



OPENBUFFALO

EAST SIDE SOIL PROJECT REPORT

PREPARED BY :

OPEN BUFFALO

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Forward

Open Buffalo is located on Jefferson Avenue, long considered the “heart” of the city’s East Side. More than 80% of the area’s Black population reside in this region of the city, dating back to the great migration of Black families moving North in search of economic and social freedom during the early- to mid-1900s.

Those early migrants brought with them a spirit of hope and resilience that continues to define the East Side today, and we seek to honor the courage and sacrifices of our ancestors through our work at Open Buffalo. Though the challenges that East Side residents currently face differ from those that confronted our elders, we share and maintain their steadfast belief in the transformative power of community action.

One such present challenge is that of widespread contamination of air, soil, and water in Buffalo caused by more than a century of pollution from industrial manufacturing and relative disregard for its impact on the environment. To this end, the following report details Open Buffalo’s recent efforts to assess the presence of lead contamination in the soil on residential properties on the East Side and encourage further inquiry into the scope of such contamination and its impact on the community.

We recognize that lead contaminated soil is only one of many contributing factors to many of the health and academic challenges facing residents and, moreover, that such problems can be found in other parts of the city as well. Accordingly, our long-term goal is to explore strategies to mitigate the harm caused by toxins such as lead and build a coalition of likeminded residents and organizations to address the inequitable burden of such environmental injustice borne by Black and Brown communities irrespective of geographic locale.

Lastly, on behalf of Open Buffalo and its partners, I wish to express our profound appreciation and gratitude to those who participated in this study. Likewise, we are indebted to the hard work and foresight of grassroots activists, such as Virginia Golden, who helped shine a much needed light on the environmental challenges facing East Side residents.

– Franchelle Parker
Executive Director

About OPEN BUFFALO

Open Buffalo is a non-profit (501c3) organization dedicated to advancing racial, economic, and ecological justice. We believe that an understanding of the interdependence between all living things is a crucial step toward protecting the planet and its delicate ecosystems to ensure that marginalized communities have uninhibited access to quality air, water, and food.



At Open Buffalo, we believe our role is to create an empowered democratic society by training individuals in how to identify problems and create solutions in public policy and public systems.

Our goal is to ensure that individuals who share our vision and values have the necessary skills, networks, and capacities to become leaders and create lasting change in their communities.

Project Team

Open Buffalo partnered on this project with Citizen Science Community Resources (CSCR) and the Departments of Sociology and Environment and Sustainability at the University at Buffalo (UB), with funding provided by a grant from the New York State Department of Conservation (NYS DEC).



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EAST SIDE SOIL PROJECT

Executive Summary

Overview

Lead poisoning causes damage to the brain, kidneys, and nervous system. The impact is most pronounced among children under the age of five, often leading to long-term learning and emotional difficulties, including hyperactivity, difficulty concentrating and following directions, as well as increased aggressiveness, anxiety, and depression.

Significant racial disparities in incidence and prevalence rates of exposure to lead exist in the U.S., with higher rates often clustering in neighborhoods historically impacted by racist housing and land use policies. Lead exposure contributes to and further compounds existing social and academic disparities faced by families in these often economically challenged communities.

Background

Buffalo and its Surrounding Suburbs are Highly Segregated



- Racist housing and urban development policies pushed Black families to the East Side.
- 80% of Buffalo's Black population currently lives on the East Side.

East Side Residents Face a Disparate Number of Environmental Threats



- Rates of PM2.5, a neurotoxin in vehicle exhaust, are 30% higher near Kensington Expressway than other parts of the city.
- Rates of lupus on the East Side are 7x higher than in the general population.
 - Highest rates cluster near a former lead smelting plant.
- Children from predominantly Black neighborhoods are 12x more likely to have elevated levels of lead in their blood.

Children Diagnosed with Lead Poisoning Experience Lifelong Problems



- Less likely to perform at grade level in math and reading.
- More likely to repeat grades and be involved with the juvenile justice system.
- By early adulthood, lead-exposed children are more likely to have been homeless, relied on public assistance, and been incarcerated.

East Side Soil Project

Methods



- Distributed project information to 3,500+ residential properties on the East Side.
- Collected 249 soil samples following EPA sampling protocols.
- Discussed results with each participant.

Findings



- EPA standard for "safe" soil: < 200ppm
- Average East Side lead level: **642ppm**.
- **92%** properties had at least one sample result above 200ppm.
- **68%** of the properties had at least one sample result above 400ppm.
 - Avg. for these properties was **705ppm**.

Recommendations

Mitigate Existing Contamination Risks



- Align NYS DEC action levels with EPA's 200ppm for play and garden areas.
- Test and map soil contamination.
 - Voluntary for owner-occupied properties.
 - Mandatory for rental properties.
- Outreach and education regarding soil contamination and safety.

Implement 5-Year Remediation Plan



- Establish Ecological Justice Oversight Board for the City of Buffalo.
- Prioritize East Side neighborhoods with multiple risk-factors.
- Dedicate public funding to remediate residential properties.

Introduction

The Commission for Racial Justice's (1987) seminal report, *Toxic Wastes and Race in the United States*, served as a clarion call regarding the disparate risk of exposure of urban Black communities to the hazardous byproducts of America's industrial past. In the nearly 40 years since its publication, a growing body of research has demonstrated that these communities are indeed particularly vulnerable to the pernicious impact of such exposure because of the confluence of persistent racist housing policies, public and private disinvestment in urban areas, and piecemeal and inadequate legislative efforts to remediate existing environmental threats.

Likewise, research has established a strong causal relationship between lead exposure and deleterious physical and intellectual developmental outcomes, including damage to the brain, kidneys, and nervous system. The impact of exposure is most pronounced among children under the age of five, often leading to long-term learning and behavior difficulties, such as hyperactivity and difficulty problem-solving, concentrating, and following directions. Additionally, lead exposure can lead to increased aggressiveness, anxiety, and depression. The most common sources of exposure are lead-based paint, contaminated drinking water, contaminated soil, and other sources such as deteriorated lead-based paint and deposits from leaded gasoline.

Importantly, significant racial disparities in incidence and prevalence rates of exposure to lead exist in the U.S., with higher rates often clustering in neighborhoods historically impacted by racist housing and land use policies, such as redlining, and ongoing disinvestment. Moreover, lead exposure compounds existing social and academic disparities faced by families in these often economically challenged communities, creating persistent difficulties for those affected.

The following report presents findings from Open Buffalo's East Side Soil Project (ESSP). The purpose of this project was to increase awareness among residents of the hazards of lead contamination, particularly on children, conduct soil testing on residential properties for the presence of lead, and establish an empirical baseline to support community-led policy change.

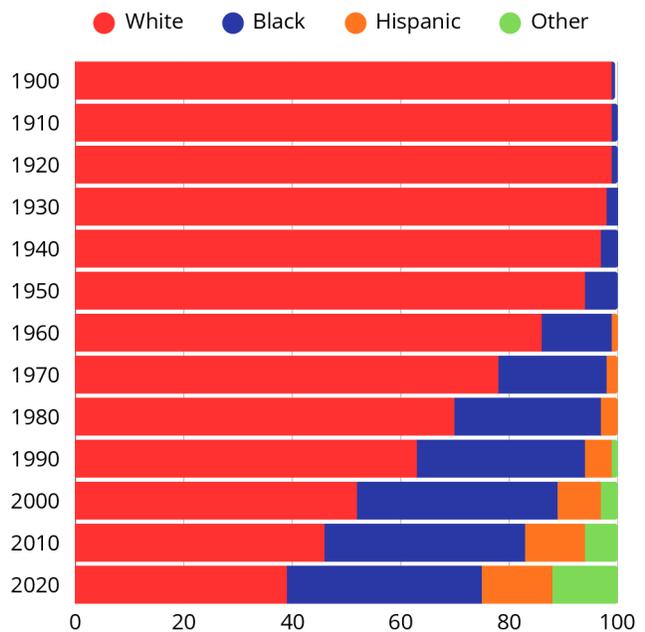
Background

Buffalo's Industrial History and Economic Collapse

Bordering the Northeast and Middle Atlantic regions of the country, Buffalo, New York, was a manufacturing hub during the early to mid-1900s due to its proximity to the Erie Canal, with much of its workforce concentrated in steel production. The city's location, combined with a growing population that peaked at nearly 600,000 residents in 1950, served as the foundation for a thriving economy. However, Buffalo suffered a similar fate as other "rust belt" cities, such as Detroit and Cleveland, having benefited from the influx of federal spending for industrial manufacturing to support the country's wartime efforts, only to wither during the transition back to normal economic activity.

