollution greater than 97% of California census tracts according to CalEnviroScreen.[221] By comparison, "A Region in Crisis" estimates that the City of Ontario has 664 warehouses with a footprint of 5091 acres, 95,000 daily truck trips, and daily emissions of PM (100 pounds) NO_x (1500 pounds), and carbon dioxide (8 million pounds).[222] The authors of "A Region in Crisis" could also combine Warehouse CITY with school location data to offer a more granular analysis of warehouse proximity to schools and diesel particulate matter exposure within radii of 1000, 2000, and 3000 feet.[223] The report finds:

> Over 300 warehouses are 1000 feet or less from 139 Inland Empire schools; over 600 warehouses surround these same schools at 1500 feet. 302 schools are within 2000 feet. 474 are within 3000 feet. 157 schools are within the 80th percentile or higher for diesel particulate matter exposure due to proximity to warehouses and related truck traffic routes.[224]

Whereas "Warehouses, Pollution, and Social Disparities" found that, for example, "six of eight schools in the Bloomington community sit, or will sit, right next to a warehouse,"[225] "A Region in Crisis" adds that "1000- and 3000-foot buffer zones demonstrate how multiple schools, and a key part of the airshed, can be impacted by a single warehouse."[226] Extrapolating from joined public data and conservative estimates of daily truck traffic and emissions related to the region's warehouse footprint, "A Region in Crisis" estimates that the Inland Empire's 4,000 warehouses generate over 600,000 truck trips per day, 300,000 pounds of diesel particulate matter per year, and 15 billion pounds of carbon emission per year.[227]

While public health-related impacts of truck traffic and emissions were initially beyond the scope of Warehouse CITY, "A Region in Crisis" points to staff assessments that were prepared for Proposed Rule 2305 by SCAQMD as well as updated data from CalEnviroScreen 4.0 to offer a more precise account of cumulative impact:

> Diesel exhaust is responsible for about 70 percent of the total cancer risk from air pollution; cancer risk is in the 95th percentile near the Ontario warehouse gigacluster – equaling [an elevated cancer risk of] 624 per million, which is 95% higher than the rest of the basin. AQMD reports higher risks from PM for people who live within a half mile of warehousing facilities, where the asthma rate average is 56 per 10,000 individuals (64th percentile) and heart attack rates are 9.2 per 10,000 individuals (65th percentile).[228]

Researchers interviewed for this report note that "before Warehouse CITY, there were no numbers for associated emissions" of warehousing, to say nothing of other direct and indirect impacts.[229] But by 2023, "A Region in Crisis" authors could begin to critique California's inability to characterize and mitigate cumulative impacts of goods movement under existing law. For example, while CEQA Rule 15130(b) calls for "past, present and probable future projects" to be considered,[230] environmental review "seldom consider[s] the cumulative pollution burden of past, current, and future projects and the

[220] *Id.*
[221] *Supra* note 205, at 6.
[222] *Supra* note 217, at 14.
[223] *Id.* at 24.
[224] *Id.*
[225] *Supra* note 205, at 9.
[226] *Supra* note 217, at 28.
[227] *Supra* note 217, at 2.
[228] *Id.* at 4.
[229] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[230] Cal. Code Regs. tit. 14, § 15130(b)(1)(A).

inequitable zoning that resulted in historical conditions of environmental injustice."[231] Instead, "project outcomes are determined utilizing incremental rather than cumulative impact."[232]

When first made available to the public, Warehouse CITY was not without its limitations.[233] It lacked data on a number of direct and indirect impacts of warehouse siting, construction, and operation (e.g., truck idling). It relied on a chain of uncertainties such as emissions factors, square footage to estimated daily truck trips, daily truck trips to mileage traveled, and mileage traveled to daily PM and NO_x emissions. To address these challenges, the tool includes input options for users to test uncertainties and generate min-max bounds. Users can also input reasonable values to capture region-specific assumptions. Warehouse CITY continues to evolve as better data are available – including through ISR program implementation – for vehicle miles traveled, average truck trip length, disaggregation of truck trips (e.g., drayage versus warehouse-to-warehouse), and adjustments to accepted land use emissions models. Advanced options allow the user to alter input values for floor-area ratio, truck trips per 1,000 square feet, truck trip length, fleet-averaged heavy-duty truck emissions per mile for diesel particulate matter, NO_x, and CO_2, jobs provided per acre, and estimated vacant warehouse space.[234]

Warehouse cumulative impact assessment is inherently complex. For example, for air quality impacts of trip generation alone, a research team has to "allocate all of the trucks to individual roads and then say where the truck trip rates are the greatest, plus passenger vehicle rates and then you'd have to model whether traffic idling would increase or decrease depending on level of service."[235] Thankfully, post-Rule 2305 data fusion approaches are available that can encourage "very high-quality modeling" of indirect source pollutants such as $PM_{2.5}$ generated by a warehouse footprint and related truck traffic.[236] Ten years ago, these approaches evolved to the sub-kilometer scale; they can now approximate air quality at the level of a city block. Data fusion approaches combine several data sources to produce exposure models that can explore issues such as speciation, source attribution, and the impacts of an air pollution policy intervention. Satellite data are the foundation – they are comparatively robust with fewer concerns such as data drift or decay than low-cost sensors or regulatory monitors. They can generate a time series with minimal concern for systematic or cumulative error. From there, researchers develop a random forest model and train it using input parameters such as satellite, regulatory monitor, and air sensor data as well as land use and land cover to provide exposure estimates across a region, including areas with limited or no monitoring or sensor coverage.[237] For the first time, data fusion techniques offer the potential for researchers and regulators to move beyond "instinct" for how air quality fluctuates at the neighborhood scale to policy decisions based on real data. A recent study in *Nature Communications* took a first step in analyzing satellite data to quantify localized air pollution near 150,000 warehouses across the U.S. It found that NO_2 increases nearly 20% nearby, with the highest concentration located roughly 4 kilometers away in the direction of prevailing winds.[238]

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[231] *Supra* note 217, at 18.
[232] *Id.* at 17.
[233] Susan A. Phillips & Michael C. McCarthy, *Warehouse CITY: An Open Data Product for Evaluating Warehouse Land-Use in Southern California,* ENVT. & PLANNING B: URBAN ANALYTICS & CITY SCI. (2024), https://doi.org/10.1177/23998083241262553.
[234] *Warehouse CITY*, RADICAL RESEARCH LLC https://radicalresearch.shinyapps.io/WarehouseCITY/ (Readme) (Accessed Jan. 15, 2025).
[235] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[236] Zongwei Ma et al., *A Review of Statistical Methods Used for Developing Large-scale and Long-term $PM_{2.5}$ Models from Satellite Data*, 269 REMOTE SENSING OF ENV'T 112827 (2022).
[237] *See, e.g.,* Bryan N. Vu et al., *Application of Geostationary Satellite and High-Resolution Meteorology Data in Estimating Hourly $PM_{2.5}$ Levels During the Camp Fire Episode in California,* 271 REMOTE SENSING OF ENV'T 112890 (2022); Lance Wallace et al., *Calibration of Low-Cost PurpleAir Outdoor Monitors Using an Improved Method of Calculating $PM_{2.5}$*, 256 ATMOSPHERIC ENV'T 118432 (2021); Jianzhao Bi et al., *Incorporating Low-Cost Sensor Measurements into High-Resolution $PM_{2.5}$ Modeling at a Large Spatial Scale*, 54 ENVTL. SCI. & TECH. 2152 (2020).
[238] Gaige Hunter Kerr, Michelle Meyer, Daniel L. Goldberg et al., *Air Pollution Impacts from Warehousing in the United States Covered with Satellite Data*, 15 NATURE COMM. 6006 (2024).

Warehouse cumulative impact assessment remained in its infancy as draft Rule 2305 took shape. Future ISR programs will have greater potential to "take cumulative community impacts in[to] consideration,"[239] from updated applications of Warehouse CITY to sophisticated data fusion and training models. The perfect need not be the enemy of the good as the science progresses – Rule 2305 comments point to proxies for cumulative impact and vulnerability such as the location of sensitive receptors and CalEnviroScreen indicators. The public called for these and increasingly comprehensive indicators of cumulative impact to trigger WAIRE formula adjustment. For example, an operator's Points Burden could be raised to account for warehouse location within a disadvantaged community, unincorporated community, or area that recently experienced warehouse-related displacement or rezoning from residential to light industrial.[240] Points Burden could also be adjusted, as outlined in "A Region in Crisis," based on location within tiered radii that encompass sensitive receptors.[241] Points could be increased for actions or investments with near-source emissions reduction co-benefits (e.g., via increased use of zero-emission electric yard trucks).[242] Actions or investments could be added to a compliance menu or adjusted based on greater localized air quality benefits (e.g., vegetative barriers that limit exposure to particulate matter via dispersion and deposition).[243] Compliance points (or in lieu of mitigation fees) that do not yield benefits within disadvantaged communities could be discounted.[244] Audit and reporting features could address persistent uncertainty or data gaps for certain impacts. Comments also zeroed in on the WAIRE formula's Stringency Value as a means to account for a wider range of warehouse externalities.[245]

The public did not win a Rule 2305 provision to increase a facility's Points Burden based on location within a disadvantaged or "environmental justice community." The decision was made despite the fact that the Clean Air Act includes numerous authorities that encourage consideration of localized impacts and the air quality of communities with environmental justice concerns – from standard-setting to SIP development to monitoring to attainment demonstration to nonattainment area control measures to SIP revision.[246]

Land Use Stasis and Policy Inertia

Across the rulemaking record, members of the public argued that the state requirement to take "high-level, localized concentrations"[247] into account gave the air district wide latitude to consider Rule 2305's scope and compliance criteria. Calls for the rule to reflect "past, present, and future" projects mirror definitions of cumulative impact under CEQA and the National Environmental Policy Act (NEPA).[248] At the same time, the public regarded CEQA compliance as suboptimal to address cumulative impact. For more than a decade, community leaders considered project-by-project opposition via city council meetings and environmental review to be "the only tool we have."[249] They continue to lack confidence in the "limited understanding" of and ability to consider cumulative impact under CEQA as well as NEPA.[250] Their view has not changed, even as litigation under CEQA produced a growing inventory of

[239] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume II, 94.
[240] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 15.
[241] *Supra* note 217, at 38.
[242] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume V, 728.
[243] Jenny Linden et al., *Air Pollution Removal through Deposition on Urban Vegetation: The Importance of Vegetation Characteristics*, 81 URBAN FORESTRY & URBAN GREENING 127843 (2023).
[244] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume II, 94.
[245] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume II, 86.
[246] *EPA Legal Tools to Advance Environmental Justice*, U.S. ENVTL. PROT. AGENCY 15-29 (May 2022), https://www.epa.gov/system/files/documents/2022-05/EJ%20Legal%20Tools%20May%202022%20FINAL.pdf (accessed Aug. 27, 2024).
[247] Cal. Health & Safety Code § 40440.
[248] Cal. Code Regs. tit. 14, § 15130(b)(1)(A); 40 C.F.R. § 1508.7 (defining cumulative impact under NEPA as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.").
[249] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[250] *See, e.g.,* Center for Community Action and Environmental Justice v. Federal Aviation Administration, 18 F.4th 592 (9th Cir. 2021), amended 51 F.4th 322 (9th Cir. 2022), amended 61 F.4th 633 (9th Cir. 2023) (finding petitioners did not identify the potential cumulative

settlement and "community benefit" agreements.[251] Under ideal circumstances, public involvement in CEQA is "labor-intensive," triggered by a limited subset of new or modified facilities rather than existing sources, and often results in Statements of Overriding Considerations that render mitigation infeasible.[252] Tracking facility development via CEQAnet[253] is considered untenable. Other options, such as voluntary good neighbor provisions,[254] temporary moratoria declared by a small number of jurisdictions,[255] and general plan (e.g., circulation element), truck route plan, zoning code (e.g., air quality standards), and building code updates following a mortarium[256] share similar limitations, among them data and knowledge transfer from one process or jurisdiction to another.

Warehousing is described as an opaque industry without substantial oversight. Lack of data regarding industry operations is subversive to the democratic process and hinders "meaningful involvement," one of two core elements of California environmental justice policy.[257] Meaningful involvement includes the opportunity for people to "participate in decisions that may affect their environment or health" so that "their contributions can influence regulatory decisions" and "be considered in the decision-making process" as regulators and officials "seek out and facilitate the involvement of those potentially affected."[258] Commentors criticized the absence of public data to inform Rule 2305's development, particularly prior to release of a draft rule.

> Necessary details of warehouse actions and investments to reduce emissions (WAIRE) program must be clarified. Under section (d)(1)(A) requirements, the SCAQMD has left much undefined and without the ability for the public to determine how the WAIRE points will be calculated. The equation to calculate annual WAIRE program points required per warehouse includes the following: WPCO = WATTs x Stringency x (Annual Variable). However, "Stringency" is completely undefined, leaving interested members of the public wondering exactly how SCAQMD will calculate the required WAIRE points according to its own equation. Similarly, the "Annual Variable" is to be determined according to Table 1. When reviewing Table 1, however, the Annual Variables in that table are also undefined. Without hypothetical or placeholder values to insert

impacts of more than 80 additional projects as well as "other impact areas" beyond one general study area that would experience massive increase in daily truck trips and other impacts during air cargo facility operation). On dissent, Judge Rawlinson argued that the case "reeked of environmental racism" as it was proposed in a majority people of color community in an extreme nonattainment area for multiple NAAQS.

[251] *See, e.g.,* South Coast Air Quality Management District, PR 2305 Comment Letters - Volume V, 727-745 (Settlement Agreement and Release, Sierra Club, Residents for a Livable Moreno Valley, and Prologis, L.P. (Nov. 2015)); 746-766 (Settlement Agreement and Release, Sierra Club and GLC Fontana III LLC (July 2020)); 767-798 (Settlement Agreement and Release, Sierra Club and Prologis, L.P. (Aug. 2018)). *See also* Stipulation for Entry of Final Judgment on Consent, Sierra Club v. City of Fontana, Case No. CIVSB2121605 (Superior Court of the State of California) (Apr. 2022) (settling CEQA complaint brought by the California Attorney General against the City of Fontana to challenge approval of a 205,000 square foot warehouse project that bordered a public high school). The settlement included adoption of the most stringent warehouse ordinance in the State of California by the City of Fontana. The ordinance includes site design requirements to protect sensitive receptors, promotion of ZE vehicles, vegetative barriers, on-site solar installation requirements, and environmentally friendly building materials. City of Fontana, Ordinance No. 1891, An Ordinance of the City Council of the City of Fontana, California Amending Chapter 9 of the Fontana Municipal Code (Apr. 12, 2022).

[252] Cal. Code Regs. tit. 14, § 15093.

[253] Governor's Office of Planning and Research, CEQAnet Web Portal, California Environmental Quality Act (2024), https://ceqanet.opr.ca.gov/ (accessed Aug. 27, 2024).

[254] *See Good Neighbor Guidelines for Siting New and/or Modified Warehouse/Distribution Facilities*, WESTERN RIVERSIDE COUNCIL OF GOVERNMENTS (Sept. 12, 2005), https://wrcog.us/DocumentCenter/View/ 318/Good-Neighbor-Guidelines-for-Siting-Warehouse-Distribution-Facilities-PDF?bidId= (accessed Aug. 27, 2024).

[255] *See, e.g.,* City of Pomona, Urgency Ordinance No. 4332, An Urgency Ordinance of the City Council of Pomona, California (June 5, 2023) (extending a moratorium on development, expansion, or modification of warehouses, trucking facilities, and related uses within the city for an additional 169 days). Use of temporary moratoria on further construction of warehouses in the Inland Empire began in 2021 in cities such as Colton, Chino, and Redlands; elsewhere in the region, city councils in Fontana, Jurupa Valley, Norco, Perris, Pomona, and Riverside voted to pass or extend warehouse development moratoria by the end of 2022. San Bernardino was one vote shy of adopting its own warehouse moratorium. The shared purpose of these moratoria is to give planners time (between 45 days and a year) to study and draft a new ordinance to regulate warehouse location and development.

[256] *See, e.g.,* City of Colton, Staff Report Re: Consider Recommendations of the Warehouse Moratorium Ad-Hoc Committee and Provide Direction to Staff 3 (Jan. 18, 2022) ("Add Air Quality standards to Zoning Code to minimize exposure of sensitive receptors to diesel emissions.").

[257] Cal. Gov. Code. § 65040.12(e)(1).

[258] Jonathan Skinner-Thompson, *Procedural Environmental Justice*, 97 WASH. L. REV. 399, 406 (2022). For theories of environmental justice, see DAVID SCHLOSBERG, DEFINING ENVIRONMENTAL JUSTICE: THEORIES, MOVEMENTS, AND NATURE (Oxford University Press, 2007).

> into SCAQMD's proposed equation, it is impossible to determine what a proposed WAIRE point value would be for warehouses.[259]
>
> While we appreciate that staff has provided the scenario analysis tool and WAIRE calculator for public use, these tools are inaccessible to community members. The calculator, scenario analyses, and draft staff report do not clarify the specific factors used to calculate the stringency value and, ultimately, a regulated facility's points obligation. It is unclear whether the agency's analysis accounts for demographics in affected communities, data that is critical to identifying environmental justice communities and sensitive receptors located near facilities. We have repeatedly emphasized that facilities located in environmental justice communities and neighboring sensitive receptors must receive a higher points obligation or attain zero-emissions operations on an accelerated timeline. The draft proposed rule does not account for this, and we request that the Air District include a demographic variable in the points obligation calculation.[260]

Regulatory options to address the cumulative impacts of warehousing – such as environmental review, facility-specific voluntary measures, municipal- or resident-driven development and community benefit agreements, and state legislation – each suffer from their own, potentially severe data challenges. For example, warehouse moratoria declared by a small number of jurisdictions set a brief time period during which planners survey surrounding cities, receive feedback from the public and commercial and industrial sectors, review their general plan, and potentially prepare zoning text amendments.[261] Development and settlement agreements negotiated by municipalities or parties to litigation secure large-sum payments to address streets, public works, utilities, and other infrastructure; housing needs such as HVAC systems and air filtration; and mitigations to reduce impacts to below a certain threshold.[262] Again, these processes are adopted on an ad hoc basis by a municipality or with regards to a new or modified facility. According to interview participants, the most vexing category of environmental impact to address under time-limited, data-poor conditions is hyperlocal air quality.[263] Settlement parties and planners who administer local warehouse moratoria note that "air quality is the toughest impact to resolve given its nature" and "air quality can't be solved by a local agency."[264] Members of the California State Legislature also struggle with limited data to address warehousing's neighborhood-scale impacts. For example, legislative attempts to define a "meaningful buffer zone" to protect sensitive receptors from warehouse facilities (2021-2024) relied on a small number of data points to inform distance requirements.[265] Interview participants argued that compliance options

[259] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 19.
[260] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 84.
[261] City of Colton, Staff Report Re: Consider Recommendations of the Warehouse Moratorium Ad-Hoc Committee and Provide Direction to Staff (Jan. 18, 2022) ("In response to these concerns, the City Council adopted Urgency Ordinance O-03-21 on May 4, 2021, establishing a 45-day moratorium on warehouses and truck storage facilities.").
[262] *See, e.g.,* Settlement Agreement, Center for Community Action and Environmental Justice, Center for Biological Diversity, Coalition for Clean Air, Sierra Club, and San Bernardino Valley Audubon Society (Petitioner Parties) and Highland Fairview Properties, HF Properties, Sunnymead Properties, Theodore Properties Partners, 13451 Theodore, LLC, and HL Property Partners ("Highland Fairview") (Apr. 28, 2021) (hereinafter "World Logistics Center Settlement"); Settlement Agreement, Center for Community Action and Environmental Justice and Sierra Club (Petitioners) and CDRE Holdings, Case No. CVRI2200683 (Dec. 16, 2024) (requiring Compass Danbe Centerpointe, a 400,000-square-foot warehouse facility's fleet of heavy-duty trucks, vehicles, and delivery vans to achieve 100% EV status within a set timeframe); Settlement Agreement and Release, Sierra Club and Costco Wholesale Corporation (Nov. 8, 2024) (requiring a 1.7-million-square-foot warehouse project to transition to an electric truck fleet years ahead of state mandates).
[263] For recent attempts to characterize personal exposure near goods movement facilities, see the work of Cesunica Ivey at UC Berkeley's Department of Civil and Environmental Engineering. *See, e.g.,* Torres et al., *Indoor and Ambient Influences on $PM_{2.5}$ Exposure and Well-being for a Rail Impacted Community and Implications for Personal Protections,* EarthArXiv (Preprint), https://doi.org/10.31223/X5RX0J; Gao et al., *Predicting $PM_{2.5}$ Levels and Exceedance Days Using Machine Learning Methods*, 323 ATMOSPHERIC ENV'T 120396 (2024).
[264] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.
[265] *Compare* A.B. 1547, 2021-2022 Leg., Reg. Sess. (Cal. 2021) (introduced Feb. 19, 2021; died Jan. 31, 2022) (as introduced, A.B. 1547 prohibited a public agency from permitting the siting of a warehouse development project "where the distance between the boundary of the project site and sensitive land use is less than 3000 yards") *with* A.B. 1000, 2023-2024 Leg., Reg. Sess. (Cal. 2023) (introduced Feb. 15, 2023; died Jan. 31, 2024) (prohibiting a public agency within Riverside and San Bernardino Counties from approval of the development or expansion of a logistics use with 100,000 or more square feet of building space (including warehouses) "within 1000 feet of sensitive receptors," with exceptions). The shift from a proposed 3000-yard buffer zone to 1000 feet was informed by evidence from CARB regarding DPM reduction within 1000 feet of a warehouse facility of a certain size, as well as California Department of Justice CEQA guidance recommendations. Other elements of AB 1000, including its definition of "qualifying logistics use projects," were informed by SCAQMD's Rule

included in draft and recently enacted legislation "barely scratch the surface of what communities want."[266] A hurried attempt to pass warehouse planning and design legislation for new or expanded warehouse and distribution centers placed a wide-ranging but less immediately protective version of prior bills before the Governor in 2024 (AB 98; see Appendix C for a comparison of bills introduced between 2021 and 2024).[267] In AB 98, buffer zones are set according to warehouse size and the location of truck loading bays in relation to sensitive receptors.[268]

The above city- and project-specific processes take place within brief windows of opportunity, generally between 45 days and two years. They fail to consider a truth that environmental justice communities have known for decades – that neighborhood-scale impacts, and the public's awareness and understanding of them, are nonlinear, shifting, and evolving.[269] This renders traditional options such as environmental review and project-specific agreement obsolete; a community cannot provide meaningful consent to warehouse construction, intermodal facility modification, or railyard expansion at a single point in time. Instead, there must be opportunities to share data, consider new findings, and reconsider prior assumptions and decisions. Attempts to balance fundamental issues such as the logistics industry's connectivity and accessibility,[270] port-hinterland relationships, historical and ongoing imbalances of value creation and transfer,[271] and attainment of ambient air quality standards while limiting localized impacts – these are temporal and regional dynamics that operate at a "level and scale beyond any planning unit." Time and again, interviewees told us that "the best thing about ISR" as a program "is that it forces thousands of facilities to do one thing – to think about their impacts" and to do so in ways that overcome a persistent environmental justice policy pathology – the lack of mechanisms for continuous improvement.[272] Carefully designed, ISR programs can overcome data challenges that are inherent to warehousing and its localized air quality impacts. They can also drive dynamic land use policy change in a manner that promotes meaningful community consent to an industry's continued operations.

