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The Invisible Danger in Plain Site: Ending the Practice of Building Housing in Exposure Zones

Adam J. Mikell[†]

Introduction

“Safe, affordable housing is a basic necessity for every family. Without a decent place to live, people cannot be productive members of society, children cannot learn, and families cannot thrive.”¹ Adequate housing, or the lack thereof, affects every person every day. At its core, housing is a fundamental human need² with inelastic demand, yet for millions of people, this need and demand has not been fulfilled.³ With the cost of rent continuing to rise faster than the average worker’s wages,⁴ millions of cost-burdened and severely cost-burdened⁵ renters’ housing

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1. U.S. DEP’T OF HEALTH & HUM. SERVS. & U.S. DEP’T OF HOUS. & URB. DEV., HEALTHY HOUSING REFERENCE MANUAL 1-1 (2006) [hereinafter HEALTHY HOUSING] (quoting Tracy Kaufman).

2. See Saul McLeod, *Maslow’s Hierarchy of Needs*, SIMPLY PSYCH. (Apr. 4, 2022), <https://www.simplypsychology.org/maslow.html> [https://perma.cc/6H9M-WCRA] (“Physiological needs . . . are biological requirements for human survival, e.g., air, food, drink, [and] shelter . . .”); see also Abraham H. Maslow, *A Theory of Human Motivation*, 50 PSYCH. REV. 370, 373 (1943) (“Undoubtedly these physiological needs are the most prepotent of all needs. What this means specifically is, that in the human being who is missing everything in life in an extreme fashion, it is most likely that the major motivation would be the physiological needs rather than any others.”).

3. ANDREW AURAND, DAN EMMANUEL, IKRA RAFI, DAN THREET & DIANE YENTEL, NAT’L LOW INCOME HOUS. COAL., OUT OF REACH: THE HIGH COST OF HOUSING 4 (2021) (“For most low-wage workers, decent rental housing is unaffordable.”).

4. *E.g.*, *id.* at 4–5 (2022) (“While wages have been stagnant or slow to rise, rents continue to climb. In 45 states and the District of Columbia, median gross rents increased faster than median renter household income between 2001 and 2018.” (internal citation omitted)); Alicia Mazzara, *Rents Have Risen More Than Incomes in Nearly Every State Since 2001*, CTR. ON BUDGET & POL’Y PRIORITIES (Dec. 10, 2019), <https://www.cbpp.org/blog/rents-have-risen-more-than-incomes-in-nearly-every-state-since-2001> [https://perma.cc/66R7-U7RD].

5. A household that spends over 30% of its income on housing costs is considered

options are extremely limited, and they are forced to settle for *available* housing rather than safe, affordable housing, even if the available housing puts their health in jeopardy.⁶ Moreover, this safety concern is only an issue if a person can even afford to pay for inadequate housing in the first place. The ever-increasing disparity between staggering rents and low wages predictably ensures that the lowest-earning individuals in the country cannot even afford unsafe or otherwise inadequate housing. Over half a million Americans are currently experiencing homelessness,⁷ and “housing unaffordability” is a key factor in this crisis.⁸

Most practitioners focused on solving the affordable housing⁹ shortage focus their attention on the question of how to increase the

cost-burdened, and a household that spends over 50% is considered severely cost-burdened. *E.g.*, Peter J. Mateyka & Jayne Yoo, *Share of Income Needed to Pay Rent Increased the Most for Low-Income Households From 2019 to 2021*, U.S. CENSUS BUREAU (Mar. 2, 2023), <https://www.census.gov/library/stories/2023/03/low-income-renters-spent-larger-share-of-income-on-rent.html> [<https://perma.cc/K3SN-5UR8>]. These burdens create difficult tradeoffs for households when it comes to meeting basic needs—particularly for severely cost-burdened households. “When the majority of a paycheck goes toward the rent or mortgage, it makes it hard to afford doctor visits, healthy foods, utility bills, and reliable transportation to work or school.” *Severe Housing Cost Burden**, CNTY. HEALTH RANKINGS & ROADMAPS, <https://www.countyhealthrankings.org/explore-health-rankings/county-health-rankings-model/health-factors/physical-environment/housing-and-transit/severe-housing-cost-burden?year=2023> [<https://perma.cc/BH3X-PSW7>].

6. See HEALTHY HOUSING, *supra* note 1, at 1; OFF. OF TRANSP. & AIR QUALITY, EPA, NEAR ROADWAY AIR POLLUTION AND HEALTH: FREQUENTLY ASKED QUESTIONS (2014) [hereinafter NEAR ROADWAY AIR POLLUTION]; Jim Buchta, *Twin Cities ‘Housing Unaffordability’ Leaves Few Options for Lowest Income Families*, STAR TRIB. (Oct. 23, 2021), <https://www.startribune.com/twin-cities-housing-unaffordability-leaves-few-options-for-low-income-families/600109270/> [<https://perma.cc/KEJ9-AN4A>].

7. *State of Homelessness: 2023 Edition*, NAT’L ALL. TO END HOMELESSNESS, <https://endhomelessness.org/homelessness-in-america/homelessness-statistics/state-of-homelessness/> [<https://perma.cc/96P9-U4BB>].

8. Buchta, *supra* note 6; see also JOSH BIVENS, ECON. POL’Y INST., THE ECONOMIC COSTS AND BENEFITS OF AIRBNB 2 (2019) (“[E]ven small changes in housing supply (like those caused by converting long-term rental properties to Airbnb units) can cause significant price increases. High-quality studies indicate that Airbnb introduction and expansion in New York City, for example, may have raised average rents by nearly \$400 annually for city residents.”); Heather Vogell, *When Private Equity Becomes Your Landlord*, PROPUBLICA (Feb. 7, 2022), <https://www.propublica.org/article/when-private-equity-becomes-your-landlord> [<https://perma.cc/JBY7-XRRE>] (“[Private equity] firms use economies of scale to more aggressively squeeze profits from their buildings than traditional landlords usually do.”).

9. According to the U.S. Department of Housing and Urban Development (HUD), “[a]ffordable housing is generally defined as housing on which the occupant is paying no more than 30 percent of gross income for housing costs, including utilities.” *Glossary of Terms to Affordable Housing*, U.S. DEPT. OF HOUS. & URB. DEV. (Aug. 18, 2011) <https://archives.hud.gov/local/nv/goodstories/2006-04-06glos.cfm> [<https://perma.cc/ZQ2Q-WK4V>]. Of course, HUD’s definition, and similar parameters related to Low Income Housing Tax Credits, must be used in certain contexts. However, this Article is focused on traffic-related indoor air pollution, and these pollutants do not pick and choose who to harm

housing supply to meet the demand.¹⁰ In the United States, housing is seen as a commodity, not a human right.¹¹ This framework is why most of the strategies deployed in an effort to equilibrate supply and demand focus on economic theories and financial returns for the investor,¹² rather than taking a “people first” approach rooted in social and environmental justice and public health.¹³ As a result, the interest in the quality of the affordable housing supply has arguably taken a backseat in the race to build a way out of this shortage.¹⁴ Careless land use policies make it so

based on a person’s monthly rent or income. Getting caught up in categorizing the housing based on exact monetary thresholds distracts from the true issue, which is that roadway pollution disproportionately burdens those whose financial situations prevent them from paying higher rents to live in a safer, healthier location. Accordingly, I will use the term “affordable housing” in a more colloquial sense rather than HUD’s technical definition.

This Article also uses the term “low-income” in an informal sense. Again, this Article is primarily concerned with a person’s proximity to the roadway and their inability to afford housing away from major roadways. Like “affordable housing,” definitions for “low-income” often provide a certain income threshold used for determining eligibility for certain benefit programs or tax incentives. But because proximity to the roadway will have a more direct role on the pollution-related health risks than a person’s income level will, nobody should be excluded from this conversation because of the technical aspects of a definition. Thus, the public health protections that this Article advocates for also extend to someone with an average or above average income, but because they are not disproportionately burdened by the pollution, they are not the primary focus of the Article’s discussion.

10. See, e.g., Ron J. Feldman & Mark L.J. Wright, *Star Tribune Op-Ed: Affordable Housing Crisis Demands More Supply*, FED. RSRV. BANK OF MPLS. (Oct. 18, 2018), <https://www.minneapolisfed.org/article/2018/star-tribune-op-ed-affordable-housing-crisis-demands-more-supply> [<https://perma.cc/HSP7-TVKQ>].

11. Compare Maria Massimo, *Housing as a Right in the United States: Mitigating the Affordable Housing Crisis Using an International Human Rights Law Approach*, 62 B.C. L. REV. 273, 274 (2021) (asserting that housing is treated as a commodity), and *Lindsey v. Normet*, 405 U.S. 56, 74 (1972) (“Absent constitutional mandate, the assurance of adequate housing . . . [is] legislative, not judicial, functions.”), with ERIC TARS, NAT’L LOW INCOME HOUS. COAL., *ADVOCATES’ GUIDE ‘21: A PRIMER ON FEDERAL AFFORDABLE HOUSING & COMMUNITY DEVELOPMENT PROGRAMS & POLICIES 1–12* (2021) (“In 2020, we saw the election of a president and vice-president who, for the first time since Franklin Roosevelt, come into office on a platform explicitly affirming housing as a right.”).

12. See MAGGIE MCCARTY, LIBBY PERL & KATIE JONES, CONG. RSCH. SERV., RL34591, *OVERVIEW OF FEDERAL HOUSING ASSISTANCE PROGRAMS AND POLICY* (2019) (describing the various programs and policies that are supposed to increase the supply of affordable housing or provide direct rental assistance to low-income renters).

13. Allan C. Ornstein, *Social Justice: History, Purpose and Meaning*, 54 SOC’Y 541, 546 (2017) (“A socially just society cannot forget or ignore people in need, nor leave the majority of its people behind. It must put people first—not property nor profits. It must be willing to examine and reexamine its beliefs and philosophy on a regular basis.”).

14. *Contra* Amy Forbes, Doug Champion & Maribel Garcia Ochoa, *California Governor Newsom Signs Three Important New Bills into Law Impacting Residential Zoning and Development*, GIBSON, DUNN & CRUTCHER L.L.P. (Oct. 25, 2021), <https://www.gibsondunn.com/california-governor-newsom-signs-three-important-new-bills-into-law-impacting-residential-zoning-and-development/> [<https://perma.cc/NM7U-X66A>] (noting that an agency can deny a housing project if it “makes a written finding that [the] project would create a specific, adverse impact upon public health and

that even if more affordable housing becomes available to those who need it most, people cannot rely on that housing to keep them safe and healthy. This reality is evidenced by developers throughout the country who build housing developments adjacent to major roadways and the governments who allow, if not require, it to happen.¹⁵

Residential buildings within 500 feet of a major roadway—“exposure zones”¹⁶—expose residents to extremely high levels of dangerous indoor air pollutants long-known to cause adverse respiratory and cardiovascular effects, along with a myriad of other ailments impacting daily quality of life and life expectancy.¹⁷ Indoor air pollution is a silent, often-invisible killer all over the world,¹⁸ and in the United States low-income renters and people of color are most severely

safety . . . without a feasible way to mitigate such impact”). Though laws streamlining the permitting process may technically include ways to deny a project for health reasons, the fact that housing has been, and continues to be, built in exposure zones suggests that such provisions will be used infrequently in practice.

15. See Tony Barboza & Jon Schleuss, *L.A. Keeps Building Near Freeways, Even Though Living There Makes People Sick*, L.A. TIMES (Mar. 2, 2017), <https://www.latimes.com/projects/la-me-freeway-pollution/> [<https://perma.cc/HD48-EKA4>]; *Downtown Community Plan Update/New Zoning Code for Downtown Community Plan*, L.A. CITY PLAN, <https://planning.lacity.org/development-services/eir/downtown-community-plan-updatenew-zoning-code-downtown-community-plan> [<https://perma.cc/3RX2-D62R>] (requiring a focus on building alongside transit corridors); *Proximity to Major Roadways*, U.S. DEPT. OF TRANSP. (Aug. 24, 2015), <https://www.transportation.gov/mission/health/proximity-major-roadways> [<https://perma.cc/YV4A-VZ3N>]; CAL. AIR RES. BD., CAL. ENV'T PROT. AGENCY, AIR QUALITY AND LAND USE HANDBOOK: A COMMUNITY HEALTH PERSPECTIVE 4, tbl.1-1 (2005) [hereinafter LAND USE HANDBOOK]. There is not a uniform definition of “major roadway,” so for the purposes of this Article, “major roadways” are heavily traveled roadways that carry, at a minimum, approximately 100,000 to 125,000 vehicles per day in an urban area. By definition, an exposure zone implies that the roadway in question is a “major roadway.” Accordingly, any time a term such as “freeway” or “highway” is used in this Article, the term is being used interchangeably with “major roadway.”

16. LAND USE HANDBOOK, *supra* note 15, at 4, tbl.1-1 (discouraging “siting new sensitive land uses within 500 feet of a freeway”).

17. *E.g.*, Carlyn J. Matz, Marika Egyed, Robyn Hocking, Shayesta Seenundun, Nick Charman & Nigel Edmonds, *Human Health Effects of Traffic-Related Air Pollution (TRAP): A Scoping Review Protocol*, 8 SYSTEMATIC REVS. 1 (2019) (describing how TRAP exposure impacts a person’s health); Joshua S. Apte, Michael Brauer, Aaron, J. Cohen, Majid Ezzati & C. Arden Pope III, *Ambient PM_{2.5} Reduces Global and Regional Life Expectancy*, ENV’T SCI. & TECH. LETTERS 546, 546 (2018) (“Exposure to ambient fine particulate matter (PM_{2.5}) air pollution causes important adverse health outcomes that result in premature death . . .”).