Consequently, Buffalo descended into a prolonged economic downturn caused by the widespread closure of factories that resulted in the region's steel workforce declining by nearly 30% by 1972, and by more than 60% by the mid-1990s. During this time, the city's population declined precipitously to approximately 280,000 residents. Buffalo's economic downfall was compounded by environmental blight wreaked by a century of industrial manufacturing, which left vast sections of the city and surrounding shoreline polluted with toxic waste.

Population Distribution by Race,
Buffalo, NY
1900 - Present



Source: U.S. Census

Background

Redlining and the East Side

The city's economic downturn also exposed the consequences of racial segregation that began in response to the great northern migration of Black southerners in the 1800s and was codified under the New Deal. Recognizing the importance of homeownership to rescuing the economy and rebuilding the middle class, New Deal legislation offered low-interest, low down payment mortgages to qualified buyers through Federal Housing Authority (FHA) loans. These loans were issued by private banks but backed by the federal government.

To determine eligibility for FHA loans, the Home Owners Loan Corporation (HOLC) mapped major municipalities according to the perceived level of risk associated with issuing mortgages in certain neighborhoods. Neighborhoods that were the riskiest were outlined or shaded in red, and the federal government would not back mortgages to banks in those neighborhoods, thus beginning the practice of "redlining." A review of HOLC documents in later years found that the most common reason for redlining a neighborhood was its current and/or projected racial composition (Mapping Inequality, 2025).

Redlining practices extended throughout the housing market, including racist realty policies such as the use of covenants in home sale documents that forbade the future sale of properties to persons who would negatively impact the value of adjacent properties. It was also legal for real estate agents to refuse to show properties to potential buyers for this same reason. While these explicit and implicit policies starved Black families of opportunities to participate in the housing market, white families were able to capitalize on the availability of FHA loans and moved in droves to burgeoning suburban neighborhoods.

However, this suburban exodus of white families and the businesses that catered to them came at a cost, as cities began to suffer from the loss of commercial investment and tax revenue. To counter this trend, cities began urban renewal programs to woo businesses back, though often to the detriment of Black communities.

Background

Redlining and the East Side, con't.

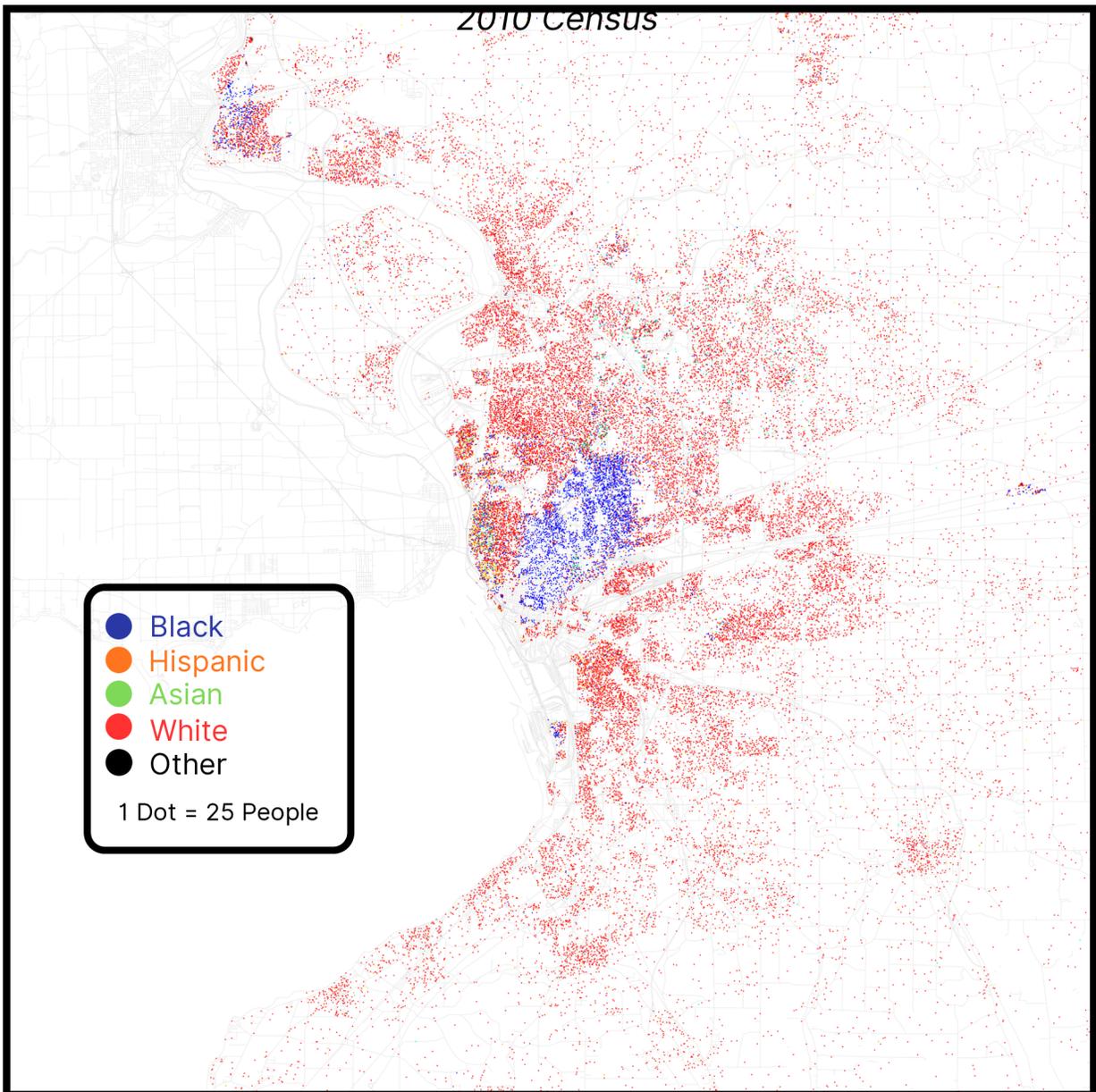
In Buffalo, Main Street became a symbolic dividing line, east of which Black families were increasingly concentrated because of the redlining practices noted above (Blatto, 2018; Report on Inquiry into Redlining in Buffalo, NY, 2021; Taylor, 2022). The city's eventual and ill-fated attempts at urban renewal only served to further segregate the city and undermine wealth development among Black families. For example, one of the most notorious and enduring symbols of such initiatives in Buffalo is the Kensington Expressway, constructed for the purpose of creating a more modern and efficient flow of traffic from downtown out to the neighboring suburbs for commuters.

Construction began in 1957 and over the next 14 years the Expressway took shape, carving through Humboldt Parkway on the East Side. Prior to the mid-1950s, neighborhoods in that area were largely inhabited by German Americans. However, rumors of the Expressway's planning hastened these residents' flight to the suburbs, and by the time construction began, neighborhoods in the area were 80% Black. Upon its completion in 1971, 630 homes were demolished, hundreds of families displaced, and neighborhoods were split in two by a 6-lane roadway.

