New Jersey Warehouse Boom

Tracing the growth of warehouses and their impacts

Environmental Defense Fund

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Cover Photo Credit

Tolani Taylor, Clean Water Action

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About the Contributing Organizations

Since Clean Water Action's founding during the campaign to pass the landmark Clean Water Act in 1972, Clean Water Action has worked to win strong health and environmental protections by bringing issue expertise, solution-oriented thinking and people power to the table.

Founded in 1971, Earthjustice is now the nation's premier non-profit environmental legal organization. Earthjustice's mission is to wield the power of law and strength of partnership to protect people's health, preserve magnificent places and wildlife, advance clean energy, and combat climate change.

Environmental Defense Fund is one of the world's leading environmental nonprofit organizations. Guided by science and economics, EDF finds practical and lasting solutions to the most serious environmental problems.

INTRODUCTION

Just-in-time delivery has fueled an explosion of goods movement and related truck trips from port terminals to warehouses to delivery in New Jersey. The Port Authority of NY & NJ port complex is the largest on the East Coast with container volumes growing every year. More warehouses are now located near homes, schools and community centers than ever before. A single warehouse may generate hundreds of truck trips every day.

A picture of a New Jersey warehouse. Photo credit: Tolani Taylor, Clean Water Action

While trucks perform an essential role in the goods supply chain, they also contribute to harmful air pollution, noise pollution, traffic and safety concerns. Goods transport is the fastest-growing driver of greenhouse gas emissions and the largest absolute contributor to emissions in many regions.[1]

Due to racist legacies of redlining and other discriminatory policies, new and existing distribution facilities and the roads that serve them are disproportionately located near communities of color and low-income communities. This is true whether the warehouse is in an urban, suburban or rural part of the state. Port adjacent communities with warehouses in their neighborhoods experience an even more intense, cumulative impact of the logistics industry. And while these same warehouses often employ individuals living nearby, many residents living near warehouses have been sounding the alarm for some time.[2]

KEY FINDINGS

To better understand the disproportionate burden associated with warehouses and other major truck-attracting facilities in New Jersey, Environmental Defense Fund deployed a peer-reviewed framework called Proximity Mapping, which helps identify communities living close to facilities of concern. Across New Jersey we found:

- **3,034 warehouses** that generate at least **380,000 daily truck trips**.
- These warehouses comprise **527 million square feet** – a number that has grown 35% in the last two decades.
- **2.7 million** people – about one in three New Jerseyans – live within a half mile of these warehouses. Some 178,000 are under age five and 350,000 are over age 64.
- **Limited English populations** are 1.9 times more likely to live within half a mile of these warehouses than expected, compared to statewide demographics. This population composes 0.02% of the total state population and 0.04% of warehouse neighbors.
- **Hispanic/Latino populations** are 1.8 times more likely to live within half a mile of these warehouses than expected, compared to statewide demographics. This population composes 20.2% of the total state population and 36.7% of warehouse neighbors.
- **Low-income populations** are 1.5 times more likely to live within half a mile of these warehouses than expected, compared to statewide demographics. This population composes 9.8% of the total state population and 14.8% of warehouse neighbors.
- **Black populations** are 1.4 times more likely to live within half a mile of these warehouses than expected, compared to statewide demographics. This population composes 14.8% of the total state population and 21.1% of warehouse neighbors.
- **Indigenous American populations** are 1.1 times more likely to live within half a mile of these warehouses than expected, compared to statewide demographics. This population composes 0.07% of the total state population and 0.08% of warehouse neighbors.
- **Asian populations** live within half a mile of these warehouses at rates nearly identical to statewide demographics. This population composes 10.4% of the total state population and 10.4% of warehouse neighbors.
- **White populations** are 1.2 times *less* likely to live within half a mile of these warehouses than expected, compared to statewide demographics. This population composes 70% of the total state population and 57% of warehouse neighbors.

The results from the New Jersey analysis mirror findings in 10 states where EDF previously conducted Proximity Mapping.[3] In those states, some 15 million people live within a half mile of a warehouse measuring at least 100,000 square feet. More than 1 million of those people are children under age five. No state distributed the risk from warehouses evenly. Black, Hispanic/Latino, Asian, Indigenous American and low-income people bear the brunt of the risk from living close to warehouses.

A PUBLIC HEALTH AND CLIMATE THREAT FROM COAST TO COAST

EDF's warehouse analyses reflect a broader national trend. One in six U.S. residents lives within 300 feet of a major road, airport or railroad.[4] Some 17,000 schools across the U.S. are located within approximately 800 feet of a heavily traveled road.[5] A growing body of peer-reviewed research indicates that exposure to traffic-related air pollution increases the risk of childhood asthma.[6] Asthma is a leading cause of missed school days, and research has linked it to diminished school performance.[7]

The burden of childhood asthma represents a severe health disparity in the United States: Across the country, 11% of children with family income less than $35,000 have asthma, versus 6% of children with family income of $75,000 or more.[8] Black children are more than twice as likely as non-Hispanic white children to have asthma, more than four times more likely to be hospitalized for asthma and eight times more likely to die from asthma.[9] Air pollution is one of several factors, along with other unequally distributed issues, like healthcare access and psychological stressors, that cumulatively contribute to these disparities. Air pollution from medium- and heavy-duty vehicles, many of which come to and from warehouses, is also associated with increased health risks at other stages of life. It raises the risk of preterm birth, low birth weight, dementia, heart disease and stroke.[10,11,12]

Medium- and heavy-duty trucks and buses make up around 10% of the vehicles on U.S. roads but are responsible for 45% of the transportation sector's health-harming nitrogen oxides (NOx) emissions – primarily measured by NO_2 emissions.[13] These vehicles emit 57% of the transportation sector's fine particulate matter ($PM_{2.5}$) and 28% of the sector's climate pollution.[14] In New Jersey, these vehicles make up 11% of the on-road fleet but disproportionately contribute to the transportation sector's pollution: emitting 56% of NOx, 39% of $PM_{2.5}$ and 32% of climate pollution.[15]

Medium- and heavy-duty trucks and buses are equipped with diesel engines that release more NOx and $PM_{2.5}$ compared with gasoline engines. As a result, these vehicles emit serious pollution at start-up, while idling and while traveling at low speeds.[16] Air pollution levels vary by proximity to truck traffic, and vulnerability to pollution exposure can vary greatly by race and age, with children and older adults at elevated risk, due to the unequal, cumulative impacts of other health-harming factors from built, natural and social environments.[17]

METHODOLOGY

EDF's Proximity Mapping framework provides a new way to understand more about the communities living near various types of pollution-attracting infrastructure to determine how the pollution-related risks are distributed. The inequities visualized through this tool make it clear that the burdens associated with increased truck traffic are far from equally distributed.

This methodology combines data from the U.S. Census Bureau's American Community Survey five-year estimates at the census tract level with locations of warehouse and distribution facilities from a private real estate database. EDF uses "low-income" to describe those living below the federal poverty line. EDF uses the term "warehouses" to refer to warehouse and distribution facilities. EDF found that other truck-attracting manufacturing, cold storage and truck terminal facilities compose 5% of truck-attracting facility square footage and 2% of square footage growth over the last two decades. The private real estate database includes leased and owner-occupied warehouses, but the quantity of these warehouses represents an unknown fraction of all the warehouses because the tools used by the private real-estate company to create this database are proprietary and new information is constantly being added.

EDF identified 3,034 truck-attracting facilities, which include all warehouses exceeding 50,000 square feet in environmental justice communities or 100,000 square feet in non-environmental justice communities.[18] By including smaller facilities in these communities, this analysis recognizes the disproportionately high concentration of polluting facilities and resulting health burdens that these communities experience. The demographic categories in the regional and district maps are based on the 2020 Environmental Justice Law.[19]

NEW JERSEY WAREHOUSE IMPACTS

Across New Jersey, EDF identified 3,034 warehouses with a combined total of 527 million square feet – a number that has grown 17% in the last decade and 35% in the last two decades (Figure 1). At least 380,000 daily truck trips service today's warehouses exceeding 50,000 square feet in environmental justice communities or 100,000 square feet in non-environmental justice communities.

The recent e-commerce boom in New Jersey only exacerbates the pollution burden faced by many communities of color and low-income communities. At all levels, EDF found that warehouses tend to be disproportionately located in Hispanic/Latino, low-income and Black communities. Warehouses are not only disproportionately located in these communities, but they also often employ local residents in low-wage, temporary and dangerous positions. The combination of living and working in areas with high concentrations of harmful air pollution places an outsized health burden on these workers.

In New Jersey, like the rest of the country, warehouse locations are shrouded in secrecy. While the Energy Information Agency maintains a database of information about polluting facilities like oil refineries, nothing similar exists for warehouse locations, making it difficult for communities and policymakers alike to learn the location of these facilities and which companies own and operate them. As a result, organizations must turn to private databases, which are expensive, limited in scope and have strict terms of service for sharing the data. Under these circumstances, communities have little hope of gaining access to key data.

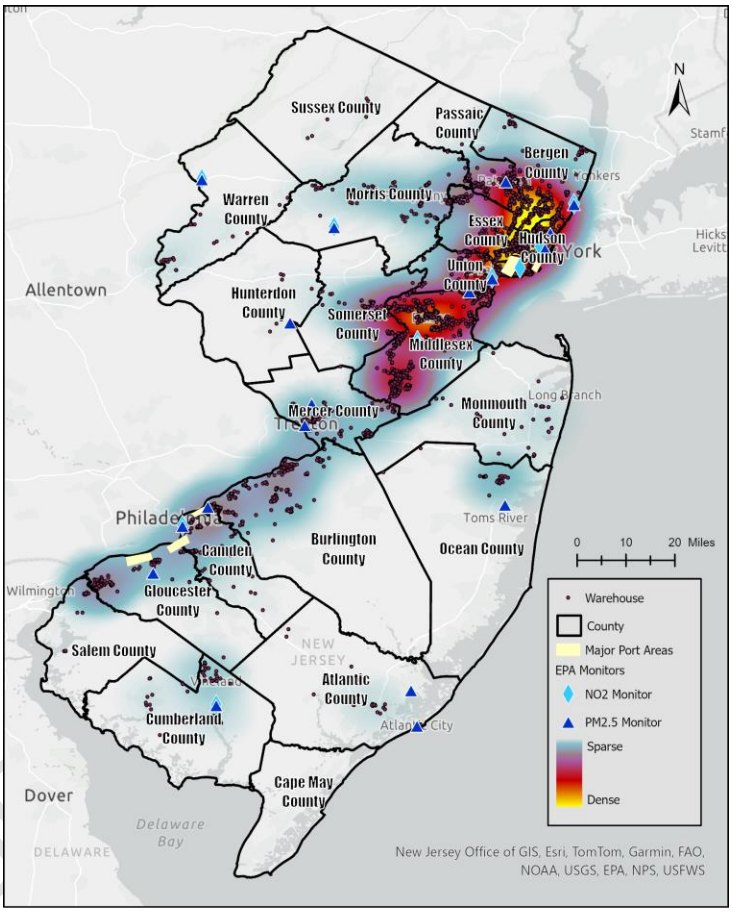


Figure 1

In addition to the lack of transparency about these truck-attracting locations, warehouses are largely unregulated and can be sited with little to no environmental review or public process. Warehouses are not one of the eight sources regulated by the state's Environmental Justice Law, despite bringing tens of thousands of additional health-harming truck trips into some communities on a daily basis.[20] Additionally, no mechanisms exist to ensure warehouses comply with the objectives outlined in New Jersey's 80x50 report – a roadmap for an 80% reduction in greenhouse gas emissions by 2050 – or transition to zero-emission trucks in coordination with the state's Advanced Clean Trucks rule.[21,22] Municipal "home rule," which provides local New Jersey planning and zoning boards authority to decide the allocation of municipal land. If a parcel is already zoned for industrial or commercial use, a town can do little to stop a warehouse proposal, but it can set conditions.