18. *Seven Things You Should Know About Household Air Pollution*, U.N. ENV’T PROGRAMME (Aug. 17, 2021), <https://www.unep.org/news-and-stories/story/seven-things-you-should-know-about-household-air-pollution> [<https://perma.cc/WR9Y-62F6>] (“Every year, nearly 4 million people die prematurely from indoor air pollution.”).

impacted.¹⁹ There are several causes of indoor air pollution.²⁰ Some indoor air pollution results from personal choices, and its causes are rather obvious, like smoking indoors.²¹ However, other causes have far less to do with an individual's habits, and everything to do with their inability to move away from the danger surrounding them.²²

For nearly a century, local governments have enjoyed judicial deference in zoning matters, justified because of the cities' obligation to "protect and provide for the welfare of their citizens."²³ With this abundance of autonomy, local governments have knowingly and intentionally sited exceptionally polluted lands for residential uses that are more likely to serve already-vulnerable communities.²⁴ There is no way to fully know the motivations behind each individual decision to approve an exposure zone for residential use; some local officials may genuinely believe that this undesirable land is the city's best chance at quickly increasing its housing supply, and the decision outweighs the health risks the exposure zone creates.²⁵ Others might be responding to pressure from homeowners who push back against proposals for high-density affordable housing developments in their neighborhood out of fear it will "change the character of existing neighborhoods."²⁶ No matter the reasoning, or where it falls within one's perception of morality, what

19. *Disparities in the Impact of Air Pollution*, AM. LUNG ASS'N (Nov. 17, 2022) [hereinafter *Impact of Air Pollution*] <https://www.lung.org/clean-air/outdoors/who-is-at-risk/disparities> [https://perma.cc/XCA9-X6TK].

20. Lauren Ferguson, Jonathon Taylor, Michael Davies, Clive Shrubsole, Phil Symonds & Sani Dimitroulopoulou, *Exposure to Indoor Air Pollution Across Socio-Economic Groups in High-Income Countries: A Scoping Review of the Literature and a Modelling Methodology*, 143 ENV'T INT'L, Oct. 2020, at 1, 1 (describing some of the main sources of indoor air pollution).

21. See Yingmeng Ni, Guochao Shi & Jieming Qu, *Indoor PM_{2.5}, Tobacco Smoking and Chronic Lung Diseases: A Narrative Review*, 181 ENV'T RSCH., Nov. 2019, at 1.

22. See Barboza & Schleuss, *supra* note 15 (interviewing two people who were stuck living in a freeway-adjacent location with extreme indoor pollution and who could not afford to move); Sabrina Imbler, *Kill Your Gas Stove*, ATLANTIC (Oct. 15, 2020), <https://www.theatlantic.com/science/archive/2020/10/gas-stoves-are-bad-you-and-environment/616700/> [https://perma.cc/K76H-DTGH] ("Cooking on a gas stove unleashes some of the same fumes found in car exhaust. If those fumes are not vented outside the house, they linger and sneak into [your] lungs. . . . [C]ooking on a gas stove is not a matter of individual preference. Renters have little control over what appliances they use. . . .").

23. Alex Ritchie, *Fracking in Louisiana: The Missing Process/Land Use Distinction in State Preemption and Opportunities for Local Participation*, 76 LA. L. REV. 809, 829 (2016).

24. See Angela Caputo & Sharon Lerner, *House Poor, Pollution Rich: Thousands of Public Housing Residents Live Near the Most Polluted Places in the Nation—and the Government Has Done Little to Protect Them*, AM. PUB. MEDIA REPS. (Jan. 13, 2021), <https://www.apmreports.org/story/2021/01/13/public-housing-near-polluted-superfund-sites> [https://perma.cc/J3SV-ASMU].

25. See Feldman & Wright, *supra* note 10 (asserting that the primary solution needed to reverse the affordability crisis is private development).

26. Dwight Merriam, *The Great "Yes in My Back Yard" (YIMBY) Movement: Driven by the Gig Economy*, 29 J. AFFORDABLE HOUS. & CMTY. DEV. L. 57, 58 (2020).

is clear is that time and time again this nation's politicians ignore decades of research that has consistently arrived at the following conclusion: housing should not be built within 500 feet of a major roadway.²⁷

Each passing year, this body of research finding a correlation between indoor pollution and proximity to major roadways expands, further weakening the argument of those who support placing residential developments in exposure zones. Some notable and recent studies have detailed the connection between traffic-related air pollution (TRAP) and the cognitive function of children and adolescents,²⁸ childhood asthma,²⁹ and dementia.³⁰ This research raises the question of why city officials and developers continue with this practice at all. It is not as if housing officials are oblivious to the dangers posed by the sites they are deeming suitable for residential use. A telling example comes from Dennis Yates, Chino's former mayor and a member of the region's air quality board, during his interview at a groundbreaking ceremony for an apartment building not even 200 feet from the freeway.³¹ Despite choosing to approve the project, he acknowledged that because of the poor air quality, "he 'personally wouldn't live there.'"³² Not everyone is fortunate enough to have that choice, including many of Mayor Yates's constituents.³³

Those who live far from exposure zones may find the magnitude of this problem difficult to grasp. To better put the issue into perspective, a 2013 study estimated that over 11 million Americans—a number roughly

27. *E.g.*, LAND USE HANDBOOK, *supra* note 15, at 8–11 (providing recommendations to avoid siting residential uses alongside major roadways); *see also* U.S. DEP'T OF TRANSP., *supra* note 15 ("Increasing the distance from the road to more than . . . 500 feet[] might decrease concentrations of some air pollutants by at least 50%.").

28. *See* Chloe Stenson, Amanda J. Wheeler, Alison Carver, David Donaire-Gonzalez, Miguel Alvarado-Molina, Mark Nieuwenhuijsen & Rachel Tham, *The Impact of Traffic-Related Air Pollution on Child and Adolescent Academic Performance: A Systematic Review*, 155 ENV'T INT'L, June 2021, at 1 (finding that TRAP may worsen child academic performance).

29. *See* Haneen Khreis & Mark J. Nieuwenhuijsen, *Traffic-Related Air Pollution and Childhood Asthma: Recent Advances and Remaining Gaps in the Exposure Assessment Methods*, 14 INT'L J. ENV'T RSCH. & PUB. HEALTH 312 (2017) (finding that new research methods improve researchers' understanding of the connection between TRAP exposure and childhood asthma).

30. *See* Kimberly C. Paul, Mary Haan, Yu Yu, Kosuke Inoue, Elizabeth Rose Mayeda, Kristina Dang, Jun Wu, Michael Jerrett & Beate Ritz, *Traffic-Related Air Pollution and Incident Dementia: Direct and Indirect Pathways Through Metabolic Dysfunction*, 76 J. ALZHEIMERS DISEASE 1477 (2020) (finding a connection between TRAP and incident dementia).

31. *See* Barboza & Schleuss, *supra* note 15.

32. *Id.*

33. *See id.* ("Jeremiah Caleb, who spent years battling black road dust and illness while living in an apartment next to the [freeway], said he and his wife were relieved when she landed a nursing job—a second income that allowed them to move to a less-polluted neighborhood about a mile from any freeway. . . . 'We got lucky. But for most people . . . They're stuck because that's what they can afford.'").

equal to Ohio's population³⁴—live in an exposure zone.³⁵ In the years since that study was conducted, that number has risen, and it will continue to rise if elected officials remain idle.³⁶ As this Article will soon describe in more detail, the ongoing disparity related to poor air quality exposure does not persist because of a lack of legal authority;³⁷ it persists because of the way policymakers have “construct[ed] notions of deservedness”³⁸ to justify prioritizing economic interests over the health of low-income and minority citizens. Those who are interested in quickly finding solutions to alleviate the affordable housing shortage and are opposed to any new zoning restrictions must separate this Article from the truism that some housing is better than no housing.³⁹ The scope of this Article zeroes in on proposing a necessary zoning restriction, but it should not be construed as an endorsement for halting construction of affordable housing elsewhere. If anything, this proposal should spur policymakers, developers, and other stakeholders in the residential housing industry to revisit other viable housing and land use proposals that may have been turned down for political reasons. Until the very last plot of vacant, non-exposure zone land has been filled, until the last city has modernized its single-family zoning plans to promote “denser, smaller housing units,”⁴⁰ until our buildings cannot be built any taller,⁴¹ and until our millions of currently vacant units have been put to better

34. See *Annual Estimates of the Resident Population for the United States, Regions, States, District of Columbia, and Puerto Rico: April 1, 2020 to July 1, 2021*, U.S. CENSUS BUREAU (Dec. 2021), https://data.census.gov/cedsci/table?tid=PEPPOP2021.NST_EST2021_POP&hidePreview=false [<https://perma.cc/AX8B-VBWM>].

35. See *Proximity to Major Roadways*, *supra* note 15.

36. Barboza & Schleuss, *supra* note 15 (“The Southern California Assn. of Governments . . . has projected that the population within 500 feet of a freeway will increase by a quarter million people [in and around Los Angeles] by 2035.”).

37. See *infra* Section III.A.

38. Prentiss A. Dantzler & Jason D. Rivera, *Constructing Identities of Deservedness: Public Housing and Post-WWII Economic Planning Efforts*, 39 *LAW & INEQ.* 443, 460 (2021).

39. Cf. Hanna Brooks Olsen, *‘Beggars Can’t Be Choosers’ Is Not Sound Public Policy*, *REAL CHANGE* (May 19, 2019), <https://www.realchangenews.org/news/2019/05/29/beggars-can-t-be-choosers-not-sound-public-policy> [<https://perma.cc/4D9K-VX3S>] (“The people who are making the rules or, in the case of city council races, who want to make the rules, have never stepped foot in an overnight shelter, let alone slept in one But if we’re being honest, most of the new emergency shelter in recent memory has been created more for the comfort of the housed than those who need housing. To say we’ve done it — 35 new beds! Don’t ask what we consider a ‘bed!’ — and leave it at that.”).

40. Merriam, *supra* note 26, at 61.

41. See also Remi Jedwab, Jason Barr & Jan Brueckner, *Cities Without Skylines: Worldwide Building-Height Gaps and Their Implications 1* (CESifo, Working Paper, Paper No. 8511, 2020) (suggesting that “stringent building-height regulations” contribute to “relatively large welfare losses”).

use,⁴² it is simply incorrect to claim that there are no locations to place new, affordable housing besides in exposure zones. Increasing the affordable supply of housing and constructing safe, equitable housing should not be treated as mutually exclusive actions.

Part I of this Article provides background information on the long history of racism in housing and how this racism has shaped the country's neighborhoods and attitude of "deservedness."⁴³ Part II provides background information necessary for understanding the risks of living alongside major roadways. Part III analyzes the proposal to prohibit the irresponsible practice of siting exposure zones for residential uses, arguing that this proposal is the most effective solution for bringing health equity into housing. This Article's proposal favors the notion that "[i]f zoning and land use policies got us into this mess, they have the potential to get us out of it."⁴⁴

I. Background: Socioeconomics and Racism

When discussing virtually all housing-related issues—and more specifically this country's housing shortage—the role that socioeconomic status plays in determining who is most impacted by inadequate housing cannot be overlooked. Living in an exposure zone is dangerous for people at any income level, but to speak about this issue so broadly, as if everyone is equally at risk of experiencing pollution-related health effects, does not accurately explain the problem.⁴⁵ Simply put, people with lower socioeconomic statuses are more likely to live in exposure zones than their wealthier counterparts,⁴⁶ and conversations regarding health risks and reform within our built environment must properly reflect who bears the burden of government inaction.⁴⁷ With that in mind,

42. See Julie Gilgoff, *Pandemic-Related Vacant Property Initiatives*, 29 J. AFFORDABLE HOUS. & CMTY. DEV. L. 203, 207–14 (2020); David Zahniser, *Mayor Bass Orders List of Vacant City Properties Where Homeless Housing Could Be Built*, L.A. TIMES (Feb. 11, 2023), <https://www.latimes.com/california/story/2023-02-11/bass-order-list-of-vacant-city-property-for-homeless-housing> [<https://perma.cc/ASK4-MLLY>].

43. See Dantzler & Rivera, *supra* note 38, at 443.

44. ANA ISABEL BAPTISTA, TISHMAN ENV'T & DESIGN CTR., LOCAL POLICIES FOR ENVIRONMENTAL JUSTICE: A NATIONAL SCAN 11 (2019).

45. See Joe Purtell, *Low-Income California Communities Enact Plan to Fight Disproportionate Air Pollution*, NBC NEWS (Apr. 7, 2020), <https://www.nbcnews.com/news/us-news/low-income-california-communities-enact-plan-fight-disproportionate-air-pollution-n1172421> [<https://perma.cc/SA43-4ZYU>].

46. *Id.*; Ferguson et al., *supra* note 20, at 8 ("High outdoor pollutant concentrations are often a proxy for areas of low [socioeconomic status], as location near congested roads can cause land price to depreciate, attracting purchase by lower-income individuals and local councils for social housing.")

47. See Caputo & Lerner, *supra* note 24 (discussing how inadequate government responses put the health of low-income renters living near Superfund sites, such as places where hazardous waste is improperly managed, at risk).

we can view this disparity from an even narrower lens to best understand who takes on the lion's share of the pollution burden.

Analyzing socioeconomic inequities also calls for an examination of the relationship between race and socioeconomic status. That people of color are overrepresented within low-income populations is a well-documented, consistent reality of this country.⁴⁸ Throughout American history, race, particularly for African Americans, has been a more direct determinant of housing outcomes than socioeconomic status ever was.⁴⁹ Thus, a more tailored discussion on racism and housing is pertinent background information on why current housing and public health inequities exist and why social and environmental justice theories need to be given the center stage to remedy these problems.

A. *Racism in Housing*

Understanding why the current disproportionate impact exists requires an acknowledgment of the decades of racism that intentionally shaped this nation's cities. The notion that the existing inequity is not primarily due to the blatantly racist, but now illegal, laws is incorrect. Inequity persists largely because the United States is limited in its ability to directly reverse decades of *de jure* racial segregation.⁵⁰ Richard Rothstein summarizes the history of racism in housing with a particular

48. John Creamer, *Poverty Rates for Blacks and Hispanics Reached Historic Lows in 2019, Inequalities Persist Despite Decline in Poverty for All Major Race and Hispanic Origin Groups*, U.S. CENSUS BUREAU (Sept. 15, 2020), <https://www.census.gov/library/stories/2020/09/poverty-rates-for-blacks-and-hispanics-reached-historic-lows-in-2019.html> [<https://perma.cc/2Y9T-V73T>].