Continuous improvement measures should embrace ongoing community, academic, and industry knowledge production as ad hoc mitigations (e.g., as part of development agreements)[273] and newly required health risk assessments (e.g., under zoning amendments that followed Colton's warehouse moratorium)[274] are implemented. Public comments from industry and community groups alike hint at

2305. An early version of AB 1000 conditioned approval of a project sited between 750 feet (and, later, 500 feet) and 1000 feet from a sensitive receptor to "cumulative analysis of the air quality impacts of the warehouse development project" by a local agency. The bills also include "good neighbor" provisions and requirements to expedite transition to ZE vehicles; these mitigations were informed in part by California Attorney General CEQA letters and settlement documents with cities such as Fontana and Stockton. Importantly, they make clear that compliance "does not relieve a public agency from complying with [CEQA]."

[266] University of California, Irvine School of Law, Center for Land, Environment & Natural Resources Interview Data.

[267] AB 98 requires facility operators to submit truck routing plans to cities and counties for approval prior to issuance of a certificate of occupancy. Facility operators are required to enforce the plans. Cities and counties must also update their circulation element within three years to identify specific truck routes that avoid sensitive receptors. The legislation also conditions city or county approval of a logistics use on 2:1 replacement of any demolished housing units. AB 98 requires approval of "21st Century warehouses," which it defines according to building efficiency standards included in the California Green Building Standards Code. A.B. 98, 2023-2024 Leg., Reg. Sess. (Cal. 2024) (approved by the Governor Sept. 29, 2024).

[268] Under AB 98, new or expanded logistics use developments of 250,000 square feet or more with a loading bay within 900 square feet of a sensitive receptor will be required to include "21st Century warehouse" design elements and keep truck loading bays a minimum of 300 feet from the property line of the nearest sensitive receptor, among other mitigation measures. *Id.*

[269] Gwen Ottinger, *Changing Knowledge, Local Knowledge, and Knowledge Gaps: STS Insights into Procedural Justice*, 38 SCI., TECH. & HUMAN VALUES 250, 253 (2012).

[270] JEAN-PAUL RODRIGUE, THE GEOGRAPHY OF TRANSPORT SYSTEMS (6th ed.) (2024) 45-71 ("Transportation and Space"), 334-337 ("Transportation and Accessibility").

[271] *See Los Angeles and the Inland Empire, CA: Witnessing the Slow Violence of the Supply Chain*, HUMANITIES ACTION LAB (2023), https://climatesofinequality.org/story/witnessing-the-slow-violence-of-the-supply-chain/ (accessed Aug. 27, 2024).

[272] *See supra* notes 60-90 and accompanying text.

[273] *See, e.g., supra* note 262.

[274] *See, e.g.,* City of Colton, Ordinance No. O-01-23, An Ordinance of the City Council of the City of Colton, California, Amend Certain Sections of Title 18 (Zoning) of the Colton Municipal Code 19 (2023) ("Warehouses and distribution facilities generating 150 or more truck trips per day, as determined by the most recent Institute of Traffic Engineers Trip Generation Rate for the specific land use or within 1000 feet of a

the likelihood of policy inertia in the absence of such measures. Notably, neither Rule 2305 (Southern California) nor Rule 9510 (San Joaquin Valley) includes a plan to measure the impacts of an ISR program among sensitive populations or within disadvantaged communities. The San Joaquin Valley's ISR program (Rule 9510) did not include community- or sensitive receptor-specific performance measures; none of the reports produced in the years that followed Rule 9510's adoption discuss or evaluate community-level impacts. In the South Coast, district staff discussed the role of environmental justice in the development of the WAIRE program under Rule 2305.[275] However, the first annual report for the program suggests that the district will not track community-scale health impacts. Rather, it notes that the district will make certain data available to "community groups affiliated with AB 617 or other environmental justice efforts."[276] In so doing, SCAQMD transferred responsibility to monitor whether Rule 2305 addresses localized impacts to other parties.

In addition to measuring and evaluating localized or environmental justice impacts, an ISR program should encourage continuous improvement dynamics between an air district and local governments. These include mechanisms to:

1. Periodically revisit **Points Burden** allocation to reflect updates to a district's Air Quality Management Plan, advances in the ability of accepted land use (e.g., CalEEMod) and mobile source (e.g., EMFAC) emissions models[277] and air quality impact assessment to account for neighborhood-scale impacts, and air district policy development to support public agencies in evaluating cumulative impacts from CEQA projects;[278]

2. Periodically revisit **Mitigation Fees** to avoid "pay-to-pollute"[279] near sensitive receptors, incorporate new data on comparative cost-effectiveness of fees versus compliance measures, consider updates to state agency guidance such as CARB's "Methods to Find the Cost Effectiveness of Funding Air Quality Projects,"[280] and respond to revealed preferences such as among a subset of facility operators that rely solely on fee payment for compliance;

3. Ensure that criteria for **Mitigation Fee Transfer** prevent the creation of "winners and losers"[281] with regards to localized air quality diminution;

4. Provide a living **Inventory** of mitigation measures that local authorities are authorized to adopt (e.g., architectural design to reduce heat island effects and promote worker well-being, operations and truck route plans, anti-idling measures, screening requirements, building

sensitive receptor, shall prepare a Health Risk Assessment in accordance with South Coast Air Quality Management District Guideline for the new development or substantial enlargement of industrial uses.").

[275] Rule 2305 and Rule 316 Governing Board Package, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 688 (2021), https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10 (accessed Aug. 27, 2024).

[276] *Annual Report for the Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program*, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 32 (Jan. 2023).

[277] *See Final Staff Report, Rule 9510 Indirect Source Review*, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (Dec. 21, 2017) ("The District previously used the URBEMIS model to assess project impact on air quality. However, the URBEMIS model has been superseded by a new approved model, CalEEMod. This new model utilizes more recent emission factors and data and has been used by the District for several years.").

[278] *See, e.g., CEQA Policy Development*, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (2024), https://www.aqmd.gov/home/rules-compliance/ceqa/ceqa-policy-development-(new) (accessed Aug. 27, 2024) (working group meeting minutes for a public process to develop cumulative air quality impact guidance for increased concentrations of air toxics for projects subject to CEQA environmental review).

[279] Rule 2305 and Rule 316 Governing Board Package, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 315 (comment 4-8), 320 (comment 5-4), 339 (comment 12-11), 340 (comment 13-12) 415 (comment 29-5), 430 (comment 35-12) (2021), https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10 (accessed Aug. 27, 2024)

[280] *Methods to Find the Cost-Effectiveness of Funding Air Quality Projects for Evaluating Motor Vehicle Registration Fee Projects and Congestion Mitigation and Air Quality Improvement Projects*, CALIFORNIA AIR RESOURCES BOARD (Sept. 2024), https://ww2.arb.ca.gov/sites/default/files/2024-10/Cost%20Effectiveness%20Tables%202024%20final_0.pdf.

[281] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 15 ("A just and equitable warehouse rule must ultimately aid in region-wide emissions reductions and avoid approaches that could allow for picking winners and losers, with some communities getting cleaner air and others not.").

placement to minimize impacts on sensitive receptors, noise standards); the inventory should inform periodic review of ISR program compliance measures; the inventory should also benefit from and inform updates to city-specific best practice documents and good neighbor policies, mitigation recommendations for warehouse projects from the California Attorney General's office,[282] and CARB's Air Quality and Land Use Handbook;[283]

5. Prepare **Performance Measures** that can be used to track and periodically evaluate harm reduction measures in development and community benefit agreements and local ordinances, with a focus on localized emissions reduction through truck grant programs, on-site solar incentives, auxiliary power unit requirements, setbacks from residentially-zoned property and sensitive receptors, deed restrictions to limit use within setback areas to landscaping and drainage, light and glare reduction programs, substantial screening requirements via berms and other vegetative barriers keyed to reduction of near-field PM and NO_x concentrations, and air filtration system installation/HVAC modification and noise insulation reimbursement programs;

6. Include a streamlined, public process, including technical review and clear acceptance guidelines, for an **Evolving Points Burden** that considers new technologies, investments, and actions for use within a menu-based compliance system;[284]

7. Draft precise rule-specific definitions of "**Sensitive Receptor"** and sensitive receptor population vulnerability, informed by best available community, academic, and industry science;[285]

8. Improve definitions of "**Disadvantaged Community**" for purposes of adjusting facility Points Burden and compliance points (beyond state designations informed by CalEnviroScreen);[286]

9. Consider **Quantitative and Qualitative thresholds** of burden to define "Disadvantaged Community" for purposes of ISR program implementation, based on programs enacted within the air district and elsewhere (e.g., Chicago, New Jersey);[287]

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[282] *Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act*, CALIFORNIA DEPARTMENT OF JUSTICE (Sept. 2022), https://oag.ca.gov/system/files/media/warehouse-best-practices.pdf (accessed Aug. 27, 2024). For CDOJ's view of how good neighbor policies – such as Riverside County's Good Neighbor Policy for Logistics and Warehouse/Distribution Uses approved in 2019 – could better comport with existing practices and state policies, see Letter from Xavier Becerra, Attorney General State of California to Juan C. Perez, Director, County of Riverside Transportation and Land Management Agency re: Proposed "Good Neighbor" Policy for Logistics and Warehouse/Distribution Uses (Nov. 13, 2019).

[283] *Air Quality and Land Use Handbook: A Community Health Perspective*, CALIFORNIA AIR RESOURCES BOARD (Apr. 2005), https://www.aqmd.gov/docs/default-source/ceqa/handbook/california-air-resources-board-air-quality-and-land-use-handbook-a-community-health-perspective.pdf (accessed Aug. 27, 2024).

[284] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 21-22, 50.

[285] For a recent attempt to define "sensitive receptor" for purposes of warehouse buffer zones and impact mitigation, see A.B. 1000, 2023-2024 Leg., Reg. Sess. (Cal. 2023) (defining "sensitive receptor" to include residences, schools, daycare facilities, health care facilities, community centers, established community places of worship, incarceration facilities, and public playgrounds and recreation fields and centers). AB 98, signed into law in 2024, provides a similarly comprehensive definition of sensitive receptor. A.B. 98, 2023-2024 Leg., Reg. Sess. (Cal. 2024) (approved by the Governor Sept. 29, 2024).

[286] *Final Designation of Disadvantaged Communities Pursuant to Senate Bill 535*, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY (May 2022).

[287] *See, e.g.,* Chicago Cumulative Impact Assessment 2023 Summary Report, CITY OF CHICAGO (Oct. 2023), https://www.chicago.gov/city/en/depts/cdph/supp_info/Environment/cumulative-impact-assessment.html (accessed Aug. 27, 2024); *New Jersey Environmental Justice Rule*, NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (Apr. 17, 2023), https://dep.nj.gov/wp-content/uploads/rules/rules/njac7_1c.pdf (accessed Aug. 27, 2024). There is also growing interest in tools to facilitate meaningful public involvement in health equity analysis, such as health impact assessment (HIA). HIA's appeal among environmental justice communities stems from the fact that, by design, it identifies differential impact and disparities in baseline levels of health as part of its standard application. Mirko Winkler et al., Health Impact Assessment International Best Practice Principles, International Association for Impact Assessment Special Publication Series No. 5 (Apr. 2021); *SB 1000 Implementation Toolkit: Planning for Healthy Communities*, CALIFORNIA ENVIRONMENTAL JUSTICE ALLIANCE 9, 19 (Oct. 2017); Tina Yuen & Devon Payne-Sturges, *Using Health Impact Assessment to Integrate Environmental Justice into Federal Environmental Regulatory Analysis,* 23(3) NEW SOLUTIONS 439 (2013); Janet Collins & Jeffrey Koplan, *Health Impact Assessment: A Step Toward Health in All Policies,* 302 J. AM. MED. ASS'N 315 (2009).

10. Identify **Ancillary Impacts** (e.g., truck traffic several blocks removed from schools) and regional trends (e.g., warehouse verticality, clustering) that have yet to receive sufficient attention in academic, industry, and community-based research and for which data gaps prevent their use to inform ISR program definitions, Points Burden, or compliance options;

11. Encourage allocation of **Research** funds by CARB and other agencies to ensure that ancillary impacts are better understood;[288] and

12. Use ISR programmatic data to provide more robust emissions reduction and related monitoring and enforcement options to **AB 617 Community Steering Committees** and other efforts to reduce neighborhood-scale pollution.[289]

Continuous improvement measures should also concern dynamics that are in place *between an air district and the state*, to ensure that an ISR program avoids duplication of effort and continues to place downward pressure on mobile-source air emissions. Rule adoption and periodic adjustment should account for an evolving suite of state-administered programs that are designed to meet requirements for greenhouse gas emissions reduction and zero-emissions technology adoption. The district court in *California Trucking Association v. SCAQMD* provides a useful summary of California state programs. They include but are not limited to CARB's Advanced Clean Trucks regulation (requires sale percentages by manufacturers of medium- and heavy-duty trucks by years certain), CARB's Medium- and Heavy-Duty GHG Phase 2 regulation (sets GHG emissions standards and ZE vehicle compliance credits), the Carl Moyer Memorial Air Quality Standards Attainment Program (provides incentives for acquisition of ZE and NZE engines and equipment), CARB's Heavy-Duty Vehicle Investment Program (provides point-of-sale discounts), CARB's Clean Off-Road Equipment Voucher Incentive Program, the California Energy Commission's Clean Transportation Program, and CARB's Heavy-Duty Engine and Vehicle Omnibus Regulation.[290] A similar suite of state programs is designed to ensure buildout of clean energy infrastructure.[291]

Continuous improvement measures should allow for public input and periodic adjustment of how an ISR program complements these state transportation and clean energy policy suites that represent "moving targets" for an air district. First, emissions reduction via compliance with facility-specific Points Burden should remain above and beyond the requirements and incentives set by rules and programs within each policy suite. This means that the air district and state agencies should ensure that emissions reductions via an ISR program are "quantifiable, enforceable, verifiable, surplus, and real."[292] During Rule 2305 development, the public expressed concern over the difficulty distinguishing between, for example, "emission reductions attributed to mandated sales percentages under the ACT and a truck visit to a regulated facility under the WAIRE program."[293] SCAQMD described how it would ensure that ISR program compliance is additive as follows:

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[288] *CARB Fiscal Year 2024-2025 Research Project Solicitation*, California Air Resources Board (Apr. 2024), https://ww2.arb.ca.gov/resources/documents/carb-fiscal-year-2024-2025-research-project-solicitation (accessed Aug. 27, 2024). AB 98 requires SCAQMD to gather relevant data through deployment of mobile monitoring systems in Riverside and San Bernardino Counties and conduct air modeling analyses of the impact of logistics use developments on localized air quality and sensitive receptors. One purpose of this requirement is to better understand the relationship between facility setbacks and public health. A.B. 98, 2023-2024 Leg., Reg. Sess. (Cal. 2024) (approved by the Governor Sept. 29, 2024).

[289] *Final Community Air Protection Program Blueprint 2.0*, California Air Resources Board 129 (Oct. 2023), https://ww2.arb.ca.gov/sites/default/files/2024-04/BP2.0_FULL_FINAL_ENG_2024_04_09.pdf (accessed Aug. 27, 2024).

[290] Order Re: Plaintiff's Motion for Summary Judgment as to Plaintiff's Complaint for Declaratory Judgment and Injunctive Relief, California Trucking Association v. South Coast Air Quality Management District et al. No. LA CV21-06341 8-9 (C.D. Cal., Dec. 14, 2023).

[291] *See, e.g., Assembly Bill 2127 Second Electric Vehicle Charging Infrastructure Assessment: Analyzing Charging Needs to Support Zero-Emission Vehicles in 2030 and 2035*, California Energy Commission (Feb. 2024).

[292] Rule 2305 and Rule 316 Governing Board Package, South Coast Air Quality Management District 289 (2021), https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10 (accessed Aug. 27, 2024).

[293] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 58.

> Points can be earned only if they go beyond requirements in other U.S. EPA, CARB, or South Coast AQMD regulations in effect during that compliance period. When determining if an action goes beyond requirements from another regulation, a comparison is made between the regulatory requirement on the entity itself earning Points (typically the warehouse operator), rather than requirements on a non-PR 2305 entity. For example, CARB's ACT regulation requires truck manufacturers to sell a certain fraction of ZE trucks beginning in 2024. ACT does not apply to any regulated entity covered by PR 2305. Therefore, a warehouse operator (or warehouse facility or landowner if they opt in) may earn Points for purchasing a ZE truck, regardless of any requirements in ACT. At this time, there are no regulations in place that limit what a warehouse operator or owner could implement from the WAIRE Menu. There is the potential that CARB's…other regulations could impose requirements on warehouse operators or owners. Even if a new regulation comes into place that imposes requirements directly on a warehouse operator or owner, if the action is completed prior to the other regulation's mandated timeline, then Points could still be earned under PR 2305. For example, hypothetically if [a state rule] requires a warehouse operator who owns a fleet to purchase ZE trucks by 2030, but the operator purchases ZE trucks early in 2029, then they would be able to earn WAIRE Points for that action in 2029.[294]

SCAQMD's approach is to defer to the evolving suite of state rules and programs for whether incentive funds can be used to earn WAIRE points under Rule 2305. According to the district, "Many of these programs have express limitations in using their funds to comply with a regulation."[295] These limitations are incorporated by reference.

At the same time, the *inputs* that an air district uses to assign points to menu-based compliance actions and investments should reflect shifts in our understanding of (1) *annual compliance costs* ($/year), (2) *regional emissions reduction* (e.g., NO_x lbs./year), and (3) *local benefit* (e.g., DPM lbs./year) attributable to each action. Care should be taken to ensure that these inputs reflect significant changes in availability, cost, and regional and localized emissions reduction benefits from the use of NZE versus ZE trucks and equipment. Key points of contention during Rule 2305 development were the near parity of points assigned to certain NZE versus ZE truck trips (particularly for Class 4-7 trucks), the risk of overestimating emissions reduction for NZE technology, and the extent to which the gap between regional NO_x and localized DPM emissions reductions for ZE versus NZE technology was potentially wider than acknowledged in the draft rule's action menu.[296] Scenario analysis to consider a range of operator behaviors and estimate average annual compliance costs per square foot, and socioeconomic impact assessment to quantify projected health benefits of an ISR program, should reflect the growing gulf between ZE and NZE.[297] Compliance pathways should also highlight how actions can reduce localized pollution burden in the near term.

An ISR program's Points Burden should also reflect a region's energy transition infrastructure needs. An air district should account for onsite generation, development of distributed energy resources, charging, storage, and other clean energy infrastructure innovations.[298] It should provide greater compliance points for actions with real-time rather than projected benefits. It should link mitigation fees to regional programs such as the Port of Los Angeles/Port of Long Beach Clean Trucks Program to accelerate the adoption of ZE fleets.[299] These steps should be informed by an air district's awareness

[294] Rule 2305 and Rule 316 Governing Board Package, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 146 (2021), https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10 (accessed Aug. 27, 2024).
[295] *Id.* at 147.
[296] *Id.* at 28, 361 (comment 17-2), 392 (comment 24-2), 393 (comment 24-2), 394 (comment 24-4), 408 (comment 27-1), 415 (comment 30-2).
[297] *See, e.g.,* Letter from Advanced Clean Fleets Coalition to California Air Resources Board Honorable Chair Randolph and Board Members Re: Support for the Passage of a Strong Advanced Clean Fleets Rule (Apr. 7, 2023); Ray Pingle, Total Cost of Ownership Between a Used Diesel and New Battery Electric Day Cab (Oct. 1, 2022) (spreadsheet comparing Class 8 Day Cab to Class 8 battery electric Day Cab based on CARB total cost of ownership tables and assumptions as of Sept. 2021).
[298] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 40.
[299] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 43.

of state incentive programs that target the freight industry and remain underutilized, regional forward planning needs for clean energy infrastructure, and localized air quality and other health and safety impacts that persist, even as vehicle fleets and on-site operations increasingly make use of zero emission technology.

Environment/Civil Rights Tension and Public Health Urgency

During rulemaking, another theme was the public's sense of urgency over health impacts, alarm over the lack of prioritization of public health benefits, and doubts over the ISR program's ability to address health disparities:

> We have advocated for years for a strong and equitable warehouse rule that will achieve necessary emissions reductions. Indeed, it is well past time for the warehouse industry to see effective and meaningful regulation, and to finally be a good neighbor to the communities burdened by dirty air and unacceptable health risks. The Air District must therefore use this opportunity to pass a strong rule that advances both short- and long-term solutions for the air quality and health crises caused by this industry. The health burden placed on current and future generations of children, pregnant mothers, and our elders and families as a whole must stop now. The time for delay is long over.[300]

> We need details on the Air District's strategy to ensure that warehouses actually adopt pollution abatement strategies, rather than paying their way to compliance. If the mitigation fund is used, we would like the Air District to consider requiring that mitigation fund dollars enter the communities in which they are coming out of to provide real community benefits, such as EV subsidies for local residents. Finally, we urge the Air District to move forward with this rule quickly. There have been numerous delays with this rulemaking process. Communities cannot continue paying for industry with their health, especially while we are still in the midst of a pandemic that puts communities suffering from poor air quality at even greater risk of serious illness and death.[301]

Beyond the uncertainty over data, calculation tools, and scenario analysis – which were considered inaccessible with "no legal rationale to withhold this information from the public"[302] – community leaders argued that public health "must be the single most important factor in guiding the stringency of this rule."[303]

Demand for public health improvement began with attempts to second-guess the range of Stringency Values that the air district considered for its WAIRE formula. Proposed Stringency Values were considered "far too low" and "not sufficient" to maximize local emissions reductions in disadvantaged communities or to ensure that the ISR program "provide relief to communities" long burdened by industrial and transportation emissions. It continued through requests for compliance options and Points Burden calculations that could accelerate local emissions reductions, reward early deployment of abatement strategies, and ensure that warehouse operators account for sensitive receptors.

> The current range of stringency values, if implemented, is far too low to bring about meaningful change to warehouse operations. The lowest stringency value studied by the Air District (0.0001) would only reduce, at a maximum, 1.5 tons per day of nitrogen oxide emissions and 0.01 tons per day of diesel particulate matter emissions. Due to the annual variable and phase-in schedule, the full stringency would not even apply to many warehouses for years. These emissions reductions will not be sufficient to bring relief to communities living adjacent to warehouse

[300] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 13.
[301] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 64.
[302] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume II, 88.
[303] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume II, 84.