AN UNEQUAL BURDEN: NITROGEN DIOXIDE (NO_2)

Nitrogen dioxide (NO_2) pollution – one of the main pollutants released by diesel-burning trucks – contributes to more than 5,300 of new childhood asthma cases across the state every year, according to an EDF analysis (Figure 2).[23] In areas with worse NO_2 pollution, such as Hudson, Passaic, Essex and Bergen counties, EDF found NO_2 contributes to more than 13% of new childhood asthma diagnoses. EDF research shows that exposure to NOx from heavy-duty trucks disproportionately impacts communities of color across

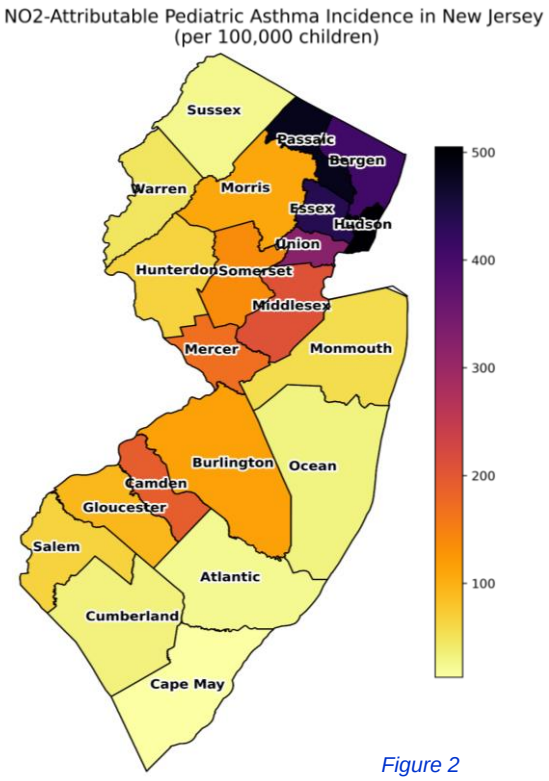


Figure 2

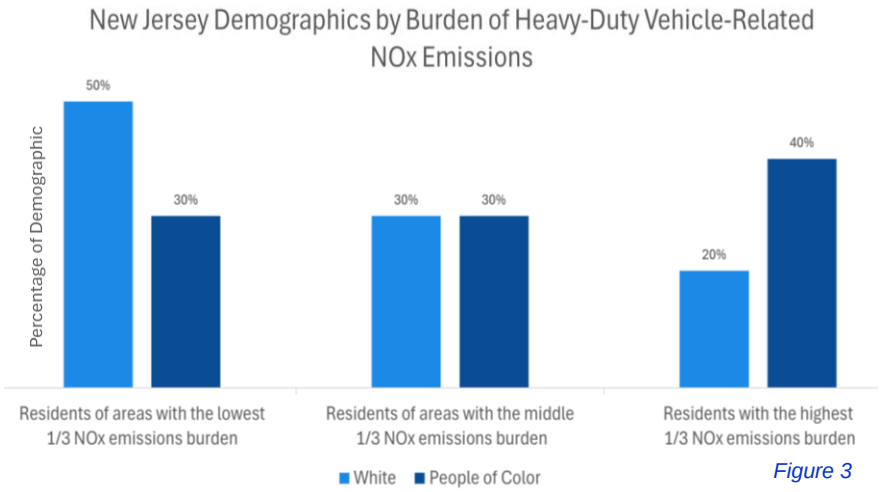


Figure 3

the state (Figure 3). For example, residents of color live in areas with the highest NOx burden at a rate nearly double that of white residents.[24] Developing asthma changes a child's life, impacting physical, emotional and academic growth. In Newark, where 25% of children have asthma, the disease is the leading cause of missed school days each year and has been linked to diminished school performance.[25] Across the state, nearly one in two children with asthma misses at least one day of school each year, because of disease symptoms.[26] Around 25% of adults miss workdays or must limit usual activities because of their asthma symptoms.[27]

Throughout New Jersey, around nine percent of adults and children have asthma, resulting in 100 deaths each year.[28,29] Across the state, 10% of Black children are hospitalized for asthma annually. Black children in New Jersey are 11 times more likely to be hospitalized for asthma and five times more likely to die from asthma compared to non-Hispanic white children.[30,31,32] Due in part to these hospitalizations and deaths, the estimated medical cost of NOx in the state was around $250 million in 2019.[33]

AN UNEQUAL BURDEN: FINE PARTICULATE MATTER ($PM_{2.5}$)

In 2023, $PM_{2.5}$ from on-road diesel vehicles in New Jersey led to nearly 340 deaths.[34] It also led to nearly 3,000 cancer cases, 164 heart attacks, 3,921 asthma flareups and 110 asthma emergency room visits every year.[35] The impacts are not evenly distributed: People who live, work, or go to school closer to highways and truck-attracting facilities like warehouses are more likely to be affected by diesel engine fine particulate matter and other forms of air pollution from diesel engines. The economic impact of these health effects, including missed workdays, restricted activities, deaths and medical treatments, amounts to an estimated $3.75 billion in 2023.[36]

EDF research shows that exposure to $PM_{2.5}$ from heavy-duty trucks disproportionately impacts communities of color across the state (Figure 4). For example, residents of color live in areas with the highest $PM_{2.5}$ burden at a rate nearly double that of white residents.

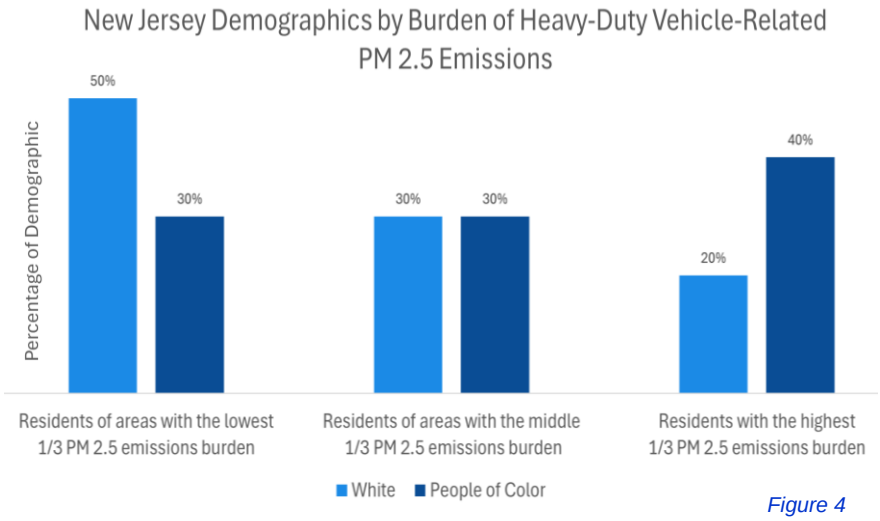


Figure 4

INADEQUATE POLLUTION MONITORING NETWORK

Over the past 20 years, from 2004 through 2023, New Jersey added 368 warehouses, which accounted for 125 million square feet of new facility space and at least 110,000 additional daily truck trips. Despite this drastic increase, which is likely an underestimate due to incomplete data, the number of EPA-grade NO_2 and $PM_{2.5}$ pollution monitors, which are operated by the state, stayed the same or barely increased during this period, leaving an incomplete picture of the impact on air quality.[37]

In 2004, the New Jersey Department of Environmental Protection operated nine EPA-grade NO_2 and 19 $PM_{2.5}$ monitors spread across 24 sites. In 2023, the agency operated nine EPA-grade NO_2 monitors and 19 EPA-grade $PM_{2.5}$ monitors spread across 21 sites (Figure 5). That same year, each of the eight NO_2 monitors measured pollution every hour, but 10 of the 19 $PM_{2.5}$ monitors only measured daily averages, meaning short-term spikes were not captured.

In 2023, 11 of 28 monitors were within half a mile of a warehouse. Of those 11 monitors, eight monitor $PM_{2.5}$, and three monitor NO_2. That's a ratio of 379 warehouses for every $PM_{2.5}$ monitor and 1,012 warehouses for every NO_2 monitor.

As a result of the large temporal and spatial monitoring gaps across the state, warehouse neighbors lack information about when pollution is most harmful and where harmful concentrations of localized pollution exist.

EDF research shows substantial $PM_{2.5}$-attributable cases of mortality occur in rural areas that are far away from EPA-grade $PM_{2.5}$ monitors (Figure 6). Over 10% of estimated mortality burden exists in legislative districts with no EPA-grade $PM_{2.5}$ monitor. High levels of $PM_{2.5}$-attributable cases of mortality are also seen around warehouse clusters near monitors, especially within the New Jersey Port region.