Public housing served as another urban renewal strategy to address the problem of dilapidated and overcrowded housing in cities. However, consistent with redlining practices, public housing was segregated and bound by "prevailing composition" policies, requiring that the racial demographics of the residents reflect those of the surrounding neighborhoods. Accordingly, public housing units for Black families in Buffalo, beginning with the construction of Willert Park Courts in 1939, were located on the East Side. The combination of redlining and displacement due to urban renewal projects meant that less than two years after its construction, there were nearly 1,000 Black families on the waiting list for one of Willert Park's 172 apartments. Additional public housing units were constructed on the East Side over the ensuing decades to address the housing crisis that Buffalo's Black families faced.

Background

Population Distribution by Race: Buffalo, NY and Surrounding Areas



Source: Eric Fischer - Race and ethnicity 2010: Buffalo, CC BY-SA 2.0, <https://commons.wikimedia.org/w/index.php?curid=57276256>

Background

Buffalo's Industrial Legacy on the East Side

During Buffalo's heyday as an industrial powerhouse, the East Side was densely packed with many large factories, including Niagara Machine and Tool Works, Otis Elevator Foundry, and Buffalo Forge Company. Nearly all these facilities closed during the latter half of the 1900s, leaving behind blocks of empty buildings and untold environmental damage. Importantly, most of these decaying structures are adjacent to residential neighborhoods.

For example, what is now termed the "Northland Corridor" is a 50-acre stretch of land on the East Side where several manufacturing facilities once resided. Ten-acres of the Corridor, which was home to an industrial manufacturing complex from 1925 until the mid-1990s, was designated a Class 2 Superfund¹ site by the Environmental Protection Agency (EPA) in 2008 because the contamination poses a significant threat to public health and/or the environment. That site has since been remediated, but the remainder of the Corridor properties qualify as brownfields, in which development may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant resulting from prior use.

Aerial view of former industrial manufacturing area now known as the Northland Corridor



Source: <https://www.buffalourbandevelopment.com/northland-redevelopment-plan>

¹ Class 2 designation indicates that contamination on the property represents a significant threat to public health and/or the environment

Background

Buffalo's Industrial Legacy on the East Side, con't.

Less than a mile away on the East Side, General Motors (GM) operated a 52-acre assembly plant from 1922 to 1994. In 1991, GM reported to the NYS DEC a leak of nearly 110,000 gallons of oil laced with PCBs² (polychlorinated biphenyls) into the soil beneath the plant. GM took measures to prevent further spills but did not address existing contamination and sold the plant to American Axle, an auto parts manufacturer for GM, in 1994.

In 2006, the site was added to the NYS Registry of Inactive Hazardous Waste Disposal Sites, and the NYS Department of Environmental Conservation (DEC) ordered GM to remediate 3 acres of the site. However, in 2012, GM declared bankruptcy and was able to discharge its obligation to clean the site by paying a \$2.8 million fine rather than incurring the estimated \$10 million cost of addressing the contamination. The property is now owned by a private developer who has been engaged in a protracted legal battle with the state regarding responsibility for site remediation.

Aerial view of former General Motors/American Axle Plant located on Buffalo's East Side



Source: Google Maps

² PCBs are a probable human carcinogen.

Background

The East Side Today: Redlining and Economics

In 1991, Dr. Henry Louis Taylor published, “African Americans and the Rise of Buffalo’s Post-Industrial City, 1940 to Present,” an empirical examination of socioeconomic trends in Buffalo’s Black community, particularly those living on the East Side. Taylor found high rates of unemployment and poverty, and low rates of home ownership and academic achievement.

Thirty years later, Taylor (2021) published a follow up, titled “The Harder We Run: The State of Black Buffalo in 1990 and the Present,” concluding that over the course of the prior 31 years, “the portrait of Black Buffalo remains unchanged.” Unfortunately, Taylor’s findings are not an anomaly but, rather, offer further evidence of the innumerable disparities faced by Black Buffalonians.

Median income in Black households in Buffalo is half that of the Buffalo-Niagara region (\$34,000 vs. \$67,000) and an estimated 35% of Black residents live in poverty compared to 10% of white residents (Pain Point Analysis: Buffalo, 2022). Racial disparities in unemployment remain persistent, with Black unemployment rates often double those of white working-aged adults in Buffalo and 43% qualifying for Supplemental Nutrition Assistance Program (SNAP) (Clausell, 2025).

Further, the city currently ranks among the most segregated cities in the U.S. (Blatto, 2018), with nearly 80% of the city’s Black population still living on the East Side. Regionally, Black residents account for less than 4% of the population in the 7 suburban townships adjacent to the city combined. In fact, controlling for the Black population in Cheektowaga (12.1%), the suburb closest in proximity to the East Side, the Black population in the remaining 6 adjacent suburbs is less than 3%.

Additionally, the city has the third largest homeownership gap between Black and white residents in the country, with only 29% of Buffalo’s Black families owning homes, compared to 73% of white families (Specht and Mickey, n.d.). A 2021 study by the NYS Department of Financial Services of mortgage originations in Buffalo found that only 10% of mortgages were to minority borrowers and only 4.5% of mortgages were issued to borrowers in neighborhoods in which the majority of residents are persons of color.

Background

The East Side Today: Health Outcomes

It has been well-established that systemic racism in the U.S. has contributed to significant racial disparities in the incidence and persistence of adverse medical outcomes in Black communities. Nationally, life expectancy for Black persons is 5 years less than for white persons (Ndugga, Hill, and Artiga, 2024), Black infants are twice as likely to die before their first birthday than white infants (Jang and Lee, 2022), and Black adults are prone to consistently higher rates of heart disease (Davis, et al., 2007), stroke (Flynn, Vaughan, and Casper, 2022), diabetes (Deng, et al., 2025), and cancer (Tong, Hill, and Artiga, 2022).

In addition to systemic racism in the provision of health care, research has increasingly demonstrated the impact of sociodemographic variables on health outcomes as well (CDC, 2024). Termed social determinants of health (SDHs), these factors include poverty, housing and food insecurity, access to affordable and nutritious food, and neighborhood concerns, such as exposure to toxins such as lead, as well as the health and safety of one's daily surroundings.

Among these latter concerns are environmental risks posed by living in close proximity to existing and/or ongoing sources of pollution, such as superfund sites or heavily traversed roadways, respectively. East Side residents contend with exposure to both risks. For example, studies of air quality in neighborhoods adjacent to the Kensington Expressway, discussed earlier, have found that rates of fine particulate matter (PM_{2.5}) are nearly 30% higher than elsewhere in the city or region (NYSDEC, 2024; McAndrew, 2024; Shuman, 2024).

Not only is exposure to PM_{2.5} (a contributor to climate change) associated with an increased likelihood of asthma, heart disease, mental health disorders, and certain types of cancer, but it is also a neurotoxin. Alter et al. (2024) conducted a meta-analysis of studies regarding PM_{2.5} and children's cognitive functioning and found a significant relationship between exposure to PM_{2.5} and reduced intellectual performance, particularly visuospatial skills, fluid reasoning, and visual-motor integration.

Background

The East Side Today: Health Outcomes, con't.

Likewise, proximity to legacy³ contamination from the East Side’s industrial past has been shown to contribute to the increased prevalence of diseases such as lupus, an incurable autoimmune disorder most common in women, in which those with the disease are at an elevated risk for developing cardiovascular disease, kidney disease, and/or suffer from a stroke. Life expectancy for Black women with lupus is approximately 13 years less than white women (Gianfresco, et al., 2021) and it is among the top ten causes of death for Black women ages 15-44 (Yen, et al., 2017).