49. Katie Nodjimbadem, *The Racial Segregation of American Cities Was Anything but Accidental*, SMITHSONIAN MAG. (May 30, 2017), <https://www.smithsonianmag.com/history/how-federal-government-intentionally-rationally-segregated-american-cities-180963494/> [<https://perma.cc/BC3Y-MHFJ>].

50. *See id.* (“[T]he current state of the American city is the direct result of unconstitutional, state-sanctioned racial discrimination.”); Susan Smith Richardson, *How Does America Reverse Years of Racist Housing Policies?*, CTR. FOR PUB. INTEGRITY (Dec. 9, 2020), <https://publicintegrity.org/inside-publici/newsletters/the-moment/how-does-america-reverse-years-of-racist-housing-policies-redlining/> [<https://perma.cc/DZ3K-HMTH>] (interviewing Richard Rothstein who “think[s] there is presently no political support for the kinds of policies that are necessary to redress segregation. . . . There is no political support for opening up white suburbs. There’s no political support for the kinds of programs that would prevent massive dislocation of African Americans who are living in gentrifying communities. There’s no political support for stabilizing desegregation in the communities experiencing white flight.”); *Tex. Dep’t of Housing & Cmty. Affs. v. Inclusive Cmty. Project Inc.*, 576 U.S. 519, 540 (2015) (“[D]isparate-impact liability has always been properly limited in key respects that avoid the serious constitutional questions that might arise under the [Fair Housing Act], for instance, if such liability were imposed based solely on a showing of a statistical disparity. Disparate-impact liability mandates the ‘removal of artificial, arbitrary, and unnecessary barriers,’ not the displacement of valid governmental policies.”) (citing *Griggs v. Duke Power Co.*, 401 U.S. 424, 431 (1971)).

focus on the African American community, as they have been subjected to the most severe housing injustices:

Racial segregation in housing was not merely a project of southerners in the former slaveholding Confederacy. It was a nationwide project of the federal government in the twentieth century, designed and implemented by its most liberal leaders. Our system of official segregation was not the result of a single law that consigned African Americans to designated neighborhoods. Rather, scores of racially explicit laws, regulations, and government practices combined to create a nationwide system of urban ghettos, surrounded by white suburbs. Private discrimination also played a role, but it would have been considerably less effective had it not been embraced and reinforced by government.⁵¹

For decades, numerous government-sanctioned strategies were used to segregate neighborhoods and prevent African Americans and other racial and religious minorities from achieving upward mobility.⁵² For example, the government provided public housing in the 1930s and 1940s as industrial cities experienced housing shortages due to the massive number of workers migrating to assist with manufacturing needs during World War II.⁵³ Many of these cities were predominately white prior to World War II, and in an effort to preserve this, local officials ensured that public housing was segregated or altogether refused to build public housing for African Americans, relegating them to live in slums further from their workplaces and public services.⁵⁴ Unsurprisingly, the public housing reserved for whites was of better quality and was often able to satisfy the white workers' demand.⁵⁵ The same could not be said for the limited public housing available to African Americans at the time.⁵⁶

51. RICHARD ROTHSTEIN, *THE COLOR OF LAW: A FORGOTTEN HISTORY OF HOW OUR GOVERNMENT SEGREGATED AMERICA* at XII (2017).

52. *Id.*; see Raj Chetty, Nathaniel Hendren, Patrick Kline & Emmanuel Saez, *Where Is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States* 35–36 (Nat'l Bureau of Econ. Rsch., Working Paper No. 19843, 2014) ("More racially segregated areas have less upward mobility.... Segregation of poverty has a strong negative association with upward mobility, whereas segregation of affluence does not.... These results suggest that the isolation of low-income families (rather than the isolation of the rich) may be most detrimental for low income children's prospects of moving up in the income distribution.").

53. Terry Gross, *A 'Forgotten History' of How the U.S. Government Segregated America*, NPR (May 3, 2017), <https://www.npr.org/2017/05/03/526655831/a-forgotten-history-of-how-the-u-s-government-segregated-america> [https://perma.cc/B6K9-V7UA]; ROTHSTEIN, *supra* note 51, at 5.

54. See, e.g., ROTHSTEIN, *supra* note 51, at 5–6 (describing how Richmond, Virginia was predominantly white before World War II, and the local housing authority established segregated facilities and housing after an influx of African American workers).

55. *Id.*

56. *Id.*

Along with segregated public housing, racial covenants were another way the United States government and white property owners ensured that neighborhoods would be segregated.⁵⁷ The covenants became particularly popular after 1926, when the U.S. Supreme Court validated their use in *Corrigan v. Buckley*.⁵⁸ Real estate developers and homeowners used racial covenants in property conveyances to prevent, for example, the “premises [from being] . . . conveyed, mortgaged or leased to any person or persons of Chinese, Japanese, Moorish, Turkish, Negro, Mongolian or African blood or descent.”⁵⁹ Other covenants were even more blunt, stating that the property may only be “resold, leased, rented or occupied . . . by persons of the Aryan race.”⁶⁰ Through private property transactions, a hidden system of American apartheid was built during the 20th century.⁶¹

Racial covenants were effective at segregating many neighborhoods, but they did so on a transaction-by-transaction basis. Impatient segregationists wanting to spread inequality on a grand scale decided they needed other tools which would apply to whole cities rather than individual transactions. They found their solution in the 1930s with redlining.⁶² The government, in tandem with banks, used redlining to deny home loans to people living in majority-minority neighborhoods.⁶³ In justifying this practice, the Federal Home Loan Bank Board relied on the belief that “judging African Americans to be poor credit risks because they were black was not a racial judgment but an economic one.”⁶⁴ Other

57. See *What Is a Covenant?*, UNIV. OF MINN.: MAPPING PREJUDICE, <https://mappingprejudice.umn.edu/racial-covenants/what-is-a-covenant> [https://perma.cc/X37G-MMKT].

58. See *Corrigan v. Buckley*, 271 U.S. 323 (1926) (holding that racial covenants were not unconstitutional under the Fifth, Thirteenth, or Fourteenth Amendments); *Historical Shift from Explicit to Implicit Policies Affecting Housing Segregation in Eastern Massachusetts*, THE FAIR HOUS. CTR. OF GREATER BOS., <https://www.bostonfairhousing.org/timeline/1920s-1948-Restrictive-Covenants.html> [https://perma.cc/EQW8-UW58].

59. *What Is a Covenant?*, *supra* note 57.

60. *Aryans Only Neighborhood*, SEATTLE C.R. & LAB. HIST. PROJECT, UNIV. OF WASH., https://depts.washington.edu/civilr/covenants_Aryans.htm [https://perma.cc/NTC6-LKQ4].

61. See, e.g., Kirsten Deleard & Kevin Ehrman-Solberg, “Playground of the People?” *Mapping Racial Covenants in Twentieth-Century Minneapolis*, OPEN RIVERS: RETHINKING THE MISSISSIPPI, Spring 2017, at 72, 73; Dist. 10 Como Cmty. Council, *Much of Como was ‘Whites Only,’ COMO PARK* (2021), <https://district10comopark.org/much-of-como-was-whites-only/> [https://perma.cc/AGC7-SXL5].

62. Abdallah Fayyad, *The Unfulfilled Promise of Fair Housing*, ATLANTIC (Mar. 31, 2018), <https://www.theatlantic.com/politics/archive/2018/03/the-unfulfilled-promise-of-fair-housing/557009> [https://perma.cc/ALE4-3CA4].

63. Shawna Doughman, *Wells Fargo v. City of Oakland: A Matter of Proximate Cause*, 51 GOLDEN GATE U. L. REV. 11, 12 n.11 (2021) (citing *City of Oakland v. Wells Fargo & Co.*, 972 F.3d 1112, 1118 (9th Cir. 2020)).

64. ROTHSTEIN, *supra* note 51, at 108.

federal agencies with a role in underwriting bank profits and reviewing loan applications made similar arguments in a thinly veiled attempt to distract from their overtly discriminatory practices.⁶⁵ Redlining's ability to uphold *de jure* segregation was technically put to an end in 1968 with the passing of the Fair Housing Act, but in many cities, current mortgage loan patterns still fall into the same redlined zones from the past.⁶⁶

B. Exclusionary Zoning

Of all the policies regularly associated with institutionalized segregation, exclusionary zoning is one of the practices that has been the hardest to dismantle. Exclusionary zoning does not refer to any single policy—it is a general category of land use regulations employed to restrict certain types of uses from being adopted in a particular area.⁶⁷ As such, exclusionary zoning is not inherently good or bad; such a determination depends on how governments use this tool. When the practice was first introduced in the 19th century, cities routinely used it to address nuisances and other legitimate health and safety concerns, but it did not take long for local officials to realize that exclusionary zoning would be incredibly effective at “discriminat[ing] against people of color and [] maintain[ing] property prices in suburban and, more recently, urban neighborhoods.”⁶⁸ Nowadays, exclusionary zoning is most frequently associated with the latter use, and the impacts of the regulations still have a hold on nearly every city.

Some of the specific exclusionary zoning practices that contributed to segregation “include minimum lot size requirements, minimum square footage requirements, prohibitions on multi-family homes, and limits on the height of buildings.”⁶⁹ At first look, these practices do not have any

65. *Id.* (“[Federal Deposit Insurance Corporation] chairman Erle Coker asserted that it was appropriate for banks under his supervision to deny loans to African Americans because whites’ property values might fall if they had black neighbors.”).

66. See Kriston Capps, *How the Fair Housing Act Failed Black Homeowners*, BLOOMBERG (Apr. 11, 2018), <https://www.bloomberg.com/news/articles/2018-04-11/50-years-after-the-fair-housing-act-redlining-persists> [https://perma.cc/XA9N-UK3K]. Redlining also inspired another form of discrimination known as “reverse redlining.” ROTHSTEIN, *supra* note 51, at 109. Reverse redlining, the practice of “excessive marketing of exploitative loans in African American communities,” was tolerated by banks’ regulators for much of the early 2000s and was an important cause of the 2008 housing and financial collapse. *Id.* Reverse redlining is also known as issuing “predatory loans.” Doughman, *supra* note 63, at 12 n.12 (citing *City of Oakland*, 972 F.3d at 1118).

67. See Cecilia Rouse, Jared Bernstein, Helen Knudsen & Jeffrey Zhang, *Exclusionary Zoning: Its Effect on Racial Discrimination in the Housing Market*, THE WHITE HOUSE (June 17, 2021), [whitehouse.gov/cea/blog/2021/06/17/exclusionary-zoning-its-effect-on-racial-discrimination-in-the-housing-market/](https://www.whitehouse.gov/cea/blog/2021/06/17/exclusionary-zoning-its-effect-on-racial-discrimination-in-the-housing-market/) [https://perma.cc/UNV4-S5Z9] (explaining the history of exclusionary zoning laws).

68. *See id.*

69. *Id.*

obvious signs of racism or discrimination. This was deliberate. Notable judicial and legislative actions—like the Supreme Court’s ruling against an explicitly discriminatory exclusionary zoning law in 1917⁷⁰ and President Johnson’s signing of the Fair Housing Act several decades later⁷¹—slowly prevented the most blatant forms of racist zoning practices from being implemented, but the Supreme Court did not hold that the use of exclusionary zoning in general was unconstitutional.⁷² As a result, federal, state, and local authorities have used exclusionary zoning laws to “[contribute] to the same patterns of segregation as pre-*Buchanan v. Warley* policies” for several decades, and these practices have had a lasting influence on the racial and economic makeup of American cities.⁷³ Zoning regulations unnecessarily limiting new residential construction through minimum lot size requirements and other similar requirements and restrictions keep housing unaffordable and promote income segregation that results in distinct “areas of concentrated poverty and concentrated wealth,”⁷⁴ all while appearing facially neutral.⁷⁵

In recent years, exclusionary zoning practices have come under fire from leading Democrats and Republicans alike.⁷⁶ There have been some victories for “pro-housing growth” supporters;⁷⁷ for example, several

70. *Buchanan v. Warley*, 245 U.S. 60, 82 (1917) (“We think this attempt to prevent the alienation of the property in question to a person of color was not a legitimate exercise of the police power of the State, and is in direct violation of the fundamental law enacted in the Fourteenth Amendment of the Constitution preventing state interference with property rights except by due process of law. That being the case the ordinance cannot stand.”).

71. See Elliott Anne Rigsby, *Understanding Exclusionary Zoning and Its Impact on Concentrated Poverty*, THE CENTURY FOUND. (June 23, 2016), <https://tcf.org/content/facts/understanding-exclusionary-zoning-impact-concentrated-poverty/?agreed=1&session=1> [<https://perma.cc/N2QE-JT9N>] (summarizing the history of “actions by the federal government that limited legal housing discrimination”).

72. *Vill. of Arlington Heights v. Metro. Hous. Dev. Corp.*, 429 U.S. 252, 271 (1977).

73. See, e.g., Rigsby, *supra* note 71 (arguing that “the Fair Housing Act provides a loophole for discrimination that confines low-income people to certain neighborhoods by systematically preventing them . . . from moving into areas of [sic] with access to opportunity.”); Sarah Zeimer, *Exclusionary Zoning, School Segregation, and Housing Segregation: An Investigation into a Modern Desegregation Case and Solutions to Housing Segregation*, 48 HASTINGS CONST. L.Q. 205, 209–12 (2020) (describing various tactics similar to, or used alongside, exclusionary zoning laws that resulted in housing discrimination, including racial covenants, Federal Housing Authority policies, redlining, and blockbusting); Chetty et al., *supra* note 52; see also DANIEL SHOAG & PETER GANONG, HUTCHINS CTR. ON FISCAL & MONETARY POL’Y AT BROOKINGS, WHY HAS REGIONAL INCOME CONVERGENCE DECLINED? (2016) (attributing the rate of convergence’s slowdown “to increasingly tight land use regulations in wealthy areas”).

74. Rigsby, *supra* note 71.

75. David Schleicher, *Exclusionary Zoning’s Confused Defenders*, 2021 WIS. L. REV. 1315, 1317 (2021).

76. *Id.* at 1318–19.