> facilities in the near future. We request that the agency analyze a stringency value of 0.0075 WAIRE points per WATT at a minimum.[304]
>
> The proposed "stringency value" (.0025) in the Warehouse Actions and Investments to Reduce Emissions (WAIRE) points compliance obligation formula is insufficient and should be increased. Using this stringency value, SCAQMD staff anticipates emissions reductions of 2.5-4 tons per day (tpd) once PR 2305 is fully phased in by the district. This is not significantly higher than the lowest potential stringency value of .0001, which would yield emissions reductions of 1.5 tpd. As such, we join other environmental and air quality advocates in calling on the district to increase the stringency value to increase PR 2305's emissions reductions.[305]

Community leaders expressed concern over compliance pathways, which given proposed Stringency Values might render the compliance menu "useless" for achieving "real health impacts" and encourage operators to meet a facility's "entire points obligation" for a compliance year at minimal cost.[306] They also challenged the district's approach to mitigation fee trading. While the district decided not to allow trades among different warehouse operators, the potential for operators to "game the system," achieve "paper compliance," and "pick winners and losers" by transferring emissions reduction benefits out of disadvantaged communities remained, without facility caps or other measures to ensure baseline environmental quality at the neighborhood scale.[307] Implicit in these and other comments is a sense that environmental justice policy must balance regional dynamics, localized impact, and just transition by considering "net health and welfare compromises"[308] to the current workforce, workforce development and viability, and workplace health.

Time and again, the public returned to the demand that compliance obligations reflect both ongoing and anticipated disparate impacts of state programs, in accordance with civil rights law. Only through design of ISR with disparate impact in mind could the air district prove effective "in ensuring warehouses clean up their pollution in all communities."[309] Given the novelty of research on warehousing's cumulative impacts at the start of rule development, it should come as no surprise that rulemaking featured a near-absence of discussion of *how* the air district, State of California, and federal agencies would ensure that an ISR program such as Rule 2305 complied with civil rights laws. These include California Government Code Section 11135 (a state analog to Title VI of the Civil Rights Act of 1964) as well as fair housing laws, both of which were raised against the California Department of Transportation by residents of unincorporated communities who faced additional burdens from the South Fresno State Route 99 Corridor Project.[310]

More recently, the People's Collective for Environmental Justice filed a Title VI complaint under the Civil Rights Act of 1964 with the Department of Justice, Department of Housing and Urban Development, and Department of Transportation against San Bernardino County.[311] The complaint benefits from Warehouse CITY data. It alleges that county approval of a 259,481-square-foot warehouse in Bloomington, California, an unincorporated community, continues the "pattern and practice of siting warehouses and logistics centers in Bloomington" that will "disproportionately and adversely expos[e]

[304] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume IV, 52.
[305] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume II, 94.
[306] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 39-40.
[307] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume II, 94; South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 15, 27.
[308] *Supra* note 217, at 5.
[309] South Coast Air Quality Management District, PR 2305 Comment Letters - Volume I, 2.
[310] Complaint, Friends of Calwa, Inc. and Fresno Building Healthy Communities v. California Department of Transportation, U.S. Department of Transportation, and Federal Highway Administration, No. 1:23-CV-00353-JLT-EPG (E.D. Cal., June 22, 2023).
[311] Letter from Katrina Tomas, Adrian Martinez, and Fernando Gaytan, Earthjustice, and People's Collective for Environmental Justice to U.S. Department of Transportation Office of Civil Rights, Equity and Access Division, Office of Fair Housing and Equal Opportunity, Region IX, and U.S. Department of Justice Federal Coordination and Compliance Section re: Complaint Under Title VI of the Civil Rights Act of 1964, 42 U.S.C. Sec. 2000d (June 26, 2024).

residents to toxic air pollution and public health burdens while also contributing to housing instability and fair housing issues in the community."[312] There is a precision of data in the People's Collective Title VI complaint, enabled by Warehouse CITY, which was used to calculate warehouse density in white versus Latino communities.[313] The People's Collective's claims mirror those of hundreds of communities from Flint, Michigan to Lake Charles, St. James, and St. John parishes along Louisiana's "Cancer Alley" – that low-income, minority, and Indigenous communities face the brunt of pollution in the United States. That permitting, planning, and pollution control agencies contribute to this reality through their decisions – from declaring the Flint River an interim water source to rerouting the Dakota Access Pipeline to granting permits for a facility that would pollute a Black community at levels 14 times higher than lifetime exposure guidance dictates. And that these decisions routinely violate civil rights law, including Title VI.

Since the 1970s, residents, civil rights leaders, attorneys, and scholars have challenged EPA's civil rights program, its approach to processing hundreds of complaints, and its dated guidance to determine whether federally funded programs contribute to "disparate impact" among protected classes, compared to the general population. EPA's inability to process complaints or adopt clear and transparent procedures to ensure that civil rights laws such as Title VI are enforced held true across Democratic as well as Republican administrations, for nearly fifty years.

No amount of departmental name changes, consulting reports, or official declarations could appreciably move the needle, which included decades without a single finding of a violation of Title VI, until recently. The Biden administration may have "gone further than any other administration since the EPA was formed" to change the status quo, through Executive Orders, additional staff, revised policies and case resolution manuals, affirmative compliance efforts, and strategic planning.[314] But the vestiges of EPA's moribund civil rights practice played a role in recent litigation that led EPA to table its Title VI investigations in several states, a move described by senior EPA official Matthew Tejada as a "gut punch."[315] One month into the new administration, the entire edifice of Title VI enforcement in environmental justice communities is rapidly being stripped away.[316]

Less understood – and barely utilized – are *state* civil rights laws, such as California Government Code Section 11135. These laws mirror and, in some ways, surpass Title VI in terms of who they protect, who has a right of action, and the forms of discrimination they prohibit. For example, under Section 11135, state-operated and -funded programs cannot be administered in ways that subject a protected class – according to race, national origin, ethnic group identification, disability, and other factors – to discrimination. Section 11135 bans intentional discrimination as well as programs that have an unjustified disparate impact on a protected class. Section 11135 has been in place since 1977, when it was enacted as an analog to Title VI.

Recently, the rules under Section 11135 were updated to ensure that state civil rights law is "at least as protective" as Title VI.[317] In some ways, the regulations go even further. They make clear that state law

[312] *Id.* at 2.
[313] *Id.* at 11.
[314] Oliver Milman, *EPA Chief Vows to Take on Republican-led States over Pollution Rules Rollback*, THE GUARDIAN (Jun. 18, 2024, 7:00 EDT), https://www.theguardian.com/us-news/article/2024/jun/18/epa-michael-regan-republicans-climate-crisis (last visited Oct. 7, 2024).
[315] *Id.*
[316] For example, on February 6, 2025, EPA placed 168 employees of its Office of Environmental Justice and External Civil Rights on administrative leave, in response to an executive order. *Ending Radical and Wasteful Government DEI Programs and Preferencing*, THE WHITE HOUSE (Jan. 20, 2025), https://www.whitehouse.gov/presidential-actions/2025/01/ending-radical-and-wasteful-government-dei-programs-and-preferencing/ (last visited Feb. 6, 2025) (instructing federal agencies to, among other actions, "terminate, to the maximum extent allowed by law, all DEI, DEIA, and 'environmental justice' offices and positions…").
[317] *Government Code Section 11135 et seq. Regulations Final Statement of Reasons*, CAL. CIVIL RIGHTS DEPT. CIVIL RIGHTS COUNCIL 10-12 (Mar. 20, 2024), https://calcivilrights.ca.gov/wp-content/uploads/sites/32/2024/03/GC11135-Final-Statement-of-Reasons.pdf (last visited Oct. 7, 2024).

prohibits disparate impact as well as the denial of full and equal access to the benefits of state programs. They stress that discrimination can occur through the defeat or substantial impairment of a program vis-à-vis a protected class. The rules also rebut decades of improper civil rights practice exemplified by the *Select Steel* decision: they state that compliance with other laws, including laws regarding emissions and ambient air quality, does *not* constitute per se compliance with Section 11135.

There was an outpouring of public support for the amendments, which took effect on July 1, 2024. The Leadership Counsel for Justice and Accountability noted "the importance of recognizing environmental disparities in entities covered by Article 9.5," which prohibits discrimination through state-funded and state-administered programs and activities.[318] A forty-year veteran of civil rights practice at U.S. Environmental Protection Agency (EPA) Region 9 noted EPA's efforts to "facilitate and enhance environmental justice and civil rights compliance"[319] under Title VI. He urged California agencies to similarly develop complaint and investigatory procedures, clarify roles and responsibilities, leverage interagency structures, make compliance with Section 11135 a precondition for receipt of state funds, and use existing analytical tools for enforcement and compliance assurance.[320]

Despite the California legislature's intent to provide the "broadest protections for civil rights" possible under Section 11135, state courts have rarely considered environmental racism claims under the statute. As with Title VI, this is due in part to the perceived need for expensive and opaque statistical analysis to prove that a program or decision resulted in a "disparate impact" among members of a protected class. But the new rules under Section 11135 better approximate the kinds of data that communities are already gathering to show disparate impact, as well as the capacity of state, regional, and local governments to keep track of such data. The amended rules spell out how, under Section 11135, regional air districts, in partnership with CARB, have the authority as well as the responsibility to mount a robust response to elements of structural racism and the histories of segregation, displacement, and extraction from land and people that operate through the logistics industry.[321] Under the revised rules:

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[318] *Id*. at 153, 156.

[319] *Id.* at 11. During the Biden administration, EPA issued guidance "to assist recipients in proactively addressing any areas for developing and improving civil rights compliance" in order to, in part, "reduc[e] the need for communities to turn to the federal administrative complaint process for relief." *Civil Rights Guidance on Procedural Safeguards: Requirements and Best Practices*, U.S. ENVTL. PROT. AGENCY OFFICE OF EXTERNAL CIVIL RIGHTS COMPLIANCE 1 (Aug. 22, 2024), https://www.epa.gov/system/files/documents/2024-08/civil-rights-guidance-on-procedural-safeguards-august-2024.pdf (last visited Oct. 7, 2024). *See also Strategic Planning to Advance Environmental Justice Under Executive Order 14096*, WHITE HOUSE COUNCIL ON ENVTL. QUALITY 7-10 (Oct. 2023) (noting that E.O. 14096 required federal agencies to create internal mechanisms, including performance measures, that are an essential element of a "culture of performance improvement and evaluation"); Exec. Order 14096, 88 Fed. Reg. 25251 (Apr. 21, 2023) ("Revitalizing Our Nation's Commitment to Environmental Justice for All"); *Interim Environmental Justice and Civil Rights Permitting Frequently Asked Questions*, U.S. ENVTL. PROT. AGENCY 4 (Aug. 2022), https://www.epa.gov/external-civil-rights/ej-and-civil-rights-permitting-frequently-asked-questions (last visited Oct. 7, 2024) ("When accepting assistance, recipients of EPA funding acknowledge that they have an affirmative obligation 'to implement effective Title VI compliance programs'…"); *Office of General Counsel Responses to Office of Inspector General Recommendations*, U.S. ENVTL. PROT. AGENCY OFFICE OF GEN. COUNSEL 3 (Sept. 20, 2021), https://www.epa.gov/system/files/documents/2021-10/_epaoig_20-e-0333_agency_response2.pdf (last visited Oct. 7, 2024) ("[The external civil rights compliance office] accepts [OIG's recommendation to "develop and implement a plan to complete systematic compliance reviews to determine full compliance with Title VI program"]); *Final Recommendations: Justice40, Climate and Economic Justice Screening Tool, and Executive Order 12898 Revisions*, WHITE HOUSE ENVTL. JUSTICE ADVISORY COUNCIL 38 (May 21, 2021), https://www.epa.gov/sites/default/files/2021-05/documents/whiteh2.pdf (last visited Oct. 7, 2024) ("Conduct civil rights compliance reviews under Title VI of the Civil Rights Act of states with delegated environmental authorities."); *Case Resolution Manual*, U.S. ENVTL. PROT. AGENCY OFFICE OF EXTERNAL CIVIL RIGHTS COMPLIANCE 1 (Jan. 2021), https://www.epa.gov/sites/default/files/2021-01/documents/2021.1.5_final_case_resolution_manual_.pdf (last visited Oct. 7, 2024) ("as part of its holistic approach to strengthening external civil rights compliance, EPA implemented strategic planning…which promotes mission-critical program accountability through measurable goals to… enhance [the external civil rights compliance office's] external compliance program through proactive compliance reviews"); *Improved EPA Oversight of Funding Recipients' Title VI Programs Could Prevent Discrimination*, U.S. ENVTL. PROT. AGENCY OFFICE OF INSPECTOR GENERAL 10 (Sept. 28, 2020), https://www.epaoig.gov/sites/default/files/2020-09/documents/_epaoig_20200928-20-e-0333.pdf (last visited Oct. 7, 2024) ("We found that [EPA's external civil rights compliance office] does not proactively conduct compliance reviews and does not collect information from funding recipients to target programs with weaknesses for review outside of the investigation process.").

[320] *Supra* note 317, at 10-12.

[321] *Supra* note 271.

1. A **covered entity** may not unlawfully deny "full and equal access to the benefits of a program or activity" or unlawfully subject a person or persons to discrimination, under any program or activity that it conducts, operates, or administers.[322]

2. A **covered entity** includes "the state or a state agency[,]" "any entity or individual involved in carrying out any program or activity that is conducted, operated, or administered by the state or by any state agency[,]" "local agencies, recipients, contractors, and grantees" funded directly by the state or that receive any state support, and local agencies "involved in carrying out any program or activity of a local agency if any part of the local agency receives state support."[323] "State agencies" include, among others, agencies, departments, offices, officers, commissions, councils, boards, and divisions.[324] "Local agencies" include, among others, agencies, boards, commissions, counties, cities, and cities and counties.[325]

3. A **program or activity** includes, among others, "all of the operations and facilities of, or services, benefits, or aid provided by, a covered entity, directly or indirectly through others by grants, contracts, arrangements, or agreements."[326] A "program or activity" includes the provision of services. It includes permitting and site and facility selection decisions.[327] A program or activity need not receive direct support from the state – all operations of a covered entity are subject to the requirements, even if only a part of the entity receives state support.[328]

4. A **practice** may include, among others, "any action or failure to act" as well as any "decision, standard, project, policy, process, or procedure, whether written or unwritten or singular or multiple."[329]

5. **Discrimination** can take different forms, "includ[ing] intersectional discrimination."[330] "Intersectional discrimination" includes "discrimination on the basis of a combination of protected classes, i.e., where two or more bases for discrimination are alleged."[331]

6. **Prohibited practices** include disparate impact discrimination as well as unlawful denial of full and equal access to the benefits of a program or activity on the basis of a protected class – by action or inaction.[332] They include "utilizing criteria or methods of administration that" "defeat or substantially impair the accomplishment of the objectives of the covered entity's program or activity with respect to membership in a protected class."[333] They include "utilizing criteria or methods of administration that" "create, increase, reinforce, or perpetuate discrimination or segregation based on membership in a protected class."[334] They include "making, issuing, or denying permits for programs, services, activities, or facilities that" "defeat or substantially impair the accomplishment of the objectives of the program or activity with respect to membership in a protected class."[335] And they include "fail[ing] to take reasonable steps to ensure meaningful access to [a covered entity's] programs and activities by limited English proficiency persons, including through the use of alternative communication services."[336]

[322] CAL. CODE REGS. tit. 2, § 14025.
[323] CAL. CODE REGS. tit. 2, §§ 14020(m)(1)-(4).
[324] CAL. CODE REGS. tit. 2, § 14020(vv).
[325] CAL. CODE REGS. tit. 2, § 14020(z).
[326] CAL. CODE REGS. tit. 2, § 14020(ii).
[327] *Id.*
[328] CAL. CODE REGS. tit. 2, § 14020(ii)(1).
[329] CAL. CODE REGS. tit. 2, § 14020(hh).
[330] CAL. CODE REGS. tit. 2, § 14000(e).
[331] CAL. CODE REGS. tit. 2, § 14020(y).
[332] CAL. CODE REGS. tit. 2, §§ 14027(b), 14025.
[333] CAL. CODE REGS. tit. 2, § 14026(a)(9)(B).
[334] CAL. CODE REGS. tit. 2, § 14026(a)(9)(D).
[335] CAL. CODE REGS. tit. 2, § 14026(a)(10)(B).
[336] CAL. CODE REGS. tit. 2, § 14101(a)(4).

7. **Prohibited practices** apply to entities that engage in permitting activity or site or facility selection, "notwithstanding that other covered entities have issued, allowed, or made permits or selections relating to the same program, activity, site, or facility."[337]

8. **Disparate impact** may occur, regardless of intent, when a facially neutral action or practice "has an adverse or disproportionate impact" or "predictably results in an adverse or disproportionate impact" or "creates, increases, reinforces, or perpetuates discrimination or segregation" with respect to members of a protected class, or "has the effect of violating any of the other prohibitions in Article 9.5…"[338]

9. **Evidence of disparate impact** may include evidence that the benefits of a program or activity are "more burdensome to obtain for members of a protected class" or that the program or activity "creates, increases, reinforces, or perpetuates segregation on the basis of membership in a protected class" or that "a particular condition to receiving benefits of the program disproportionately excludes individuals on the basis of membership in a protected class" or that "the objectives of the program or activity were defeated or substantially impaired for members of a protected class."[339] The practice may be shown to have "caused or predictably will cause a disparate impact."[340] Importantly, compliance with other laws "does not in itself constitute compliance with or discharge the protections, prohibitions, rights, duties, sanctions, and remedies imposed" by the statute or its implementing regulations.[341]

10. **Mandatory remedial action** includes a requirement that the state or responsible state agency "terminat[e] all or part of the recipient's state support[,]" "suspen[d] all or part of the recipient's state support[,]" debar the recipient from "or otherwise mak[e] the recipient ineligible for, future state support[,]" condition future state support, and/or "plac[e] conditions upon the continuation of present state support.[342] "When a recipient of state funds is found to have violated" the law and "where another recipient exercises control over such recipient," mandatory remedial action includes requiring "either or both recipients" to take remedial action, "as deemed appropriate by the state or responsible state agency or a court."[343] Remedial action includes "such remedial actions as the state or responsible state agency deems appropriate to address such violation and the effect of such violation, including requiring provision of benefits, prohibiting discriminatory conduct, or referral of the case to the Attorney General's Office or other appropriate law enforcement entities for any judicial relief at law or equity…"[344] Remedial action may be taken during an investigation or complaint process "as the state or responsible state agency deems appropriate to address an alleged violation and the effect of any such alleged violation."[345]

As covered entities that operate at the nexus of local land use and regional air quality, air districts are well-positioned to identify and track potential disparate impacts of indirect source review. ISR programs should be designed with proscribed forms of discrimination in mind. In California, that means disparate impact as well as the denial of full and equal access to the benefits of programs. The prohibitions apply regardless of whether a program or activity receives direct state support, as long as part of a covered entity receives state support. Discrimination as well as denial of full and equal access to benefits of a program may occur through action or inaction. They occur through the defeat or substantial impairment of the objectives of a program or denial of the opportunity to receive the benefits of a program. They occur through practices that reinforce or perpetuate discrimination or segregation. They occur through practices that fail to ensure meaningful access to a program by persons with limited English proficiency.

[337] CAL. CODE REGS. tit. 2, § 14026(b).
[338] CAL. CODE REGS. tit. 2, § 14027(b)(3).
[339] CAL. CODE REGS. tit. 2, §§ 14029(a)(1), (3), (4), (5).
[340] CAL. CODE REGS. tit. 2, § 14029(b)(1).
[341] CAL. CODE REGS. tit. 2, § 14003(a).
[342] CAL. CODE REGS. tit. 2, §§ 14052(c)(1)-(5).
[343] CAL. CODE REGS. tit. 2, § 14052(d).
[344] CAL. CODE REGS. tit. 2, § 14053(b).
[345] CAL. CODE REGS. tit. 2, § 14053(c).

And they occur when practices cause or predictably will cause an adverse or disproportionate impact. Recent acknowledgement that practices that *predictably result* in adverse or disproportionate impact with respect to members of a protected class are actional civil rights violations underscore the need for air districts, with state support, to gather data necessary to quantify changing patterns of air quality upon ISR program adoption. Generalized air impact assessments (e.g., Rule 9510) or Points Burden allocation and compliance reporting (e.g., Rule 2305) will likely prove insufficient to ensure that an ISR program avoids creating new or more intensive pollution hotspots or perpetuating segregation within the area of administration. More tailored air quality modeling data will also ensure that the benefits of an ISR program are distributed fairly, including among members of protected classes.

A Framework for Analyzing ISR Impacts in the Bay Area

A Framework for Analyzing ISR Impacts in the Bay Area

To test the ability of ISR to address regional as well as localized impacts of the logistics industry, this section considers hypothetical adoption of 2305- and 9510-style rules for the eight counties that comprise the Bay Area Air Quality Management District (BAAQMD). It projects the number and economic value of air pollution-related deaths and illnesses due to growth in freight activities through 2045.

The Bay Area is a central logistics hub for the US, with the third largest port in California. The Port of Oakland receives and ships more than 99% of the containerized goods moving through Northern California; it is the ninth busiest container port in the US.[346] Not only does it process imports from Asia, but it also transloads freight for destinations across the country.

California is a leader in vehicle emission regulation. With a vast economy driven partly by trade and transportation, lawmakers recognize that emission reduction targets must include the freight sector. They have implemented market and rule-based policies for small-, medium-, and heavy-duty trucks to encourage the purchase and use of zero- and near-zero-emission vehicles and the infrastructure to support them.