Although Black women already have an increased likelihood of developing lupus, Williams et al. (2011) found prevalence rates of the disease among East Side residents to be more than twice the rate typically found among Black women and seven times higher than in the general population. These findings are particularly notable because lupus rates are typically higher in southern and western states (Patel, et al. 2025). Importantly, Williams et al. (2011) found that incidence rates among participants clustered among those who lived in close proximity near a superfund site that was once home to a lead-smelting plant.

**LUPUS RATES ARE
700%
HIGHER AMONG
BLACK WOMEN
ON THE EAST SIDE
COMPARED TO
THE GENERAL
POPULATION**

Housing is another social determinant of health. Buffalo’s housing stock is among the oldest in the country, with more than 90% of the city’s homes built before 1978, when lead paint was banned for residential use. However, while old homes exist throughout the city, rates of elevated lead levels are often highest in census tracts with the lowest incomes and highest number of renters. In fact, according to the Buffalo and Erie County Lead Safe Task Force, 80% of children in Buffalo with elevated blood lead levels (EBLL) live in rental properties.

³ Lingering contamination from past use of the land or proximity of land to sources of past industrial pollution

Background

The East Side Today: Health Outcomes, con't.

This is often attributed to deferred or unsafe maintenance practices⁴ by owners of rental properties in areas with few affordable housing options, such as the East Side. For example, in 2025, Farhad Raiszadeh, a San Diego-based owner of seventy-two Section 8 rental properties on the East Side, was found guilty of failing to properly maintain his properties, including lead remediation, and was ordered to pay more than \$500,000 in fines and restitution (Office of the Attorney General of New York State, 2025) . Since 2013, sixteen children living among Raiszadeh’s various properties have suffered from lead poisoning.

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Children from predominantly Black neighborhoods in Buffalo are twelve times more likely to have elevated blood lead levels compared to children from predominantly white neighborhoods.

”

Unfortunately, the risk of exposure is not limited to residential dwellings, as Buffalo Public Schools (BPS) in 2021 found that 80% of schools tested had at least one water source, such as drinking fountains, with elevated lead levels. Consequently, approximately 450⁵ children under the age of 6 in Buffalo are found to have elevated blood lead levels (EBLL) annually, which is one of the highest incidence rates in the country (Reuters, 2017). Moreover, children from predominantly Black neighborhoods in Buffalo are twelve times more likely to have EBLLs compared to children from predominantly white neighborhoods (UBRI, 2016).

⁴ E.g., Failure to cover or remove chipped paint, and/or using unsafe remediation practices that spread lead dust throughout the dwelling and into the air ducts.

⁵ Flint, MI is often a comparison point for lead exposure. Beginning in 2014, area doctors noted a significant increase in EBLLs in children and in 2016, a federal state of emergency was declared for the city. Studies of Black children in Buffalo, NY estimate the rate of lead exposure to be more than 3x those in Flint, MI (Cadzow, 2022).

Background

The East Side Today: Academic and Criminal Justice Outcomes

Lead exposure during early childhood can have a significant negative impact on intellectual development associated with academic achievement and behavioral regulation, the consequences of which persist in adulthood. Coulton et al. (2020) tracked academic and criminal justice outcomes among children in Ohio who were diagnosed with EBLLs prior to their 5th birthday. These children were significantly less likely to pass 3rd, 6th, and 8th grade math and English proficiency tests, more likely to repeat a grade level, and less likely to pass the state’s high school graduation tests in these subjects or matriculate into college. Notably, children with EBLLs were more likely to have interactions with the juvenile court system for violent crimes. Lastly, by age 23, those with childhood EBLLs were 40% more likely to have been homeless, relied on public assistance programs, such as Supplemental Nutrition Assistance Program (17%) or Temporary Assistance for Needy Families (53%), and 34% more likely to be incarcerated.

Although similar longitudinal data has not been collected for children with EBLLs in Buffalo Public Schools (BPS), academic outcomes⁶ for schools located in areas with high rates of lead exposure give cause for concern, especially given that the school system is highly segregated⁷ in a manner consistent with residential patterns created by redlining (Potter, 2022). Overall reading proficiency among Black students for grades three through eight is 16.5% compared to 42% for white students (Looker, 2023). In fact, in 2022, only two of the 117 fifth graders at Public School 53 and Martin Luther King Jr. School on the East Side could read at or above grade level (Kahlenberg, 2023). Only 6% of the students enrolled in those schools are white (NYSED, 2025). Trends in math proficiency are similarly problematic, with less than 16% of Black students at grade level in math for grades three through eight (Morello, 2024; NPU, 2024).

.....
⁶ Interpreting educational data for Buffalo Public Schools is especially complex because of the large percentage of students with disabilities and/or from economically disadvantaged families enrolled in the district. Black students are overrepresented in both groups.

⁷ Nearly three-quarters of the city’s schools have a student population that is either 80+% minority or 80+% white (Byrnes, 2014). Black students are more likely to attend a school with a predominantly economically disadvantaged population (75%) compared to schools attended by white students (37%) (Potter, 2022).

Background

The East Side Today: Academic and Criminal Justice Outcomes, con't.

BPS also consistently ranks at or near the top among public schools in New York State for the total number of annual school suspensions and racial disparities in student disciplinary actions (NYEC, 2018). Black students in BPS are 2.5 times more likely to receive short-term suspensions, and four times more likely to experience a long-term suspension compared to white students (NUCLU, 2024). Additionally, Black students in BPS are significantly more likely to be suspended for subjective infractions, such as “defiance of authority,” “disrespectful behavior,” or “inciting or participating in a disturbance” (Walker, Hite, and Shih, 2022), consistent with national trends (Wilkerson and Afacan, 2021).

As with disparities in academic proficiency scores, students from economically disadvantaged families are three times more likely to experience short-term and five times more likely to experience long-term out-of-school suspensions, and Black students with disabilities were nearly seven times more likely to be suspended than their white peers without a disability (Walker et al., 2024; BPS, 2024). Shockingly, Black students with disabilities in Pre-K through 3rd grade accounted for 28% of long-term and 31% of short-term suspensions in the district (BPS, 2024).

**BLACK STUDENTS
WITH DISABILITIES
IN GRADES PRE-K
THROUGH 3RD
ACCOUNT FOR
28%
OF LONG-TERM
BPS SUSPENSIONS**

In addition to the disruptions caused to these students’ immediate and long-term academic progress, out-of-school suspensions may contribute to “cumulative disadvantage,” in which negative experiences, particularly during developmental years, increasingly build upon and reinforce one another (Sampson and Laub, 1997). Cumulative disadvantage theory is applicable to a number of deleterious academic, health, and social outcomes, and is particularly useful in helping to understand long-term change within individuals.

For example, research indicates that students who have been suspended are more likely to be arrested and incarcerated during young adulthood (Schollenberger, 2015; Bachler-Hicks, Billings, and Deming, 2019) even when controlling for prior delinquency (Rosenbaum, 2020). In other words, the experience of being suspended may be serve as a “turning point” for students that, while not causal, contributes to the likelihood of a downward slide later in life (Mowen, Brent, and Boman, 2021).

East Side Soil Project

Pilot Study - 2023

In response to ongoing concerns voiced by residents living near the former GM plant regarding potential off-site soil contamination from the more than 60 spills reported to the NYS DEC between 1988 and 2008, Open Buffalo (OB) partnered with Citizen Science Community Resources (CSCR) and faculty from the University at Buffalo's Department of Environment and Sustainability to solicit residential properties adjacent to the factory site for voluntary soil testing. Given the significant volume of PCBs spilled on the factory property and reports of the PCBs leaching into area ground water for decades, the team tested for PCBs as well as the presence of eight toxic heavy metals as designated by the Resource Conservation and Recovery Act (RCRA) passed by the EPA in 1976: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

From June to October 2023, the team conducted a pilot study, collecting approximately 45 samples from properties near the GM plant. Although testing did not find elevated levels of PCBs among those samples, more than half of the properties were found to have lead levels in their soil above the EPA's threshold of 200ppm⁸. Based on these findings, Open Buffalo pursued additional funding from the NYS DEC to continue testing for lead on residential properties on the East Side.