77. *Id.* at 1318.

states and cities have ended single-family zoning, a task that many would have once considered impossible.⁷⁸ It is too early to know just how much of an impact these reforms will have—ending single family zoning is very different from actually mandating the construction of infill multifamily developments—but it is an important first step in changing the way the country views solutions to the housing shortage. At the same time, however, many other state or local officials have fiercely resisted zoning reform and appear set on doing so for as long as they remain in office.⁷⁹

II. Air Pollution and Exposure Zones

A. Race, Roadways, and Public Health

The group of traffic-related air pollutants that are most relevant to this Article are “the six criteria air pollutants (carbon monoxide, lead, nitrogen dioxide, ozone, particulates (PM_{2.5} and PM₁₀), and sulfur dioxide).”⁸⁰ Though their emissions are not limited to sources of transportation, these pollutants have a significant presence within the category of “traffic-related air pollution.”⁸¹ Global findings show that exposure to TRAP is detrimental to one’s health,⁸² with adverse health effects ranging from “exacerbation of asthma, . . . reduced lung function, [and] myocardial infarction,”⁸³ to premature death by way of “ischemic

78. See Richard D. Kahlenberg, *How Minneapolis Ended Single-Family Zoning*, THE CENTURY FOUND. (Oct. 24, 2019), <https://tcf.org/content/report/minneapolis-ended-single-family-zoning/> [<https://perma.cc/M9MH-S6MM>].

79. Schleicher, *supra* note 75, at 1319–20.

80. ROBERT V. PERCIVAL, CHRISTOPHER H. SCHROEDER, ALAN S. MILLER & JAMES P. LEAPE, ENVIRONMENTAL REGULATION: LAW, SCIENCE, AND POLICY 451 (9th ed. 2021).

81. See Matz et al., *supra* note 17, at 1 (“The mixture of vehicle exhausts, secondary pollutants formed in the atmosphere, evaporative emissions from vehicles, and non-combustion emissions (e.g., road dust, tire wear) is referred to as traffic-related air pollution (TRAP).”). Though TRAP is a broad category that consists of more pollutants than the six criteria pollutants, because of the relevance of the six criteria pollutants, the two terms may be used interchangeably for the purposes of this Article. If it is material to distinguish other pollutants that are within the category of TRAP but are not a criteria pollutant, a clear distinction will be made.

82. See, e.g., Apte et al., *supra* note 17; Ivan C. Hanigan, Richard A. Broome, Timothy B. Chaston, Martin Cope, Martine Dennekamp, Jane S. Heyworth et al., *Avoidable Mortality Attributable to Anthropogenic Fine Particulate Matter (PM_{2.5}) in Australia*, 18 INT’L J. ENV’T RSCH. & PUB. HEALTH (2020) (“[T]he GBD report from 2020 ranked air pollution as the 4th highest risk factor for mortality, with 6.67 million attributable deaths during the period 1990–2019.”); *Public Health and Environment*, WORLD HEALTH ORG. <https://www.who.int/data/gho/data/themes/public-health-and-environment> [<https://perma.cc/WZW3-VHN>] (estimating that, globally, 3.2 million annual deaths are caused by household air pollution and 4.2 million deaths are caused by ambient air pollution).

83. Matz et al., *supra* note 17.

heart disease, strokes, [and] lung cancer.”⁸⁴ Unsurprisingly, researchers observe a positive correlation between one’s proximity to a TRAP source and the occurrence and severity of adverse health effects.⁸⁵ The consensus among these experts—both in the United States and the international public health community⁸⁶—is that people should avoid spending significant time within about 500 feet of exposure zones.⁸⁷

Despite such recommendations, an EPA report found that at least 45 million people in the United States live, work, or attend school “within 300 feet of a major road, airport[,] or railroad.”⁸⁸ In 2014, the year the

84. Apte et al., *supra* note 17, at 546; *see also id.* (“Exposure to ambient fine particulate matter (PM_{2.5}) air pollution causes important adverse health outcomes that result in premature death . . .”).

85. *E.g.*, NEAR ROADWAY AIR POLLUTION, *supra* note 6, at 1–2 (“Individually and in combination, many of the pollutants found near roadways have been associated with adverse health effects.”); HEALTH EFFECTS INST. PANEL ON THE HEALTH EFFECTS OF TRAFFIC-RELATED AIR POLLUTION, HEI SPECIAL REP. 17, TRAFFIC-RELATED AIR POLLUTION: A CRITICAL REVIEW OF THE LITERATURE ON EMISSIONS, EXPOSURE, AND HEALTH EFFECTS ix–xv (2010) (detailing the adverse health effects of traffic-related air pollution).

86. *See, e.g.*, Henrik Brønnum-Hansen, Anne Mette Bender, Zorana Jovanovic Andersen, Jan Sørensen, Jakob Hjort Bønløkke, Hendriek Boshuizen, Thomas Becker, Finn Diderichsen & Steffen Loft, *Assessment of Impact of Traffic-Related Air Pollution on Morbidity and Mortality in Copenhagen Municipality and the Health Gain of Reduced Exposure*, 121 ENV’T INT’L 973 (2018) (explaining the benefits of reducing exposure to traffic emissions).

87. *E.g.*, LAND USE HANDBOOK, *supra* note 15, at 10 (recommending that the State should “[a]void siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day” and various other existing uses that create particularly poor air quality up to 1,000 feet away); NEAR ROADWAY AIR POLLUTION, *supra* note 6, at 2 (“Research findings indicate that roadways generally influence air quality within a few hundred meters – about 500-600 feet downwind from the vicinity of heavily traveled roadways or along corridors with significant trucking traffic or rail activities. This distance will vary by location and time of day or year, prevailing meteorology, topography, nearby land use, traffic patterns, as well as the individual pollutant.”); *see also* HEALTHY HOUSING, *supra* note 1 (observing that indoor air quality is often worse than outdoor air quality, and because people spend approximately 90% of their time indoors, indoor air pollution poses a greater risk than previously thought). *But see* Tony Barboza, *Freeway Pollution Travels Farther Than We Thought. Here’s How to Protect Yourself*, L.A. TIMES (Dec. 30, 2017), <https://www.latimes.com/local/california/la-me-freeway-pollution-what-you-can-do-20171230-htmstory.html> [<https://perma.cc/Z836-RW9N>] (“It’s not only your distance from traffic, but other details such as wind patterns, freeway design, the time of day and the types of cars, trucks and buildings around you that determine the risk . . . Avoid sites within 500 feet — where California air quality regulators warn against building — or even 1,000 feet. That’s where traffic pollution is generally highest . . .”); Michael Brauer, Conor Reynolds & Perry Hystad, *Traffic-Related Air Pollution and Health in Canada*, 185 CANADIAN MED. ASS’N J. 1557, 1557 (2013) (defining an “elevated exposure zone” as the 500 meters on either side of a highway, which is an area over three times larger than the measures for exposure zones used in most United States studies and policies); HEALTH EFFECTS INST., *supra* note 85, at ix (“[T]he Panel identified an exposure zone within a range of up to 300 to 500 [meters] from a major road as the area most highly affected by traffic emissions (the range reflects the variable influence of background pollution concentrations, meteorologic conditions, and season) . . .”).

88. NEAR ROADWAY AIR POLLUTION, *supra* note 6, at 1; *see* Jamie Smith Hopkins, *The*

report was published, this figure was equivalent to approximately 14.1% of the country's population.⁸⁹ Though the report did not measure how many people spend the better part of their day within 500 feet of major TRAP sources, intuitively, that total number includes several million more people than what the EPA's research accounted for in the range of 300 feet or less.

In the United States, the burden of TRAP is not shared equally; it is disproportionately placed on people with lower incomes.⁹⁰ While people in higher income brackets may enjoy the flexibility of choosing where to live, thereby freely avoiding exposure zones, that luxury is not shared by all. A city's decision to site land in these exposure zones for housing has a major influence on low-income renters' health.⁹¹ Consistent with this Article's earlier discussion on the correlation between socioeconomic status and race, knowing that people of a lower socioeconomic status are at a greater risk of pollution-related health issues implies that people of color are disproportionately impacted as well.⁹² In addition to this correlation, an even more direct reason exists to explain why people of color, and African Americans in particular, are more likely to be subjected to the poorest air quality within a city: segregation as a result of the U.S. interstate highway system. During the country's mid-20th century highway construction boom, urban freeways were routinely planned to

Invisible Hazard Afflicting Thousands of Schools, THE CTR. FOR PUB. INTEGRITY (Feb. 17, 2017), <https://publicintegrity.org/environment/the-invisible-hazard-afflicting-thousands-of-schools/> [<https://perma.cc/T4R6-7CBV>] (“Nearly 8,000 U.S. public schools lie within 500 feet of highways, truck routes and other roads with significant traffic . . .”).

89. See *National Population Totals and Components of Change: 2010-2019*, U.S. CENSUS BUREAU (Oct. 8, 2021), <https://www.census.gov/data/datasets/time-series/demo/popest/2010s-national-total.html> [<https://perma.cc/G9BL-3YJL>] (estimating that the United States' population was 318,301,008 people in 2014).

90. *Impact of Air Pollution*, *supra* note 19; see NEAR ROADWAY AIR POLLUTION, *supra* note 6, at 1, 3 (finding that “[a]ir pollutants . . . are found in higher concentrations near major roads” and that “people of low socioeconomic status are among those at higher risk for health impacts from air pollution near roadways”).

91. Cf. David Dayen, *Why the Poor Get Trapped in Depressed Areas*, NEW REPUBLIC (Mar. 18, 2016), <https://newrepublic.com/article/131743/poor-get-trapped-depressed-areas> [<https://perma.cc/T2X7-W3N8>] (explaining that it is difficult for someone living in poverty to move to areas with more opportunities because of the added costs of moving to a new city, such as renting a moving van, or needing to put down a security deposit in addition to paying rent for that month). Dayen's article is useful for understanding why a low-income renter with concerns about their health due to TRAP exposure is not necessarily able to move to a city that has affordable housing in less polluted areas.

92. *Impact of Air Pollution*, *supra* note 19 (“Poorer people and some racial and ethnic groups are among those who often face higher exposure to pollutants and who may experience greater responses to such pollution Recent studies . . . found that those who live in predominately black or African American communities suffered greater risk of premature death from particle pollution than those who live in communities that are predominately white Low socioeconomic status consistently increased the risk of premature death from fine particle pollution among 13.2 million Medicare recipients studied in the largest examination of particle pollution-related mortality nationwide.”).

bulldoze directly through low-income and minority communities.⁹³ This was not a one-off occurrence—it was public policy that “segregate[ed] Black neighborhoods from white neighborhoods,” destroyed thousands of businesses, displaced thousands of people from their homes, and trapped entire neighborhoods in a cycle of poverty.⁹⁴ With highways still existing as a physical and metaphorical barrier for numerous African American and other minority neighborhoods, “concentrated poverty and racial segregation . . . continues to impede economic mobility and access to opportunity,” all while exposing generations of residents in these communities to some of the worst TRAP in their city.⁹⁵

B. TRAP in California

California’s congested freeways,⁹⁶ shortage of nearly one million rental homes “affordable and available for extremely low-income renters,”⁹⁷ and the exceptionally poor air quality in many of its cities,⁹⁸ often places the state at the center of the discussion on residential uses in

93. Ashley Halsey III, *A Crusade to Defeat the Legacy of Highways Rammed Through Poor Neighborhoods*, WASH. POST (Mar. 29, 2016), [tinyurl.com/47mb5jnc](https://perma.cc/A7ZP-AKTB) [https://perma.cc/A7ZP-AKTB].

94. *Id.*; Deborah N. Archer, *Transportation Policy and the Underdevelopment of Black Communities*, 106 IOWA L. REV. 2125, 2135–41 (2021) (“The passage of the Federal-Aid Highway Act of 1956 facilitated the highway construction and the destruction of Black communities. Federal and state highway builders purposely targeted Black communities to make way for massive highway projects . . . [and] disproportionately displaced and destroyed Black homes, churches, schools, and businesses, sometimes leveling entire communities.”).

95. Archer, *supra* note 94, at 2133–34, 2139–41 (“Thus, segregative transportation policy not only cuts off Black communities from economic growth, education, and public safety, but endangers lives.”); Chetty et al., *supra* note 52, at 35 (“More racially segregated areas have less upward mobility.”); Alana Semuels, *How to Decimate a City*, ATLANTIC (Nov. 20, 2015), <https://www.theatlantic.com/business/archive/2015/11/syracuse-slums/416892> [https://perma.cc/2BTP-VRXZ] (“Over the past decade, the concentration of poverty in . . . American cities has increased, even as the nation has become wealthier and pulled itself out of a damaging recession . . . As upper- and middle-class residents moved to the suburbs, the very poor remained in the city, and increasingly saw themselves surrounded by more poor people.”).

96. Rex Crum, *We’re Not the Worst State, but Just How Bad Is California for Drivers?*, SANTA CRUZ SENTINEL (Jan. 21, 2020), <https://www.santacruzsentinel.com/2020/01/21/were-not-the-worst-state-but-just-how-bad-is-california-for-drivers-2/> [https://perma.cc/W29D-LWUR] (“California has the highest percentage of rush hour traffic congestion . . .”).

97. *Housing Needs by State: California*, NAT’L LOW INCOME HOUS. COAL., <https://nlihc.org/housing-needs-by-state/california> [https://perma.cc/D43R-5UGN] (demonstrating a shortage of over 1,000,000 rental homes affordable and available for extremely low-income renters).

98. Martin Wisckol, *‘Vicious Cycle’ Fuels Southern California Air Pollution, the Worst in the U.S.*, ORANGE CNTY. REG. (Oct. 6, 2021), <https://www.oregister.com/2021/10/05/vicious-cycle-fuels-southern-california-air-pollution-the-worst-in-the-u-s/> [https://perma.cc/WUR7-U2UE] (discussing some of the factors that contribute to poor air quality in California).

exposure zones. It is true that air pollution's deleterious effects pay no mind to state lines, but due to California's unique factors and robust history of legislative attempts to minimize TRAP's effects, this Article takes a more specific look at the state to evaluate what strategies might work as a foundation for addressing air pollution disparities in housing, and what strategies are more likely to fail.