Areas with a higher density of monitors may still be unequipped to granularly measure pollution. For example, EDF research shows that various pollutants, including NO_2, can vary block by block by up to 800%, a variation that is neither accurately captured by monitors spaced far apart, nor reflected in modeling that fills in the gaps between EPA-grade monitors.[38]

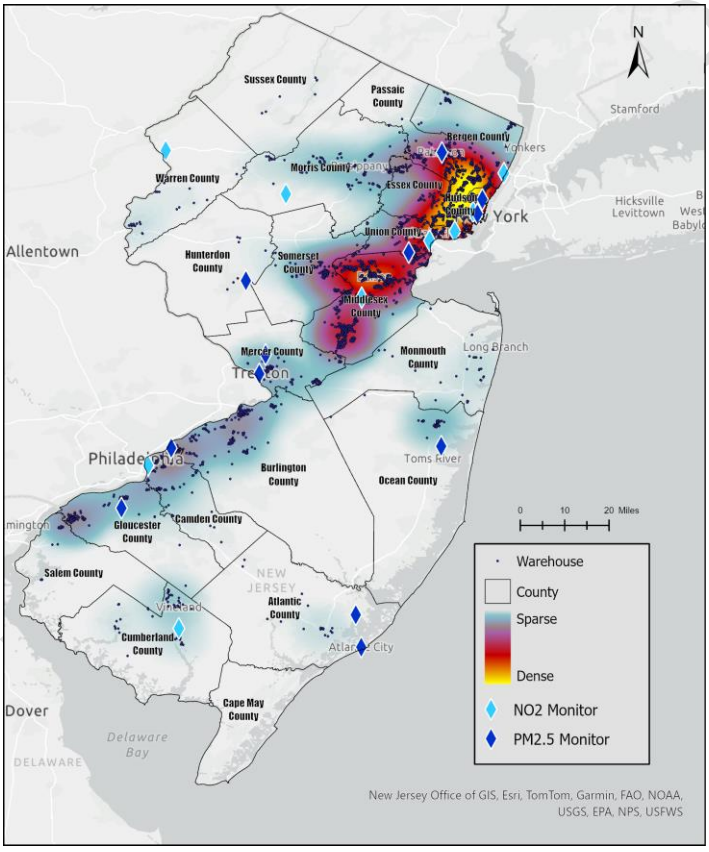


Figure 5

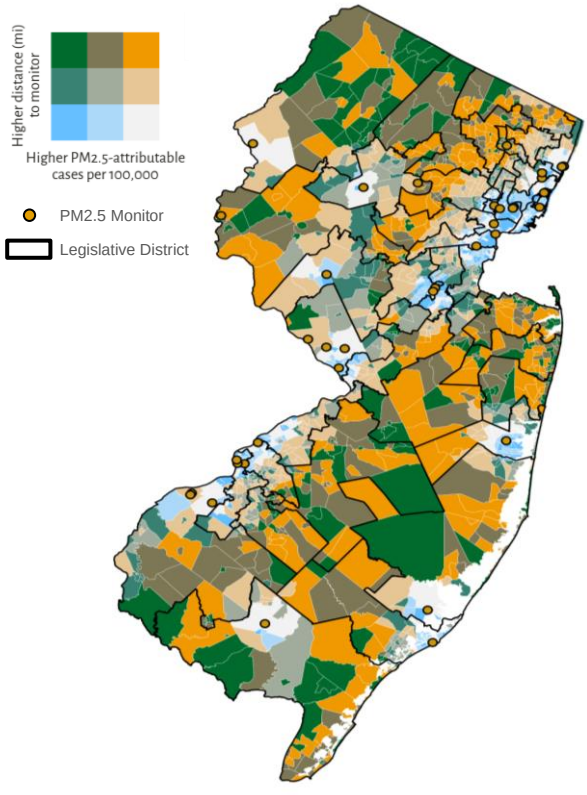
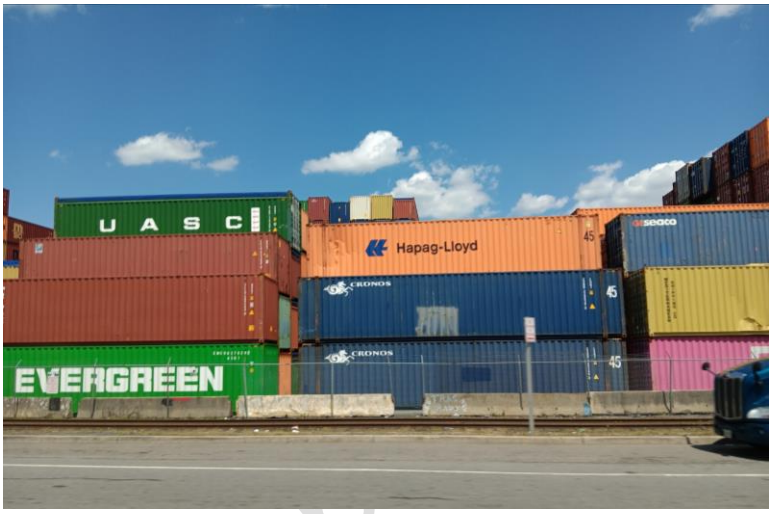


Figure 6

POLICY SOLUTIONS

As e-commerce continues to expand and more consumers purchase and return goods online, the number of trucks on the road will continue to increase, leading to a rise in greenhouse gas and health-harming co-pollutant emissions such as NOx, $PM_{2.5}$.and sulfur oxides. Without legislation, emissions will continue to disproportionately harm Black, Hispanic/Latino and low-income communities and could undermine the achievement of the state's Climate Action Plan. Now, advocates are pushing for such legislation at the state level.



A picture of a New Jersey Port. Photo credit: Tolani Taylor, Clean Water Action

The Warehouse and Port Pollution Reduction Act (Asm. Katz / Sen. McKeon; bill number forthcoming) addresses the impacts from warehouses exceeding 50,000 square feet in environmental justice communities or 100,000 square feet in non-environmental justice communities, as well as other major truck-attracting facilities like ports. Key provisions of the bill include:

- Implementing an Indirect Source Review (ISR) to assess and reduce emissions from all warehouses exceeding 50,000 square feet in environmental justice communities, or 100,000 square feet in non-environmental justice communities, as well as other major truck-attracting facilities like ports.
- Requiring truck-attracting facilities to reduce their pollution through concrete actions over time. These include:
    - Acquiring and using zero-emissions trucks, yard equipment and electric charging infrastructure;
    - Using alternatives to truck trips for incoming or outgoing trips such as e-cargo bikes, light-duty electric vehicles or electric ferries;
    - Installing on-site solar power generation, electricity storage and managed charging systems;
    - Installing and maintaining MERV 16 or greater filters systems in schools, daycares, hospitals, community centers or residences within ½ mile of a regulated facility; and
    - Reducing transport emissions for regulated facility neighbors by building and maintaining docked e-bike share or EV carshare.
- Directing the Department of Environmental Protection to establish a date by which warehouse operations will reach zero emissions.
- Establishing permit requirements for new and existing warehouses, as well as those proposing significant modifications.
- Creating ongoing reporting requirements related to truck traffic and emissions mitigation measures.
- Expanding public participation and the ability of affected neighbors to request permit review.

New Jersey has been a climate, clean energy and environmental justice leader, adopting a roadmap to cut greenhouse gas emissions by 80% by 2050, sales targets of zero-emission medium-and heavy-duty vehicle manufacturers that peak at 40-75% by 2035, and guidelines to factor existing health burdens into decisions about permitting some polluting facilities.[39,40,41] Adopting the Warehouse and Port Pollution Reduction Act and complementary policies like Advanced Clean Fleets and those laid out in the Energy Master Plan are critical next steps toward achieving New Jersey's climate mandates, filling gaps in the Environmental Justice Law and ensuring that residents who are burdened with emissions from fossil fuels are prioritized for zero-emission investments and mandatory emission reductions throughout the logistics industry.[42,43]

WAREHOUSES AND NEARBY RESIDENTS BY REGION

The regional analyses below detail warehouse build out, warehouse neighbors, and health impacts associated with vehicles that frequent warehouses. Only demographics of populations disproportionately represented around warehouses are included. In whiter regions, people of color and limited English populations tend to more disproportionately represented around warehouses.

New Jersey's Northern Port Region

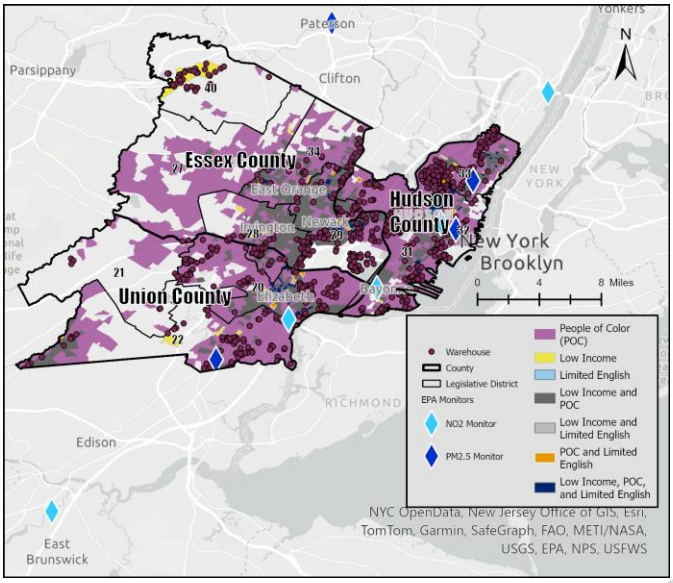


Figure 7

In this region (Figure 7), an EDF analysis found:

- **815 warehouses** composing **127 million** square feet of warehouse space and generating **86,000** truck trips per day.
- **1.1 million people** live within half a mile of a warehouse. **79,000** are younger than 5 years old and **137,000** are older than 64.
- **2,300 annual NO_2-attributable pediatric asthma cases**, with up to 59% of NO_x coming from on-road vehicles.
- **Limited English populations** are 1.3 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Hispanic/Latino populations** are 1.3 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Low-income populations** are 1.2 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Indigenous American populations** are 1.1 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics

North and Northeast New Jersey

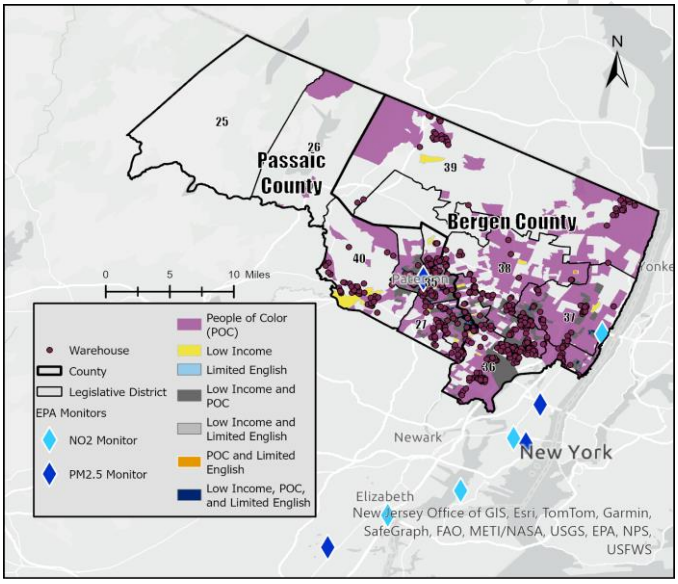


Figure 8

In this region (Figure 8), an EDF analysis found:

- **544 warehouses** composing **65 million** square feet of warehouse space and generating **36,000** truck trips per day.
- **633,000 people** live within half a mile of a warehouse. **41,000** are younger than 5 years old and **88,000** are older than 64.
- **1,600 annual NO_2-attributable-pediatric asthma cases**, with up to 57% of NO_x coming from on-road vehicles.
- **Limited English populations** are 1.6 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Low-income populations** are 1.6 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Hispanic/Latino populations** are 1.5 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Black populations** are 1.4 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.