Present Study - Recruitment

Beginning in June 2025, Open Buffalo once again teamed with CSCR and UB, and began recruiting East Side households to participate in the project. Five census tracts in the area were identified for inclusion (see *Figure 1*). Project staff began door-to-door recruitment in the Delavan-Grider area near the former GM plant (census tract 03400) to complete canvassing the adjacent neighborhoods from the 2023 pilot study.

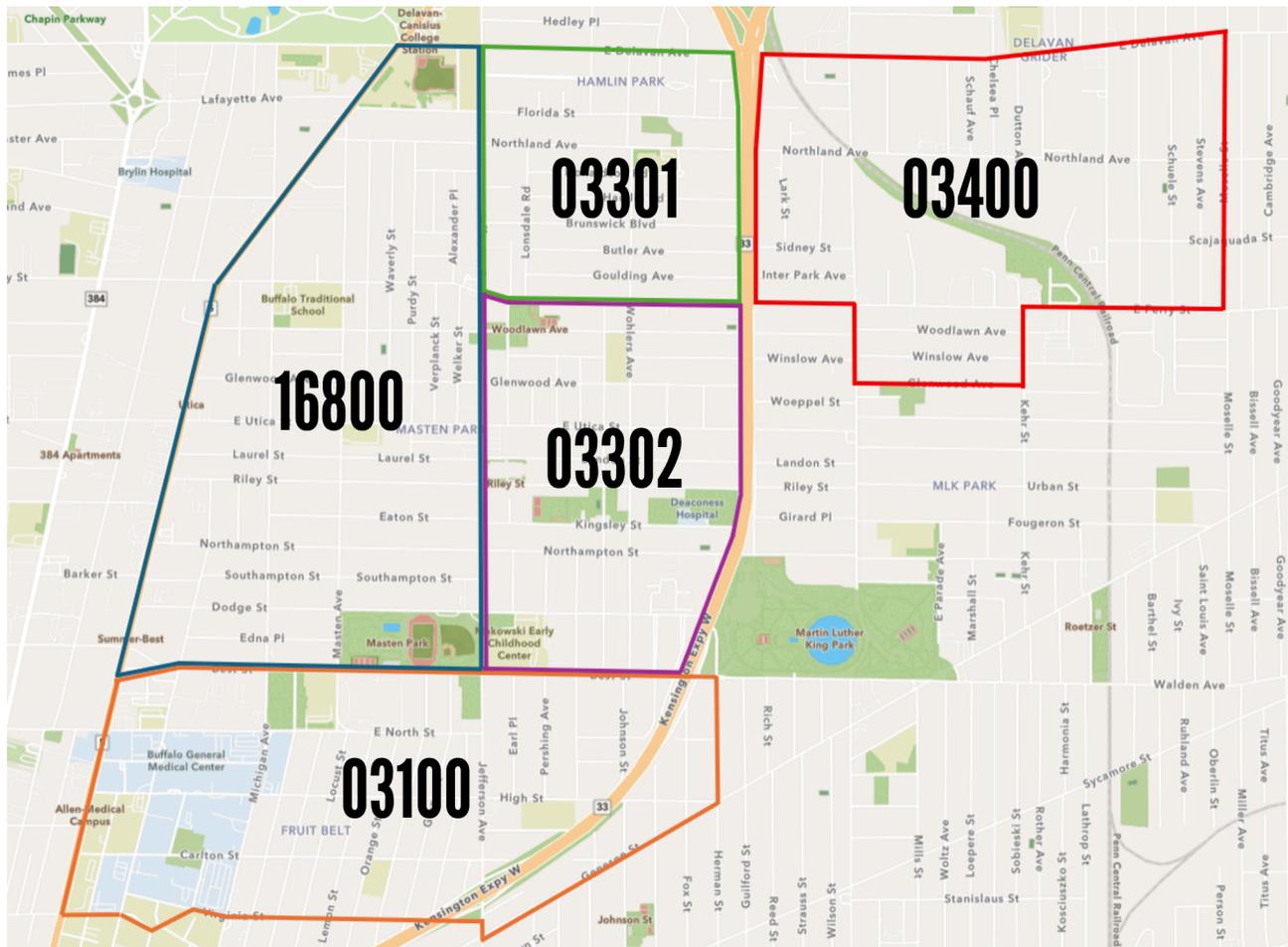
⁸ In 2024, the EPA lowered the threshold from 400ppm to 200ppm for play areas and gardens, and noted a recommended action level of 100ppm for individuals experiencing multiple exposure pathways, such as indoor lead paint, lead plumbing, etc. <https://www.epa.gov/newsreleases/epa-strengthens-safeguards-protect-families-and-children-lead-contaminated-soil>

East Side Soil Project

Present Study - Recruitment, con't.

Recruitment efforts then moved to the Masten Park (tract 16800) and Fruit Belt (tract 03100) neighborhoods, respectively⁹. Each census tract was subdivided into canvassing areas to track recruitment coverage, including the number of houses visited on each street. Recruitment continued until the target number of samples was achieved.

Figure 1: ESSP Recruitment Areas by Census Tract



⁹ Given the elevated lead levels found in tract 03400 during the pilot, recruitment from tracts 16800 and 03100 were prioritized to help assess the breadth and consistency of those findings in neighborhoods geographically removed from the former GM plant.

East Side Soil Project

Present Study - Recruitment, con't.

The overwhelming majority (82%) of those who eventually participated in the project were recruited through direct contact with project staff during canvassing, while the remainder signed up online via a QR code on the door hangers left at each property.

Our goal was to recruit 108 households and collect two samples, front yard and backyard from each property, yielding a total of 216 samples. However, some residents requested that we only sample either their front- or backyard. Canvassing continued until we reached our sampling goal, wherein we visited approximately 3,500 homes.

“

EPA recommended action levels for contaminated soil for individuals with multiple additional exposure risks, such as lead paint and lead water pipes, is 100ppm.

”

Present Study - Sampling

Project staff collected composite¹⁰ samples from a two-foot by two-foot section located in the approximate center of the front and backyards, where allowed, avoiding areas in close proximity to roadways, driveways, and driplines¹¹, following EPA (2014) sampling protocols. Sampling equipment was cleaned between collecting composite samples on each property, and samples were stored in amber glass jars, labeled with the property address, and kept in a cooler until submitted for testing at a local environmental testing facility. Hold time for lead soil samples is 30 days, meaning that the sample must begin the testing process within 30 days of collection to maintain the integrity of the sample. Project staff submitted samples to the testing facility within an average of two days after collection. Samples were tested according to EPA's (1986) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition, and its updates.

¹⁰ Composite sampling is conducted by selecting a center testing point, laying out a square around that point, and collecting samples from each corner of the square and the center point. Those samples are then mixed to create one sample for testing.

¹¹ Samples from driplines (ground below the roofline of a dwelling) and close to roadways tend to have higher rates of contamination than samples from elsewhere in a residential yard.