No other state has adopted this level of commitment to reduce greenhouse gas emissions in freight. Since 1993, the California Air Resources Board (CARB) has set standards for cleaner diesel fuel to reduce diesel particulate matter (PM), nitrogen oxides (NO_x), and sulfur dioxide. In 2001, stricter standards were promulgated to minimize particulates for the 2007 model year and later large diesel engines. California subsequently regulated greenhouse gas emissions in 2004. Other regulations limited truck idling and required on-board diagnostic equipment to track emissions.[347]

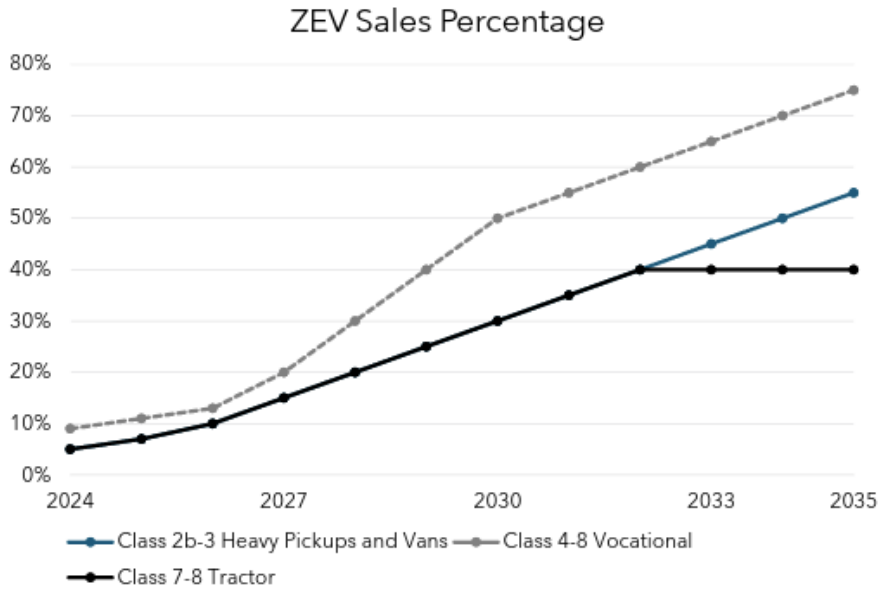
To address the impacts of freight emissions, the California Sustainable Freight Action Plan directs state agencies to develop strategies, policies, and investment programs for freight infrastructure and technologies. There are numerous other mandates for freight, including SB 350 and the Clean Energy and Pollution Reduction Act, which funds transportation electrification efforts for trucks. Monies are divided among investor-owned utility companies to accelerate charging system infrastructure projects. A Medium-duty and Heavy-duty Vehicle Comprehensive Strategy, issued in 2019, funds "technology development, demonstration, pre-commercial pilots, and early commercial deployments of zero- and near-zero-emission medium- and heavy-duty truck technology."[348]

In 2021, CARB filed the Final Regulation Order for the Advanced Clean Truck (ACT) regulation to accelerate large-scale production of ZEV trucks. Starting in 2024, Original Equipment Manufacturers (OEMs) doing business in California must sell ZEV trucks as a certain percentage of annual sales. Requirements increase yearly through 2035 based on truck class, which is shown in Figure 3.[349] CARB expects 300,000 ZEV trucks on the road by 2035. Incentives for fleet purchases are expanding to meet

[346] *Facts & Figures - Oakland Seaport*, PORT OF OAKLAND (2025), www.oaklandseaport.com/business/facts-figures/ (accessed Mar. 9, 2025).
[347] *History: California Air Resources Board*, CALIFORNIA AIR RESOURCES BOARD, https://ww2.arb.ca.gov/about/history (accessed Mar. 7, 2025).
[348] S.B. 44, 2019-2020 Leg., Reg. Sess. (Cal. 2019).
[349] A number of California laws, rules, policies, and programs influence medium- and heavy-duty trucks and related emissions, including but not limited to the Low Vehicle Emission Program (1990), Engine Manufacturer Diagnostic System Regulation (2005), Airborne Toxic Control Measure (2006), Global Warming Solutions Act (2006), Truck and Bus Rule (2008), Low-Carbon Fuel Standard (2009), Clean Energy and Pollution Reduction Act (2015), Sustainable Freight Action Plan (2016), Medium-duty and Heavy-duty Vehicle Comprehensive Strategy (2019), Advanced Clean Truck Regulation (2020), and Omnibus Low NO_x Regulation (2021). *See* Mac Taylor, *Assessing California's Climate Policies – An Overview*, Legislative Analyst's Office (Dec. 2018), https://lao.ca.gov/reports/2018/3911/climate-policies-overview-122118.pdf (accessed March 5, 2025); Genevieve Giuliano, Lee White, and Sue Dexter, *Developing Markets for Zero-Emission Vehicles in Goods Movement*, NATIONAL CENTER FOR SUSTAINABLE TRANSPORTATION (Mar. 2018), https://escholarship.org/uc/item/1jw9m352 (accessed Mar. 10, 2025).

this rule.[350] In the program's first year, sales of ZEV trucks surpassed the target by 118% for Class 7-8 tractor trucks.[351] Seven additional states (Massachusetts, New Jersey, New York, Oregon, Washington, Vermont, and Colorado) have adopted the ACT rule.

Figure 3. ACT Sales Requirements by Truck Classification.[352]



The Advanced Clean Fleets (ACF) regulation, adopted in 2023, is a complementary rule to ACT. It requires certain fleets to adopt zero-emission vehicles gradually. In addition, manufacturers must produce only ZEV trucks in 2036 and beyond. The regulation was developed under Executive Order N-79-20.[353] Several fleet categories fall under the rule: drayage fleets, high-priority fleets with more than 50 trucks (excluding package delivery), federal fleets, and state and local agency fleets. High-priority, federal, and state fleets can purchase either zero- or near-zero emission vehicles starting in 2024, but state purchases have a further condition that 50% of purchases be ZEV beginning in 2024 and 100% by 2027.

Under ACF, drayage trucks that haul freight to and from ports have the most stringent requirements. Legacy drayage trucks can be operated through their useful life, defined as 800,000 miles or a maximum of 18 years, but then must be retired. New trucks must be zero-emission starting in 2024. By 2035, all drayage trucks entering ports and intermodal yards must be zero-emission.

In January 2025, California withdrew its request for a waiver from federal preemption from setting its own emissions standards under ACF. It should be noted that requirements for some elements of ACF, including state and local government fleets, remain in effect.[354]

[350] *Advanced Clean Trucks*, CALIFORNIA AIR RESOURCES BOARD, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks (accessed Mar. 7, 2025).
[351] *Advanced Clean Trucks Compliance and Incentives Update*, CALIFORNIA AIR RESOURCES BOARD, https://ww2.arb.ca.gov/resources/documents/advanced-clean-trucks-compliance-and-incentives-update (accessed Mar. 10, 2025).
[352] *Advanced Clean Trucks Proposed Pooling Concepts*, CALIFORNIA AIR RESOURCES BOARD (Dec. 2024), https://ww2.arb.ca.gov/sites/default/files/2024-12/241209actpres_ADA.pdf (accessed Mar. 10, 2025).
[353] *Advanced Clean Fleets*, CALIFORNIA AIR RESOURCES BOARD (2025), https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/about (accessed Mar. 10, 2025).
[354] *Advanced Clean Fleets Regulation Overview*, CALIFORNIA AIR RESOURCES BOARD (2025), https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-overview (accessed Mar. 10, 2025).

Executive Order N-79-20, which aims to reach 100% zero-emission drayage truck population by 2035 and 100% zero-emission medium- and heavy-duty vehicle population by 2045, requires more work if these goals are to be achieved.[355] Various approaches must be combined to reach or accelerate the replacement of internal combustion engines (ICE) in the Bay Area. We applied the following framework to test the extent to which best-case policy adoption will address the public health costs of goods movement in the region.

Scenario development. First, we identified scenarios for the Bay Area: (1) a base case (ACT only), (2) a hypothetical adoption of ACF using a 15-year truck lifespan, (3) a hypothetical case wherein a WAIRE-style rule (ISR1) is adopted, and (4) a hypothetical case wherein a 9510-style rule (ISR2) is adopted. All cases assume business and fleet growth through 2045. Scenarios (1) and (2) are *not* additive, as they contain some of the same vehicles and associated emissions. ACF pulls forward replacement trucks allocated to later years in ACT.

The ACT scenario uses CARB's EMission FACtors (EMFAC) data exclusively and compares the reduction in emissions from one time period to another. Freight growth projections are provided by EMFAC 2021 v.1.0.2, developed by CARB, and vehicle replacements are based on OEM sales requirements. EMFAC is a model that estimates emissions inventories for on-road mobile sources in California. Truck Classes 2b-8 are included except dump trucks, solid waste trucks, concrete trucks, and buses.

The ACF scenario is broken into two segments: (1) government vehicles, provisions for which are implemented regardless of EPA waiver, and (2) all other vehicles, including drayage trucks. Only Class 8 trucks are considered for this ACF model with the following ZEV targets: 30% by 2030, 60% by 2035, 75% by 2040, and 100% by 2042. The schedule for ZEV drayage trucks as a percentage of the total fleet is more aggressive than for other categories (50% by 2030, 100% by 2035). Emission reductions for the "other" category are based on gaining EPA approval for the broader program before 2030. EMFAC emission factors are used in the calculations.

ISR1 (based on WAIRE) is a stand-alone program for existing warehouses. It can be layered with either ACT or ACF. Because OEM sales percentages are included in ACT and purchases in ACF, this scenario does not involve changes in truck technology. Savings are grouped into (1) trip reduction due to efficiency improvements and (2) non-mobile warehouse improvements of electricity-generating solar panels and corresponding grid emission reductions. Because each trip is counted (and potential penalties are assessed for non-ZEV trucks), the density of trucks will be critical. This study assumes a 5% freight density improvement, resulting in PM and NO_x reductions (for ICE trucks). Warehouse solar installations are based on an average warehouse size of 197,000 square feet with half of each roof covered, saving approximately 104 tons/NO_x per year of electricity (for all warehouses, adjusted for 1% growth/year).[356] Estimates are based on non-refrigerated warehouses using 6.1 kWh/sq. ft. of electricity annually. The current number of warehouses in the air district serves as the basis for growth projections.

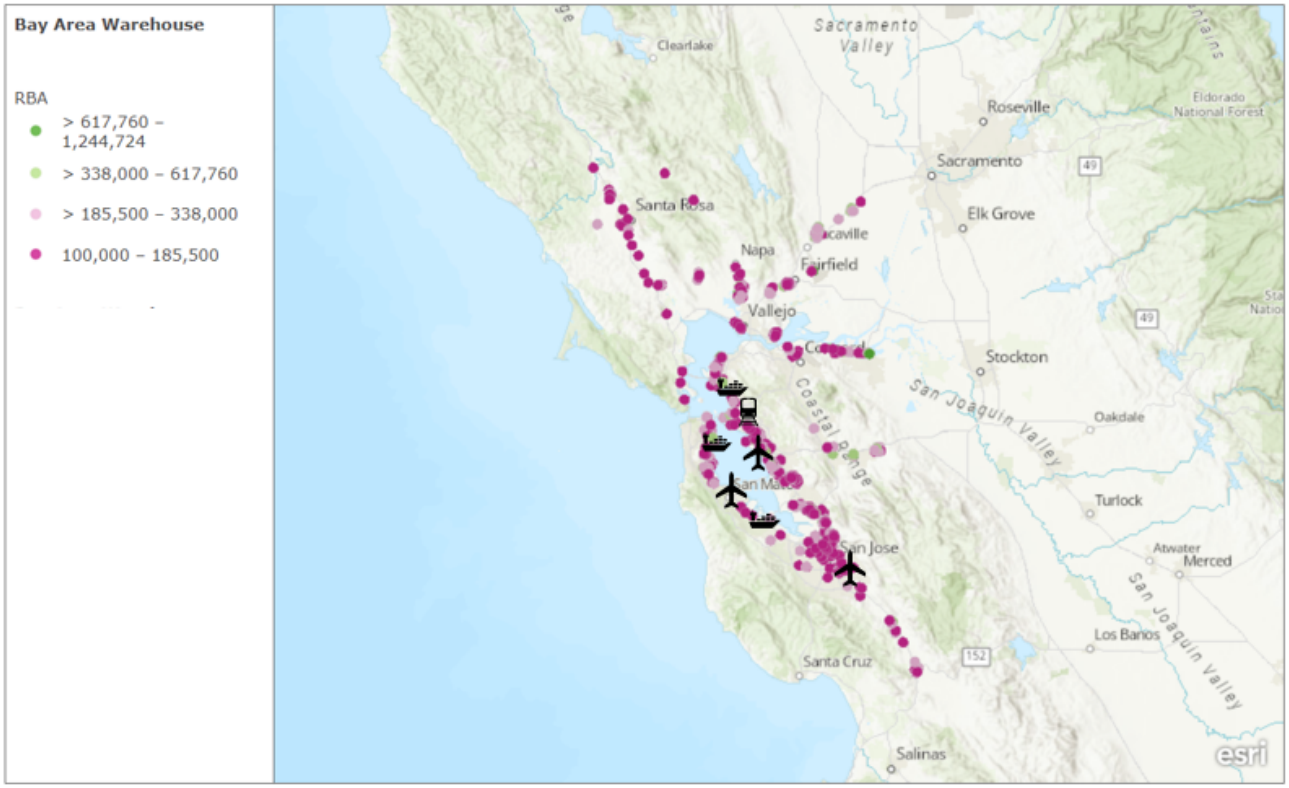
For purposes of scenario analysis, ISR2 (based on rule 9510) is a stand-alone program for new warehouse construction. In contrast, the current San Joaquin Valley Unified Air Pollution Control District rule includes all new construction, including warehouses, commercial, industrial, and residential housing of more than 50 units. The scenario can be layered with either ACT or ACF. The scenario assumes that only logistics facilities are included. Warehouse growth in the region is expected at 1-

[355] *California's Plan for Zero-Emission Vehicles: ZEV TruckStop*, CALIFORNIA AIR RESOURCES BOARD (2025), https://ww2.arb.ca.gov/our-work/programs/truckstop-resources/zev-truckstop/zev-101/californias-plan-zero-emission-vehicles (accessed Mar. 9, 2025).
[356] *Power Profiler,* U.S. ENVTL. PROT. AGENCY (Jan. 22, 2025), https://www.epa.gov/egrid/power-profiler#/ (accessed Mar. 12, 2025).

1.5%. EMFAC emission data are used. The method for calculating operational reductions is based on the 9510 rule, with 33% NO_x and 50% PM reductions spread evenly over a ten-year period.

Data collection. Data were collected from a variety of sources. Geolocational data for warehouses and distribution/transloading centers greater than or equal to 100,000 square feet were provided by Co-Star for BAAQMD counties. This data set included 770 of the approximately 1000 warehouses in this area. A map of the distribution of warehouses greater than or equal to 100,000 square feet is provided in Figure 4. The largest facility in the database is 1.2 million square feet; the average is 197,000 square feet. The distribution of warehouses follows the traditional theory that freight storage facilities cluster around transportation hubs and corridors – likewise, concentrated distribution location results in further demand for roadways, rail, and intermodal facility infrastructure.[357]

Figure 4. Co-Star Facilities in BAAQMD Region >/= 100,000 Square Feet with Major Transportation Hubs.



Esri, USGS | California State Parks, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS

BAAQMD census tracts and household demographic data were obtained from the US Census.[358] Environmental justice indicators were obtained from CalEnviroScreen version 4.0.[359] EMFAC 2021 v.1.0.2 was used to extract truck data for (1) emissions (PM, NO_x) in tons/year, (2) truck population sorted by class (class 2b-8 separated into light-, medium-, and heavy-duty truck groupings), (3) vehicle miles traveled (VMT), (4) trips by model year, and (5) fuel type (diesel, gasoline, electric, natural gas). PM and NO_x emissions include Running Exhaust Emissions (RUNEX), Idle Exhaust Emissions (IDLEX), and Start Exhaust Tailpipe Emissions (STREX); brake or tire wear emissions are not included.

[357] Ajay Agarwal, Genevieve Giuliano, and Christian L. Redfearn, *Strangers in Our Midst: The Usefulness of Exploring Polycentricity*, 48(2) ANNALS OF REG'L SCI. 433 (Apr. 2012), doi:10.1007/s00168-012-0497-1.
[358] U.S. Census Data, U.S. CENSUS BUREAU (Jan. 8, 2025), https://www.census.gov/data.html (accessed Mar. 3, 2025).
[359] *CalEnviroScreen 4.0*, OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT (May 1, 2023), https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40 (accessed Mar. 20, 2024).

EMFAC relies on various sources for drayage and container projections, including CARB's Ocean-Going Vessels model and container projections for Los Angeles, Long Beach, and Oakland ports from the American Association of Port Authorities. Truck fleet population forecasts are from the Federal Highway Administration Freight Analysis Framework. Sample output from EMFAC is shown in Figure 5. EMFAC incorporates projected improvements in emissions for internal combustion engines over time.[360]

Figure 5. Sample EMFAC Output for Class 8 Drayage Trucks Operating from Port of Oakland.

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air District
Region: Bay Area AQMD
Calendar Year: 2024, 2030, 2035, 2040, 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx_TOTEX	PM2.5_TOTEX
Bay Area AQMD	2024	T7 POAK Class 8	2012	Aggregate	Diesel	200.39126	20018.19	20018.19	0	3278.4	0.0947157871	0.0004771297
Bay Area AQMD	2024	T7 POAK Class 8	2013	Aggregate	Diesel	318.38828	31805.56	31805.56	0	5208.8	0.1436840578	0.0007211259
Bay Area AQMD	2024	T7 POAK Class 8	2014	Aggregate	Diesel	328.639017	32829.57	32829.57	0	5376.5	0.0832024698	0.0008796759
Bay Area AQMD	2024	T7 POAK Class 8	2015	Aggregate	Diesel	457.102857	45662.47	45662.47	0	7478.2	0.1144586061	0.0011865413
Bay Area AQMD	2024	T7 POAK Class 8	2016	Aggregate	Diesel	475.264967	47476.78	47476.78	0	7775.3	0.1211560621	0.0011902260
Bay Area AQMD	2024	T7 POAK Class 8	2017	Aggregate	Diesel	360.311001	35993.37	35993.37	0	5894.7	0.0904836319	0.0006912453
Bay Area AQMD	2024	T7 POAK Class 8	2018	Aggregate	Diesel	52.2639715	5220.937	5220.937	0	855.0	0.0128937728	0.0000955806
Bay Area AQMD	2024	T7 POAK Class 8	2019	Aggregate	Diesel	134.650998	13451	13451	0	2202.9	0.0325232278	0.0002330478
Bay Area AQMD	2024	T7 POAK Class 8	2020	Aggregate	Diesel	130.838139	13070.11	13070.11	0	2140.5	0.0308068525	0.0002125241
Bay Area AQMD	2024	T7 POAK Class 8	2020	Aggregate	Natural Gas	0.29534569	29.50363	29.50363	0	4.8	0.0000123874	0.0000001011
Bay Area AQMD	2024	T7 POAK Class 8	2021	Aggregate	Diesel	124.578732	12444.82	12444.82	0	2038.1	0.0284292916	0.0001880544
Bay Area AQMD	2024	T7 POAK Class 8	2021	Aggregate	Natural Gas	0.2812161	28.09215	28.09215	0	4.6	0.0000117948	0.0000000963
Bay Area AQMD	2024	T7 POAK Class 8	2022	Aggregate	Diesel	133.300791	13316.12	13316.12	0	2180.8	0.0292376647	0.0001847999
Bay Area AQMD	2024	T7 POAK Class 8	2022	Aggregate	Natural Gas	0.30090472	30.05895	30.05895	0	4.9	0.0000126206	0.0000001030
Bay Area AQMD	2024	T7 POAK Class 8	2023	Aggregate	Diesel	137.244311	13710.06	13710.06	0	2245.3	0.0283986273	0.0001706606
Bay Area AQMD	2024	T7 POAK Class 8	2023	Aggregate	Natural Gas	0.30980657	30.94821	30.94821	0	5.1	0.0000129940	0.0000001061
Bay Area AQMD	2024	T7 POAK Class 8	2024	Aggregate	Diesel	95.8495997	9574.918	9574.918	0	1568.1	0.0183355121	0.0001062112
Bay Area AQMD	2024	T7 POAK Class 8	2024	Aggregate	Electricity	4.47388017	446.9193	0	446.9193	73.2	0.0000000000	0.0000000000
Bay Area AQMD	2024	T7 POAK Class 8	2024	Aggregate	Natural Gas	0.21636478	21.61381	21.61381	0	3.5	0.0000090748	0.0000000741
Bay Area AQMD	2024	T7 POAK Class 8	2025	Aggregate	Diesel	37.2300248	1549.627	1549.627	0	609.1	0.0029419669	0.0000153022
Bay Area AQMD	2024	T7 POAK Class 8	2025	Aggregate	Electricity	2.4790307	103.1848	0	103.1848	40.6	0.0000000000	0.0000000000
Bay Area AQMD	2024	T7 POAK Class 8	2025	Aggregate	Natural Gas	0.08404069	3.498029	3.498029	0	1.4	0.0000025924	0.0000000162

Air quality dispersion modeling. Projected air quality is based on (1) the retirement of existing ICE trucks and purchase of new vehicles from 2025 through 2045, (2) diesel/gasoline/low-NO_x engine improvements, and (3) freight flow increases (which are expected to more than double in the region by 2045). Hydrogen trucks are not included in the current version of EMFAC, only electric zero-emission vehicles. EMFAC projects Class 8 truck growth, which accounts for 70% of truck emissions, at 52% from 2024 through 2045, which is considerably higher than for other classes (Class 2b-3 growth forecast at 25%; Class 4-7 at 32%.) Emissions from increased traffic and VMT for all trucks is engine independent.

Regional freight volume growth is more than nationwide, which is projected to increase by 44% from 2015 to 2045.[361] To adjust VMT for light-, medium-, and heavy-duty vehicles at the census tract level (for years 2030/2035/2040/2045), annual emissions of pollutants by vehicle class/fuel type were divided by the yearly mileage for that vehicle class/fuel type to produce annual emission rates (annual tons per mile). This assumes a high penetration of zero-emission trucks. Subsequently, emissions changes were calculated at the census tract level. Census tract emission data were then formatted for conversion to 1x1 km spatial grids in An Intervention Model for Air Pollution (InMAP), which generates air pollution

[360] *EMFAC2021 Model and Documentation*, CALIFORNIA AIR RESOURCES BOARD (2025), https://ww2.arb.ca.gov/our-work/programs/msei/emfac2021-model-and-documentation (accessed Mar. 10, 2025).
[361] *DOT Releases 30-Year Freight Projections*, BUREAU OF TRANSPORTATION STATISTICS (Mar. 3, 2016), https://www.bts.gov/newsroom/dot-releases-30-year-freight-projections (accessed Mar. 10, 2025).

concentrations based on emissions.[362] This is referred to as an "air quality surface." Comparisons between baseline emissions and scenario emissions were then generated.

Health impact modeling and geospatial analysis. Monetary valuations of PM and NO_x reductions for health outcomes were calculated. Health cost impacts were estimated using Environmental Benefits Mapping and Analysis Program (BenMAP) and CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA). Each tool allows users to study the effects of air pollution to estimate the air quality and health benefits of different emissions scenarios. Numerous health categories, such as mortality and asthma-related emergency room visits, are provided. The values are estimates based on likely changes in emissions. They are best used for scenario comparison.

Spatial grid data produced by InMAP are the primary inputs for BenMAP to assess health impacts.[363] BenMAP is configured for square grid definitions rather than spatial data represented by census tract polygons. The smallest grid size can be used to simulate a census tract. BenMAP allows for calculating the quantity and dollar value of premature deaths and illnesses associated with changes in air concentrations of pollutants. The program's "air quality monitoring data, recent and projected demographic and baseline health data, and concentration-response relationships" are "drawn from the published epidemiological literature, and economic value estimates based on the published economics literature."[364] Numerous papers have analyzed the impact of emissions on health using the BenMAP tool; a comprehensive list is provided in the user's manual.

The COBRA tool converts NO_x and PM to ozone to calculate health impacts. Both mobile and non-mobile sources can be specified. For this study, the sector and subsectors selected are highway vehicles/diesel fuel. The model uses EPA's 2016v1 Air Emissions Modeling Platform. The tool uses multiple linear regression analyses taken from relevant medical studies. Details on the health impact functions, incidence rates for adverse health effects, and economic value of health effects based on EPA valuations are explained in the User's Manual.[365] Reports present health savings as an average of 2030, 2035, 2040, and 2045 emissions by scenario. Although health benefits are cumulative, data are presented as yearly averages. Geospatial maps are also included to show the distribution of environmental burdens through the lens of health equity. We map the intersection of warehouse location and environmental impacts from emissions and public health outcomes, using CalEnviroScreen and ArcGIS by ESRI (see Appendix D).

Results. Although over 100,000 electric trucks will be deployed by 2045, the ACT regulation does not remove all ICE trucks in the BAAQMD region. More than 1.5 million trucks of all classes are still expected to be on the road, the majority of which are light-duty (Class 2b-3) trucks. See Table 1. Some trucks are registered in another state but used in California. Unless those states implement similar emission reduction programs, a small percentage will likely not be zero-emission by 2045.