Northwest Jersey

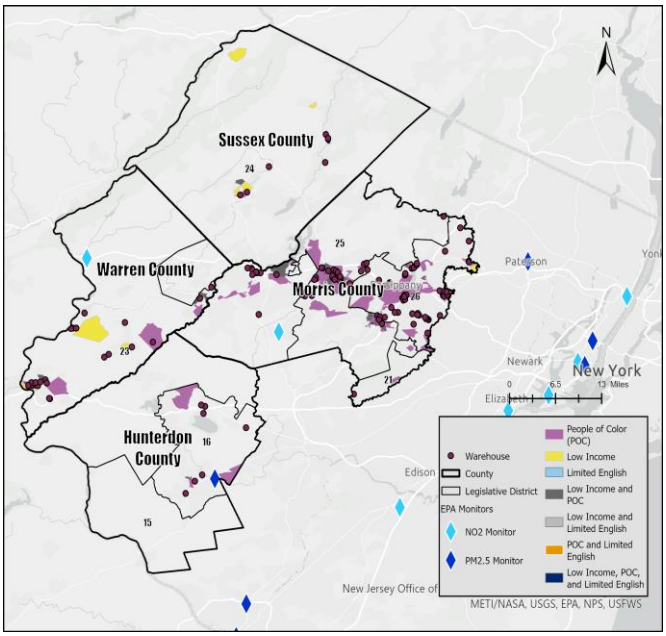


Figure 9

In this region (Figure 9), an EDF analysis found:

- **135 warehouses** composing **27 million** square feet of warehouse space and generating **21,000** truck trips per day.
- **107,000 people** live within half a mile of a warehouse. **5,000** are younger than 5 years old and **16,000** are older than 64.
- **200 annual NO_2-attributable pediatric asthma cases**, with up to 81% of NO_x coming from on-road vehicles.
- **Limited English populations** are 2.5 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Hispanic/Latino populations** are 2 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Black populations** are 1.5 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics
- **Low-income populations** are 1.4 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Asian populations** are 1.1 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.

Central-North Jersey

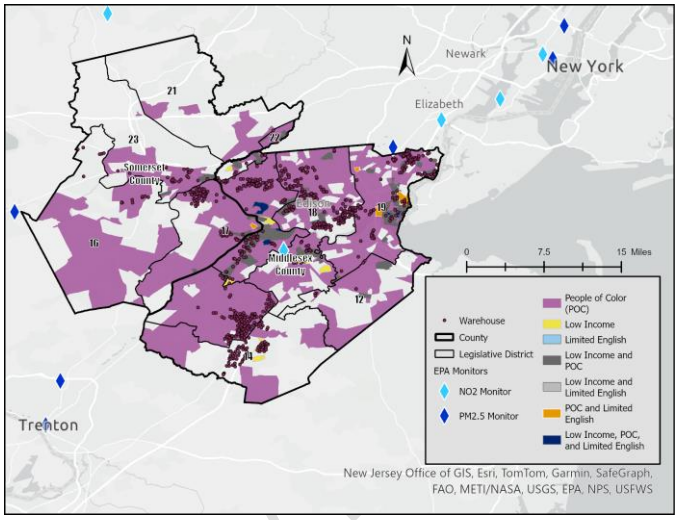


Figure 10

In this region (Figure 10), an EDF analysis found:

- **876 warehouses** composing **180 million** square feet of warehouse space and generating **149,000** truck trips per day.
- **360,000 people** live within half a mile of a warehouse. **23,000** are younger than 5 years old and **49,000** are older than 64.
- **600 annual NO_2-attributable pediatric asthma cases**, with up to 68% of NO_x coming from on-road vehicles.
- **Limited English populations** are 1.6 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Hispanic/Latino populations** are 1.6 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Low-income populations** are 1.3 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Black populations** are 1.2 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Indigenous American populations** are 1.1 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.

Central-South Jersey

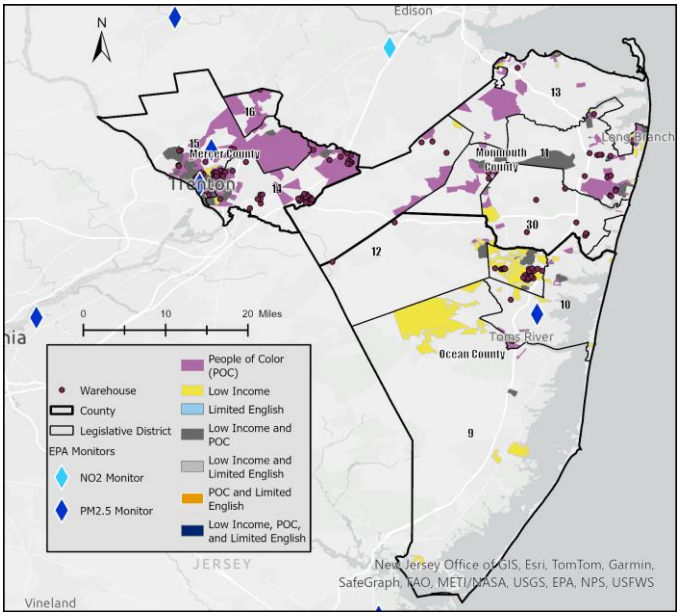


Figure 11

In this region (Figure 11), an EDF analysis found:

- **163 warehouses** composing **31 million** square feet of warehouse space and generating **23,000** truck trips per day.
- **156,000 people** live within half a mile of a warehouse. **12,000** are younger than 5 years old and **21,000** are older than 64.
- **300 annual NO_2-attributable pediatric asthma cases**, with up to 68% of NO_x coming from on-road vehicles.
- **Black populations** are 2.7 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Limited English populations** are 2.6 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Hispanic/Latino populations** are 2.2 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Low-income populations** are 1.9 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.

South Jersey

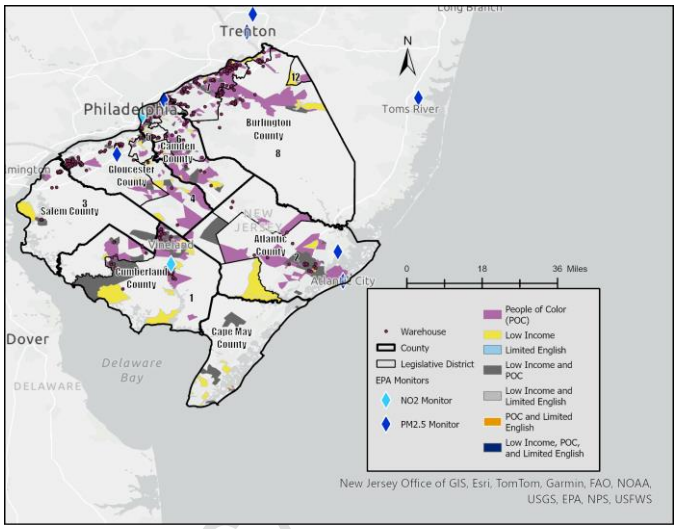


Figure 12

In this region (Figure 12), an EDF analysis found:

- **501 warehouses** composing **99 million** square feet of warehouse space and generating **76,000** truck trips per day.
- **260,000 people** live within half a mile of a warehouse. **17,000** are younger than 5 years old and **37,000** are older than 64.
- **500 annual NO2-attributable pediatric asthma cases**, with up to 71% of NO_x coming from on-road vehicles in counties with a warehouse.
- **Limited English populations** are 1.8 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Hispanic/Latino populations** are 1.8 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Low-income populations** are 1.6 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Black populations** are 1.5 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.
- **Indigenous American populations** are 1.2 times more likely to live within half a mile of a warehouse than expected, compared to the region's demographics.

WAREHOUSES BY STATE LEGISLATIVE DISTRICT

Warehouses are disproportionately located within a half mile of Black, Hispanic/Latino, Indigenous American, and low-income residents across the state. This trend is also apparent at the New Jersey Legislative district level (Tables 1, 2, 3, 4, and 5) and exists in districts that have both a higher and lower percentage of Black and Hispanic/Latino residents than the state. Of the districts with the most warehouses across the state, warehouses tend to be disproportionately located within a half mile of Black and Hispanic/Latino residents compared to overall district demographics (Table 1).

TABLE 1: NEW JERSEY LEGISLATIVE DISTRICTS WITH MOST WAREHOUSES

Senator, Party-District	Assemblymember 1, Party-District; Assemblymember 2, Party-District	Quantity of warehouses (≤ 100k sq ft across the state + ≤ 50k sq ft in overburdened communities)	Cumulative square feet	Daily truck trips for warehouses ≥ 100k sq ft	Hispanic/ Latino % in district	Hispanic/ Latino % in warehouse neighbors	Hispanic/ Latino % in district compared to state %	Black % in district	Black % in warehouse neighbors	Black % in district compared to state %
Patrick J. Diegnan, D-18	Sterley Stanley, D-18; Robert Karabinchak, D-18	272	45,116,000	32,100	12%	12%	61%	9%	10%	58%
Bob Smith, D-17	Joseph Danielsen, D-17; Kevin Egan, D-17	200	30,195,000	20,200	24%	28%	117%	23%	22%	156%
Andrew Zwicker, D-16	Mitchelle Drulis, D-16; Roy Freiman, D-16	167	41,613,000	35,200	7%	8%	35%	6%	8%	39%
Brian P. Stack, D-33	Gabe Rodriguez, D-33; Julio Marenco, D-33	152	25,459,000	18,200	66%	70%	328%	6%	6%	40%
Angela V. McKnight, D-31	Barbara McCann Stamato, D-31; William Sampson, D-31	151	25,770,000	18,400	35%	33%	172%	27%	30%	183%

The number of estimated daily truck trips is an underestimate because it only includes trips for warehouses greater than or equal to 100,000 square feet.[44] The equation used to estimate truck trips is from the California South Coast Air Quality Management District's equation for warehouses equal to or greater than 100,000 square feet.