California Air Resource Board's (CARB) independent research is consistent with the greater scientific community's findings on TRAP and exposure zones, estimating that California's inability to meet its statewide PM_{2.5} standards resulted in over 9,300 preventable deaths between 2004 and 2006.⁹⁹ More recent estimates show that "[i]f PM_{2.5} were reduced to background levels," approximately 7,200 premature deaths, 5,200 emergency room visits, and nearly 2,000 other hospitalizations would be avoided.¹⁰⁰ California is no exception to the pattern of people of color being disproportionately impacted by poor air quality. Statewide, people of color are exposed to greater levels of PM_{2.5} than white Californians.¹⁰¹ Furthermore, wealth is a major determinant of pollution exposure—even within higher income brackets—and the lowest-income households also live in areas more heavily polluted than the state average.¹⁰² The Union of Concerned Scientists' finding that "those with the highest incomes live where PM_{2.5} pollution is 13 percent below the state average" is not surprising, and further drives home the point that such disparities are not mere coincidence.¹⁰³

With the widespread availability of data on traffic exposure-related health risks, unambiguous and consistent residential siting recommendations from CARB,¹⁰⁴ and regulatory mandates that adopt HUD's minimum requirement that "[a]ll project sites must be free from

99. See *California Healthy Places Index*, PUB. HEALTH ALL. OF S. CAL., [https://policies.healthylivesindex.org/clean-environment/fine-particulate-matter-\(pm2.5\)/about](https://policies.healthylivesindex.org/clean-environment/fine-particulate-matter-(pm2.5)/about) [<https://perma.cc/82V7-W6VM>] (providing data suggesting the connection between fine particulate matter and adverse health outcomes); cf. Brauer et al., *supra* note 87, at 1157 ("Estimates suggest that there are 21[,]000 premature deaths attributable to air pollution in Canada each year, nearly 9 times higher than the number of deaths due to motor vehicle collisions.").

100. *Health & Air Pollution*, CAL. AIR RES. BD., <https://ww2.arb.ca.gov/resources/health-air-pollution#:~:text=The%20California%20Air%20Resources%20Board,as%20children%20and%20the%20elderly> [<https://perma.cc/GF2X-65VD>].

101. UNION OF CONCERNED SCIENTISTS, *INEQUITABLE EXPOSURE TO AIR POLLUTION FROM VEHICLES IN CALIFORNIA 1–2* (2019) ("On average, African American, Latino, and Asian Californians are exposed to more PM_{2.5} pollution from cars, trucks, and buses than white Californians. These groups are exposed to PM_{2.5} pollution 43, 39, and 21 percent higher, respectively, than white Californians . . .").

102. *Id.* at 2 ("The lowest-income households in the state live where PM_{2.5} pollution is 10 percent higher than the state average . . .").

103. *Id.*

104. LAND USE HANDBOOK, *supra* note 15, at 4.

severe adverse environmental conditions,”¹⁰⁵ it seems irresponsible that California continues to allow and fund the construction of affordable housing units directly along freeways without a genuine effort to find feasible, safe alternatives.¹⁰⁶

III. Analysis

The best solution for protecting citizens from the most dangerous amount of TRAP is also the most straightforward: federal or state governments must prohibit the construction of all residential developments within 500 feet of a major roadway.¹⁰⁷ Keeping the extensive history of exclusionary zoning laws’ use for segregating cities in mind, as well as the current housing and homelessness crises, a new proposal to prohibit residential development in any way might seem doomed from the start, no matter how clear the health risks to the future tenants are.¹⁰⁸ Indeed, such pessimism would likely be justified if it were up to local governments to independently enact and enforce zoning laws to achieve this proposal’s goal. After all, local officials are under pressure to find a solution to the housing shortages and homelessness crisis within their cities.¹⁰⁹ Barring future residences alongside freeways is likely to drive away developers who want to buy cheap land¹¹⁰ and bring on the

105. CAL. DEP’T HOUS. & CMTY. DEV., HOUSING FOR A HEALTHY CALIFORNIA art. I, § 102(h) (2019).

106. See Tony Barboza & David Zahniser, *California Officials Say Housing Next to Freeways Is a Health Risk — But They Fund It Anyway*, L.A. TIMES (Dec. 17, 2017), <https://www.latimes.com/local/california/la-me-freeway-homeless-housing-20171217-htm1story.html> [<https://perma.cc/RQ9Q-9M2X>] (“California’s decision to subsidize low-income housing near freeways alarms some health scientists, who point to years of studies that link roadway pollution with a growing list of illnesses — and billions in healthcare costs. They say air filters and other mitigation measures are not enough to protect residents. . . .”).

107. Barboza & Schleuss, *supra* note 15 (“Health officials say that . . . the only way to solve the problem is for city and county officials to stop residential building near freeways. And that, say legal experts, is well within their authority.”).

108. LAND USE HANDBOOK, *supra* note 15, at 4 (explaining that, despite its recommendation to “[a]void siting new sensitive land uses within 500 feet of a freeway [.]and use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.”).

109. Barboza & Schleuss, *supra* note 15 (“[E]lected officials and business groups argue that Los Angeles is so thoroughly crisscrossed by freeways that restricting growth near them is impractical and would hamper efforts to ease a severe housing shortage. In some cases, city officials are paving the way by re-zoning industrial land along freeways and other transportation corridors [for residential uses.]”); see Austin Sanders, *Austin Looks for Routes Out of Its Homelessness Crisis*, AUSTIN CHRON. (July 9, 2021), <https://www.austinchronicle.com/news/2021-07-09/austin-looks-for-routes-out-of-its-homelessness-crisis/> [<https://perma.cc/W7U2-2RKL>] (“Under pressure, the city experiments with fast and sustainable strategies[.]”).

110. Cf. Christian Britschgi, *Developers Halt Projects, Mayor Demands Reform After St.*

scorn of NIMBYs (which stands for “Not in my backyard”),¹¹¹ who fear low-income housing appearing in their neighborhoods.¹¹² By appeasing wealthy investors and homeowners, city officials send a clear signal that regardless of whatever housing reforms they may have promised in their campaigns, they will not follow through if it is at the expense of the homeowners’ vote¹¹³ or if it will make them the scapegoat for slowing economic growth when developers choose to invest in more developer-friendly cities.¹¹⁴

To be clear, it is not as if city officials are unaware of the health risks exacerbated by their inaction; they are making a conscious decision to prioritize private development over public health and social justice. When Eric Garcetti, Mayor of Los Angeles, was interviewed at the “groundbreaking for a freeway-adjacent apartment project . . . [.]he said he opposes any restrictions on how many homes can be built near

Paul Voters Approve Radical Rent Control Ballot Initiative, REASON FOUND. (Nov. 10, 2021), <https://reason.com/2021/11/10/developers-halt-projects-mayor-demands-reform-after-st-paul-voters-approve-radical-rent-control-ballot-initiative/> [<https://perma.cc/F9WD-G62J>] (quoting multiple developers who are reevaluating whether they will continue to build multifamily housing in St. Paul after a voter-proposed rent control initiative was approved in an election).

111. *NIMBY (Not in My Backyard)*, HOMELESS HUB, <https://www.homelesshub.ca/solutions/affordable-housing/nimby-not-my-backyard> [<https://perma.cc/APD8-R3H8>] (“NIMBY, an acronym for “Not In My Backyard,” describes the phenomenon in which residents of a neighbourhood designate a new development (e.g. shelter, affordable housing, group home) or change in occupancy of an existing development as inappropriate or unwanted for their local area.”); see Conor Dougherty, *Twilight of the NIMBY*, N.Y. TIMES (Jun. 5, 2022), <https://www.nytimes.com/2022/06/05/business/economy/california-housing-crisis-nimby.html> [<https://perma.cc/4XLP-S8BD>] (“[NIMBY’s] connotation has harshened as rent and home prices have exploded. NIMBYs who used to be viewed as, at best, defenders of their community, and at worst just practical, are now painted as housing hoarders whose efforts have increased racial segregation, deepened wealth inequality and are robbing the next generation of the American dream.”).

112. See Dougherty, *supra* note 111; Jeremy Robitaille & Rachel G. Bratt, *Fear of Affordable Housing: Perception vs. Reality*, SHELTERFORCE (Oct. 10, 2012), https://shelterforce.org/2012/10/10/fear_of_affordable_housing_perception_vs_reality/ [<https://perma.cc/MK2P-N8S7>]; see Samuel H. Kye, *The Persistence of White Flight in Middle-Class Suburbia*, 72 SOC. SCI. RSCH. 38, 48 (2018) (analyzing research “suggest[ing] that white flight and racial turnover may be slowly re-emerging not in poor urban neighborhoods, but rather in their suburban, middle-class counterparts”).

113. See Richard D. Kahlenberg, *Tearing Down the Walls: How the Biden Administration and Congress Can Reduce Exclusionary Zoning*, THE CENTURY FOUND. (Apr. 18, 2021), <https://tcf.org/content/report/tearing-walls-biden-administration-congress-can-reduce-exclusionary-zoning/> [<https://perma.cc/PZF3-FVZ9>] (describing the political consensus that certain housing policies are “politically untouchable” if it will lose the support of “upper-middle-class, mostly white homeowners”); Chris Salviati, *Renters vs. Homeowners at the Ballot Box -- Will America’s Politicians Represent the Voice of Renters?*, APARTMENT LIST (Oct. 30, 2018), <https://www.apartmentlist.com/research/renter-voting-preferences> [<https://perma.cc/U8MT-YLA6>] (“Renters are less likely than homeowners to be voting eligible, and even among eligible voters, just 49% of renters cast a ballot in 2016, compared to 67% of homeowners.”).

114. See Britschgi, *supra* note 110.

freeways.”¹¹⁵ Despite assuring the public that he “take[s] this stuff very seriously,” he justified the project’s approval by citing the city’s constricted housing market.¹¹⁶ Notably, former Los Angeles City Councilman José Huizar, a once-vocal opponent of building within exposure zones,¹¹⁷ ended his career in disgrace after being accused of accepting over \$1.5 million in bribes from the real estate developers who contribute to the kinds of housing inequity that he claimed he wanted to remedy.¹¹⁸ Huizar is not the only politician guilty of illegally catering to developers. While the bribes are often an attempt to achieve preferential treatment unrelated to the specific issue of building in exposure zones, the lengths some real estate developers will go to get their way and to entrench their influence in local governments cannot be brushed aside.¹¹⁹ To what extent illegal kickbacks are responsible for inequitable land use regulation is unknown. This Article does not suggest that most developers or local government officials are corrupt, but public corruption occurs with enough regularity to at least warrant skepticism

115. Barboza & Schleuss, *supra* note 15.

116. *Id.*

117. *Id.* (“Los Angeles City Councilman José Huizar, who lives several hundred feet from Interstate 5, said freeway pollution is such an urgent and complex problem that he wants the city to establish buffer zones. He called for a ‘comprehensive, citywide study of development near freeways that would analyze all impacts of limiting development around freeways.’”).

118. *Huizar Corruption Scandal Reveals Need for Reform in Housing Practices*, ABUNDANT HOUS. L.A. (July 6, 2020) [hereinafter *Huizar Corruption Scandal*] <https://abundanthousingla.org/huizar-corruption-scandal-reveals-need-for-reform-in-housing-practices/> [https://perma.cc/SC8N-4HBM] (“One notable detail in the investigation was Councilmember Huizar’s approval of a reduction in the number of affordable units required in an Arts District development.”). Huizar recently pled guilty to the charges against him. Press Release, U.S. Att’y’s Off., Cent. Dist. of Cal., Former Los Angeles City Politician José Huizar Pleads Guilty to Racketeering Conspiracy and Tax Evasion Charges (Jan. 20, 2023), <https://www.justice.gov/usao-cdca/pr/former-los-angeles-city-politician-jose-huizar-pleads-guilty-racketeering-conspiracy> [https://perma.cc/FDC4-HRSX].

119. See *Huizar Corruption Scandal*, *supra* note 118 (“The problem of undue influence over land use decisions is not just limited to Councilmember Huizar; it is an endemic issue that has clouded City Hall for decades.”); Callum Borchers, *Former Boston Official John Lynch Sentenced to 40 Months in Bribery Case*, WBUR (Jan. 24, 2020), <https://www.wbur.org/news/2020/01/24/john-lynch-sentence-bribery> [https://perma.cc/2LVN-RCA7] (“A longtime city employee, . . . Lynch admitted taking [\$50,000] from a real estate developer, in exchange for attempting to influence a key vote by a member of the city’s Zoning Board of Appeal.”); *Real Estate Developer Convicted of Bribing Two Former Dallas City Council Members*, INFORNEY (June 29, 2021), https://www.inforney.com/crime/real-estate-developer-convicted-of-bribing-two-former-dallas-city-council-members/article_88067a02-d93d-11eb-ad32-87186e471d1d.html [https://perma.cc/WR24-YL52] (discovering that two city councilmembers, including the chair of Dallas’s Housing Committee, accepted bribes “to authorize a real estate development loan and . . . an award of a 9 percent tax credit . . . despite the fact that [the development] failed to meet the city’s enumerated multifamily housing priorities”).

of *some* local officials' motivations when they continuously allow their most vulnerable constituents to be placed in harm's way.¹²⁰

Corruption aside, cities recognize and respond to the threat of air pollution differently from one another.¹²¹ Therefore, another benefit of a federal or state mandate is consistency and efficiency,¹²² rather than the typical piecemeal voting approach which frustrates developers and slows the housing market's growth.¹²³ This solution will not be without challenges. Although there are several ways the federal government influences land use,¹²⁴ zoning is primarily a matter for local governments—and to a less direct extent, state governments—to

120. See *Official Corruption Prosecutions Have Increased*, TRAC REPS. (May 4, 2021), <https://trac.syr.edu/tracreports/crim/646/> [<https://perma.cc/J4JU-UEJA>] (“The latest available data from the Department of Justice show that during the first six months of FY 2021 the government reported 236 new official corruption prosecutions. If this activity continues at the same pace, the annual total of prosecutions will be 472 for this fiscal year. This estimate is up 38 percent over the past fiscal year.”); *A Handful of Unlawful Behaviors, Led by Fraud and Bribery, Account for Nearly All Public Corruption Convictions Since 1985*, NAT'L INST. OF JUST. (June 5, 2020), <https://nij.ojp.gov/topics/articles/handful-unlawful-behaviors-led-fraud-and-bribery-account-nearly-all-public> [<https://perma.cc/P768-C2ZX>] (“The researchers noted a nexus between heightened corruption risk and public service at the state and, especially, local levels. They pointed out that public officials serving on government boards and councils, as well as in elected office . . . were often employed part time, undertrained, and undersupervised [sic]. The report on corrupt behavior types said that the ‘lack of professionalism’ in the public officials’ roles and expectations ‘provided the space to exploit opportunities to enrich themselves.’”).