[362] Christopher W. Tessum, Jason D. Hill, and Julian D. Marshall, *InMAP: A Model for Air Pollution Interventions*, 12(4) PLoS ONE e0176131 (2017), https://doi.org/10.1371/journal.pone.0176131.
[363] *Environmental Benefits Mapping and Analysis Program – Community Edition*, U.S. Envtl. Prot. Agency (Mar. 10, 2025), https://www.epa.gov/benmap (accessed Mar. 10, 2025).
[364] *BenMAP Environmental Benefits Mapping and Analysis Program – Community Edition User's Manual (v. 1.5.8)*, U.S. Envtl. Prot. Agency (Mar. 2023).
[365] *User's Manual for the Co-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA) Version 4.0*, U.S. Envtl. Prot. Agency (Mar. 2025), https://www.epa.gov/system/files/documents/2025-03/cobra-user-manual-v5.2.pdf (accessed Mar. 10, 2025).

Table 1. 2045 Remaining ICE trucks by classification and fuel type in BAAQMD region (EMFAC/ACT).

Truck Class	Diesel	Gasoline	Natural Gas
Class 2b-3	5,288	1,547,170	--
Class 4-7	34,885	3,772	668
Class 8	39,317	--	1,657
Total	79,490	1,550,942	2,325

It is clear from these numbers that implementing ACT alone leaves a functional gap. Significant improvements are necessary to meet California's air quality and climate policy goals. However, ACT does provide outstanding reductions in both PM and NO_x emissions, as seen in Table 2. The average yearly NO_x reduction is 549 tons/year, while PM is 11.5 tons/year. Associated health improvements based on these reductions are shown in Table 6.

Table 2. PM and NO_x Emissions Reduction under Scenario Analysis for ACT.

Scenario	2030		2035		2040		2045		Yearly Avg	
	NOx	PM	NOx	PM	NOx	PM	NOx	PM	NOx	PM
ACT	1140	21	577	12	300	9	179	4	549	11.5

Table 3 depicts NO_x and PM reduction estimates for Class 8 trucks through ACF. Associated health impacts from these reductions are shown in Table 7. Class 8 heavy-duty trucks contribute 73% of total truck NO_x emissions, while light-duty trucks contribute 21% and medium-duty 6%. This regulation would substantially accelerate the transition to cleaner trucks if fully implemented (ACF total). High-priority fleets (non-drayage medium- and heavy-duty trucks) will have zero emissions by 2042, three years sooner than under ACT. ACF is key in replacing larger heavy-duty trucks on a more aggressive timeline and is designed to complement ACT. While ACT focuses on the supply side, requiring manufacturers to build and sell zero-emission trucks, ACF is geared toward creating demand from fleets, both large and small. ACF targets are believed to be more ambitious than ACT.[366] However tempting, adding ACT and ACF reductions together is impossible as records are shifted from one time period to another.

ACF is divided into public fleets and all others (including drayage). State and local government fleets follow the regulation notwithstanding the waiver withdrawal, accounting for a relatively small percentage of the total. Note that the 2045 entries for NO_x and PM are much higher than in previous years. By 2042, trucks are to be converted to zero-emission.

Table 3. PM and NO_x Emissions Reduction under Scenario Analysis for ACF (Class 8 Trucks Only).

Scenario	2030		2035		2040		2045		Yearly Avg	
	NOx	PM	NOx	PM	NOx	PM	NOx	PM	NOx	PM
Government	3	0	18	1	0	0	0	1	5	1
All Others	989	22	1927	44	1902	45	3582	87	2100	50
ACF Total	992	22	1945	45	1902	45	3582	88	2105	50

The ISR scenarios are shown in Table 4. An ISR program, if adopted, would play an essential role in reducing emissions within and across the Bay Area, primarily due to the postponement of ACF. Air districts can craft ISR programs to address specific problem areas in their region. Although ISR2 is based on a program for all new construction, this study focused only on warehouses, so that there is a

[366] Marlon G. Boarnet, Genevieve Giuliano, Clemens Pilgram et al., *Navigating California's Transition to Zero-Emission Drayage Trucks*, Los Angeles Business Council Institute (Sept. 6, 2024), https://labusinesscouncil.org/wp-content/uploads/2024/09/LABC-ACF-Report-Full-Report-5.pdf (accessed Mar. 10, 2025).

more direct comparison between the two ISR approaches. Both ISR programs have mobile and non-mobile components. The scenarios merely provide examples of what can be constructed.

Table 4. PM and NO_x Emissions Reduction under Scenario Analysis for ISR1 and ISR2.

Scenario	2030		2035		2040		2045		Yearly Avg	
	NOx	PM	NOx	PM	NOx	PM	NOx	PM	NOx	PM
ISR1	154	3	174	3	195	3	217	3	185	3
ISR2	11	0	65	1	112	2	118	2	76	1

Monetary valuations for reductions in adverse health outcomes were calculated using the estimates in Tables 2 through 4. A summary of health cost savings is presented in Table 5. Caution should be exercised when reviewing forecast data, which should be used primarily as a point of comparison. Health cost impacts were calculated using BenMAP and COBRA.[367] The tools allow users to estimate the air quality and health benefits of different emissions scenarios. Numerous health categories are provided, such as mortality, cardiac arrest, and asthma-related emergency room visits. COBRA converts NO_x to ozone to calculate health impacts. Annual health cases and dollars saved are based on the yearly average for each scenario.

Table 5. Estimated Health Benefits from PM and NO_x/Ozone Reductions by Program.

	Monetary Value (dollars, annual)	
	Low	*High*
ACT	$40,000,000	$54,000,000
ACF	$160,000,000	$210,000,000
ISR1	$13,500,000	$18,100,000
ISR2	$5,400,000	$7,100,000

[367] *COBRA Web Edition: Co-Benefits Risk Assessment Health Impacts Screening and Mapping Tool*, U.S. ENVTL. PROT. AGENCY (2025), https://cobra.epa.gov/ (accessed Mar. 11, 2025).

Table 6. Health Savings from Emission Reductions: ACT Yearly Average.

Health Endpoint	Pollutant	Change in Incidence (cases, annual)		Monetary Value (dollars, annual)	
		Low	High	Low	High
Mortality *	$PM_{2.5}$ | O_3	2.4	3.3	$35,000,000	$49,000,000
Nonfatal Heart Attacks	$PM_{2.5}$	0.6	0.6	$50,000	$50,000
Infant Mortality	$PM_{2.5}$	0.0067	0.0067	$110,000	$110,000
Hospital Admits, All Respiratory	$PM_{2.5}$ | O_3	0.29	0.29	$6,100	$6,100
Emergency Room Visits, Respiratory	$PM_{2.5}$ | O_3	5.3	5.3	$8,600	$8,600
Asthma Onset	$PM_{2.5}$ | O_3	18	18	$2,700	$2,700
Asthma Symptoms	$PM_{2.5}$ | O_3	2,800	2,800	$880,000	$880,000
Emergency Room Visits, Asthma	O_3	0.026	0.026	$22	$22
Lung Cancer Incidence	$PM_{2.5}$	0.069	0.069	$3,000	$3,000
Hospital Admits, Cardio-Cerebro/ Peripheral Vascular Disease	$PM_{2.5}$	0.12	0.12	$3,600	$3,600
Hospital Admits, Alzheimer's Disease	$PM_{2.5}$	0.32	0.32	$7,200	$7,200
Hospital Admits, Parkinson's Disease	$PM_{2.5}$	0.047	0.047	$1,100	$1,100
Stroke Incidence	$PM_{2.5}$	0.056	0.056	$3,500	$3,500
Hay Fever/Rhinitis Incidence	$PM_{2.5}$ | O_3	110	110	$130,000	$130,000
Cardiac Arrest, Out of Hospital	$PM_{2.5}$	0.014	0.014	$880	$880

Emergency Room Visits, All Cardiac	$PM_{2.5}$	0.25	0.25	$540	$540
Minor Restricted Activity Days	$PM_{2.5}$	830	830	$100,000	$100,000
School Loss Days	O_3	1,400	1,400	$2,400,000	$2,400,000
Work Loss Days	$PM_{2.5}$	140	140	$45,000	$45,000
Total Health Effects from $PM_{2.5}$				**$12,000,000**	**$26,000,000**
Total Health Effects from O_3				**$26,000,000**	**$26,000,000**
Total Health Effects				**$40,000,000**	**$54,000,000**

*Low and High values represent differences in epidemiological methods used to calculate PM impacts.

Table 7. Health Savings from Emission Reductions: ACF Yearly Average.

Health Endpoint	Pollutant	Change in Incidence (cases, annual)		Monetary Value (dollars, annual)	
		Low	High	Low	High
Mortality *	$PM_{2.5}$ | O_3	9.3	13	$140,000,000	$190,000,000
Nonfatal Heart Attacks	$PM_{2.5}$	2.4	2.4	$200,000	$200,000
Infant Mortality	$PM_{2.5}$	0.027	0.027	$420,000	$420,000
Hospital Admits, All Respiratory	$PM_{2.5}$ | O_3	1.1	1.1	$24,000	$24,000
Emergency Room Visits, Respiratory	$PM_{2.5}$ | O_3	20	20	$33,000	$33,000
Asthma Onset	$PM_{2.5}$ | O_3	70	70	$11,000	$11,000
Asthma Symptoms	$PM_{2.5}$ | O_3	11,000	11,000	$3,400,000	$3,400,000
Emergency Room Visits, Asthma	O_3	0.1	0.1	$84	$84
Lung Cancer Incidence	$PM_{2.5}$	0.27	0.27	$12,000	$12,000
Hospital Admits, Cardio-Cerebro/ Peripheral Vascular Disease	$PM_{2.5}$	0.5	0.5	$14,000	$14,000
Hospital Admits, Alzheimer's Disease	$PM_{2.5}$	1.3	1.3	$29,000	$29,000
Hospital Admits, Parkinson's Disease	$PM_{2.5}$	0.19	0.19	$4,500	$4,500
Stroke Incidence	$PM_{2.5}$	0.22	0.22	$14,000	$14,000
Hay Fever/Rhinitis Incidence	$PM_{2.5}$ | O_3	440	440	$490,000	$490,000
Cardiac Arrest, Out of Hospital	$PM_{2.5}$	0.057	0.057	$3,500	$3,500

Emergency Room Visits, All Cardiac	$PM_{2.5}$	1	1	$2,200	$2,200
Minor Restricted Activity Days	$PM_{2.5}$	3300	3300	$410,000	$410,000
School Loss Days	O_3	5,500	5,500	$9,300,000	$9,300,000
Work Loss Days	$PM_{2.5}$	560	560	$180,000	$180,000
Total Health Effects from $PM_{2.5}$				**$48,000,000**	**$100,000,000**
Total Health Effects from O_3				**$100,000,000**	**$100,000,000**
Total Health Effects				**$160,000,000**	**$210,000,000**

*Low and High values represent differences in epidemiological methods used to calculate PM impacts.

Table 8. Health Savings from Emission Reductions: ISR1 Yearly Average.

Health Endpoint	Pollutant	Change in Incidence (cases, annual)		Monetary Value (dollars, annual)	
		Low	High	Low	High
Mortality *	PM2.5 | O3	0.81	1.11	$11,800,000	$15,700,000
Nonfatal Heart Attacks	PM2.5	0.185	0.185	$16,100	$16,100
Infant Mortality	PM2.5	0.00207	0.00207	$33,300	$33,300
Hospital Admits, All Respiratory	PM2.5 | O3	0.096	0.096	$2,030	$2,030
Emergency Room Visits, Respiratory	PM2.5 | O3	1.84	1.84	$2,960	$2,960
Asthma Onset	PM2.5 | O3	6.1	6.1	$1,340	$1,340
Asthma Symptoms	PM2.5 | O3	960	960	$310,000	$310,000
Emergency Room Visits, Asthma	O3	0.0092	0.0092	$8	$8
Lung Cancer Incidence	PM2.5	0.0219	0.0219	$960	$960
Hospital Admits, Cardio-Cerebro/ Peripheral Vascular Disease	PM2.5	0.0391	0.0391	$1,130	$1,130
Hospital Admits, Alzheimer's Disease	PM2.5	0.101	0.101	$2,290	$2,290
Hospital Admits, Parkinson's Disease	PM2.5	0.015	0.015	$358	$358
Stroke Incidence	PM2.5	0.0174	0.0174	$1,110	$1,110
Hay Fever/Rhinitis Incidence	PM2.5 | O3	39.3	39.3	$43,100	$43,100
Cardiac Arrest, Out of Hospital	PM2.5	0.0045	0.0045	$277	$277

Emergency Room Visits, All Cardiac	PM2.5	0.079	0.079	$172	$172
Minor Restricted Activity Days	PM2.5	265	265	$32,300	$32,300
School Loss Days	O3	496	496	$830,000	$830,000
Work Loss Days	PM2.5	43.9	43.9	$13,900	$13,900
Total Health Effects from PM2.5				**$3,810,000**	**$8,200,000**
Total Health Effects from O3				**$9,300,000**	**$9,300,000**
Total Health Effects				**$13,500,000**	**$18,100,000**

*Low and High values represent differences in epidemiological methods used to calculate PM impacts.

Table 9. Health Savings from Emission Reductions: ISR2 Yearly Average.

Health Endpoint	Pollutant	Change in Incidence (cases, annual)		Monetary Value (dollars, annual)	
		Low	High	Low	High
Mortality *	PM2.5 | O3	0.32	0.44	$4,700,000	$6,400,000
Nonfatal Heart Attacks	PM2.5	0.074	0.074	$6,200	$6,200
Infant Mortality	PM2.5	0.00083	0.00083	$13,000	$13,000
Hospital Admits, All Respiratory	PM2.5 | O3	0.038	0.038	$800	$800
Emergency Room Visits, Respiratory	PM2.5 | O3	0.73	0.73	$1,200	$1,200
Asthma Onset	PM2.5 | O3	2.5	2.5	$380	$380
Asthma Symptoms	PM2.5 | O3	380	380	$120,000	$120,000
Emergency Room Visits, Asthma	O3	0.0037	0.0037	$3	$3
Lung Cancer Incidence	PM2.5	0.0085	0.0085	$370	$370
Hospital Admits, Cardio-Cerebro/ Peripheral Vascular Disease	PM2.5	0.015	0.015	$440	$440
Hospital Admits, Alzheimer's Disease	PM2.5	0.04	0.04	$890	$890
Hospital Admits, Parkinson's Disease	PM2.5	0.0058	0.0058	$140	$140
Stroke Incidence	PM2.5	0.0069	0.0069	$430	$430
Hay Fever/Rhinitis Incidence	PM2.5 | O3	16	16	$17,000	$17,000
Cardiac Arrest, Out of Hospital	PM2.5	0.0018	0.0018	$110	$110

Emergency Room Visits, All Cardiac	PM2.5	0.031	0.031	$67	$67
Minor Restricted Activity Days	PM2.5	100	100	$13,000	$13,000
School Loss Days	O3	200	200	$330,000	$330,000
Work Loss Days	PM2.5	17	17	$5,500	$5,500
Total Health Effects from PM2.5				**$1,500,000**	**$3,200,000**
Total Health Effects from O3				**$3,700,000**	**$3,700,000**
Total Health Effects				**$5,400,000**	**$7,100,000**

*Low and High values represent differences in epidemiological methods used to calculate PM impacts.

The above analysis of current, proposed, and hypothetical rules can achieve significant inroads in clearing the air of air pollutants and toxic air contaminants. Replacing trucks with tailpipe-free battery-electric models will help communities most impacted by on-road urban freight. However, more must be done to reduce truck-based freight externalities, especially in disadvantaged communities. Through the mapping of Co-Star warehouses (Figure 4), clusters of warehousing activity emerge. Like-kind industry often co-locates to take advantage of resources and knowledge. Through agglomeration, industries such as logistics become specialized in a given spatial area, creating positive correlations among employment, transportation, and related congestion. Increased pollution, noise, and safety concerns arise for people who live nearby. Mobile emissions are concentrated along freight corridors connecting distribution activity to ports. Figure 6, below, highlights existing pollution burden by census tract in the Bay Area, based on layered indicators from the Exposures and Environmental Effects components of the CalEnviroScreen model. Not surprisingly, communities in or near distribution clusters or heavily trafficked areas (e.g., near sea/airports or intermodal rail yards) are often identified by the State of California as disadvantaged communities. Figure 7 presents SB 535 Disadvantaged Communities according to census tracts with the highest 25% of overall scores in CalEnviroScreen 4.0. There is a correlation between warehouse location and the spatial distribution of disadvantaged communities, a result that is driven largely by firm location choice.[368] Given the colocation of warehouses, freight corridors, and disadvantaged communities, ISRs can play a critical role in addressing harmful emissions and health disparities, including but not limited to work loss, hospital admittances, emergency room visits, and premature death. They should be carefully constructed to address the most pressing mobile and non-mobile elements that we have shown contribute to emissions and health outcomes.

[368] Quan Yuan, *Mega Freight Generators in my Backyard: A Longitudinal Study of Environmental Justice in Warehousing Location*, 76 LAND USE POLICY 130 (2018).

Figure 6. Diesel PM and Overall Pollution Burden Percentiles in the Bay Area (CalEnviroScreen 4.0).

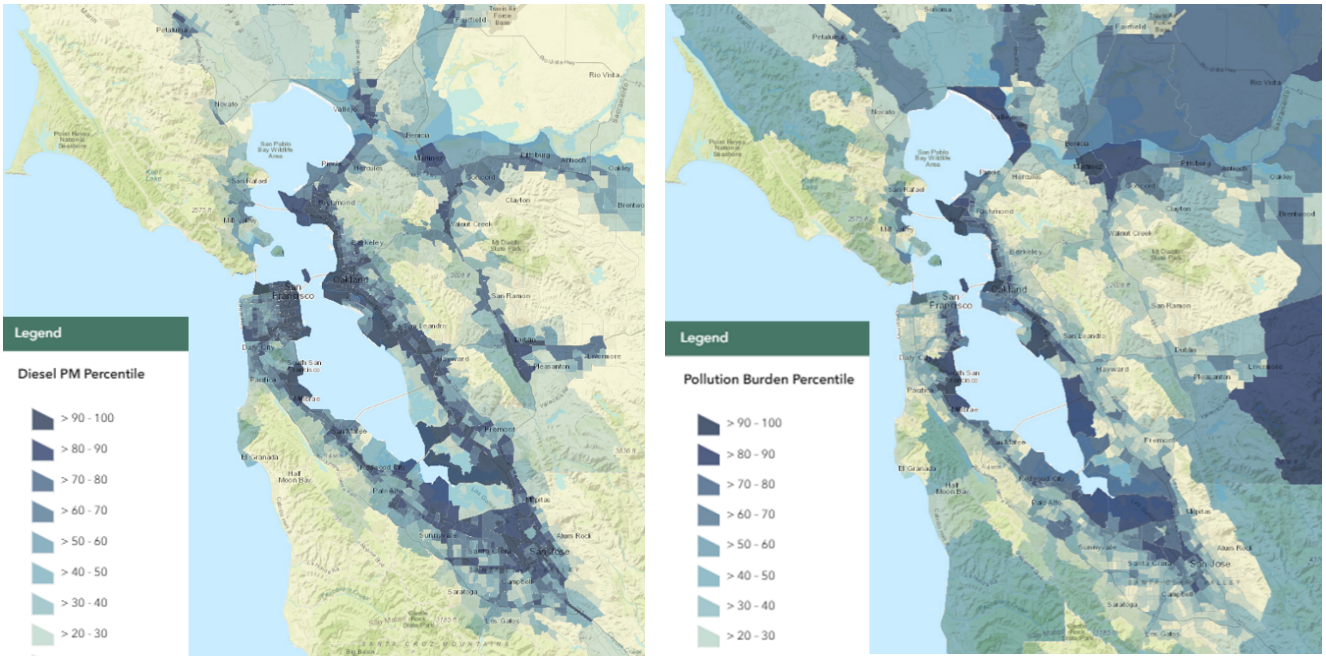
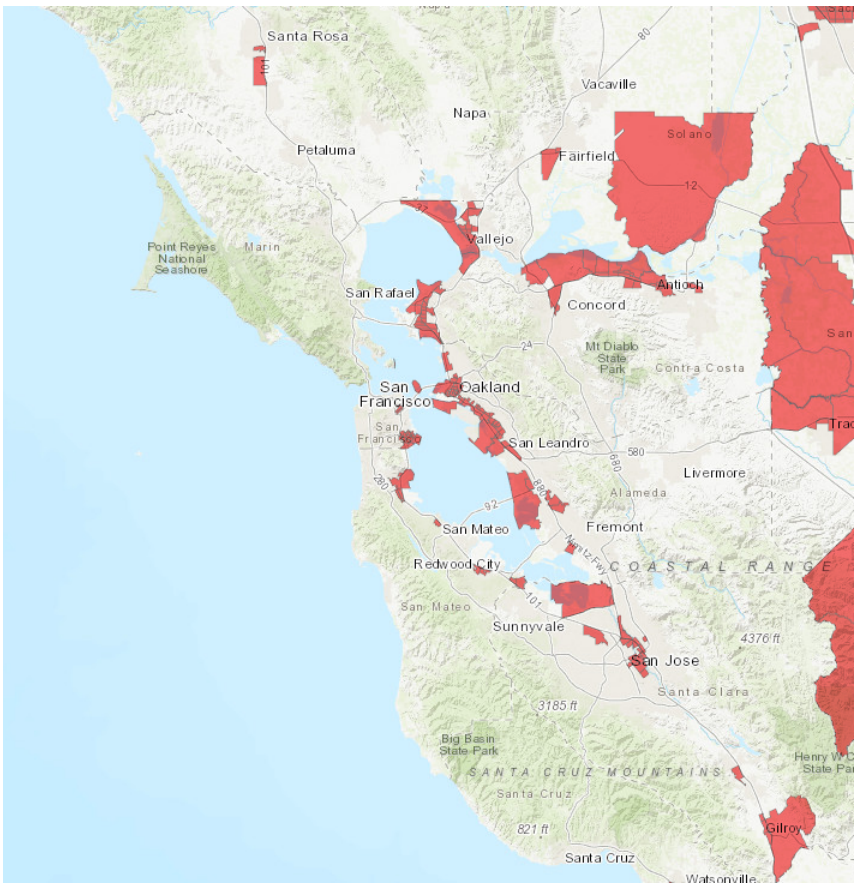
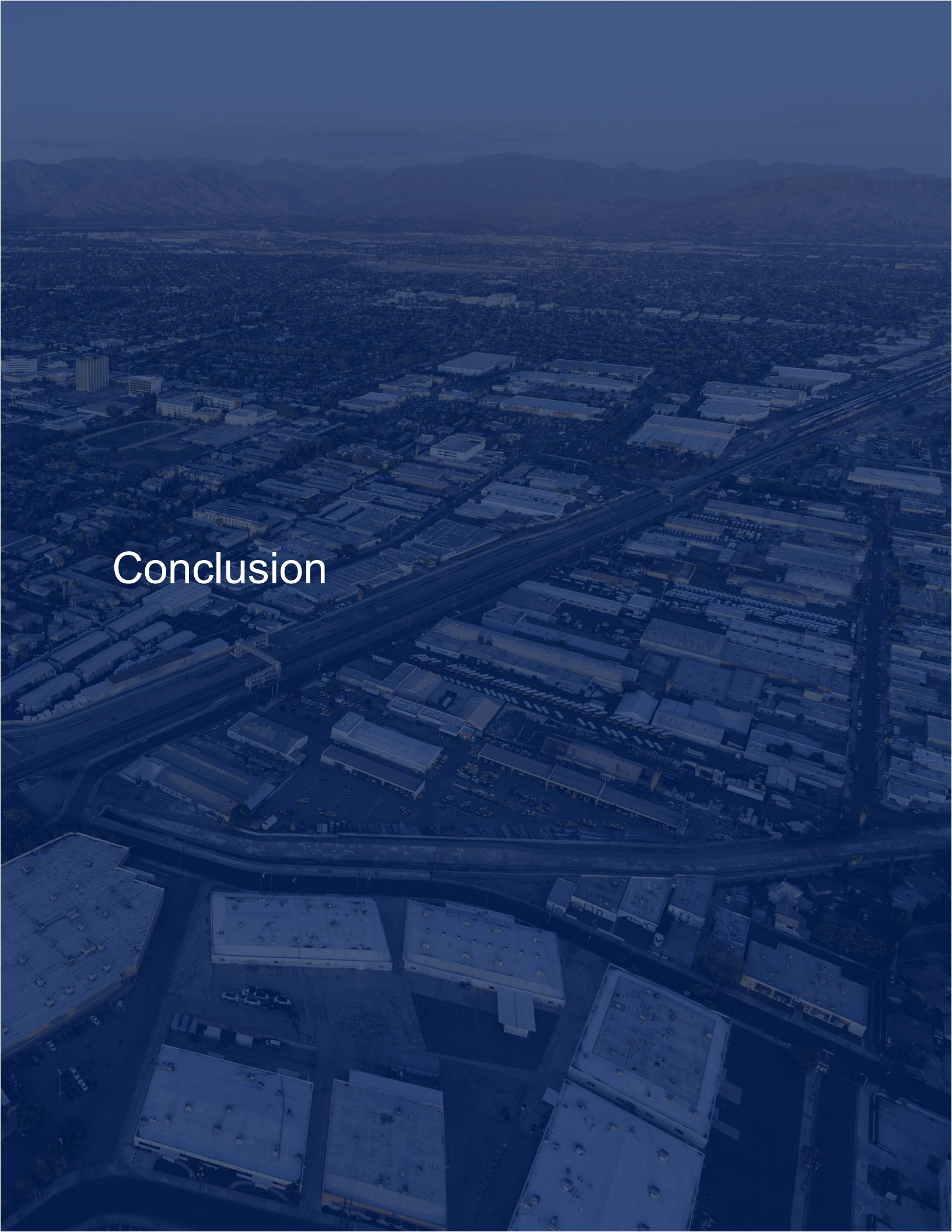


Figure 7. SB 535 Disadvantaged Communities in the Bay Area (2022) (CalEnviroScreen 4.0).