Legislative District 18 (Figure 13) is home to 272 warehouses exceeding 50,000 square feet in environmental justice communities or 100,000 square feet in non-environmental justice communities. Their combined footprint spans over 45 million square feet of warehouse space, which generates more than 32,000 truck trips per day. Approximately 81,000 people live within half a mile of these warehouses.

The combined square footage of warehouses has increased 13% over the last decade. Black and Asian populations around 1.2 times more likely to live within half a mile of a warehouse than expected, compared to the district's demographics. Black, Hispanic/Latino, Indigenous American and low-income populations live in the district and within half a mile of warehouse at similar rates. White populations are 1.2 times less likely to live within half a mile of a warehouse than expected, compared to the district's demographics. One $PM_{2.5}$ and one NO_2 monitor operate in the district.

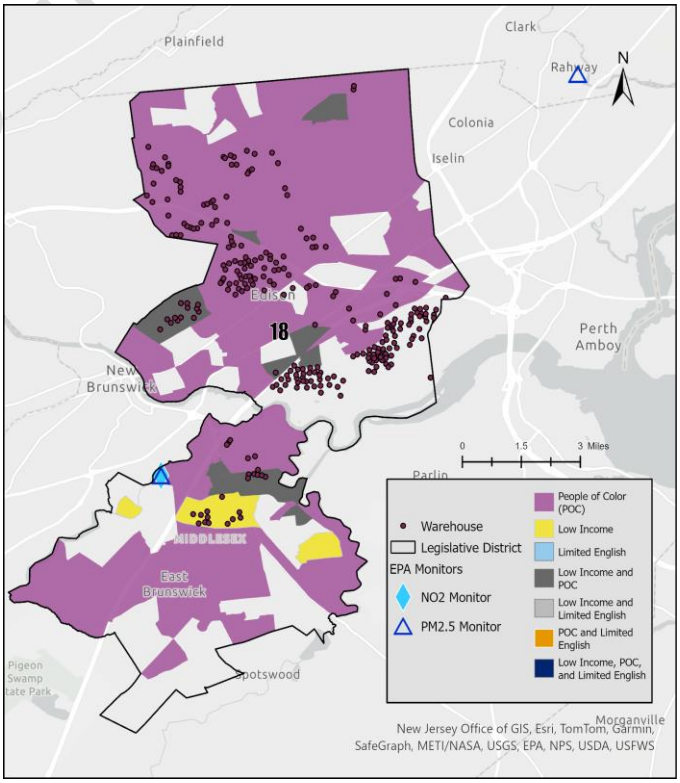


Figure 13

TABLE 2: WAREHOUSE IMPACTS ON HISPANIC/LATINO AND BLACK POPULATIONS BY STATE LEGISLATIVE DISTRICT

Senator, Party-District	Assemblymember 1, Party-District; Assemblymember 2, Party-District	Quantity of warehouses (≤ 100k sq ft across the state + ≤ 50k sq ft in overburdened communities)	Cumulative square feet*	Daily truck trips for warehouses ≥ 100k sq ft**	Hispanic/ Latino % in district	Hispanic/ Latino % in warehouse neighbors ***	Hispanic/ Latino % in district compared to state %	Black % in district	Black % in warehouse neighbors ***	Black % in district compared to state %
Mike Testa, R-1	Erik Simonsen, R-1; Antwan McClellan, R-1	46	7,473,000	5,200	22%	49%	110%	16%	24%	106%
Vincent J. Polistina, R-2	Claire Swift, R-2; Don Guardian, R-2	16	1,370,000	400	19%	31%	96%	18%	42%	123%
John Burzichelli, D-3	Heather Simmons, D-3; David Bailey, D-3	138	29,800,000	23,900	7%	8%	36%	13%	17%	86%
Paul D. Moriarty, D-4	Dan Hutchison, D-4; Cody Miller, D-4	13	1,960,000	1,300	8%	8%	40%	19%	21%	125%
Nilsa Cruz-Perez, D-5	William Spearman, D-5; Bill Moen, D-5	110	12,642,000	6,700	26%	36%	131%	24%	32%	162%
James Beach, D-6	Louis Greenwald, D-6; Pamela Rosen Lampitt, D-6	11	1,771,000	1,300	8%	7%	40%	15%	20%	98%
Troy Singleton, D-7	Herb Conaway, D-7; Carol A. Murphy, D-7	115	32,285,000	27,700	8%	9%	40%	25%	23%	168%
Latham Tiver, R-8	Michael Torrissi, R-8; Andrea Katz, D-8	52	11,357,000	8,900	9%	12%	44%	13%	20%	89%
Carmen Amato, R-9	Brian E. Rumpf, R-9; Greg Myhre, R-9	0	0	0	7%	-	33%	3%	-	23%
James W. Holzapfel, R-10	Gregory P. McGuckin, R-10; Paul Kanitra, R-10	1	132,000	100	10%	7%	47%	4%	6%	27%
Vin Gopal, D-11	Margie Donlon, D-11; Luanne Peterpaul, D-11	20	3,055,000	2,000	17%	24%	83%	16%	21%	111%
Owen Henry, R-12	Alex Sauickie, R-12; Robert D. Clifton, R-12	10	1,480,000	1,000	11%	12%	55%	6%	5%	42%
Declan O'Scanlon, R-13	Vicky Flynn, R-13; Gerard Scharfenberger, R-13	1	125,000	100	7%	10%	36%	4%	9%	24%
Linda R. Greenstein, D-14	Wayne DeAngelo, D-14; Tennille McCoy, D-14	133	46,736,000	41,900	13%	17%	62%	10%	14%	69%
Shirley Turner, D-15	Verlina Reynolds-Jackson, D-15; Anthony Verrelli, D-15	35	4,928,000	3,100	18%	35%	91%	27%	43%	180%
Andrew Zwicker, D-16	Mitchelle Drulis, D-16; Roy Freiman, D-16	167	41,613,000	35,200	7%	8%	35%	6%	8%	39%
Bob Smith, D-17	Joseph Danielsen, D-17; Kevin Egan, D-17	200	30,195,000	20,200	24%	28%	117%	23%	22%	156%
Patrick J. Diegnan, D-18	Sterley Stanley, D-18; Robert Karabinchak, D-18	272	45,116,000	32,100	12%	12%	61%	9%	10%	58%
Joe F. Vitale, D-19	Craig Coughlin, D-19; Yvonne Lopez, D-19	134	28,160,000	21,900	35%	50%	174%	12%	14%	84%
Joseph Cryan, D-20	Annette Quijano, D-20; Reginald Atkins, D-20	117	17,345,000	11,200	48%	49%	235%	27%	27%	183%
Jon Bramnick, R-21	Michele Matsikoudis, R-21; Nancy Munoz, R-21	16	2,922,000	2,300	11%	18%	53%	4%	7%	27%
Nicholas Scutari, D-22	James J. Kennedy, D-22; Linda S. Carter, D-22	84	13,910,000	9,700	30%	38%	146%	24%	28%	160%
Doug Steinhardt, R-23	Erik Peterson, R-23; John DiMaio, R-23	44	11,535,000	9,500	12%	22%	58%	5%	7%	33%
Parker Space, R-24	Dawn Fantasia, R-24; Mike Inganamort, R-24	17	4,034,000	3,300	9%	11%	45%	4%	6%	26%
Anthony M. Bucco, R-25	Aura Dunn, R-25; Christian Barranco, R-25	31	4,270,000	2,700	18%	43%	89%	5%	8%	31%
Joseph Pennacchio, R-26	Brian Bergen, R-26; Jay Webber, R-26	58	8,547,000	6,000	10%	10%	51%	3%	4%	22%
John F. McKeon, D-27	Rosy Bagolie, D-27; Alixon Collazos-Gill, D-27	54	6,600,000	3,800	21%	41%	106%	14%	10%	91%
Renee Burgess, D-28	Cleopatra Tucker, D-28; Garnet Hall, D-28	60	6,517,000	2,900	10%	13%	50%	73%	77%	492%
Teresa Ruiz, D-29	Eliana Pintor Marin, D-29; Shanique Speight, D-29	149	22,092,000	14,800	49%	51%	240%	33%	29%	226%
Robert W. Singer, R-30	Sean T. Kean, R-30; Avi Schnall, D-30	43	4,993,000	2,800	11%	14%	55%	4%	4%	27%

Angela V. McKnight, D-31	Barbara McCann Stamato, D-31; William Sampson, D-31	151	25,770,000	18,400	35%	33%	172%	27%	30%	183%
Raj Mukherji, D-32	Jessica Ramirez, D-32; John Allen, D-32	20	6,819,000	6,000	25%	27%	123%	9%	10%	60%
Brian P. Stack, D-33	Gabe Rodriguez, D-33; Julio Marenco, D-33	152	25,459,000	18,200	66%	70%	328%	6%	6%	40%
Britnee Timberlake, D-34	Michael Venezia, D-34; Carmen Morales, D-34	36	3,598,000	1,700	24%	30%	120%	43%	45%	291%
Nellie Pou, D-35	Shavonda E. Sumter, D-35; Benjie E. Wimberly, D-35	91	10,103,000	4,800	52%	55%	258%	22%	23%	146%
Paul Sarlo, D-36	Gary Schaer, D-36; Clinton Calabrese, D-36	148	19,250,000	11,600	42%	49%	207%	6%	6%	40%
Gordon M. Johnson, D-37	Ellen Park, D-37; Shama Haider, D-37	37	3,496,000	1,200	25%	37%	123%	17%	20%	113%
Joseph Lagana, D-38	Lisa Swain, D-38; Chris Tully, D-38	118	14,453,000	7,900	21%	24%	101%	5%	6%	36%
Holly Schepisi, R-39	John V. Azzariti, R-39; Robert Auth, R-39	43	4,575,000	2,300	10%	9%	47%	2%	2%	17%
Kristin Corrado, R-40	Al Barlas, R-40; Christopher DePhillips, R-40	91	11,117,000	6,400	12%	17%	58%	3%	4%	23%

* This calculation was rounded to three significant figures.
** This calculation was rounded to two significant figures.
*** Our methodology defines a warehouse neighbor as one who lives within a half mile of at least one warehouse. The half-mile buffer picks up warehouses that may be in multiple districts.