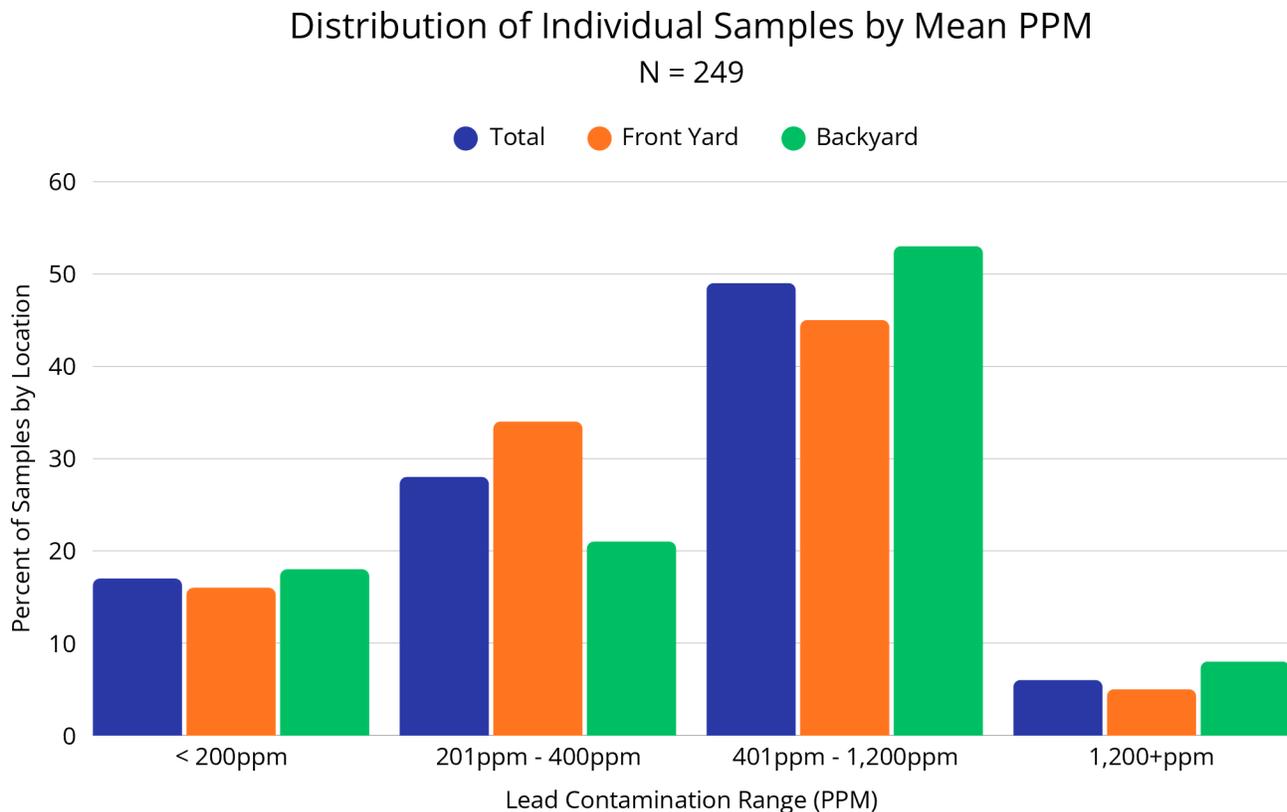
East Side Soil Project

Present Study - Results

Of the 166 residents who volunteered to have their property sampled, 138 completed the process, yielding n=249 test samples (135 front yard and 114 backyard). Lead levels ranged from 33 - 16,600ppm. Mean lead levels of the tested properties was 642ppm, more than 3x higher than the EPA guidelines of 200ppm. With regard to sample location (see Figure 2), 82% of front yard samples (n=111) tested above 200ppm and 50% (n=68) tested above 400ppm, while 78% (n=94) and 60% (n=68) of backyard samples tested above those thresholds, respectively.

Overall, 126 of the 138 (91%) properties had at least one sample result above 200ppm, and 94 (68%) of the properties had at least one sample result above 400ppm. Mean ppm for the latter properties was 705ppm.

Figure 2: Percent distribution of ESSP soil samples by PPM

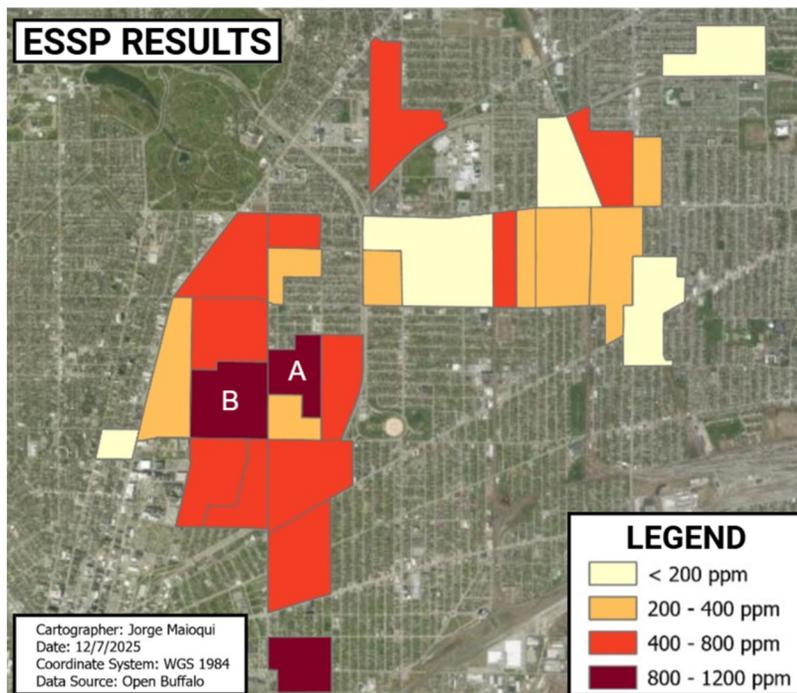


East Side Soil Project

Present Study - Results, con't.

Although methodological limitations preclude drawing conclusions regarding the distribution of results relative to past or current industrial activities in the area, trends emerged that warrant further examination (see *Figure 3*). Specifically, a “hotspot” emerged in a 1/5th square mile of the Masten Park area. This section¹² included 16 samples from 8 properties, with mean front yard and backyard levels of 2,853ppm and 1,863ppm, respectively. Only one sample in this section was below 500ppm. Section B, a second area of concern, located less than one quarter of a mile from section A, consisted of 8 properties and 13 samples. Mean front yard lead levels in section B were 2,032ppm and mean backyard levels were 662ppm. All the properties in section B tested above 400ppm, with only 3 samples below 500ppm. Properties in both sections were in neighborhoods immediately adjacent to public schools.

Figure 3: ESSP Sampling Results - Mapped



¹² To maintain confidentiality, sample mapping presented here is not to scale to avoid highlighting a particular street or neighborhood. Participation varied across the sampling area, with higher rates in some neighborhoods, such as between Main and Jefferson, but lower between the Kensington Expressway and Grider Street. Increased participation provides a more representative snapshot of the contamination in those neighborhoods.

Recommendations

Findings from the 2025 East Side Soil Project (ESSP) underscore long-standing concerns that the confluence of environmental inaction and structural racism places Buffalo's Black residents, particularly those on the East Side, at a significantly greater risk of exposure to environmental conditions that may be detrimental to their health and well-being. These inequities and environmental threats are particularly harmful during childhood and adolescence and "form the backdrop of everyday life for disadvantaged youth, constituting stressors and deprivations that exert influence both contemporaneously and as part of life course trajectories (Nurius et al. (2016))."

To this end, given the city's history of segregation and disinvestment on the East Side, this is not simply a problem of soil contamination, but rather, of the need to address ecological justice for East Side residents. Piecemeal environmental approaches have not and will not address the issues that have contributed to what may well be described as a health crisis for Buffalo's Black residents, particularly children. Moreover, while additional study is warranted to prioritize intervention efforts and help inform policy changes, any further delay in efforts to address this crisis only serves to increase the magnitude of the problem and likelihood of additional suffering. The following recommendations are offered accordingly.