Conclusion

Conclusion

In regions that attract warehousing and distribution centers and, indirectly, high concentrations of truck traffic along freight corridors, the modern air pollution control system breaks down. Once these facilities take hold, the cumulative impact of mobile and underregulated area sources can result in poor air quality, even as owners and operators comply with existing air quality and emissions standards. Indirect source review under the Clean Air Act holds great potential to address this gap problem. But to limit regional as well as localized impacts of the logistics industry, air districts must resist the presumption, set forth long ago in *Select Steel*, that compliance with environmental standards necessarily avoids creating disparate impacts of concern. In California, ISR is not only a legal imperative, but also an opportunity for a post-SB 115 cultural shift in how the state rebalances the benefits and costs of land use, including public health, across regions and in disadvantaged communities. Below are guiding principles to ensure that this shift takes hold through the design and implementation of ISR programs to address public health and other costs that persist under best-case state air quality, greenhouse gas emissions reduction, and technology policy adoption. Prior to ISR rulemaking, air districts should prepare a comprehensive audit to gauge the extent to which pathologies of administration – including those identified in this report – limit their ability to advance environmental justice through all phases of the policymaking process. In addition:

Program context, objectives, and scope.

1. **ISR programs** should be developed when state-administered laws, regulations, and policies to address air quality, greenhouse gas emissions reduction, and technology adoption leave substantial air quality impacts and related public health costs unaddressed in an air quality control region, its disadvantaged communities and protected classes according to civil rights and other state and federal laws.
2. **ISR programs** should carefully address regional air quality and nonattainment of ambient air quality standards as well as neighborhood-scale and disparate impacts of logistics operations and practices in disadvantaged communities and among protected classes under civil rights and other state and federal laws.
3. **ISR programs** should be designed with the understanding that local governments retain substantial authority to plan or control land use. Nonetheless, programs should be designed with the full range of regional and localized impacts of the logistics industry in mind, including how implementation and state support can generate useful data for local governments regarding (a) volatile organic compound, diesel particulate matter, or other air pollutants; (b) noise and other operational impacts; (c) infrastructure damage; (d) truck idling; (e) total cancer risk, asthma, cardiovascular and respiratory disease, chronic exposure, and weakened immune systems; (f) burdens on sensitive receptors; (g) risks to schools or student safety; (h) landscape and wildlife change; (i) stormwater capture challenges; (j) increased impervious surfaces; (k) housing displacement; (l) workplace health; (m) urban heat islands; (n) electric grid stress; (o) workforce cycles of poverty; and (p) other, heretofore unaccounted for impacts and costs.
4. **ISR programs** should be developed as part of a whole-of-government response to state and local policies that historically impacted residents of disadvantaged communities or protected classes under civil rights and other state and federal laws, including exclusionary and expulsive zoning, redlining and other forms of segregation, legacy contamination and infrastructure, limited access to public lands, limited provision of municipal services, and policies that increase environmental or climate hazard risk.
5. **ISR programs** should be designed with the recognition that federal and state environmental laws, their design and implementation contributed to pollution hotspots and other concentrations of mobile, area, and stationary sources of pollution, particularly in disadvantaged communities.

Transparency and public participation.

6. **ISR programs** should be developed and implemented according to federal and state public participation, language access, Tribal consultation, and environmental justice policies; air districts should achieve not only fair treatment and meaningful involvement for all people according to state law, but also decision-making that is responsive to the concerns of disadvantaged communities and protected classes and existing public obligations to meet their environmental protection needs.
7. **ISR programs** should clearly define, share, and explain all necessary details regarding compliance burden calculation and actions and investments to reduce emissions, including all data, assumptions, definitions, factors, determination of variables, calculator tools, and scenario analyses, with the public.

Centrality of cumulative impact.

8. **ISR programs** should be of sufficient scope (e.g., warehouse square footage thresholds), applicability (e.g., truck classes), and stringency (e.g., warehouse points burden based in part on weighted annual truck trips) to address regional as well as localized air quality concerns, while considering interaction effects with other state and regional rules and programs.
9. **ISR programs** should be designed to mirror or improve upon existing approaches to cumulative impact (e.g., California Environmental Quality Act rule 15130(b) and consideration of past, present, and probable future projects).
10. **ISR programs** should be designed with the specific and unique cumulative impact assessment challenges for a relevant logistics industry in mind; ISR programs should not rely solely on proxies for cumulative impact such as environmental justice screening tools (e.g., CalEnviroScreen).
11. **ISR programs** should harness best available agency, community, academic, and private sector science including cumulative impact tools (e.g., Warehouse CITY), data science and data fusion approaches to reliably demonstrate air quality change at the neighborhood scale, and emissions factors and other data assumptions that underly ISR program design (e.g., vehicle miles traveled, average truck trip length, truck trips per 1,000 square feet, emissions per mile).

Continuous improvement.

12. **ISR programs** should adjust compliance or "points burden" and include requirements to attain zero-emission operations on an accelerated timeline according to facility location within a disadvantaged community, unincorporated community, or area with logistics-related displacement or rezoning from residential to commercial or industrial; ISR programs should consider location within tiered radii from sensitive receptors for compliance or points burden adjustment; ISR program stringency values should be designed to maximize localized emissions reduction in disadvantaged communities.
13. **ISR programs** should adjust compliance or "points burden" according to actions or investments that achieve localized emissions reduction co-benefits (e.g., via increased use of zero-emission electric yard trucks); ISR programs should allow for actions or investments to be added to a compliance menu according to demonstrated localized air quality benefits; ISR program compliance points or in lieu of mitigation fees that do not yield benefits within disadvantaged communities should be discounted.
14. **ISR programs** should encourage continuous improvement dynamics, including periodically revisiting compliance or points burden, mitigation and harm reduction measures, mitigation fees, mitigation fee transfer, sensitive receptor and disadvantaged community population definitions, and administration and enforcement practices

according to advances in cumulative impact assessment, understanding of heretofore ancillary impacts, land use and mobile source emissions models, air quality impact assessment, air district policy, comparative cost-effectiveness data for mitigation fees and compliance measures, state policy and guidance, and revealed preferences of facility operators and other parties.

15. **ISR programs** should include a streamlined, public process, including technical review and clear acceptance guidelines, for an evolving points burden that considers new technologies, investments, and actions for inclusion within a menu-based compliance system; the process should also consider updates to inputs that are used to assign points to compliance actions and investments (e.g., annual compliance costs, regional emissions reduction, and local benefit such as diesel particulate matter in pounds per year attributable to each action).
16. **ISR programs** should avoid duplication of effort and place additional downward pressure on air emissions by accounting for state-administered programs designed to meet requirements for air quality, greenhouse gas emissions reduction, and zero-emissions technology adoption; ISR programs should allow for public input regarding how they complement existing and anticipated state air quality, transportation, climate, and clean energy policy mixtures.
17. **ISR programs** should ensure that compliance pathways, including mitigation fees and fee trading, do not result in paper compliance, new or worsened pollution hotspots or concentrations in disadvantaged communities within an annual compliance period or over time, or the transfer of emissions reduction benefits outside of disadvantaged communities in which facilities or truck routes are located.

Compliance with civil rights laws.

18. **ISR programs** should be designed for compliance with federal (e.g., Title VI of the Civil Rights Act of 1964) and state (e.g., California Government Code Section 11135) civil rights laws; ISR programs should acknowledge that generalized air impact assessment or points burden allocation and compliance reporting alone will not ensure that an ISR program avoids creating new or more intensive pollution hotspots or perpetuating segregation in a region according to one or more protected classes.
19. **ISR programs** are designed by air districts that have the authority as well as the responsibility to ensure affirmative compliance with federal (e.g., Title VI of the Civil Rights Act of 1964) and state (e.g., California Government Code Section 11135) civil rights laws.
20. **ISR programs** are designed by air districts that have the authority as well as the responsibility to identify and track disparate impacts of indirect source review program administration among protected classes; air districts should ensure that ISR programs do not result in discrimination, denial of full and equal access to the benefits of ISR programs, or the reinforcement or perpetuation of discrimination or segregation vis-à-vis members of protected classes according to state and federal civil rights laws.

While these principles should be tailored to the unique conditions, challenges, and responsibilities of a state and region, we view them as a necessary baseline. Current approaches to ISR are unable to ensure that programs avoid creating new or more intensive pollution hotspots. The above principles will require a critical mass of political will, analytical capacity, best available science, meaningful involvement and incorporation of community knowledge, and coordination among air districts, state and local officials if they are to be achieved. Otherwise, ISR programs will fail to reflect the full scale and scope of the impacts of goods movement regionally and in disadvantaged communities. They will miss a vital opportunity to provide relief for communities long burdened by waves of extractive industry. And they will continue to leave one of the promises at the heart of environmental and civil rights law – environmental justice for all – unfulfilled.

Appendix A. ISR Program Comparison: Rules 9510 and 2305

Appendix A. ISR Program Comparison: Rules 9510 and 2305

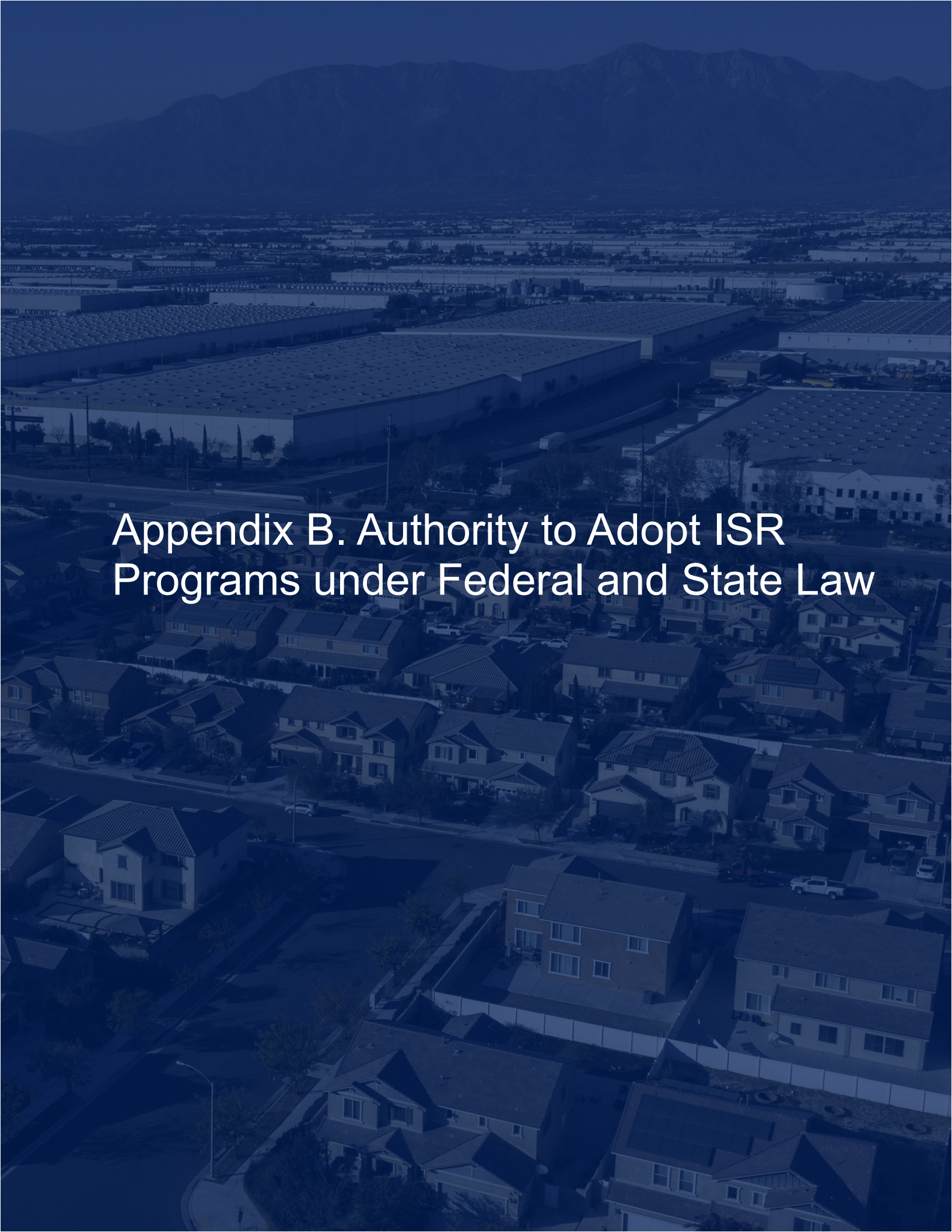
	Rule 9510 (SJVUAPCD)	Rule 2305: Warehouse Actions and Investments to Reduce Emissions Program (WAIRE) (SCAQMD)
Year adopted	2005 (amended 2018).	2021.
Facilities	Facilities include: • Any development project after March 1, 2006; • Any transportation or transit development where construction exhaust emissions are ≥2.0 tons NO_x or PM_{10} ; and • Any development where construction exhaust emissions are ≥2.0 tons NO_x or PM_{10} OR any large development where construction exhaust emissions are ≥10.0 tons NO_x or PM_{10}	Warehouses ("a building that stores cargo, goods, or products on a short- or long-term basis for later distribution to businesses and/or retail customers").
Scope of ISR	Any development that will build out to include any among several square feet/building type combinations (below).	Warehouses (as defined above) that are operational and located within SCAQMD jurisdiction.
Square footage thresholds	Generally, for any applicant seeking final discretionary approval for a development project that meets any of the following criteria: • 50 residential units; • 2,000 sq. ft. commercial space; • 25,000 sq. ft. light industrial space; • 100,000 sq. ft. heavy industrial space; • 20,000 sq. ft. medical office space; • 39,000 sq. ft. general office space; • 9,000 sq. ft. educational space; • 10,000 sq. ft. government space; • 20,000 sq. ft. recreational space; or • 9,000 sq. ft. space not identified above. If project applicant seeks approval from a public agency: • 250 residential units; • 10,000 sq. ft. commercial space; • 125,000 sq. ft. light industrial space; • 500,000 sq. ft. heavy industrial space; • 100,000 sq. ft. medical office space; • 195,000 sq. ft. general office space; • 45,000 sq. ft. educational space; • 50,000 sq. ft. government space; • 100,000 sq. ft. recreational space; or • 45,000 sq. ft. space not identified above.	100,000 square feet of indoor floor space in a single building where >50,000 square feet used for warehousing activities.
Exemptions	• Final discretionary approval for a large development project has been received prior to March 1, 2006; • A large development project requires or required a discretionary approval and is subject to the general rule of applicability;	• Operators of warehouses with <50,000 square feet used for warehousing activity are not required to comply with the WAIRE points system unless their parent company controls multiple operators in the same building that use more than 50,000 square feet. • Warehouse operator points obligation (number of WAIRE points a warehouse operator must earn in a year) is less than 10.

	• Prior to March 21, 2018, the applicant received project-level building permits, a conditional use permit, or similar approvals for a large development project; or • A large development project qualifies as a Grandfathered Large Development Project (prior to March 21, 2018, the applicant has entered into binding contractual obligations, and there is confirmation from a public agency that the project has a land-use entitlement).	• Warehouse operator investments perform at significantly lower level than anticipated due to unforeseen circumstances and operator applies for full or partial exemption.
Emissions reduction requirements	For construction equipment: 20% of total NO_x emissions and 45% of total PM_{10} exhaust emissions. For operational emissions: 33.3% of operational NO_x emissions over a 10-year period and 50% of operational PM_{10} emissions over a 10-year period.	Operators must earn a certain number of WAIRE points as determined by the formula below that begins with frequency of truck activity. Points are earned by performing actions and investments that are consistent with reducing emissions produced by operations.
Emissions reduction requirements determined	Applicant or the district performs an Air Impact Assessment (AIA) using project-specific information. The AIA quantifies estimated baseline emissions as well as emissions reductions required by Rule 9510.	WAIRE Points Compliance Obligation (WPCO) = Weighted Annual Truck Trips (WATTs) × Stringency Constant × Annual Variable. WPCO = WAIRE points a warehouse operator must earn in a year. WATTs = (Class 2b to 7 truck trips) + (2.5 x Class 8 truck trips) or (days per year × warehouse size (000s of sq. ft.) × [.95 if ≥ 200,000 sq. ft.; .67 if ≥ 100,000 sq. ft.; 2.17 if Cold Storage Warehouse]). Stringency Constant = .0025 WAIRE Points per WATT. Annual Variable varies based on year operator is required to submit their first WAIRE report.
Construction or facility operation	Construction + Operation for the first 10 years.	Operation.
New or existing facilities	New Facilities.	New and Existing Facilities.
Pollutants	NO_x and PM_{10}.	Emissions from trucks or vehicles commonly used in warehouse operations (focus on NO_x and particulate matter).
Mitigation measures	Construction: Exhaust emissions for construction equipment greater than fifty (50) horsepower used or associated with	WAIRE points are earned according to one of several primary actions defined as "go[ing] beyond existing federal and state regulations already applicable to warehouse owners or operators

	development project shall be reduced by the following amounts from statewide average as estimated by CARB: • 20% of the total NO_x emissions, and • 45% of the total PM_{10} exhausts emissions. Operational: • Applicants shall reduce 33.3% of project's operational baseline NO_x emissions over a period of ten years as quantified in the approved AIA. • Applicants shall reduce of 50% of project's operational baseline PM_{10} emissions over a period of ten years as quantified in the approved AIA. AIA informs the relevant percentages above and the resulting standards that must be met.	earning WAIRE points" (see Table 3 under the rule for full list): • Installing or using solar panels onsite; • Installing and using electric vehicle charging stations; • Buying or renting zero-emission or near-zero emission trucks; and • Acquiring and using zero-emission yard trucks. In addition, operators can install MERV 16 or greater filters or filter systems in residences, schools, daycares, hospitals, or community centers to earn extra WAIRE points outside of warehouse operations. The points compliance obligation in Rule 2350 differ substantially from Rule 9510 in that they embody a standard that shifts according to changes in federal and state regulation. WAIRE points can also be earned through a custom WAIRE plan. A custom plan must describe how emissions will be reduced, include a schedule for implementation milestones, and include any potential necessary permits.
Fee in lieu of mitigation	Calculated using data from the AIA and according to whether NO_x or PM_{10} is mitigated and whether the work is construction or operational.	$1,000 per WAIRE point to be offset by warehouse operator.
Fee calculation	By the year approval was sought for the development (and varies according to construction vs. operation). <u>Construction Fee:</u> **NO_x** $CN\ OF = \sum_{i=1}^{n} [NACE_i - (0.8 \times NSEE_i)] \times CNR_i$ Where: • CN OF = Construction NO_x Off-Site Fee, in dollars • i = each phase • n = last phase • NACE = Actual Estimated Equipment NO_x Emissions, as documented in approved Air Impact Assessment application, in total tons	Determined by multiplying the number of WAIRE points an operator will offset by $1,000. This number is calculated by subtracting the number of WAIRE points earned during a 12-month compliance period from WPCO for that period.