121. Compare Barboza & Schleuss, *supra* note 15 (finding that new residential buildings are being constructed alongside freeways despite health officials' warnings), with Joseph Geha, *Fremont City Council Rejects Warm Springs Housing Development Proposed Near Freeway*, MERCURY NEWS (Apr. 21, 2021), <https://www.mercurynews.com/2021/04/21/fremont-city-council-rejects-warm-springs-housing-development-proposed-near-freeway/> [<https://perma.cc/9VMF-AHWL>] (explaining how the Fremont City Council unanimously rejected a proposal for a housing development alongside a freeway because of the known dangers it would pose to the residents).

122. Cf. BARLOW BURKE, ANN M. BURKHART & THOMAS P. GALLANIS, *FUNDAMENTALS OF PROPERTY LAW* 804 (5th ed. 2020) (describing how modern land use law has resulted in every state delegating “the power to zone to cities,” meaning that most land use decisions do not require uniformity within a state or within the country).

123. See Roderick M. Hills Jr. & David Schleicher, *Planning an Affordable City*, 101 IOWA L. REV. 91, 116–17 (2015).

124. ORG. FOR ECON. COOP. & DEV., *LAND-USE PLANNING SYSTEMS IN THE OECD: COUNTRY FACT SHEETS* 220 (2017) (“Despite its lack of direct powers regarding land-use planning on non-federal lands, the federal government exercises considerable influence over land use. First, it has enacted environmental legislation that influences land-use decision making. . . . Fourth, it has signed treaties that influence or govern land use on Native American tribal land. Fifth, it constructs and funds federal roads. Sixth, it provides fiscal incentives to state and local governments for specific projects. Seventh, it provides tax incentives to individuals, for example to encourage single-family homeownership through tax deductions on mortgage interests. Eighth, it provides limited housing support for low income households. . . . Tenth, US constitutional principles such as due process, equal protection, and takings limitations impose restrictions on land-use planning.”).

control,¹²⁵ and local officials are unlikely to willingly give up any ability to make zoning decisions in their cities.¹²⁶

A. *Past Attempts at Limiting New Construction in Exposure Zones: California's Senate Bill No. 352*

Some might expect that such a sweeping restriction on development is too radical to get political support, but the proposal is not as far-fetched as one might initially think. In 2003, California banned the construction of new schools if the proposed site was within 500 feet of a major roadway.¹²⁷ For all intents and purposes, this Article is proposing the same regulation, merely aimed at a different use. Taking a look at where California's law failed in practice demonstrates the need for a stronger law that does not give local governments the opportunity to exploit loopholes.

This school-siting legislation was clear; the effects of TRAP are not shared equally across the state's students, and the state has access to more than enough research to make an informed decision to protect people's health. Section 1 reads:

The Legislature finds and declares all of the following:

(a) Many studies have shown significantly increased levels of pollutants, particularly diesel particulates, in close proximity to freeways and other major diesel sources. A recent study of Los Angeles area freeways measured diesel particulate levels up to 25 times higher near freeways than those levels elsewhere. Much of the pollution from freeways is associated with acute health effects, exacerbating asthma and negatively impacting the ability of children to learn.

(b) Cars and trucks release at least forty different toxic air contaminants, including, but not limited to, diesel particulate, benzene, formaldehyde, 1,3-butadiene and acetaldehyde. Levels of these pollutants are generally concentrated within 500 feet of freeways and very busy roadways.

(c) Current state law governing the siting of schools does not specify whether busy freeways should be included in environmental impact reports of nearby "facilities." Over 150 schools are already estimated to be within 500 feet of extremely high traffic roadways.

125. Cf. Ritchie, *supra* note 23 (explaining the state-local zoning conflicts as it relates to regulating fracking).

126. Dan Walters, *Cities Try to Thwart State's Push for Housing*, CALMATTERS (Feb. 7, 2022), <https://calmatters.org/commentary/2022/02/cities-try-to-thwart-states-push-for-housing/> [<https://perma.cc/GTZ2-PMC3>] (“[There is a] political and legal war over housing, pitting the state of California against its 400 cities . . . The state enacts laws and regulations aimed at compelling cities to accept more affordable housing construction, particularly to serve low- and moderate-income families, and cities counter with local laws and regulations to evade their housing quotas.”).

127. See CAL. EDUC. CODE § 17213 (West 2023); CAL. PUB. RES. CODE § 21151.8 (West 2023).

(d) A disproportionate number of economically disadvantaged pupils may be attending schools that are close to busy roads, putting them at an increased risk of developing bronchitis from elevated levels of several pollutants associated with traffic. Many studies have confirmed that increased wheezing and bronchitis occurs among children living in high traffic areas.

(e) It is therefore the intent of the Legislature to protect school children from the health risks posed by pollution from heavy freeway traffic and other nonstationary sources in the same way that they are protected from industrial pollution.¹²⁸

Though it took more than two decades for any state to do so, Senate Bill 352 implemented the recommendation of a 1977 study commissioned by the Federal Highway Administration.¹²⁹ The study observed a wide variety of adverse impacts on students due to their school's proximity to a major roadway, and it recommended strategies for reducing the harms that included "the possible closure or relocation of the school facility."¹³⁰ However, from a public health perspective, drafters of this California bill left a serious loophole: a clause allowing schools to bypass the development prohibition if the school district cannot find a suitable alternative site.¹³¹ As a result, new schools continue to get added to sites near highways, undermining the main goal of the law.¹³²

That being said, it would not be entirely fair to cast the bill's exception as a loophole for school districts to intentionally and routinely abuse, as the reality is that many districts constantly face massive budget deficits that limit their ability to acquire a safer site for constructing new schools.¹³³ Also, like most states that have a long history of favoring

128. 2003 Cal. Legis. Serv. Ch. 668 (S.B. 352) (West).

129. See LESLIE J. WELLS, RICHARD SHAPIRO & ROBERT W. FELSBERG, *SCHOOLS LOCATED NEAR HIGHWAYS: PROBLEMS AND PROSPECTS* 14 (1977).

130. *Id.*

131. See CAL. EDUC. CODE § 17213(c)(2)(D) (West 2023).

132. Evelyn Larrubia, *Schools Still Rise Close to Freeways*, L.A. TIMES (Sept. 24, 2007), <https://www.latimes.com/archives/la-xpm-2007-sep-24-me-freeways24-story.html> [<https://perma.cc/DZC8-BU7R>] ("Despite . . . [Senate Bill 352] and mounting evidence that road pollutants harm children's lungs, the Los Angeles Unified School District is in the process of adding seven new schools to the more than 70 already located close to highways. . . . School board President Monica Garcia, in whose district both pending schools are located, said through a spokesman that she was concerned about children's health, but that she would support the new campuses if the district was able to mitigate the dangers.").

133. See, e.g., Emily Hoeven, *California School Are Running Out of Money*, CALMATTERS (Oct. 19, 2021), <https://calmatters.org/newsletters/whatmatters/2021/10/california-schools-funding/> [<https://perma.cc/3TBT-J2WS>] (discussing the limited financial resources for California school districts and the need for budget cuts to critical programs now or in the future); TCF Study Finds U.S. Schools Underfunded by Nearly \$150 Billion Annually, THE CENTURY FOUND. (July 22, 2020), <https://tcf.org/content/about-tcf/tcf-study-finds-u-s-schools-underfunded-nearly-150-billion-annually/?agreed=1>

single-family zoning, California's resulting sprawl of low-density neighborhoods—occupying an overwhelming majority of the available land in the state—has naturally had the consequence of inflating land prices.¹³⁴ When a school district is underfunded—which is, at least in part, a reflection of the rate of poverty in the district¹³⁵—it becomes that much harder to afford a plot of land large enough for a school in any location but the least desirable ones.¹³⁶ The parallels to California's attempted school-siting legislation and the regulation proposed in this Article are numerous. Though it was not overwhelmingly effective once enacted, the power of hindsight makes it easy to see why that was the case, and how a housing bill with a similar goal and framework could be strengthened in the future.

The school siting issue is even more extreme nationwide. Twenty percent of new schools are built in exposure zones.¹³⁷ It is difficult to estimate what this percentage would be if other states, especially states not plagued by limitations as extreme as California's lack of available space, had similar laws in place. However, even if all other states had laws analogous to California's Senate Bill 352, long-observed socioeconomic disparities would likely appear in school siting decisions just as they always have in other aspects of urban planning: wealthier school districts

[<https://perma.cc/JZ9X-7KK6>] (“The United States is underfunding its K-12 public schools by nearly \$150 billion annually School districts with high concentrations of Latinx and Black students are much more likely to be underfunded than majority white districts, and face much wider funding gaps, an average deficit of more than \$5,000 per student, the analysis finds.”).

134. See Alexander von Hoffman, *Single-Family Zoning: Can History Be Reversed?*, JOINT CTR. FOR HOUS. STUD. OF HARV. UNIV. (Oct. 5, 2021), <https://www.jchs.harvard.edu/blog/single-family-zoning-can-history-be-reversed> [<https://perma.cc/ZJ94-MFR2>] (condemning single-family zoning for its role in “creating suburban sprawl”); M. Nolan Gray, *Single-Family Zoning Is Dead in California. Now What?*, PAC. RSCH. INST. (Nov. 1, 2021), <https://www.pacificresearch.org/single-family-zoning-is-dead-in-california-now-what/> [<https://perma.cc/6ECA-SDVR>] (“In big California cities like San Jose and Los Angeles, single-family zoning covers 94 and 62 percent of all residential areas, respectively. In smaller, more affluent suburbs—think Palo Alto or La Cañada Flintridge—virtually all residential land will be subject to single-family zoning.”).

135. E.g., Lauren Camera, *In Most States, Poorest School Districts Get Less Funding*, U.S. NEWS (Feb. 27, 2018), <https://www.usnews.com/news/best-states/articles/2018-02-27/in-most-states-poorest-school-districts-get-less-funding> (“School districts with the highest rates of poverty receive about \$1,000 less per student in state and local funding than those with the lowest rates of poverty.”).

136. See Hopkins, *supra* note 88 (noting that schools are often built on inexpensive land, such as land in exposure zones). At least twenty-seven states require a minimum number of acres for the site of a new school. Thus, underfunded school districts in these states must prioritize cheap land even more than they already would without the acreage requirement, as there are generally fewer options that meet the acreage requirement. Angie Schmitt, *America Builds Too Many Schools by Highways*, STREETS BLOG USA (Feb. 21, 2017), <https://usa.streetsblog.org/2017/02/21/america-builds-too-many-schools-by-highways/> [<https://perma.cc/CGH4-ZGHU>].

137. See Hopkins, *supra* note 88.

still have the means to build schools in areas that are not exposure zones. Therefore, both the requirements and the exceptions to laws like Senate Bill No. 352 would not be likely to significantly impact the locations where many new schools are built.

Notably, New York's Legislature passed a fundamentally identical bill in 2022, but it was vetoed by Governor Kathy Hochul.¹³⁸ She claimed she was "fully in support of the laudable goal" of combatting environmental injustice and protecting the health of the children in her state, but she felt the bill was "overly restrictive" despite the sponsors' best efforts to make amendments that would give city officials the leeway they initially seemed to be looking for.¹³⁹ In New York, approximately one in three students attend school near a major roadway.¹⁴⁰ "Around 80 percent of the state's students who attend these schools are students of color, and 66 percent are low-income."¹⁴¹

B. Health Impact Assessments

Those who are wary of the strong stance taken in this Article, but who also recognize that health equity needs to be given more consideration in the land use decision-making process, might feel more comfortable supporting a greater usage of Health Impact Assessments (HIAs) before immediately moving to enact strict zoning restrictions. Though these assessments can have many benefits, they are not a strong enough tool to address the present issue efficiently. An HIA is transdisciplinary; it is defined as "a combination of procedures, methods, and tools by which a policy, program, or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population."¹⁴² The assessments are widely used in other countries but have taken longer to be adopted by United States agencies and practitioners.¹⁴³ Housing-specific HIAs are not

138. Robert Harding, *Hochul Vetoes Bill to Block New NY Schools From Being Built Near Highways*, AUBURNPUB (Jan. 4, 2023), https://auburnpub.com/news/local/govt-and-politics/hochul-vetoes-bill-to-block-new-ny-schools-from-being-built-near-highways/article_0dfd4c1c-cfac-5c9d-914e-829ba1920d0a.html [https://perma.cc/NDA5-62D7].

139. *Id.*

140. *Id.*

141. Lanessa Owens-Chaplin & Simon McCormack, *NY's Step Towards Environmental Justice*, NYCLU (Jul. 5, 2022), https://www.nyclu.org/en/news/nys-step-towards-environmental-justice?utm_medium=website&utm_source=archdaily.com [https://perma.cc/34BS-44AA].

142. Andrew L. Dannenberg, Rajiv Bhatia, Brian L. Cole, Sarah K. Heaton, Jason D. Feldman & Candace D. Rutt, *Use of Health Impact Assessment in the U.S.: 27 Case Studies, 1999–2007*, 34 AM. J. PREVENTATIVE MED. 241, 241 (2008) (quotation omitted).

143. Jason Corburn & Rajiv Bhatia, *Health Impact Assessment in San Francisco*:

commonplace, but similar to the overall use of HIAs in the United States, they are slowly gaining traction.¹⁴⁴ Supporters of this tool argue that its increased usage will prove beneficial in “foster[ing] a rights-based approach to health.”¹⁴⁵ Research has shown that when non-health policies—such as land-use and zoning laws—create a burden on an individual’s or community’s health, “those burdens ‘disproportionately affect[] the already disadvantaged.’”¹⁴⁶ HIAs ensure that assessments of health impacts are also equity-focused, lending credibility to their supporters’ position.¹⁴⁷ Despite those general points aligning with the overall theme of this Article, relying on HIAs is not the correct solution for the specific issue at hand.