TABLE 3: WAREHOUSE IMPACTS ON INDIGENOUS AMERICAN AND ASIAN POPULATIONS BY STATE LEGISLATIVE DISTRICT

Senator, Party-District	Assemblymember 1, Party-District; Assemblymember 2, Party-District	Quantity of warehouses (≤ 100k sq ft across the state + ≤ 50k sq ft in overburdened communities)	Cumulative square feet*	Daily truck trips for warehouses ≥ 100k sq ft**	Indigenous American % in district	Indigneous American % in warehouse neighbors ***	Indigenous American % in district compared to state %	Asian % in district	Asian % in warehouse neighbors ***	Asian % in district compared to state %
Mike Testa, R-1	Erik Simonsen, R-1; Antwan McClellan, R-1	46	7,473,000	5,200	1%	2%	208%	2%	1%	16%
Vincent J. Polistina, R-2	Claire Swift, R-2; Don Guardian, R-2	16	1,370,000	400	1%	1%	116%	10%	8%	100%
John Burzichelli, D-3	Heather Simmons, D-3; David Bailey, D-3	138	29,800,000	23,900	1%	1%	118%	3%	3%	26%
Paul D. Moriarty, D-4	Dan Hutchison, D-4; Cody Miller, D-4	13	1,960,000	1,300	1%	1%	126%	4%	6%	37%
Nilsa Cruz-Perez, D-5	William Spearman, D-5; Bill Moen, D-5	110	12,642,000	6,700	1%	1%	145%	5%	5%	45%
James Beach, D-6	Louis Greenwald, D-6; Pamela Rosen Lampitt, D-6	11	1,771,000	1,300	1%	1%	90%	10%	13%	95%
Troy Singleton, D-7	Herb Conaway, D-7; Carol A. Murphy, D-7	115	32,285,000	27,700	1%	1%	147%	7%	6%	63%
Latham Tiver, R-8	Michael Torrissi, R-8; Andrea Katz, D-8	52	11,357,000	8,900	1%	1%	173%	5%	6%	52%
Carmen Amato, R-9	Brian E. Rumpf, R-9; Greg Myhre, R-9	0	0	0	1%	-	91%	2%	-	17%
James W. Holzapfel, R-10	Gregory P. McGuckin, R-10; Paul Kanitra, R-10	1	132,000	100	1%	1%	84%	3%	7%	31%
Vin Gopal, D-11	Margie Donlon, D-11; Luanne Peterpaul, D-11	20	3,055,000	2,000	1%	1%	102%	4%	4%	42%
Owen Henry, R-12	Alex Sauickie, R-12; Robert D. Clifton, R-12	10	1,480,000	1,000	0%	0%	69%	8%	8%	79%
Declan O'Scanlon, R-13	Vicky Flynn, R-13; Gerard Scharfenberger, R-13	1	125,000	100	0%	0%	65%	8%	8%	80%
Linda R. Greenstein, D-14	Wayne DeAngelo, D-14; Tennille McCoy, D-14	133	46,736,000	41,900	1%	0%	75%	18%	10%	172%
Shirley Turner, D-15	Verlina Reynolds-Jackson, D-15; Anthony Verrelli, D-15	35	4,928,000	3,100	1%	1%	92%	11%	3%	107%
Andrew Zwicker, D-16	Mitchelle Drulis, D-16; Roy Freiman, D-16	167	41,613,000	35,200	0%	1%	68%	23%	32%	219%
Bob Smith, D-17	Joseph Danielsen, D-17; Kevin Egan, D-17	200	30,195,000	20,200	1%	1%	121%	24%	24%	230%
Patrick J. Diegnan, D-18	Sterley Stanley, D-18; Robert Karabinchak, D-18	272	45,116,000	32,100	0%	1%	67%	33%	39%	314%
Joe F. Vitale, D-19	Craig Coughlin, D-19; Yvonne Lopez, D-19	134	28,160,000	21,900	1%	1%	107%	17%	12%	165%
Joseph Cryan, D-20	Annette Quijano, D-20; Reginald Atkins, D-20	117	17,345,000	11,200	1%	1%	91%	5%	4%	45%
Jon Bramnick, R-21	Michele Matsikoudis, R-21; Nancy Munoz, R-21	16	2,922,000	2,300	1%	1%	83%	13%	10%	125%
Nicholas Scutari, D-22	James J. Kennedy, D-22; Linda S. Carter, D-22	84	13,910,000	9,700	1%	1%	123%	5%	4%	47%
Doug Steinhardt, R-23	Erik Peterson, R-23; John DiMaio, R-23	44	11,535,000	9,500	0%	1%	66%	9%	10%	84%
Parker Space, R-24	Dawn Fantasia, R-24; Mike Inganamort, R-24	17	4,034,000	3,300	1%	0%	73%	4%	5%	40%
Anthony M. Bucco, R-25	Aura Dunn, R-25; Christian Barranco, R-25	31	4,270,000	2,700	1%	1%	133%	7%	6%	64%
Joseph Pennacchio, R-26	Brian Bergen, R-26; Jay Webber, R-26	58	8,547,000	6,000	0%	0%	61%	16%	17%	154%
John F. McKeon, D-27	Rosy Bagolie, D-27; Alixon Collazos-Gill, D-27	54	6,600,000	3,800	1%	1%	116%	13%	9%	126%
Renee Burgess, D-28	Cleopatra Tucker, D-28; Garnet Hall, D-28	60	6,517,000	2,900	1%	1%	78%	3%	2%	27%
Teresa Ruiz, D-29	Eliana Pintor Marin, D-29; Shanique Speight, D-29	149	22,092,000	14,800	1%	1%	107%	4%	4%	36%
Robert W. Singer, R-30	Sean T. Kean, R-30; Avi Schnall, D-30	43	4,993,000	2,800	0%	0%	36%	3%	2%	27%

Angela V. McKnight, D-31	Barbara McCann Stamato, D-31; William Sampson, D-31	151	25,770,000	18,400	1%	1%	131%	13%	13%	128%
Raj Mukherji, D-32	Jessica Ramirez, D-32; John Allen, D-32	20	6,819,000	6,000	1%	1%	132%	28%	29%	273%
Brian P. Stack, D-33	Gabe Rodriguez, D-33; Julio Marenco, D-33	152	25,459,000	18,200	1%	1%	147%	9%	8%	87%
Britnee Timberlake, D-34	Michael Venezia, D-34; Carmen Morales, D-34	36	3,598,000	1,700	1%	1%	99%	7%	7%	68%
Nellie Pou, D-35	Shavonda E. Sumter, D-35; Benjie E. Wimberly, D-35	91	10,103,000	4,800	1%	1%	78%	5%	5%	49%
Paul Sarlo, D-36	Gary Schaer, D-36; Clinton Calabrese, D-36	148	19,250,000	11,600	1%	1%	76%	12%	9%	117%
Gordon M. Johnson, D-37	Ellen Park, D-37; Shama Haider, D-37	37	3,496,000	1,200	1%	1%	114%	24%	20%	233%
Joseph Lagana, D-38	Lisa Swain, D-38; Chris Tully, D-38	118	14,453,000	7,900	0%	1%	67%	19%	17%	179%
Holly Schepisi, R-39	John V. Azzariti, R-39; Robert Auth, R-39	43	4,575,000	2,300	0%	0%	54%	15%	21%	144%
Kristin Corrado, R-40	Al Barlas, R-40; Christopher DePhillips, R-40	91	11,117,000	6,400	0%	0%	52%	8%	6%	77%

* This calculation was rounded to three significant figures.
** This calculation was rounded to two significant figures.
*** Our methodology defines a warehouse neighbor as one who lives within a half mile of at least one warehouse. The half-mile buffer picks up warehouses that may be in multiple districts.

TABLE 4: WAREHOUSE IMPACTS ON WHITE POPULATIONS BY STATE LEGISLATIVE DISTRICT

Senator, Party-District	Assemblymember 1, Party-District; Assemblymember 2, Party-District	Quantity of warehouses (≤ 100k sq ft across the state + ≤ 50k sq ft in overburdened communities)	Cumulative square feet*	Daily truck trips for warehouses ≥ 100k sq ft**	White % in district	White % in warehouse neighbors***	White % in district compared to state %
Mike Testa, R-1	Erik Simonsen, R-1; Antwan McClellan, R-1	46	7,473,000	5,200	80%	68%	114%
Vincent J. Polistina, R-2	Claire Swift, R-2; Don Guardian, R-2	16	1,370,000	400	66%	37%	94%
John Burzichelli, D-3	Heather Simmons, D-3; David Bailey, D-3	138	29,800,000	23,900	84%	79%	120%
Paul D. Moriarty, D-4	Dan Hutchison, D-4; Cody Miller, D-4	13	1,960,000	1,300	78%	74%	111%
Nilsa Cruz-Perez, D-5	William Spearman, D-5; Bill Moen, D-5	110	12,642,000	6,700	59%	46%	85%
James Beach, D-6	Louis Greenwald, D-6; Pamela Rosen Lampitt, D-6	11	1,771,000	1,300	74%	65%	106%
Troy Singleton, D-7	Herb Conaway, D-7; Carol A. Murphy, D-7	115	32,285,000	27,700	69%	71%	99%
Latham Tiver, R-8	Michael Torrissi, R-8; Andrea Katz, D-8	52	11,357,000	8,900	81%	73%	116%
Carmen Amato, R-9	Brian E. Rumpf, R-9; Greg Myhre, R-9	0	0	0	94%	-	135%
James W. Holzapfel, R-10	Gregory P. McGuckin, R-10; Paul Kanitra, R-10	1	132,000	100	92%	87%	131%
Vin Gopal, D-11	Margie Donlon, D-11; Luanne Peterpaul, D-11	20	3,055,000	2,000	75%	67%	107%
Owen Henry, R-12	Alex Sauickie, R-12; Robert D. Clifton, R-12	10	1,480,000	1,000	85%	85%	121%
Declan O'Scanlon, R-13	Vicky Flynn, R-13; Gerard Scharfenberger, R-13	1	125,000	100	88%	83%	126%
Linda R. Greenstein, D-14	Wayne DeAngelo, D-14; Tennille McCoy, D-14	133	46,736,000	41,900	71%	75%	101%
Shirley Turner, D-15	Verlina Reynolds-Jackson, D-15; Anthony Verrelli, D-15	35	4,928,000	3,100	60%	49%	86%
Andrew Zwicker, D-16	Mitchelle Drulis, D-16; Roy Freiman, D-16	167	41,613,000	35,200	71%	58%	102%
Bob Smith, D-17	Joseph Danielsen, D-17; Kevin Egan, D-17	200	30,195,000	20,200	49%	48%	70%
Patrick J. Diegnan, D-18	Sterley Stanley, D-18; Robert Karabinchak, D-18	272	45,116,000	32,100	56%	49%	81%
Joe F. Vitale, D-19	Craig Coughlin, D-19; Yvonne Lopez, D-19	134	28,160,000	21,900	66%	68%	95%
Joseph Cryan, D-20	Annette Quijano, D-20; Reginald Atkins, D-20	117	17,345,000	11,200	45%	44%	64%
Jon Bramnick, R-21	Michele Matsikoudis, R-21; Nancy Munoz, R-21	16	2,922,000	2,300	80%	75%	115%
Nicholas Scutari, D-22	James J. Kennedy, D-22; Linda S. Carter, D-22	84	13,910,000	9,700	59%	50%	85%
Doug Steinhardt, R-23	Erik Peterson, R-23; John DiMaio, R-23	44	11,535,000	9,500	85%	79%	122%
Parker Space, R-24	Dawn Fantasia, R-24; Mike Inganamort, R-24	17	4,034,000	3,300	92%	89%	132%
Anthony M. Bucco, R-25	Aura Dunn, R-25; Christian Barranco, R-25	31	4,270,000	2,700	86%	74%	123%
Joseph Pennacchio, R-26	Brian Bergen, R-26; Jay Webber, R-26	58	8,547,000	6,000	81%	81%	116%
John F. McKeon, D-27	Rosy Bagolie, D-27; Alixon Collazos-Gill, D-27	54	6,600,000	3,800	68%	67%	98%
Renee Burgess, D-28	Cleopatra Tucker, D-28; Garnet Hall, D-28	60	6,517,000	2,900	20%	15%	28%
Teresa Ruiz, D-29	Eliana Pintor Marin, D-29; Shanique Speight, D-29	149	22,092,000	14,800	43%	45%	61%
Robert W. Singer, R-30	Sean T. Kean, R-30; Avi Schnall, D-30	43	4,993,000	2,800	91%	91%	130%