#1 - BUFFALO MUST ACT IMMEDIATELY TO MITIGATE HARM

The full scope and magnitude of the problem of lead contamination on the East Side is yet unknown. However, combined with the widespread presence of lead paint and lead water service lines in residential homes and proximity of East Side residents to innumerable environmental threats, such as the Kensington Expressway, former superfund sites, brownfields, and other risks such as leaking underground storage tanks (see Appendix B), the results from ESSP demonstrate the need for immediate action to address this ongoing ecological crisis.

Irrespective of concurrent environmental threats, data from ESSP indicates the likely potential for widespread lead contamination throughout the East Side, the significance of which is underscored by soil testing projects in other cities (see *Figure 4*). For example, the Chicago Safe Soils Initiative gathered and mapped thousands of samples from throughout the city. The mean lead level among residential properties in Chicago, IL, was 220ppm, or approximately 1/3 the level found in ESSP (Steele, 2022). Likewise, the mean lead level from approximately 1,200 residential properties in Santa Ana, CA was 128ppm (Masri et al., 2020), or 1/5 that of the samples from ESSP.

Recommendations

Figure 4: Comparison Studies of Lead Soil Levels in Urban Areas in U.S.¹³

City	Properties Tested (N)	Mean Lead Level PPM	Authors
Appleton, WI	71	273	Clark and Knudsen (2013)
Chicago, IL	156	146	Watson et al. (2021)
Detroit, MI	152	183	Mielke et al. (2020)
Durham, NC	185	101	Wade et al. (2021)
Greensboro, SC	1,386	135	Obeng-Gyasi et al. (2021)
New Haven, CT	139	676	Stoner (n.d.)
Santa Ana, CA	1,200	128	OCEJ (2018)
Syracuse, NY	3,297	344	Hill et al. (2025)

Accordingly, **we recommend that additional testing should be conducted, targeting areas already identified as potential hotspots as well as those in close proximity to potential environmental threats** as illustrated in Appendix A. Further, recruitment strategies should be modified to not only increase voluntary participation but also yield sampling patterns that allow for neighborhood or street-level analysis. To achieve this, we recommend making repeated visits to targeted streets and attempting to speak directly with residents to provide education and solicit participation. As noted earlier, 82% of those who eventually completed the ESSP testing process were recruited through in-person engagements during the canvassing process.

¹³ Studies were included for comparison if the published results indicated that samples were drawn from residential yards away from driplines and/or roadways, consistent with ESSP sampling procedures.

Recommendations

#2 - BUFFALO MUST ADDRESS ENVIRONMENTAL RACISM

The inequitable burden of environmental hazards on Black communities is unfortunately common throughout American cities. In addition to the threats posed by legacy contamination, Black communities also endure disparate exposure to ongoing pollution. While federal policies such as the Clean Air Act have improved air quality, the benefits have largely been reaped by white communities (Colmer et al., 2020). In fact, Black and Hispanic communities are not only exposed to significantly higher rates of air pollution, but the source of the pollution is often generated by activities in white communities. For example, Tessum et al. (2019) estimate that Black and Hispanic communities are exposed to approximately 60% more pollution than generated by their consumption or activities.

While efforts have been made at the state and federal level to recognize the inequitable environmental burden borne by areas¹⁴ such as the East Side, the designation does little more than acknowledge the confluence of existing risk factors and encourage caution in future development activities that might result in exposing residents to additional harms as climate change worsens. Likewise, local environmental programs, such as tree planting and expanding greenspace, are often piecemeal and, while visually appealing, do not address the complex and deeply entrenched root of the problem.

Simply put, the environmental conditions that contribute to negative health, academic, and socioeconomic outcomes on the East Side are the result of a prolonged, concerted, and systematic effort to redistribute wealth, resources, and opportunities elsewhere in the city at the expense of Black residents. Racist policies and practices not only robbed East Side residents of the opportunity to participate in the housing boom that began in the 1950s but also created an enduring narrative about the area that has dissuaded public and/or private investment in the community for decades. One need only compare the infrastructure and maintenance thereof on the East Side to other parts of the city to see the consequences of such disinvestment and relative disregard for the living conditions of its residents (see Appendix B).

¹⁴ Often termed “environmental justice communities”

Recommendations

Thus, although the problem of soil contamination as presented in this report is environmental in scope, its manifestation in disparate health, academic, and socioeconomic outcomes requires an integrated approach. More importantly, given the historical tendency to relegate community involvement to otherwise performative activities, it is imperative that East Side residents are substantively included in the decision-making process to address both the causes and consequences of environmental contamination in their neighborhoods.

To this end, we recommend the creation of an Environmental Justice Oversight Board (EJOB) for the City of Buffalo. Although, many cities have environmental advisory boards, their scope is often limited to providing guidance regarding (a) the preservation and/or development of city-owned greenspace, or (b) the potential impact of climate change on the city.

Conversely, the proposed EJOB would focus on the addressing the impact of legacy contamination within the context of structural racism. Within this scope, the Board would be tasked with developing a 5-year plan to begin mitigating existing environmental threats, including soil contamination, and work interdepartmentally with existing city resources to identify strategies to address the health, academic, and socioeconomic consequences caused by the concentrated and prolonged exposure of East Side residents to multiple sources of pollution.

EJOB members should be appointed to two-year terms by the Mayor of Buffalo and Buffalo Common Council and must include resident representatives from communities most impacted by legacy and ongoing pollution, such as the East Side, as well as experts in public health, community organizing, environmental law, and other related areas.

It should be noted that the city's existing charter established an *Environmental Management Commission (EMC) (§ 18-51)*, with a purpose and function similar to environmental advisory boards found elsewhere, as noted above (i.e., preservation-focused). The status of the EMC is unknown but appears to be dormant.

Accordingly, it may be more politically expedient to revise the powers, duties, and functions of the EMC within the current charter review process, including membership, such that the reconstituted entity reflects the spirit, scope, and purpose of the EJOB, than seeking a new board altogether.

Recommendations

#3 - POLICIES MUST PRIORITIZE PROACTIVE INTERVENTION

Our current understanding of the extent of soil contamination in areas such as the East Side is extremely limited because testing programs are often ad hoc efforts undertaken by non-profit organizations and concerned grassroots-level groups with limited resources. Funding is often time-limited and focused on assessing rather than addressing the problem.

Additionally, even in the presence of overwhelming evidence indicating the need for intervention, state and local policies and practices regarding the mitigation or remediation of contamination significantly hamper progress. For example, state-level environmental agencies are disinclined to take action to address contamination unless or until a culpable source, such as a factory, is identified and legal action can be taken to compel financial responsibility for cleanup.

While such an approach is fiscally responsible, it is neither efficient nor adequate to the task of addressing widespread contamination, particularly when many of the sources have long since shuttered or absolved themselves through bankruptcy or sale of the originating properties from responsibility for clean up. As noted earlier in this report, it has been more than 30 years since General Motors reported a leak of more than 100,000 gallons of PCB-laced oil at its plant on the East Side. The factory site has since been sold twice, GM declared bankruptcy, and the current owner of the land is in a protracted battle with the state over responsibility for the cleanup, which remains unfinished.

Another common approach to addressing contamination is through the use of financial incentives to encourage investment in and subsequent remediation of potentially contaminated properties. The Brownfield Opportunity Areas (BOA) program is a joint federal and state program that provides grants to municipalities and community-based organizations to rehabilitate a cluster of brownfields in order to revitalize and spur new investment in economically distressed areas of cities.

Alternatively, the Brownfield Cleanup Program (BCP) is a state-level program that encourages cleanup and development by providing tax incentives, state funding, and legal protections to private sector investors. The BCP requires that qualifying properties demonstrate that prior activities on the property were the source of current contamination.