	• NSEE = Statewide Average Equipment NO_x Emissions, as calculated by air pollution control officer, in total tons • CNR = $9,305/ton of NO_x **PM_{10}** $$CPM\ OF = \sum_{i=1}^{n} [PMACE_i - (0.55 \times PSEE_i)] \times CPR_i$$ Where: • CPM OF = Construction PM_{10} Off-Site Fee, in dollars • i = each phase • n = last phase • PMACE = Actual Estimated Equipment PM_{10} Emissions, as documented in approved AIA application, in total tons • PSEE = Statewide Average Equipment PM_{10} Emissions, as calculated by air pollution control officer, in total tons • CPR = $9,011/ton of PM_{10} <u>Operational Fee:</u> **NO_x** $$NOxOF = \sum_{i=1}^{n} \left[\left(\frac{NEB_i \times 7.5}{3} \right) - (NEB_i \times 7.5 \times NAPOR_i) \right] \times CNR_i$$ Where: • NO_x OF = Operational NO_x Off-Site Fee, in dollars • i = each phase • n = last phase • NEB = Estimated Baseline Emissions of Operational NO_x as documented in approved AIA application, in tons per year • NAPOR = NO_x Actual Percent of On-Site Reductions, as documented in approved AIA application, as a fraction of one, calculated as (NEB-NO_x Mitigated Baseline)/NEB • CNR = $9,350/ton of NO_x **PM_{10}** $$PM10OF = \sum_{i=1}^{n} [(PMMB - 0.5PEB_i)(10)] \times CPR_i$$ Where: • PM_{10} OF = Operational PM Off-Site Fee, in dollars • i = each phase	

	• n = last phase • PEB = Estimated Baseline Emissions of Operational PM_{10} as documented in approved AIA application, in tons per year • PMMB = Mitigated Baseline Emissions, as documented in approved AIA application, in tons per year • CPR = \$9,011/ton of PM_{10}	
Option to transfer emissions reduction obligation	There is no option to transfer an emissions reduction obligation.	Operators can: • Transfer points between warehouses operated by the same warehouse operator. Only points earned in excess of an operator's obligation at one site can be transferred to another site. • Transfer points to a subsequent compliance period at the same warehouse if the operator can demonstrate that equipment/operations that led to points earned in excess of operator's obligation are ongoing, and the equipment/operations will not be required by regulation in the subsequent year. • Transfer points from facility/landowner at a site to the site operator.
Reporting requirement for facility owner/ operator	Upon submission of development application, the applicant must provide a monitoring and reporting schedule that includes: • A list of on-site emission reduction measures • Standards for determining compliance, such as funding, record keeping, reporting, installation, and/or contracting • A reporting schedule • A monitoring schedule • Identification of the responsible entity for implementation • Provisions for failure to comply • Applicants proposing on-site emission reduction measures that require ongoing funding shall provide evidence of continued funding (including, but not limited to, bonds, community service districts, or contracts) • Timeline for submitting a construction equipment schedule	Annual WAIRE Report due no more than 30 calendar days after January 1, beginning with the Initial Reporting Date [January 31, 2023 if ≥ 250,000 sq. ft.; January 31, 2024 if ≥ 150,000 sq. ft.; January 31, 2025 if ≥ 100,000 sq. ft.]. The Annual WAIRE Report, in accordance with WAIRE Program Implementation Guidelines, shall include the information necessary to demonstrate how the warehouse operator satisfied their WPCO in the preceding compliance period.
Determining compliance	District shall provide a standardized Monitoring and Reporting Schedule (MRS) format. Applicant shall include in AIA a completed proposed MRS for on-site emissions reduction measures not subject to other public agency enforcement, a timeline for submitting a construction equipment schedule, and standards for determining compliance.	Compliance period is January 1 to December 31 of a given year. WAIRE points purchased via mitigation fees (\$1,000 per point) must be paid by this deadline. Determination of whether an operator complied with their WPCO is determined at the end of each calendar year.



Appendix B. Authority to Adopt ISR Programs under Federal and State Law

Appendix B. Authority to Adopt ISR Programs under Federal and State Law

ISR litigation in the San Joaquin Valley (Rules 9510 and 3180) and Southern California (Rules 2305 and 316) provides greater clarity over an air district's authority to design and implement such a program. In general, challenges to California rulemaking include allegations that a regulation is (1) unconstitutional under the federal or state constitution, (2) preempted by federal or state law, (3) preempted by federal regulation, (4) not authorized by state law, (5) an unconstitutional regulatory taking, (6) void for vagueness, or (7) an unconstitutional tax under California Proposition 26. Here, we focus on recent claims that ISR programs were preempted, were not authorized by state law, and constituted an unconstitutional tax.

Not Preempted. First, we consider preemption under federal and state law. The CAA requires states to adopt a State Implementation Plan ("SIP") in order to meet ambient air quality standards (NAAQS) that are designed to protect human health.[369] NAAQS include, among others, standards related to nitrogen oxides and particulate matter, specifically PM_{10} and $PM_{2.5}$. The State of California created the California Air Resources Board (CARB) and empowered it to develop California's SIP.[370] The SIP includes measures to control emissions of nitrogen oxides and particulate matter.[371] In turn, regional air districts have authority to regulate indirect sources of emissions.[372] Indirect sources are neither stationary sources nor mobile sources, but are facilities that by their nature "attract[], or may attract, mobile sources of pollution."[373] While the CAA does not prohibit states from undertaking regulation of indirect sources, it does prohibit states from enforcing "any [state] standard relating to the control of emissions from new motor vehicles or new motor vehicles engines."[374]

The Supreme Court considered the meaning of "standard" under the CAA. It found that "standard" is used in the CAA "to denote requirements such as numerical emission levels with which vehicles or engines must comply,…or emission-control technology with which they must be equipped."[375] Further, CAA's prohibition on states enforcing a "standard relating to emissions" concerns attempts to enforce against purchasers of vehicles, not just manufacturers.[376] At issue in the case were six rules, known as "Fleet Rules," that SCAQMD promulgated, some of which regulated how many ZE/NZE vehicles certain businesses were required to purchase as a percentage of overall fleet purchasing.[377] After determining the meaning of "standard" in light of the CAA, the Supreme Court speculated that at least some of the Fleet Rules were therefore preempted by Section 7543(a),[378] though it remanded for further proceedings.[379] "[I]t appears likely that at least certain aspects of the Fleet Rules are pre-empted. For example, the district may have attempted to enforce…standards when, in Rule 1194, it required 50% of new passenger-car and medium-duty vehicle purchases by private airport-shuttle van operators to 'meet…emission[s] standards.'"[380]

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[369] 42 U.S.C. § 7410(a)(1).
[370] Cal. Health & Safety Code § 39602.5.
[371] *South Coast Air Basin and Coachella Valley Air Quality Plans*, CALIFORNIA AIR RESOURCES BOARD, https://ww2.arb.ca.gov/our-work/programs/california-state-implementation-plans/nonattainment-area-plans/south-coast-air.
[372] Cal. Health & Safety Code § 40440(a)(3).
[373] 42 U.S.C. § 7410(a)(5)(C).
[374] 42 U.S.C. § 7543(a).
[375] *Engine Mfrs. Ass'n v. S. Coast Air Quality Mgmt. Dist.*, 541 U.S. 246, 253 (2004).
[376] *Id.* at 252.
[377] *Id.* at 258.
[378] *Id.*
[379] On remand, the District Court found that the Fleet Rules, as applied to state and local governments, fell within the market participant doctrine, and therefore denied the plaintiff Engine Manufacturers Association's motion arguing that the fleet rules were pre-empted. *Engine Mfrs. Ass'n v. S. Coast Air Quality Mgmt. Dist.*, No. CV00-09065FMC(BQRX), 2005 WL 1163437 (C.D. Cal. May 5, 2005). This was partially affirmed and partially overruled on appeal, when the Ninth Circuit required the District Court to examine preemption of the remainder of the Fleet Rules' provisions, not just those that pertain to state and local governments. *Engine Mfrs. Ass'n v. S. Coast Air Quality Mgmt. Dist.*, 498 F.3d 1031 (9th Cir. 2007).
[380] 541 U.S. at 258 (internal citation omitted).

While *Engine Manufacturers* did not concern an indirect source rule, case law does address whether indirect source regulation is preempted by the Clean Air Act. In *National Association of Home Builders v. San Joaquin Valley Unified Air Pollution Control District* (hereinafter "*NAHB*"), a construction industry association challenged the air district's ISR regulatory program under Rule 9510.[381] The district's rule measured a "baseline" level of construction equipment emissions at a particular site and required developers to effectuate a 20% reduction in NO_x emissions and a 45% reduction in PM_{10} emissions during construction.[382] Developers submit information to the air district to show that the site will meet those emissions reduction targets, or they can reduce emissions using add-on controls, cleaner fuels, or more advanced equipment.[383] In the alternative, a developer can pay a fee that the air district uses to fund emissions reduction in other areas within the region.[384] The Ninth Circuit in *NAHB* held that the indirect source rules were not preempted by CAA, which states that ISR does not include regulating "Direct emissions sources or facilities at, within, or associated with, any indirect source."[385] NAHB claimed that this limitation prevented an ISR program from targeting mobile sources, such as construction equipment, on the property.[386] While construction vehicles implicated by the rules were themselves direct sources, the rules targeted development sites wherein construction vehicles operated. The court reasoned, "[e]missions from any indirect source come from the direct sources located there; that is precisely what makes an indirect source indirect."[387] Similarly, the Ninth Circuit held that the preemption provision in question only limited authority "apart from the program's regulation of an indirect source."[388] The court observed that "regulation of emissions from an indirect source necessarily regulates emissions from direct sources."[389] To read Section 7543(a) of the CAA as plaintiff intended – that is, to prohibit any regulatory effect on direct sources while they are operating at an indirect source – would prevent the development of any ISR program.[390]

In Southern California, after the WAIRE program was adopted under Rule 2305, the California Trucking Association (CTA) filed a complaint in August 2021. CTA challenged SCAQMD's authority to adopt an ISR program by regulation. Similar to *NAHB*, the complaint in *California Trucking Association v. SCAQMD et al.* (hereinafter "*CTA*") alleged that Rule 2305 was preempted by the CAA in that it constituted a "standard" that required trucking fleets to purchase certain vehicles, in violation of CAA Section 209(a).[391] The WAIRE program survived preemption. The court relied on case law which held that a "standard" is created if it "effectively compels a particular course of action."[392] In contrast, many warehouse operators under Rule 2305 satisfied their compliance obligation "through methods related to ZE and NZE trucks" while others "did not."[393] The court's argument echoed prior reasoning by the Supreme Court that a rule which makes certain options "more attractive (or less unattractive)" differs from a mandate, and therefore avoids preemption.[394] Similar reasoning should be applied during ISR program design to ensure that it does not establish a "de facto mandate" for, *inter alia*, a fuel economy standard for delivery vehicles or use of an engine technology that requires purchase of certain vehicle

[381] *National Ass'n of Home Builders v. San Joaquin Valley Unified Air Pollution Control Dist.*, 627 F.3d 730 (9th Cir. 2010).
[382] *Id.* at 732-33.
[383] *Id.*
[384] *Id.*
[385] 627 F.3d 730 (9th Cir. 2010); s*ee* 42 U.S.C. § 7410(a)(5)(C).
[386] *Id*. at 736.
[387] *Id.*
[388] *Id.*
[389] *Id.*
[390] *Id.*
[391] Complaint, California Trucking Association v. South Coast Air Quality Management District et al. No. LA CV21-06341 (C.D. Cal., Aug. 5, 2021).
[392] Ass'n of Taxicab Operators USA v. City of Dallas, 720 F.3d 534, 540-42 (5th Cir. 2013). *See also* Metro. Taxicab Bd. of Trade v. City of New York, 633 F. Supp. 2d 83, 95 (S.D.N.Y. 2009) (finding that a state law in a federal area of regulation is preempted if it "effectively mandates a specific, preempted outcome.").
[393] Minute Order at 16, California Trucking Association v. South Coast Air Quality Management District et al.
[394] New York State Conf. of Blue Cross & Blue Shield Plans v. Travelers Ins. Co., 514 U.S. 645, 668 (1995) (considering preemption under the Employee Retirement Income Security Act).

types. Such requirements could trigger a preemption challenge under the Energy Policy and Conservation Act.[395]

Whether an ISR program is preempted by federal or state law, according to *NAHB* and *CTA* as well as prior precedent, depends on where the program falls along a continuum. For example, under *NAHB*, allowing for compliance with emissions reduction requirements at an indirect source site through add-on controls, cleaner fuels, more advanced equipment, or a fee directly tied to emissions reductions elsewhere in an air basin is permitted. Under *CTA*, providing for acquisition of ZE or NZE vehicles as one among a number of compliance options for meeting a warehouse operator's annual Points Burden is distinct from requiring them to purchase certain vehicles. This allowed Rule 2305 to escape being considered a "standard relating to emissions" under CAA Section 209(a).

However, in *Engine Manufacturers*, the Supreme Court did not directly weigh in on the validity of the regulation at issue in the case. It merely interpreted the meaning of "standard" under the relevant section of the CAA. One might argue that if an ISR program functionally left only one compliance option available to warehouse operators, then it would more likely be considered a "standard relating to emissions." Thus, future ISRs should avoid creating levels of stringency that can only be satisfied via a single compliance option, such as effectively compelling the purchase or use of a certain vehicle. This is not to say that an ISR must avoid privileging one form of compliance mechanism over another. As noted by the Ninth Circuit in *NAHB*, ISR programs necessarily regulate emissions from direct sources; if the CAA were read to preempt the regulation of, say, mobile sources while operating at an indirect source, then no ISR program could exist, which would contravene the intent of the statute.

CTA provides further guidance in terms of whether an ISR program would be preempted under the Federal Aviation Administration Authorization Act (FAAAA), which prohibits state or local laws or regulations from "having the force or effect of law related to a price, route, or service of any motor carrier…with respect to the transportation of property."[396] ISR programs that regulate warehouse owners and operators are less likely to trigger FAAAA preemption than rules that address freight companies. California Trucking Association argued otherwise in *CTA*; they tried to show that the WAIRE program under Rule 2305 "would impact contractual relationships between motor carriers and good owners/warehouses," thereby affecting "contracted routes, distribution channels, and pricing." The court rejected this argument, noting that Rule 2305 did not include express reference to "services, rates, or routes" and indirectly regulated a carrier's trucks as among the economic inputs used by those businesses, rather than their relationships with customers. Importantly, the court added that FAAAA does not interfere with the balance of authority over pollution control set forth in the CAA.

The most certain approach for an air district to avoid CAA preemption of an ISR program is to seek federal enforcement of the rule by including it in an EPA-approved State Implementation Plan (SIP). SCAQMD submitted such a revision to include the WAIRE program in California's SIP; upon approval by EPA in September 2024, the rule is no longer subject to federal preemption under the CAA.[397]

Authorized by State Law. The California State Legislature, in designing its statutory and regulatory scheme for air quality regulation, declared that "local and regional authorities have the primary responsibility for control of air pollution from all sources, other than emissions from motor vehicles."[398] The control of emissions from motor vehicles, except as otherwise provided by the legislature, is the responsibility of the California Air Resources Board.[399] At the same time, regional air districts adopt

[395] 49 U.S.C. § 32919(a).
[396] 49 U.S.C. § 14501(c)(1).
[397] Air Plan Approval; California; South Coast Air Quality Management District, 89 Fed. Reg. 73568 (Sept. 11, 2024).
[398] Cal. Health & Safety Code § 40000.
[399] *Id.*

rules and regulations to carry out the California State Implementation Plan. In *CAT*, plaintiffs argued that SCAQMD's Rule 2305 lacked sufficient support in state law.[400] This was in part based on plaintiff's claim that the rule was preempted by the CAA.[401] The court found that the ISR program was not preempted by the CAA. In addition, under the California Health and Safety Code, air districts have the authority to promulgate ISR programs - including rules to "reduce or mitigate emissions from indirect and areawide sources of air pollution" In a given air basin.[402]

In addition, plaintiff in *CAT* argued that California state law, including Health and Safety Code Section 40414, prevents an air district from adopting an ISR program.[403] The argument was that regulations may not "infringe[] on the existing authority of counties and cities to plan or control land use" and do not "provide[] or transfer[] new authority over such land use to" an air district.[404] However, while warehousing is a land use, ISR programs do not regulate where they can be situated, nor do they limit the number of warehouses or their square footage within an air basin. In that respect, they do not "plan or control" land use in violation the first clause of Section 40414. Nor do ISR programs constitute an exercise of "new authority" over land use that is either provided or transferred to an air district under Section 40414.

Plaintiff in *CAT* also claimed that Rule 2305, because it applies to warehouses that are operated within the South Coast air basin, regardless of when they were built, runs afoul of the definition of ISR programs under the CAA, which they claimed is limited to new or modified sources.[405] This is incorrect. The CAA states that such rules "include" regulation of new and modified indirect sources: "Nothing in the text, structure, or purpose of the indirect source review provision suggests that this phrase limits indirect sources reviews to those based on new and modified indirect sources."[406] While the CAA definition may limit EPA in its enforcement of an ISR program,[407] it does not prevent a state from adopting one that goes beyond "new" sources. State law authorizes the adoption of an ISR program akin to SCAQMD Rule 2305, which applies to existing sources, or SJVUAPCD Rule 9510, which applies to new or modified sources.

Not an Unconstitutional Tax. ISR programs such as Rules 2305 and 9510 are paired with rules that govern the design, collection, and use of mitigation fees as a compliance mechanism. In the South Coast, Rule 316 is the companion to Rule 2305. In *CAT*, plaintiff claimed that Rule 316 amounts to an unconstitutional tax under California Proposition 26. Proposition 26 placed limits on the ability of local governments to impose a tax.[408] For example, local governments must first provide for electoral approval of a new tax. There are both written and unwritten exceptions to this requirement. Most notably, "[a] charge imposed for a specific benefit conferred or privilege granted directly to the payor that is not provided to those not charged, and which does not exceed the reasonable costs to the local government of conferring the benefit or granting the privilege" is not a tax.[409] This exception does not apply to mitigation fees under an ISR program, given that emissions do not constitute a benefit conferred or privilege granted to the payor of a mitigation fee under a rule akin to Rule 316.

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[400] Complaint, California Trucking Association v. South Coast Air Quality Management District et al. No. LA CV21-06341 (C.D. Cal., Aug. 5, 2021) at ¶ 103-11.
[401] *Id.* at ¶ 104-05.
[402] Cal. Health & Safety Code § 40716.
[403] *Id.* at ¶ 108-11.
[404] *Id.* at ¶ 108.
[405] *Id.* at ¶ 109.
[406] Order Re: Plaintiff's Motion for Summary Judgment as to Plaintiff's Complaint for Declaratory Judgment and Injunctive Relief, California Trucking Association v. South Coast Air Quality Management District et al. No. LA CV21-06341 (C.D. Cal., Dec. 14, 2023) at 28.
[407] 42 U.S.C. § 7410(a)(5)(A)(i) ("The Administrator may approve and enforce, as part of an applicable implementation program, an indirect source review program which the State chooses to adopt and submit as part of its plan").
[408] Defined as: "any county, city, city and county, including a charter city or county, any special district, or any other local or regional governmental entity." Cal. Const. art. 13C, § 1(b).
[409] Cal. Const. art. 13C, § 1(e)(1).

Unwritten exceptions to Proposition 26 are known as "regulatory fees."[410] Regulatory fees are not taxes, provided "(1) the amount of the fee does not exceed the reasonable costs of providing the services for which it is charged, (2) the fee is not levied for unrelated revenue purposes, and (3) the amount of the fee bears a reasonable relationship to the burdens created by the feepayers' activities or operations."[411] The text of Rule 316 provides for the administration and use of monies received from payment of a mitigation fee (in lieu of earning points to satisfy Rule 2305's Points Burden).[412] In the final combined staff report on Rules 2305 and 316, district staff made clear that funds obtained by the air district through mitigation fees would be used through future solicitations and California Air Resources Board actions to provide incentives for the purchase of ZE and NZE trucks as well as ZE charging and fueling infrastructure in communities near warehouses that paid the fee.[413] The mitigation fee was not levied for unrelated revenue generation. In addition, the final draft staff report on Rules 2350 and 316 noted that the mitigation fee was set at $1000 per point "to achieve approximately the same level of compliance as other options in the WAIRE Menu in any one year."[414]

Air district staff reasoned that "the mitigation fee cost of $1000 per WAIRE point is designed to be within the range of the cost of WAIRE menu actions and investments for warehouse operators in any one year, though some options such as getting NZE/ZE truck visits would be cheaper and options such as installing a fueling station may be more expensive."[415] This language, which is used throughout the report, demonstrates that mitigation fees do not exceed the reasonable costs of providing the services for which they are charged. The amount of the mitigation fee bears a reasonable relationship to the burdens created by a warehouse operator's activities. A similarly designed mitigation fee option will survive a challenge based on Proposition 26 – it would be considered a valid regulatory fee under prior case law.

[410] *California Bldg. Indus. Ass'n v. State Water Res. Control Bd.*, 416 P.3d 53, 62 (2018) ("We held that [the California Constitution and Proposition 26] do[ ] not restrict the state's authority to impose a bona fide regulatory fee.").
[411] *Id.*
[412] Rules of the South Coast Air Quality Management District, Rule 316.
[413] *Final Draft Staff Report on Rules 2305 and 316*, SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 1, 5, 155 (2021).
[414] *Id.* at 678.
[415] *Id.* at 689.