Angela V. McKnight, D-31	Barbara McCann Stamato, D-31; William Sampson, D-31	151	25,770,000	18,400	46%	42%	65%
Raj Mukherji, D-32	Jessica Ramirez, D-32; John Allen, D-32	20	6,819,000	6,000	58%	56%	83%
Brian P. Stack, D-33	Gabe Rodriguez, D-33; Julio Marenco, D-33	152	25,459,000	18,200	69%	70%	99%
Britnee Timberlake, D-34	Michael Venezia, D-34; Carmen Morales, D-34	36	3,598,000	1,700	43%	38%	61%
Nellie Pou, D-35	Shavonda E. Sumter, D-35; Benjie E. Wimberly, D-35	91	10,103,000	4,800	50%	45%	71%
Paul Sarlo, D-36	Gary Schaer, D-36; Clinton Calabrese, D-36	148	19,250,000	11,600	74%	74%	106%
Gordon M. Johnson, D-37	Ellen Park, D-37; Shama Haider, D-37	37	3,496,000	1,200	55%	53%	79%
Joseph Lagana, D-38	Lisa Swain, D-38; Chris Tully, D-38	118	14,453,000	7,900	75%	76%	107%
Holly Schepisi, R-39	John V. Azzariti, R-39; Robert Auth, R-39	43	4,575,000	2,300	83%	77%	119%
Kristin Corrado, R-40	Al Barlas, R-40; Christopher DePhillips, R-40	91	11,117,000	6,400	88%	88%	126%

* This calculation was rounded to three significant figures.
** This calculation was rounded to two significant figures.
*** Our methodology defines a warehouse neighbor as one who lives within a half mile of at least one warehouse. The half-mile buffer picks up warehouses that may be in multiple districts.

TABLE 5: WAREHOUSE IMPACTS ON LIMITED ENGLISH AND LOW-INCOME POPULATIONS BY STATE LEGISLATIVE DISTRICT

Senator, Party-District	Assemblymember 1, Party-District; Assemblymember 2, Party-District	Quantity of warehouses (≤ 100k sq ft across the state + ≤ 50k sq ft in overburdened communities)	Cumulative square feet*	Daily truck trips for warehouses ≥ 100k sq ft**	Limited English % in district	Limited English % in warehouse neighbors ***	Limited English % in district compared to state %	Low-income % in district	Low-income % in warehouse neighbors ***	Low-income % in district compared to state %
Mike Testa, R-1	Erik Simonsen, R-1; Antwan McClellan, R-1	46	7,473,000	5,200	3%	6%	122%	13%	22%	133%
Vincent J. Polistina, R-2	Claire Swift, R-2; Don Guardian, R-2	16	1,370,000	400	2%	5%	95%	14%	25%	140%
John Burzichelli, D-3	Heather Simmons, D-3; David Bailey, D-3	138	29,800,000	23,900	1%	1%	51%	10%	10%	99%
Paul D. Moriarty, D-4	Dan Hutchison, D-4; Cody Miller, D-4	13	1,960,000	1,300	1%	1%	42%	6%	9%	64%
Nilsa Cruz-Perez, D-5	William Spearman, D-5; Bill Moen, D-5	110	12,642,000	6,700	3%	4%	130%	18%	24%	185%
James Beach, D-6	Louis Greenwald, D-6; Pamela Rosen Lampitt, D-6	11	1,771,000	1,300	1%	1%	35%	7%	7%	75%
Troy Singleton, D-7	Herb Conaway, D-7; Carol A. Murphy, D-7	115	32,285,000	27,700	1%	1%	33%	6%	7%	65%
Latham Tiver, R-8	Michael Torrissi, R-8; Andrea Katz, D-8	52	11,357,000	8,900	1%	2%	52%	6%	7%	61%
Carmen Amato, R-9	Brian E. Rumpf, R-9; Greg Myhre, R-9	0	0	0	1%	-	57%	8%	-	81%
James W. Holzapfel, R-10	Gregory P. McGuckin, R-10; Paul Kanitra, R-10	1	132,000	100	1%	3%	47%	7%	8%	68%
Vin Gopal, D-11	Margie Donlon, D-11; Luanne Peterpaul, D-11	20	3,055,000	2,000	2%	3%	111%	11%	13%	109%
Owen Henry, R-12	Alex Sauickie, R-12; Robert D. Clifton, R-12	10	1,480,000	1,000	1%	1%	38%	5%	6%	49%
Declan O'Scanlon, R-13	Vicky Flynn, R-13; Gerard Scharfenberger, R-13	1	125,000	100	1%	2%	26%	5%	11%	49%
Linda R. Greenstein, D-14	Wayne DeAngelo, D-14; Tennille McCoy, D-14	133	46,736,000	41,900	1%	2%	60%	6%	7%	61%
Shirley Turner, D-15	Verlina Reynolds-Jackson, D-15; Anthony Verrelli, D-15	35	4,928,000	3,100	3%	6%	137%	14%	25%	139%
Andrew Zwicker, D-16	Mitchelle Drulis, D-16; Roy Freiman, D-16	167	41,613,000	35,200	1%	0%	24%	4%	3%	42%
Bob Smith, D-17	Joseph Danielsen, D-17; Kevin Egan, D-17	200	30,195,000	20,200	3%	4%	149%	12%	12%	124%
Patrick J. Diegnan, D-18	Sterley Stanley, D-18; Robert Karabinchak, D-18	272	45,116,000	32,100	1%	1%	66%	6%	6%	58%
Joe F. Vitale, D-19	Craig Coughlin, D-19; Yvonne Lopez, D-19	134	28,160,000	21,900	3%	5%	136%	9%	13%	97%
Joseph Cryan, D-20	Annette Quijano, D-20; Reginald Atkins, D-20	117	17,345,000	11,200	6%	6%	253%	13%	12%	129%
Jon Bramnick, R-21	Michele Matsikoudis, R-21; Nancy Munoz, R-21	16	2,922,000	2,300	1%	1%	35%	4%	6%	39%
Nicholas Scutari, D-22	James J. Kennedy, D-22; Linda S. Carter, D-22	84	13,910,000	9,700	3%	4%	140%	10%	12%	97%
Doug Steinhardt, R-23	Erik Peterson, R-23; John DiMaio, R-23	44	11,535,000	9,500	1%	2%	57%	6%	9%	61%
Parker Space, R-24	Dawn Fantasia, R-24; Mike Inganamort, R-24	17	4,034,000	3,300	1%	1%	27%	5%	8%	52%
Anthony M. Bucco, R-25	Aura Dunn, R-25; Christian Barranco, R-25	31	4,270,000	2,700	2%	5%	76%	5%	8%	54%
Joseph Pennacchio, R-26	Brian Bergen, R-26; Jay Webber, R-26	58	8,547,000	6,000	1%	1%	50%	4%	4%	43%
John F. McKeon, D-27	Rosy Bagolie, D-27; Alixon Collazos-Gill, D-27	54	6,600,000	3,800	2%	4%	80%	7%	11%	69%
Renee Burgess, D-28	Cleopatra Tucker, D-28; Garnet Hall, D-28	60	6,517,000	2,900	2%	2%	93%	19%	19%	191%
Teresa Ruiz, D-29	Eliana Pintor Marin, D-29; Shanique Speight, D-29	149	22,092,000	14,800	7%	7%	315%	25%	24%	257%
Robert W. Singer, R-30	Sean T. Kean, R-30; Avi Schnall, D-30	43	4,993,000	2,800	1%	1%	55%	15%	17%	156%

Angela V. McKnight, D-31	Barbara McCann Stamato, D-31; William Sampson, D-31	151	25,770,000	18,400	3%	3%	140%	16%	17%	166%
Raj Mukherji, D-32	Jessica Ramirez, D-32; John Allen, D-32	20	6,819,000	6,000	2%	3%	112%	13%	14%	131%
Brian P. Stack, D-33	Gabe Rodriguez, D-33; Julio Marenco, D-33	152	25,459,000	18,200	8%	8%	348%	16%	17%	160%
Britnee Timberlake, D-34	Michael Venezia, D-34; Carmen Morales, D-34	36	3,598,000	1,700	2%	3%	97%	13%	13%	128%
Nellie Pou, D-35	Shavonda E. Sumter, D-35; Benjie E. Wimberly, D-35	91	10,103,000	4,800	5%	5%	222%	22%	23%	220%
Paul Sarlo, D-36	Gary Schaer, D-36; Clinton Calabrese, D-36	148	19,250,000	11,600	5%	6%	214%	15%	17%	149%
Gordon M. Johnson, D-37	Ellen Park, D-37; Shama Haider, D-37	37	3,496,000	1,200	2%	3%	101%	9%	12%	92%
Joseph Lagana, D-38	Lisa Swain, D-38; Chris Tully, D-38	118	14,453,000	7,900	2%	2%	81%	6%	7%	59%
Holly Schepisi, R-39	John V. Azzariti, R-39; Robert Auth, R-39	43	4,575,000	2,300	1%	1%	40%	3%	5%	36%
Kristin Corrado, R-40	Al Barlas, R-40; Christopher DePhillips, R-40	91	11,117,000	6,400	1%	2%	53%	4%	5%	38%

* This calculation was rounded to three significant figures.
** This calculation was rounded to two significant figures.
*** Our methodology defines a warehouse neighbor as one who lives within a half mile of at least one warehouse. The half-mile buffer picks up warehouses that may be in multiple districts.