There are multiple reasons why HIAs are not a better option than a total prohibition of residential zoning in exposure zones. First and foremost, HIAs are voluntary in the vast majority of jurisdictions.¹⁴⁸ If the argument is to merely provide more support and awareness for housing HIAs as they exist in their current form, there is no basis to believe that the housing sector will be inclined to go through the process any more than it already is. An HIA can take anywhere “from six weeks to a year to complete and cost \$10,000 to \$200,000,”¹⁴⁹ so it is not surprising that developers do not volunteer to go through this process for each of their projects. However, even if HIAs became mandatory for every project proposed in an exposure zone, that requirement would still fail to ensure significant progress toward achieving health equity because standalone HIAs are generally unenforceable.¹⁵⁰ Thus, if the HIA ultimately concludes that the proposed location should not be sited for residential use due to

Incorporating the Social Determinants of Health into Environmental Planning, 50 J. ENV'T PLANNING & MGMT. 323, 324 (2007) (“Health Impact Assessment (HIA) is an evolving practice, now widely used in Europe, Canada and Australia However, in the US the practice of HIA is new and largely untested in city planning.”).

144. Emily Bever, Kimberly T. Arnold, Ruth Lindberg, Andrew L. Dannenberg, Rebecca Morley, Jill Breyse & Keshia M. Pollack Porter, *Use of Health Impact Assessments in the Housing Sector to Promote Health in the United States, 2002–2016*, J. HOUS. & BUILT ENV'T 1277, 1279 (2021).

145. Christina S. Ho, *Legislating a Negative Right to Health: Health Impact Assessments*, 50 SETON HALL L. REV. 643, 705 (2020).

146. *Id.* at 656 (citing Eileen O’Keefe & Alex Scott-Samuel, *Human Rights and Wrongs: Could Health Impact Assessment Help?*, 30 J.L. MED. & ETHICS 734, 735 (2002)).

147. *Id.* at 655–56.

148. See *Health Impact Assessment*, CDC, <https://www.cdc.gov/healthyplaces/hia.htm> [<https://perma.cc/748W-MBMU>].

149. THE PEW CHARITABLE TRS. & ROBERT WOOD JOHNSON FOUND., *HEALTH IMPACT ASSESSMENT: BRINGING PUBLIC HEALTH DATA TO DECISION MAKING 2* (2010).

150. See Corburn & Bhatia, *supra* note 143, at 327 (discussing how there is not one common approach to HIAs, and how HIAs have been most successful in influencing policy decisions when decision-makers were involved in the creation and implementation of the HIA and when there was an institutional commitment to and a statutory framework for the HIA).

air quality concerns, the developer could choose to ignore the advice and carry on with the project as planned or with whatever inadequate modifications they are willing to make. Perhaps that sounds cynical, but since the majority of city officials and developers already actively choose to go against the decades of available research on this issue, it is reasonable to expect the same pattern would continue regardless of the slight procedural hiccup caused by a mandatory HIA.¹⁵¹ This expectation is especially true absent some other incentive or requirement binding developers to the HIA determination. In essence, the HIA would merely become another expense for developers to budget for—almost like a sin tax¹⁵²—but would not have a major impact on their overall plan.

Even if a stronger variation of an HIA was presented—one that was mandatory for residential development proposals in exposure zone *and* was embedded in an already required environmental review to create a legally enforceable obligation¹⁵³—it still does not solve the issue as effectively as an outright ban of development in exposure zones. An HIA performed in good faith simply cannot determine that placing a residential use in an exposure zone is safe because, for decades, independent and government-sponsored research has found the exact opposite.¹⁵⁴ Accordingly, the presumption is that every mandatory HIA's findings would direct the developer to identify a different, less-polluted site for their project. In this scenario, the developer would either have to comply or abandon their project altogether. Overall, the result is desirable and consistent with this Article's goals of keeping residences out of exposure zones. However, this proposal renders this hypothetical housing HIA as nothing more than a resource-wasting formality until developers eventually accept (likely after extensive, costly litigation) that no proposals for residential construction in exposure zones will be approved after an HIA review is completed. While HIAs can certainly play

151. See, e.g., Barboza & Schleuss, *supra* note 15 (describing how Chino officials ignored a letter from the South Coast air district "warning that freeway pollutants would threaten the health of residents" if they allowed an apartment to be built approximately 100 feet from a major road).

152. See generally THE PEW CHARITABLE TRS., ARE SIN TAXES HEALTHY FOR STATE BUDGETS? (2018) (discussing sin taxes).

153. See *Integrating Health Impact Assessments via Environmental Policy Acts*, THE NETWORK FOR PUB. HEALTH (Jan. 9, 2017) <https://www.networkforph.org/news-insights/integrating-health-impact-assessments-via-environmental-policy-acts/> [<https://perma.cc/S3EQ-RC3C>] (discussing potential ways to incorporate HIAs into legally required environmental reviews).

154. *But see* Bever et al., *supra* note 144, at 1289 (providing an example of a developer implementing an HIA's recommendations for a proposed low-income senior housing project that was next to a highway, including the addition of particulate air filter and sealed bay windows, but noting that HIAs do not guarantee recommended actions be taken). This Article's position is that such additions are potentially the best available solutions for existing buildings, but not for new developments.

an important role in expanding health equity throughout the country in connection with a variety of projects, they lack any compelling features that justify their use here instead of a total prohibition of siting exposure zones for residential use.

Practitioners familiar with the National Environmental Policy Act (NEPA)¹⁵⁵ and equivalent state environmental laws¹⁵⁶ will recognize some similarities between HIAs and environmental impact statements (EIS). An EIS might be required when a developer uses federal or state tax dollars as part of the financing for their project that is considered a “major federal action,” meaning that it “significantly affect[s] the quality of the human environment.”¹⁵⁷ Typically, an EIS is used when a project is expected to result in humans impacting the environment,¹⁵⁸ rather than the environment impacting humans—as is the case when residential uses are built in exposure zones. Like HIAs, EISs are not required by all municipalities, and “[i]t is unrealistic to expect [those] municipalities that do not now require [EIS] to start doing so in order to address environmental justice concerns.”¹⁵⁹ Even if they were required, another troubling element of NEPA-type laws is that while their review processes have occasionally shown success in stopping the construction of residential developments, this success does not necessarily occur out of concern for the environment or the health of the would-be tenants of the proposed project. Instead, many scholars accuse these review processes of being abused by NIMBYs to prevent affordable housing developments from entering their neighborhoods.¹⁶⁰ Though not everyone agrees that

155. See, e.g., *What is the National Environmental Policy Act?*, EPA (Oct. 26, 2022), <https://www.epa.gov/nepa/what-national-environmental-policy-act> [<https://perma.cc/Z4AK-FLGX>].

156. See Patrick Marchman, “Little NEPAs”: State Equivalents to the National Environmental Policy Act in Indiana, Minnesota and Wisconsin (Sept. 2012) (Capstone, Duke Environmental Leadership Program of the Environment at Duke University) https://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/5891/P.%20Marchman%20Little%20NEPAs_Final_w%20endnotes.pdf [<https://perma.cc/J4CG-T28D>].

157. Tiffany Middleton, *What Is an Environmental Impact Statement?*, ABA (Mar. 2, 2021), https://www.americanbar.org/groups/public_education/publications/teaching-legal-docs/teaching-legal-docs--what-is-an-environmental-impact-statement/ [<https://perma.cc/S7PW-NY8U>].

158. *Id.*

159. NAT’L ACAD. OF PUB. ADMIN. FOR THE U.S. EPA, ADDRESSING COMMUNITY CONCERNS: HOW ENVIRONMENTAL JUSTICE RELATES TO LAND USE PLANNING AND ZONING 46 (2003) (quoting Michael B. Gerrard, ENVIRONMENTAL JUSTICE AND LOCAL LAND USE DECISION-MAKING, *in* TRENDS IN LAND USE LAW FROM A TO Z: ADULT USES TO ZONING (Patricia Salkin, ed., 2001)).

160. JENNIFER L. HERNANDEZ & DAVID FRIEDMAN, IN THE NAME OF THE ENVIRONMENT: LITIGATION ABUSE UNDER CEQA, HOLLAND & KNIGHT 29 (2015), <https://www.hklaw.com/en/insights/publications/2015/08/in-the-name-of-the-environment-litigation-abuse-un> [<https://perma.cc/7ER7-FAD8>] (“What’s most shocking, however, is that these abusive litigation tactics are being undertaken in the name of ‘the

the abuse is as prevalent as some of the existing research suggests, it is important to question if strengthening already controversial federal and state environmental reviews is the best way to address building in exposure zones, or if it risks adding another avenue for NIMBYs to manipulate and prevent otherwise viable projects from being approved.

C. Electric Vehicle Counterargument

An ancillary counterargument used by opponents of exposure zone development restrictions focuses on the roads rather than the housing. The position hinges on the fact that modern emissions standards continue to make a vehicle's emissions less harmful to its surroundings.¹⁶¹ That fact, combined with the increased support for zero emission vehicle (ZEV) mandates,¹⁶² should theoretically result in a lower risk of adverse health effects from TRAP.¹⁶³ If that holds true, the counterargument concludes that prohibiting growth in exposure zones is an overreaction. However, there are a number of issues with this position.

The first issue is one that is often overlooked. It is true that ZEVs do not create as much TRAP as an internal combustion engine vehicle (ICE), but “[s]witching to zero-emission vehicles only gets rid of tailpipe-generated pollution. It does nothing to reduce non-exhaust pollutants, including dust from brake pads and tires that contains toxic metals, rubber, and other compounds that are kicked up into the air.”¹⁶⁴ This reality is not an argument against ZEVs—there are numerous benefits associated with reducing the number of ICE vehicles on the road¹⁶⁵—but

environment’—when in fact the environment, jobs, affordable housing, public parks, and a broad range of other important social and political priorities are derailed, delayed, or made far more costly by CEQA litigation abuse.”); see also James Brasuell, *Leaked Settlement Shows How NIMBYs “Greenmail” Developers*, CURBED L.A. (Jan. 3, 2013), <https://la.curbed.com/2013/1/3/10295162/leaked-settlement-shows-how-nimbys-greenmail-developers-1> [<https://perma.cc/CU5M-ENEF>] (describing an instance in which local homeowners in the La Miranda Avenue Neighborhood Association successfully challenged developers’ plans to build new condos in the area).

161. See Barboza, *supra* note 87 (noting that regulators believe “decades of tough clean-air rules have slashed tailpipe emissions” and reduced risks of living near freeways).

162. See, e.g., Stephen Edelstein, *Which States Follow California’s Emission and Zero-Emission Vehicle Rules?*, GREEN CAR REPS. (Mar. 7, 2017), https://www.greencarreports.com/news/1109217_which-states-follow-californias-emission-and-zero-emission-vehicle-rules [<https://perma.cc/RAM8-VTZF>] (noting that over a dozen states have adopted California’s strict emissions standards).

163. See Barboza & Schleuss, *supra* note 15 (“California air regulators acknowledge that decades of strict vehicle emissions standards have slashed tailpipe emissions, and they say air quality along freeways will continue to improve as the state transitions to cleaner vehicles and fuels.”).

164. Barboza, *supra* note 87.

165. E.g., *How Zero Emission Vehicles Can Support Governments to Achieve a Green Recovery*, THE CLIMATE GRP. (Sept. 3, 2020), <https://www.theclimategroup.org/our->

a reminder that ZEVs are not a perfect fix for people living in exposure zones.

Second, it is far from settled that ZEV mandates will be enacted on a federal level or that states can even enforce such mandates regardless of whether a federal law is passed.¹⁶⁶ Granted, industry trends¹⁶⁷ and support from the Biden administration¹⁶⁸ understandably boosts confidence that ZEVs and other categories of electric or hybrid vehicles will continue to grow in demand, but such reasons alone cannot guarantee that ZEVs will ever be used widely enough to reduce TRAP in exposure zones to an equitable level. Furthermore, even if ZEV mandates are deemed enforceable, it will take at least over a decade before 100% of new vehicle sales are ZEVs,¹⁶⁹ and likely longer given that currently less than a third of the states have tried to adopt such mandates.¹⁷⁰ All the while, more people will continue to move to new or existing affordable

work/news/how-zero-emission-vehicles-can-support-governments-achieve-green-recovery [https://perma.cc/PM3Y-SW4K] (explaining several advantages of an increased use of ZEVs including stimulation of the job market, improvement of air quality, and improvement of public health).

166. See Thomas M. Donnelly, *Challenges to Safer Affordable Fuel-Efficient Vehicles Rule Keep Coming*, JONES DAY (July 2020), <https://www.jonesday.com/en/insights/2020/07/challenges-to-safer-affordable-fuelefficient-vehicles-rule-keep-coming> [https://perma.cc/DA9S-TVGY] (describing arguments of petitioners in *Union of Concerned Scientists v. NHTSA*, No. 19-1230 (D.C. Cir. 2022), which focus on their belief that the EPA lacks the authority to deny California waiver from the federal Clean Air Act to set more stringent GHG standards and a ZEV program, and that the Clean Air Act does not permit other states to adopt or enforce California's stringent emission standards); PERCIVAL ET AL., *supra* note 80, at 474–79 (describing the recent legal battles in connection with California's ZEV program); see also Hopkins, *supra* note 88 (“A nationwide changeover to vehicles that don't pollute would be the ultimate fix, but that won't come soon. Even a thus-far successful federal mandate to reduce the worst of that pollution, from big rigs and other diesel trucks, is still roughly a dozen years away from taking full effect — when today's kindergartners graduate from high school. That's because diesel engines are long-lived. Several million trucks on the road predate the standards, and no federal rules require them to be retrofitted.”).

167. See Robert Walton, *Global EV Sales Rise 80% in 2021 as Automakers Including Ford, GM Commit to Zero Emissions: BNEF*, UTIL. DIVE (Nov. 12, 2021), <https://www.utilitydive.com/news/global-ev-sales-rise-80-in-2021-as-automakers-including-ford-gm-commit-t/609949/> [https://perma.cc/8NL7-8U8H] (“The uptake in electric vehicles is occurring faster than previously thought, driven by government decarbonization policies, falling battery prices and a growing number of models offered by automakers. . .”).