Appendix C. California Warehouse Planning and Design Legislation (2021-2024)

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	A.B. 1547, 2021-2022 Leg., Reg. Sess. (Cal. 2021) (died Jan. 31 2022)	A.B. 1000, 2023-2024 Leg., Reg. Sess. (Cal. 2023) (died Jan. 31, 2024)	A.B. 98, 2023-2024 Leg., Reg. Sess. (Cal. 2024) (signed by Governor)
To be amended	Cal Gov Code Title 7, Div. 1, Ch. 2.8, beginning with § 65098 (act would add Ch. 2.8). Amend Cal. Health & Safety Code § 39602.5.	Cal Gov Code Title 7, Div. 1, Ch. 2.8, beginning with § 65098 (act would add Ch. 2.8; "Good Neighbor Policy").	Cal Gov Code Title 7, Div. 1, Ch. 2.8, beginning with § 65098 (act would add Ch. 2.8 and 65302.02). Add §§ 40458.5 and 40522.7 to Cal. Health & Safety Code relating to Land Use.
Regulatory focus/regulating entity	Zoning, land use planning, and development of warehouse projects; regulatory bodies governing air pollution from indirect sources (non-vehicular).	Development project permit applications; no state regulatory agency specified for enforcement.	Air pollution and environmental harm; regulatory bodies governing land use and development.
Purpose of proposed legislation/ amended regulatory language re: air quality and assessment	Air pollution from indirect sources (non-vehicular) to be regulated by CARB rather than local air pollution control and air quality management districts. Amend § 39602.5: (a) The state board shall adopt rules and regulations . . . [that] will achieve [and maintain] ambient air quality standards required by the federal Clean Air Act in all areas of the state. The state board shall adopt these measures if they are necessary, technologically feasible, and cost effective. (b) If necessary . . . the state board shall adopt and enforce rules and regulations that anticipate the development of new technologies or the improvement of existing technologies.	A special statute [related to development permit applications] is necessary because of the significant need to protect homes, schools, daycare facilities, and other sensitive receptors in the Counties of Riverside and San Bernardino from potential harm created by large warehouses and other logistics uses.	South Coast Air Quality Management District must: (1) establish a process for receiving community input on how any penalties would be assessed and collected for violation of the "Warehouse indirect Source Rule." (2) Beginning January 1, 2026, and continuing until January 1, 2032, deploy mobile air monitoring systems within the Counties of Riverside and San Bernardino to collect air pollution measurements in communities near operational logistics use developments. (3) Use data collected to conduct an air modeling analysis to evaluate the impact of air pollution on sensitive receptors from logistics use development operations; submit findings to Legislature on or before January 1, 2033. (4) Submit an interim report to Legislature on or before January 1, 2028. § 40522.7 is added to the Health and Safety Code, to read: The South Coast District shall establish a process for receiving community input on how any penalties assessed and collected for violations of the Warehouse Indirect Source Rule are spent…

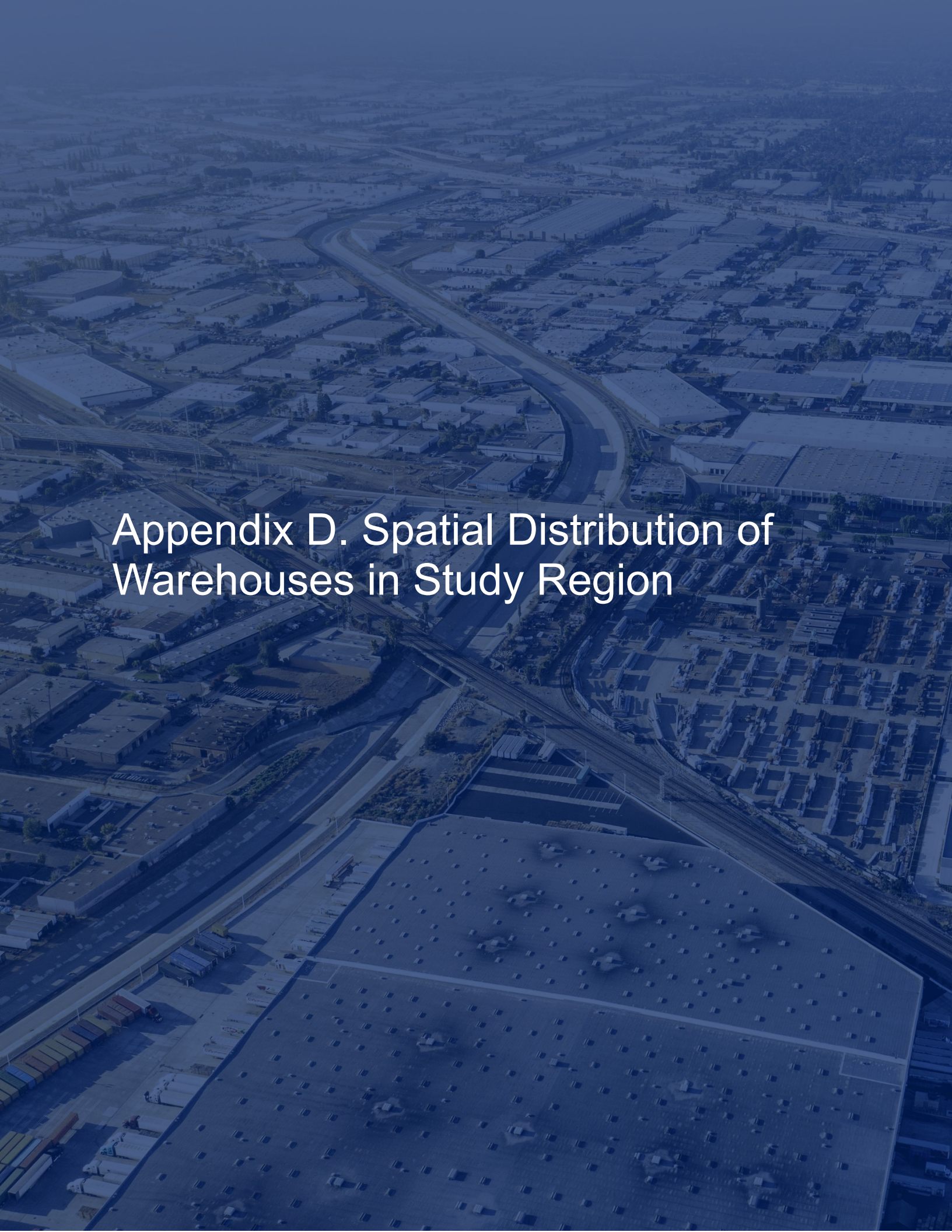
"Public agency"	A city, county, city and county, and subdivisions of those entities, including any agencies of the city, county, or city and county.	County of Riverside; County of San Bernardino; any city located with those counties; any agency, board, commission, charter city, joint powers authority, regional agency, public district, redevelopment agency, and any other political subdivision located within those counties.	--
"Warehouse concentration region"	--	--	Counties of Riverside and San Bernardino and the Cities of Chino, Colton, Fontana, Jurupa Valley, Moreno Valley, Ontario, Perris, Rancho Cucamonga, Redlands, Rialto, Riverside, and San Bernardino.
"Logistics use"	--	Any land use for the movement or storage of cargo, goods, or products for later distribution to business or retail customers, including any land use serving heavy-duty vehicles involved in such movement of cargo, goods, or products.	A building in which cargo, goods, or products are moved or stored for later distribution to business or retail customers, or both, that does not predominantly serve retail customers for onsite purchases, and heavy-duty trucks are primarily involved in the movement of the cargo, goods, or products. "Logistics use" does not include any of the following: (1) Facilities where food or household goods are sold directly to consumers and are accessible to the public. (2) A building primarily served by rail to move cargo goods or product. (3) A Strategic Intermodal Facility (facilities served by rail, intermodal freight transport services, or all facility structures and related rail operations that are located within a single site footprint).
"Qualifying logistics use" size requirement	--	100,000 or more square feet of building space.	250,000 or more square feet.
"Development or expansion"	--	Development or expansion means: (a) development of any qualifying logistics use; (b) expansion of any qualifying logistics use; or (c) expansion of any existing logistics use, where the logistics use after the expansion would be a qualifying logistics use.	Expansion of an existing logistics use means the expansion of an existing logistics use by 20 percent or more of the existing square footage. Office space shall not be included as part of the existing square footage or in the square footage for the 20-percent expansion threshold.
"Sensitive receptor"	--	(1) A residence, including, but not limited to, a private home, apartment, condominium unit, group home, dormitory unit, retirement home, or shelter.	(1) A residence, including, but not limited to, a private home, apartment, condominium unit, group home, dormitory unit, or retirement home.

		(2) A school, including, but not limited to, a preschool, prekindergarten, or school maintaining kindergarten or any of grades 1 to 12, inclusive. (3) A daycare facility, including, but not limited to, in-home daycare. (4) A healthcare facility, including, but not limited to, any hospital, medical clinic, community clinic, medical center, nursing home, long-term care facility, hospice, convalescent facility, or similar live-in housing. (5) A community center. (6) An established community place of worship. (7) An incarceration facility, including, but not limited to, a prison or jail. (8) A public playground, public recreation field, or public recreation center.	(2) A school, including, but not limited to, a preschool, prekindergarten, or school maintaining kindergarten or any of grades 1 to 12, inclusive. (3) A daycare facility, including, but not limited to, in-home daycare. (4) Publicly owned parks, playgrounds, and recreational areas or facilities primarily used by children, unless the development of the park and recreation areas are included as a condition of approval for the development of a logistics use. (5) Nursing homes, long-term care facilities, hospices, convalescent facilities, or similar live-in housing. (6) Hospitals, as defined in Section 128700 of the Health and Safety Code.
"Buffer zone" - distance between logistics use and sensitive receptor that can trigger requirements	3,000 yards.	1,000 feet, unless certain requirements are met relating to energy efficiency and offsetting environmental impact. In such cases, the public agency may approve a site for a logistics use development or expansion that is between 501 and 1000 feet from any sensitive receptor.	900 feet, plus a buffer zone of 50 feet in width measured from the property line for all adjacent sensitive receptors if zoned industrial, or 100 feet if not zoned industrial. 900 feet, with certain requirements relating to energy efficiency and offsetting environmental impact determined by existing zoning.
Zero-emission target date	--	December 31, 2028.	January 1, 2028 or January 1, 2030 (depending on specific logistics use requirement).
Equipment power requirements	All equipment must be powered by electricity.	All equipment must be zero-emission, with necessary charging or fueling stations provided at the logistics use.	Power requirements depend on facility type, size, and zoning; must be at least the cleanest technology feasible. Minimum requirements for qualifying logistics uses include: (1) Complies with or exceeds all requirements of the most current building energy efficiency standards specified in Part 6 of Title 24 of the California Code of Regulations and the California Green Building Standards Code. (2) Has skylights in at least 1 percent of the roof area or equivalent LED efficient lighting.

			(3) Provides conduits and electrical hookups at all loading bays serving cold storage. Idling or use of auxiliary truck engine power to power climate control equipment shall be prohibited if the truck is capable of plugging in at the loading bay. (4) Ensures that any heating, ventilation, and air-conditioning is high-efficiency. (5) Ensures that all forklifts used on site shall be zero-emission by January 1, 2030, to the extent operationally feasible, commercially off-the-shelf available, and adequate power available on site. Cost shall not be a factor in determining operational feasibility. (6) Ensures that equipment used on site utilizing small off-road engines shall be zero-emission, to the extent operationally feasible, commercially off-the-shelf available, and adequate power available on site. Cost shall not be a factor in determining operational feasibility.
Vehicles regulated	On-site vehicles (equipment) and off-road construction equipment.	Medium-duty and heavy-duty vehicles.	Small off-road engines, medium-duty and heavy-duty vehicles.
Cold storage facility & truck requirements	Loading and unloading docks and trailer spaces must provide electrical connections to provide power to trucks.	Logistics uses must construct electric plugs for electric transport refrigeration units at every dock door and truck operators with transport refrigeration units must use the electric plugs when at loading docks. Truck operators must turn off engine when not in use.	Logistics uses must provide conduits at loading bays equal to one truck per every loading bay serving cold storage. Idling or use of auxiliary truck engine power to power climate control equipment shall be prohibited if the truck is capable of plugging in at the loading bay.
Truck idle time requirements	--	Onsite and offsite: No more than five minutes.	Onsite: No more than three minutes by heavy-duty trucks.
On-site v. off-site equipment differences	On-site equipment must be electricity-powered; off-road equipment used in development must meet Cal. Tier 4 emissions standards.	On-site must be zero-emission by 2028; all off-road construction equipment used for the warehouse development project shall be zero emission, where available, or hybrid electric-diesel and all diesel-fueled off-road construction equipment to be equipped with State Air Resources Board Tier 4 engines.	--
Limitations on truck use	--	Logistics uses must utilize, or require tenants to utilize, a clean fleet of medium-duty vehicles. All heavy-duty vehicles housed onsite must be model 2014 or later from start of operations; fleet must be fully zero-emission by:	Heavy-duty diesel truck drive aisles shall be prohibited from being used on sides of the building that are directly adjacent to a sensitive receptor property line.

		(1) December 31, 2028, or (2) when commercially available, whichever is later.	
Environmental or community impact offset requirements	--	Logistics use must install solar photovoltaic systems and companion battery storage on the project site of a specified electrical generation capacity that is equal to or greater than the building's projected energy needs, including all electrical chargers and designing all project building roofs to accommodate the maximum future coverage of solar panels and installing the maximum solar power generation capacity feasible. A project site may satisfy this requirement by installing a community renewable energy project that provides broader grid and community-based benefits.	Logistics use approval is conditioned on: (a) Two-to-one replacement of any demolished housing unit that was occupied within the last 10 years, unless the housing unit was declared substandard by a building official prior to purchase by the developer. For each housing unit demolished, regardless of market value of the unit, two units of affordable housing for persons and families of low or moderate income that are deed-restricted shall be built within the jurisdiction. Funds from any fee imposed for the replacement of demolished housing units shall be placed in a housing-specific set-aside account and shall be used for housing within three years of collection. (b) If residential dwellings are affected through purchase, the developer shall be required to provide any displaced tenant with an amount equivalent to 12 months' rent at the current rate.
Logistics use owner / developer obligations during development phase	(1) Develop a written community benefits agreement that affected residents or representative community groups may elect to sign, which must at least plan to address zero-emission trucks, private shuttle services, regional delivery, last mile delivery, and waste hauling. (2) Develop a written construction careers agreement that affected residents or representative community groups may elect to sign. The agreement must at least include provisions for requiring all construction work be done by a skilled and trained workforce and guarantee a set percentage of jobs for local residents. (3) Post a prominent notice on the project site with a brief description of the project and information on accessing the notices provided by the public agency.	--	(1) Establish and submit for approval to the planning director or equivalent for the city/county, a truck routing plan to and from the state highway system. It must include, but is not limited to, hours of operation, types of items to be stored within the building, and proposed truck routing to and from the facility to designated truck routes that, to the greatest extent possible, avoid passing sensitive receptors. The truck routing plan shall include measures, such as signage and pavement markings, queuing analysis, and enforcement, for preventing truck queuing, circling, stopping, and parking on public streets. The facility operator shall be responsible for enforcement of the truck routing plan. (2) Must meet two-to-one housing replacement requirement and/or provide displaced tenants with amount equivalent to 12 months' rent at current rate.
General obligations of a city, county, public agency, or other permitting body	(1) Prior to approval, conduct a cumulative analysis of the air quality impacts of the warehouse development. (2) Require that project applicant develop written community benefits agreement and written construction careers agreement.	(1) Approve a logistics use between 501 and 1,000 feet of a sensitive receptor only after it confirms the logistics use meets the additional specified requirements related to environmental impact.	(1) A city, county, or city and county must update its circulation element to include truck routes on or before January 1, 2028. All cities within the warehouse concentration region must update their circulation element to include truck routes on or before January 1, 2026.

	(3) Require the applicant hold a series of community meetings with affected residents or representative community groups and incorporate consideration of those inputs into the project design. (4) Require project applicant post a prominent notice on project site. (5) Post accessible information on its website that is easily accessible and understandable, which includes a project description with maps and design renderings. (6) Mail or deliver a notice with a description of the project to all property owners and occupants within 3,000 yards of project site and all schools within 2 miles of project site. (7) Conduct at least one scoping meeting at a location within one mile of the project site, between the hours of 5pm-8pm if on a weekday, and take public comments regarding the potential environmental impacts of the project.		(2) The updates to the circulation element must: (a) Identify and establish specific travel routes to safely accommodate additional truck traffic and avoid residential areas and sensitive receptors. (b) Maximize the use of interstate or state divided highways as preferred routes for truck routes, as well as arterial roads, major thoroughfares, and predominantly commercially oriented local streets. (3) In regard to a truck routing plan, the planning director must determine if changes are necessary or if the plan is sufficient for approval. (4) A city or county shall hold a public hearing and shall make a diligent effort to achieve public participation of all economic segments of the community in the development of the changes during the required hearing process. (5) An approving entity must condition approval of a logistics use on two-to-one housing replacement and financial support to displaced tenants.
Enforcement	--	--	California Attorney General can issue a fine of up to $50,000 for every 6 months that a local entity is not in compliance with these requirements. Fines are collected and distributed by the AG, to be returned to the local air quality management district in which the fine was imposed and used for the district's efforts to improve air quality.



Appendix D. Spatial Distribution of Warehouses in Study Region

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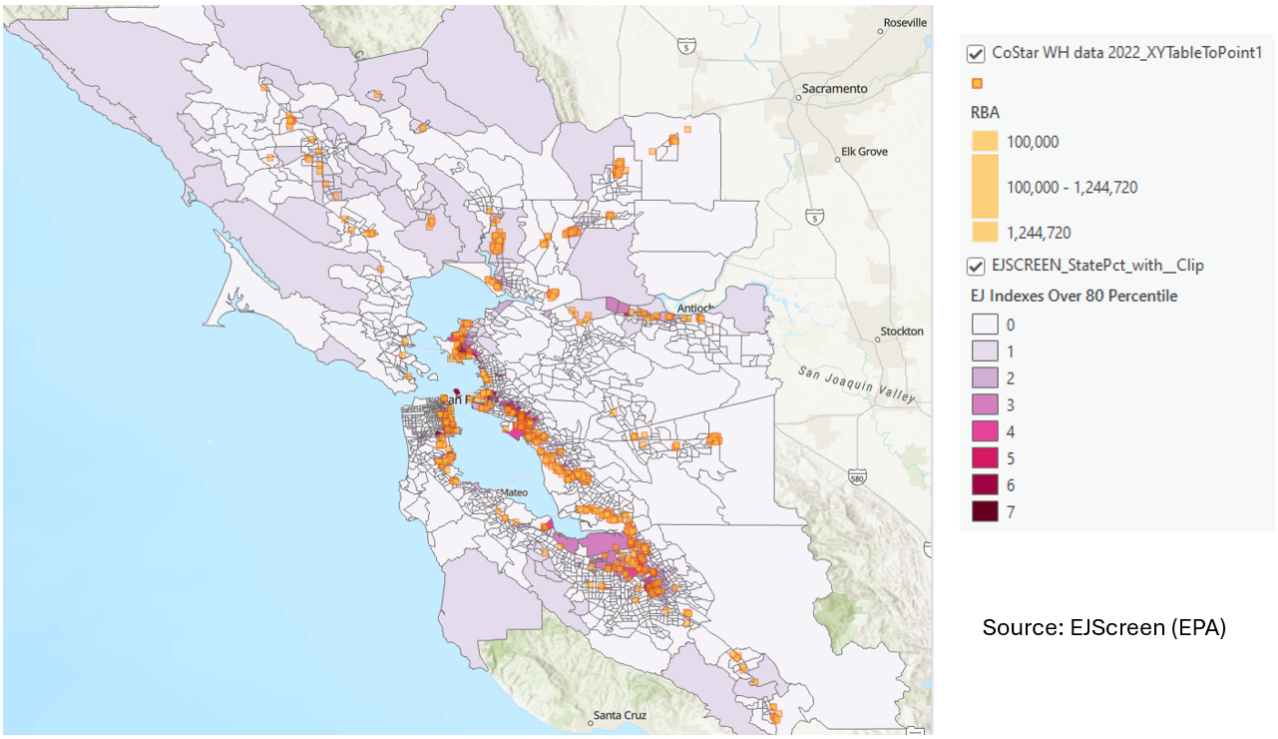
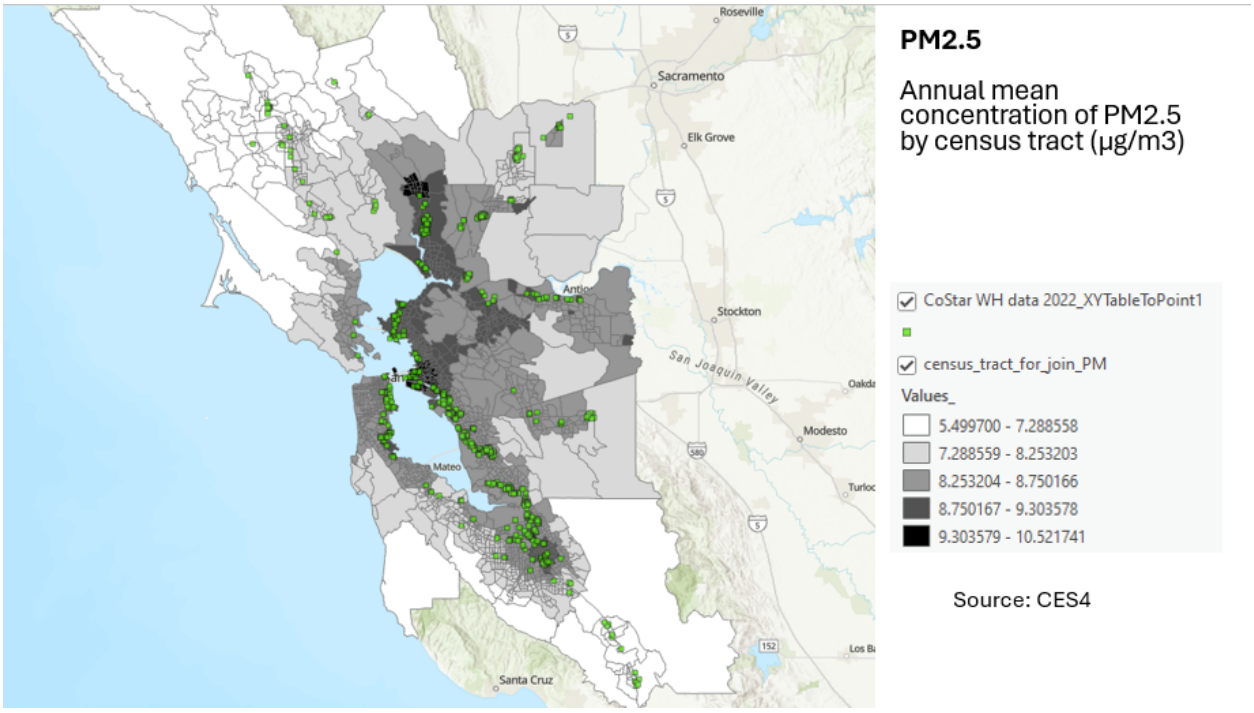
Figure 8. Spatial Distribution of Rentable Building Area and EPA EJScreen Percentiles, Bay Area.



Source: EJScreen (EPA)

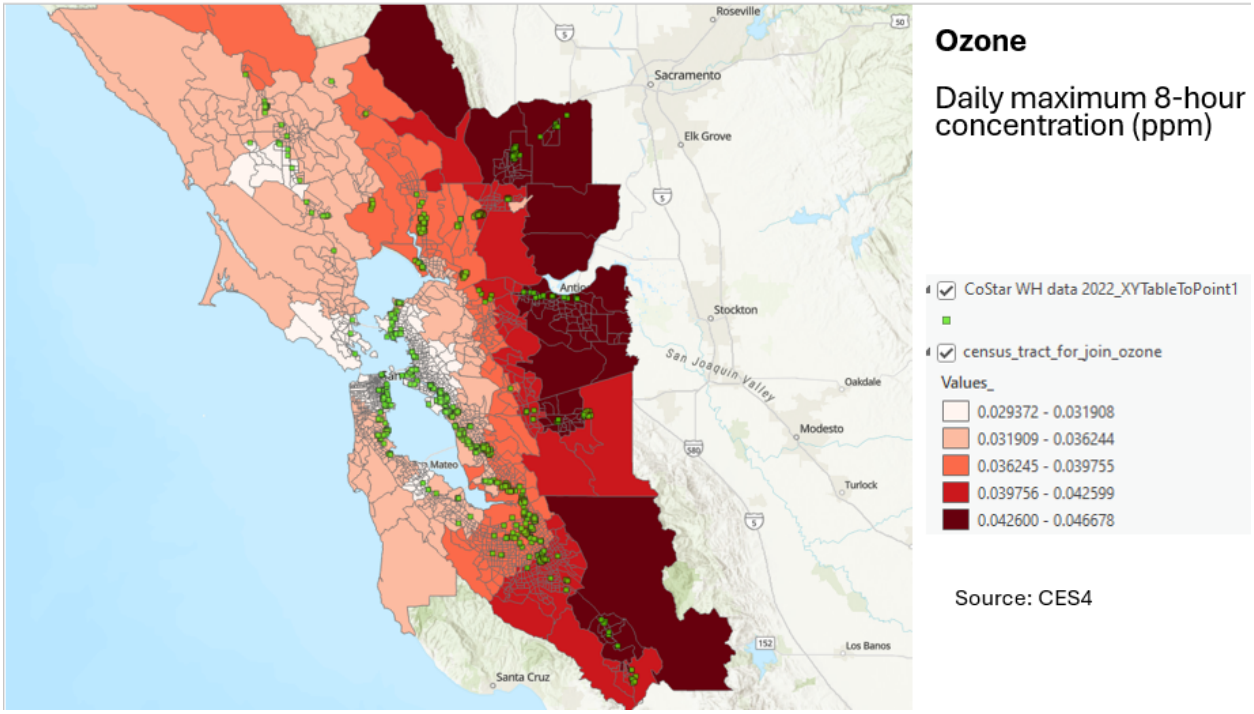
*EPA EJScreen indices include traffic proximity and volume, respiratory hazards due to air toxics, and PM concentrations.

Figure 9. Distribution of Warehouses and $PM_{2.5}$ Annual Mean Concentration by Census Tract.



*Source: Co-Star and CalEnviroScreen 4.0.

Figure 10. Distribution of Warehouses and Ozone Daily Maximum 8-hour Concentration by Census Tract.



*Source: Co-Star and CalEnviroScreen 4.0.

UC Irvine Law
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