ENDNOTES

[1] Environmental Protection Agency. (n.d.). Sources of Greenhouse Gas Emissions. EPA. Retrieved July 26, 2022 from In note #21 lowercase title of fact sheet https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions

[2] Hernandez, Acacia. New Target Warehouse in Little Village Draws Environmental Concerns Despite Job Creation, August 4, 2021. https://news.wttw.com/2021/08/04/new-target-warehouse-little-village-draws-environmental-concerns-despite-job-creation

[3] Environmental Defense Fund, Making the Invisible Visible: Shining a Light on Warehouse Truck Air Pollution, 2023. https://globalcleanair.org/files/2023/04/EDF-Proximity-Mapping-2023.pdf

[4] Environmental Protection Agency, Near Roadway Air Pollution and Health: Frequently Asked Questions, 2015. https://www.epa.gov/sites/default/files/2015-11/documents/420f14044_0.pdf

[5] Rowangould 2013 TR, EPA 2021. Best Practices for Reducing Near-Road Pollution Exposure at Schools.

[6] Health Effects Institute, Systematic Review and Meta- analysis of Selected Health Effects of Long-Term Exposure to Traffic-Related Air Pollution, June 2022. https://www.healtheffects.org/system/files/hei-special-report-23_6.pdf

[7] Dean, B. B., Calimlim, B. C., Sacco, P., Aguilar, D., Maykut, R. and D. Tinkelman. 2010. Uncontrolled asthma: assessing quality of life and productivity of children and their caregivers using a cross sectional Internet-based survey. Health and quality of life outcomes, 8, 96. https://doi.org/10.1186/1477-7525-8-96

[8] Table C-1. Ever having asthma and still having asthma for children under age 18 years, by selected characteristics: United States, 2018. https://ftp.cdc.gov/pub/Health_Statistics/NCHS/NHIS/SHS/2018_SHS_Table_C-1.pdf

[9] Office of Minority Health. Asthma and African Americans - The Office of Minority Health. (n.d.). Retrieved July 29, 2022, from https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=15

[10] Bekkar B., Pacheco S., Basu R. and N. DeNicola. Association of Air Pollution and Heat Exposure With Preterm Birth, Low Birth Weight, and Stillbirth in the US: A Systematic Review. JAMA Netw Open. 2020; Jun 1;3(6):e208243. https://doi.org/10.1001/jamanetworkopen.2020.8243

[11] Peters R., Ee N., Peters J., Booth A., Mudway I. and Anstey K. Air Pollution and Dementia: A Systematic Review. J Alzheimers Dis. 2019;70(s1):S145-S163. https://doi.org/10.3233/JAD-180631

[12] de Bont, J., Jaganathan, S., Dahlquist, M., Persson, A., Stafoggia, M. and P. Ljungman. Ambient air pollution and cardiovascular diseases: an umbrella review of systematic reviews and meta-analyses. J Intern Med. 2022; 291: 779–800. https://doi.org/10.1111/joim.13467

[13] O'Dea, Jimmy. Ready for Work: Now Is the Time for Heavy-Duty Electric Vehicles. 2019. https://www.ucsusa.org/resources/ready-work

[14] O'Dea, Jimmy. Ready for Work: Now Is the Time for Heavy-Duty Electric Vehicles. 2019. https://www.ucsusa.org/resources/ready-work

[15] ChargeEVC, Full Market Vehicle Electrification In New Jersey. October 2020. https://www.chargevc.org/wp-content/uploads/2020/10/ChargEVC-Full-Market-Electrification-Study-FINAL-Oct-7-2020.pdf

[16] California Air Resources Board, EMFAC2021 Volume III Technical Document, 111. https://ww2.arb.ca.gov/sites/default/files/2021-03/emfac2021_volume_3_technical_document.pdf

[17] American Lung Association, Who is Most Affected by Outdoor Air Pollution? November 2023. https://www.lung.org/clean-air/outdoors/who-is-at-risk#

[18] New Jersey Department of Environmental Protection, Environmental Justice Law, accessed May 2024, https://dep.nj.gov/ej/law/

[19] New Jersey Department of Environmental Protection, Environmental Justice Law, accessed May 2024, https://dep.nj.gov/ej/law/

[20] New Jersey Department of Environmental Protection, Environmental Justice Law, accessed May 2024, https://dep.nj.gov/ej/law/

[21] New Jersey Department of Environmental Protection, New Jersey's Global Warming Response Act: 80x50 Report. October 2020. https://dep.nj.gov/wp-content/uploads/climatechange/nj-gwra-80x50-report-2020.pdf

[22] 53 N.J.R. 2148(a) https://advance.lexis.com/api/document/collection/administrative-codes/id/648H-FK41-JJ6S-63JN-00008-00?cite=53%20N.J.R.%202148(a)&context=1000516

[23] Analyses conducted by EDF using methodology and data sources described in:
Kerr GH, van Donkelaar A, Martin RV, Brauer M, Bukart K, Wozniak S, Goldberg DL, Anenberg SC. Increasing Racial and Ethnic Disparities in Ambient Air Pollution-Attributable Morbidity and Mortality in the United States. Environ Health Perspect. 2024 Mar;132(3):37002. https://doi.org/10.1289/ehp11900.

[24] Analyses conducted by EDF using methodology and data sources described in:
Kerr GH, van Donkelaar A, Martin RV, Brauer M, Bukart K, Wozniak S, Goldberg DL, Anenberg SC. Increasing Racial and Ethnic Disparities in Ambient Air Pollution-Attributable Morbidity and Mortality in the United States. Environ Health Perspect. 2024 Mar;132(3):37002. https://doi.org/10.1289/ehp11900.

[25] Advocates for Children of New Jersey, Showing Up Matters: Newark Chronic Absenteeism in the Early Years. 2016. https://acnj.org/downloads/2016_01_21_newark_chronic_absenteeism_rprt.pdf

[26] New Jersey Department of Public Health, Complete Health Indicator Report of Asthma Management. November 2023. https://www-doh.state.nj.us/doh-shad/indicator/complete_profile/ACBS.html

[27] New Jersey Department of Public Health, Complete Health Indicator Report of Asthma Management. November 2023. https://www-doh.state.nj.us/doh-shad/indicator/complete_profile/ACBS.html

[28] New Jersey Department of Public Health, Complete Health Indicator Report of Asthma Hospitalizations and Emergency Department Visits. February 2022. https://www-doh.state.nj.us/doh-shad/indicator/complete_profile/NJEPHTAsthmaHosp.html

[29] New Jersey Department of Public Health, Complete Health Indicator Report of Deaths due to Asthma. October 2022. https://www-doh.state.nj.us/doh-shad/indicator/complete_profile/AsthmaDeath.html

[30] New Jersey Department of Public Health, Query Results for New Jersey Inpatient Hospital Discharge Data: 2016-2021 - Count. May 2024. https://www-doh.state.nj.us/doh-shad/query/result/ub/UB10AllInpat/CountHosp.html

[31] New Jersey Department of Public Health, Complete Health Indicator Report of Population Demographics. November 2022. https://www-doh.state.nj.us/doh-shad/indicator/complete_profile/Demographics.html

[32] New Jersey Department of Public Health, Health Indicator Report of Deaths due to Asthma. October 2022. https://www-doh.state.nj.us/doh-shad/indicator/view/AsthmaDeath.RaceEth.html

[33] ChargeEVC, Full Market Vehicle Electrification In New Jersey. October 2020. https://www.chargevc.org/wp-content/uploads/2020/10/ChargEVC-Full-Market-Electrification-Study-FINAL-Oct-7-2020.pdf

[34] Clean Air Task Force, Deaths by Dirty Diesel. 2023. https://www.catf.us/deathsbydiesel/

[35] Clean Air Task Force, Deaths by Dirty Diesel. 2023. https://www.catf.us/deathsbydiesel/

[36] Clean Air Task Force, Deaths by Dirty Diesel. 2023. https://www.catf.us/deathsbydiesel/

[37] United States Environmental Protection Agency, Pre-Generated Data Files: Annual Summary Data, 2023. https://aqs.epa.gov/aqsweb/airdata/download_files.html#Annual

[38] Apte, J., Messier, K., Gani, S., Brauer, M., Kirchstetter, T., Lunden, M., Marshall, J., Portier, C., Vermeulen, R., Hamburg, S., *Environmental Science & Technology* 2017 *51* (12), 6999-7008 doi/10.1021/acs.est.7b00891

[39] New Jersey Department of Environmental Protection, New Jersey's Global Warming Response Act: 80x50 Report. October 2020. https://dep.nj.gov/wp-content/uploads/climatechange/nj-gwra-80x50-report-2020.pdf

[40] 53 N.J.R. 2148(a) https://advance.lexis.com/api/document/collection/administrative-codes/id/648H-FK41-JJ6S-63JN-00008-00?cite=53%20N.J.R.%202148(a)&context=1000516

[41] New Jersey Department of Environmental Protection, Environmental Justice Law, accessed May 2024, https://dep.nj.gov/ej/law/

[42] California Air Resources Board, Advanced Clean Fleets. Accessed May 2024. https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets

[43] State of New Jersey, Energy Master Plan. Accessed May 2024. https://www.nj.gov/emp/

[44] South Air Quality Management District, WAIRE Implementation Guidelines, June 2021. https://www.aqmd.gov/docs/default-source/planning/fbmsm-docs/waire-implementation-guidelines.pdf?sfvrsn=12