168. See Exec. Order No. 14,037, 86 Fed. Reg. 43583 (Aug. 5, 2021).

169. See *Governor Newsom's Zero-Emission by 2035 Executive Order (N-79-20)*, CAL. AIR RES. BD. (Jan. 19, 2021), <https://ww2.arb.ca.gov/resources/fact-sheets/governor-newsoms-zero-emission-2035-executive-order-n-79-20> [https://perma.cc/5MCZ-QLRR] (describing California Governor Newsom's plan to reach zero emissions by 2035 through the sale of ZEVs).

170. See Donnelly, *supra* note 166 (noting that only thirteen states have adopted GHG emission and zero-emissions vehicle standards).

housing in exposure zones,¹⁷¹ and thousands of those people will die prematurely with the promised benefits of ZEVs failing to materialize in time.¹⁷²

Third, ZEV mandates would only apply to the sale of *new* vehicles.¹⁷³ Once again, assuming that ZEV laws can be enforced, that still does not mean that every vehicle in use in 2030 or 2035—the years that various federal and state mandates are supposed to go into effect—will be a ZEV. There is nothing stopping the owner of an ICE vehicle from continuing to use their vehicle long after the ZEV mandate goes into effect. Further, the current ZEV mandates do not prevent someone from purchasing a secondhand ICE vehicle after 2035.¹⁷⁴ At this point, predictions of the percentage of ICE vehicles owned in 2035 and beyond are highly speculative, standing in stark contrast to the demonstrable estimates of premature deaths linked to TRAP.

To reiterate, these critiques of being overly reliant on ZEVs to solve the issue of residential development in exposure zones should not cause one to lose confidence in the overall benefits of ZEVs, but rather should encourage recognition of the urgency of the housing concerns. Taking actions to protect the health of millions of Americans—many of them among the most vulnerable in the nation—is long overdue. Opting to count on a currently unreliable and unproven strategy that, as a best-case scenario, will take decades before its impacts are fully realized, is not an acceptable alternative to taking immediate action. Adopting this Article's proposal now does not mean that it must stay in place in perpetuity. In the future, if there is measurable proof that the areas currently considered exposure zones no longer pose the same health risks due to the increased usage of ZEVs, it may very well be worth revisiting the proposed restrictions in those areas. However, it will likely be decades before that conversation can occur.

D. Existing Residential Uses in Exposure Zones

Up until this point, a critical piece of this issue has gone unaddressed: what should be done about the millions of residences currently located in exposure zones? This issue is a challenging one, and under the position taken in this Article, it lacks a perfect answer. The

171. *E.g.*, Barboza & Schleuss, *supra* note 15 (“The population near Los Angeles freeways is growing faster than elsewhere in the city as planners push developers to concentrate new housing near transportation hubs.”).

172. *See* Barboza, *supra* note 87 (noting that in California alone, diesel particulate matter causes over 1,000 premature deaths each year).

173. CAL. AIR RES. BD., *supra* note 169; Exec. Order No. 14,037, *supra* note 168.

174. *Zero-Emission Vehicle Program*, CAL. AIR RES. BD., <https://ww2.arb.ca.gov/our-work/programs/zero-emission-vehicle-program> [<https://perma.cc/T37S-V7U7>].

premise of this Article is that exposure zones create severe public health risks that must be prioritized over the financial interests of private developers or local officials' political motivations. This Article's proposal adheres to that premise regarding future residential development, but it is completely impractical to try to apply the prohibition retroactively as well—the notion of displacing over 11 million people from their homes¹⁷⁵ in the name of public health is painfully ironic, not to mention likely a violation of a host of laws and regulations.

It may be too late to undo the past decisions which allowed these buildings to be in their current, unsafe locations, but residents living in exposure zones are not entirely without hope for a healthier living space. For example, although not a perfect solution, some studies show that certain types of air filtration systems can keep a greater amount of TRAP from entering a building than many current systems.¹⁷⁶ Other research advocates for sealed windows and other exterior repairs to buildings so that pollutants cannot enter as easily.¹⁷⁷ If these kinds of repairs give tenants the greatest likelihood of improving the quality of their air without being displaced, then states should explore enforcement of these options through building codes or other mandates.¹⁷⁸ Enforcement will not be without challenges; there will likely be pushback from developers if they are required to invest thousands, if not millions, of dollars into updating their entire portfolios.¹⁷⁹ There is also an issue of enforcement and accountability. Do states have adequate resources to identify

175. U.S. DEPT. OF TRANSP., *supra* note 15 (referencing a 2013 study conducted by the CDC that identified that roughly 11 million people in the United States live within 500 feet from a major highway).

176. See Vannan Kandi Vijayan, Haralappa Paramesh, Sundeep Santosh Salvi & Alpa Anil Kumar Dalal, *Enhancing Indoor Air Quality – The Air Filter Advantage*, 32 LUNG INDIA 473, 478 (2015) (“Reduction in particulate matter and allergens is achieved successfully through efficient air filters.”).

177. See Bever et al., *supra* note 144, at 1289 (providing an example of a developer implementing an HIA's recommendations for a proposed low-income senior housing project that was next to a highway, including the addition of particulate air filter and sealed bay windows).

178. Cf. Brooke Staggs, *Are Southern California Students and Teachers Breathing Clean Air?*, ORANGE CNTY. REG. (Mar. 5, 2023), <https://www.ocregister.com/2023/03/05/are-southern-california-students-and-teachers-breathing-clean-air/> [<https://perma.cc/F9J6-MN83>] (“For starters, there’s no centralized agency to oversee school indoor air quality. State and local air quality districts focus on outdoor air, so questions about indoor air often bounce between various state departments and local agencies. School districts are left to inspect and police themselves. Also, loopholes in the new state law allow many schools — particularly older campuses, which often serve the neediest students — to avoid meeting the new standards if they don’t have heating, ventilation and air conditioning, or HVAC systems, at all, or if their systems aren’t strong enough to push air through upgraded filters.”).

179. See *id.*; see also NICHOLAS W. TAYLOR, JENNISON K. SEARCY & PIERCE JONES, COST SAVINGS FROM ENERGY RETROFITS IN MULTIFAMILY BUILDINGS, MACARTHUR FOUND. 2 (finding that the average cost of retrofitting an apartment’s HVAC system was \$4,359 per unit).

noncompliant landlords and contractors? Given the number of buildings already existing with code violations,¹⁸⁰ what percentage of landlords can realistically be expected to comply with additional requirements that affect their bottom line? Would a noncompliant building be condemned, potentially displacing hundreds of people at a time?¹⁸¹ Policymakers need to ask themselves these questions when thinking about how genuine and effective their hypothetical solutions are. Despite the legitimate concerns of effectiveness, it is reassuring that some cities have passed ordinances requiring improved ventilation and monitoring. For example, California State Senate Bill 375 was passed and later amended by Ordinance 224-14 to require more consistency with the California Environmental Quality Act (CEQA).¹⁸² The amendment:

[I]ncluded a mandatory disclosure and monitoring of ventilation systems, improved air pollutant modeling with the aid of health data to create Air Pollutant Exposure Zones, and a requirement for updated, enhanced ventilation systems designed to protect against fine particulate matter. Article 38 now applies to any Sensitive Use building located on a site within an Air Pollutant Exposure Zone that is either newly constructed, undergoing a major alteration, or the subject of an application for a Planning Department-permitted change of use.¹⁸³

This ordinance is a step in the right direction and indeed might be one of the only solutions for existing developments. Yet the ordinance also risks exacerbating other issues by incentivizing landlords to hold off on unrelated long-overdue renovations so as to avoid doing anything that could be classified as a major alteration. Furthermore, cities with even the most progressive ordinances for existing residences in exposure zones have not banned new residential construction in such areas despite clearly recognizing the risk of TRAP exposure,¹⁸⁴ so there remains significant work to be done to get cities to fully commit to getting ahead of the issue. Until it is undeniably certain that these air filtration systems can reduce air pollution to levels that demonstrate true equality, it should only be treated as one of the better available remedies to improve existing

180. Cf. INT'L CODE COUNCIL & NAT'L ASS'N OF HOMEBUILDERS, COMMON CODE NONCOMPLIANCE SURVEY REPORT (2019) (finding that over 60% of new construction has code violations).

181. Cf. Leif Greiss, *Bush House Hotel Residents Displaced When Building Was Condemned Have Been Rehoused, Quakertown Announces*, MORNING CALL (Nov. 12, 2021), <https://www.mcall.com/news/local/mc-nws-bush-house-hotel-rehoused-20211112-ulb5f5ez3bcdlfizwq7a4qufuq-story.html> [<https://perma.cc/W7FD-7UEH>] (describing the process of removing residents of a condemned building and finding temporary housing).

182. ANNA ISABEL BAPTISTA, TISHMAN ENV'T & DESIGN CTR., LOCAL POLICIES FOR ENVIRONMENTAL JUSTICE: A NATIONAL SCAN 30 (2019).

183. *Id.*

184. *See id.* (discussing local policies for environmental justice across the country).

buildings, not as a justification for continuing to build new projects in exposure zones.¹⁸⁵

Perhaps promulgating codes regarding the use of better air filtration systems and windows can make it easier for tenants to succeed on claims of personal injury analogous to “sick building syndrome”¹⁸⁶ or a breach of the implied warranty of habitability.¹⁸⁷ Unfortunately, even if the claims would survive, the threat of litigation may not be enough to encourage landlords to act urgently to meet new building standards. If a tenant does not know their rights and has limited access to legal services, a landlord is more likely to get away with operating a noncompliant building.¹⁸⁸ Ultimately, fixing the air quality in the current housing market is a highly complex issue that goes beyond the scope of this Article, but public officials must not neglect it if they are serious about improving health equity in their cities. Finding alternative solutions that keep residents in their current homes is not a matter of siding with private interests over public health, it is a matter of avoiding the creation of what would surely become a new, massive public health crisis in an attempt to solve an ongoing one.¹⁸⁹ Indeed, it seems it is a matter of political will, not a lack of legal precedent,¹⁹⁰ that stands in the way of

185. See *id.* at 30–31 (showing support for stronger stances against residential development in exposure zones).

186. See *Indoor Air Quality; Legal and Liability Issues*, FINDLAW (Aug. 28, 2017), <https://corporate.findlaw.com/human-resources/indoor-air-quality-legal-and-liability-issues.html> [<https://perma.cc/T4S6-ML26>] (describing the nature of personal injury claims related to indoor air pollution, such as sick building syndrome, building related illness, and multiple chemical sensitivity); Michael T. Pyle, *Environmental Law in an Office Building: The Sick Building Syndrome*, 9 J. ENV'T L. & LITIG. 173 (1994) (explaining that sick building syndrome deals with building related illness felt by up to 20% of individuals who work in an office) (citing findings from two 1993 bills).

187. See, e.g., *Wade v. Jobe*, 818 P.2d 1006 (Utah 1991) (holding that implied warranty of habitability applies to residential leases, that special damages can be recovered when a landlord's breach of the implied warranty of habitability results in personal injury to tenants, and that tenants can withhold rent when the implied warranty of habitability is breached by the landlord); Brigid Kelly, *Building a Radical Shift in Policy: Modifying the Relationship Between Cities and Neighbors Experiencing Unsheltered Homelessness*, 40 LAW & INEQ. 177, 202–05 (2022) (discussing the history and elements of the implied warranty of habitability).

188. Cf. Sejal Govindarao, *How an Eviction Prevention Program Emerged After the Moratorium Ended*, ABC NEWS (Apr. 19, 2022), <https://abcnews.go.com/Politics/eviction-prevention-program-emerged-moratorium-ended/story?id=83922544> [<https://perma.cc/FX89-JE5B>] (“[Tenants] have no way of getting [their housing] back, they have no way of fighting against a landlord who has used something that’s improper.”).

189. See Selena Simmons-Duffin, *How the Housing Crisis Collides with Public Health*, NPR (Oct. 20, 2021), <https://www.npr.org/2021/10/20/1047735078/how-the-housing-crisis-collides-with-public-health> [<https://perma.cc/VF45-8HAL>] (discussing the connection between a lack of access to affordable housing and increased public health issues).

190. In other scenarios involving pollution impacting residential uses, nuisance law might provide an avenue for plaintiffs to enjoin certain uses that interfere with their use and

government officials placing the value of saving human lives over securing votes from NIMBYs and real estate developers.¹⁹¹

Conclusion

As the United States' housing crisis continues to grow, it is clear that governments and developers need to cooperate to create solutions that will alleviate the affordable housing shortage. It is imperative that whatever solutions are employed in the future have a "people-first" approach; environmental justice and public health concerns deserve just as much consideration in this discussion as financial analyses and economic theories. For far too long, TRAP exposure risks have been brushed aside by decisionmakers who are unlikely to live in exposure zone themselves. But decades of peer-reviewed research consistently and conclusively demonstrate that living in exposure zones has a wide range of adverse health effects, causes thousands of premature deaths annually, and disproportionately impacts lower-income and minority communities. The remedy to this injustice is procedurally quite simple: ban new construction of residential developments in exposure zones. The legal authority for adopting this proposal is well-established, but what is lacking is the political motivation to put such authority to use. This Article recognizes the resistance some governments may have against enacting a strict residential zoning prohibition when they are already experiencing an extreme housing crisis within their cities and states, but as a country, we cannot allow ourselves to continue to try remedying one set of housing and public health injustices by building our way into another. So long as housing is allowed to be built in exposure zones, that is exactly what will continue happening.

enjoyment of their home, but forcing an existing feed lot to move away from later-developed residential buildings is hardly analogous to moving an entire stretch of freeway. Accordingly, nuisance law is unlikely to be able to protect tenants already living next to a freeway. *See Fagerlie v. City of Willmar*, 435 N.W.2d 641, 643, 644 n.2 (Minn. Ct. App. 1989) (finding that offensive odors from particulate matter can form the basis for nuisance claims).

191. *See Barboza & Schleuss, supra* note 15 ("If there's a political will to protect people from this type of development then cities certainly know how to use zoning to accomplish that," said James Kushner, an expert in land-use, development and urban planning at Southwestern Law School.").