Recommendations

These approaches might best be described as “trickle down” environmentalism, as they are predicated on the notion that impacted communities will eventually reap the benefits of clean air, water, and soil by subsidizing the business ventures of wealthy developers rather than specifically allocating public funding to remediate the contamination. Unfortunately, this investment and revitalization incentive approach also fails to adequately address widespread contamination for several reasons.

Perhaps most obvious is that BOA, BCP, and similar programs do not offer any opportunities for private homeowners to tap into the funding or tax breaks to offset or cover the costs of remediation, should they choose to do so. This is critical because it is hard to attract young homebuyers, particularly those with kids, to make a long-term investment in an area of the city with struggling schools, crumbling infrastructure, and the fear that toxins in and around their dwelling may cause lifelong health and learning problems for their children.

Additionally, trickle down environmentalism fails to recognize the context in which these policies are being offered. Specifically, after nearly a century of stereotyping the East Side as a violent, drug-infested section of Buffalo inhabited by residents not otherwise welcome to live elsewhere in the city or surrounding suburbs, it is naive to believe that financial incentives can overcome racism in a deeply segregated city in order to address the problem of toxic contamination through private development.

This latter reality is laid bare in the use of either brownfield incentive programs in Buffalo, as there are currently five BOAs in the city, but only one of them, the Northland Corridor, is located on the East Side. Further, of the 149 active and completed brownfields in Buffalo as designated under the BCP, only 33 are on the East Side, despite being the largest geographic section of the city.

Accordingly, we recommend that local, state, and federal environmental remediation programs expand their approach from relying almost exclusively on tax incentives and/or determining culpability for contamination to address the legacy of toxic pollution. These types of policies have failed to address the scope of contamination in cities such as Buffalo, NY in a timely or equitable fashion.

Recommendations

Additionally, these approaches divert already insufficient public funding to private investors rather than ensuring that residents can enjoy the same expectation of clean air, soil, and water as exists elsewhere in the city and surrounding suburbs. To this end, we recommend that public funding is allocated to cover the entire cost of testing and remediation, if necessary, for private, residential properties in Buffalo, NY, including rental properties. This latter provision is critical because, as noted earlier, more than 80% of children with EBLLs in Buffalo live in multi-family rental properties. Moreover, the NYS rental registry requires inspection and remediation of lead hazards, including soil, and providing financial support for doing so would help alleviate concerns that the associated costs would be passed on to renters.

The costs of a full site remediation can be daunting; however, programs such as “Love Your Block” in Albany, NY demonstrate that remediation efforts can be scaled relative to the level of contamination present. In this program, which is funded by the city of Albany, testing is voluntary and free, and if elevated lead levels are present, Love Your Block¹⁵ will perform a “soft” remediation using available organic material to create a barrier. Although mean lead levels among tested properties in Albany prior to remediation was significantly lower than on the East Side of Buffalo, follow-up testing has found an average reduction of 200ppm of lead in the soil two years after completing a soft remediation.

Notably, given Buffalo’s ongoing financial difficulties, such an initiative can potentially be funded by revenue from New York’s proposed “Cap-and-Invest” program as proposed in the 2019 Climate Legislation and Community Protection Act (CLCPA). Under cap-and-invest, large scale greenhouse gas emission sources and distributors of heating and transportation (i.e., fossil) fuel would pay a fee for emissions in excess of the established annual cap. Importantly, the CLCPA specifically prioritized providing financial assistance to disadvantaged communities, such as the East Side, that “for far too long have suffered from pollution and environmental injustice.”¹⁶

Lastly, and perhaps most fundamentally, **we recommend that the NYS DEC align its Soil Cleanup Objectives (SCOs) of 400ppm with the EPA’s action levels of 200ppm for lead soil contamination.** Likewise, the NYS DEC should follow the EPA’s guideline of 100ppm for areas with multiple sources of contamination, as exist on the East Side.

¹⁵ <https://www.albanyny.gov/2163/Love-Your-Block-Program>

¹⁶ <https://capandinvest.ny.gov/>

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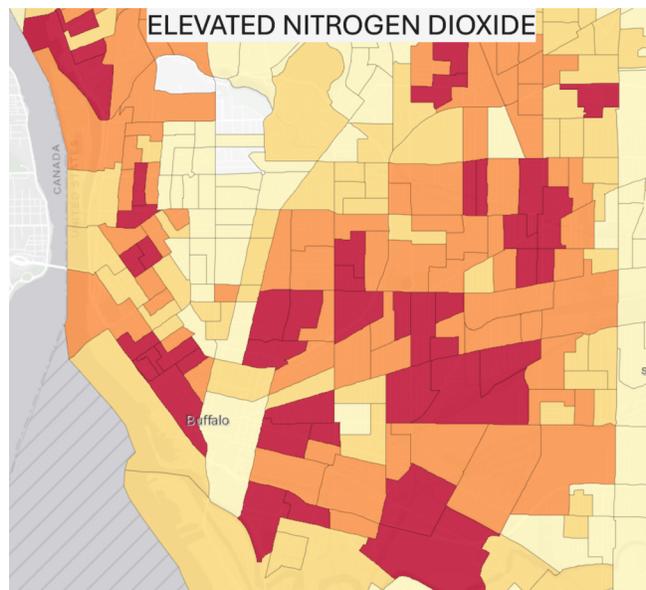
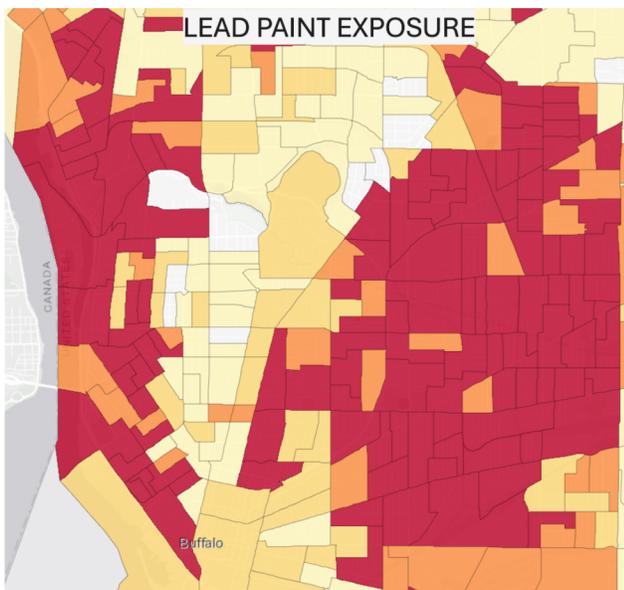
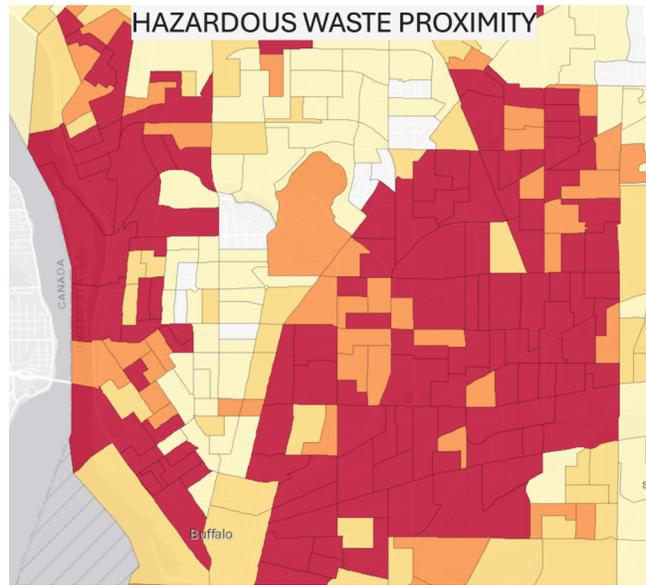
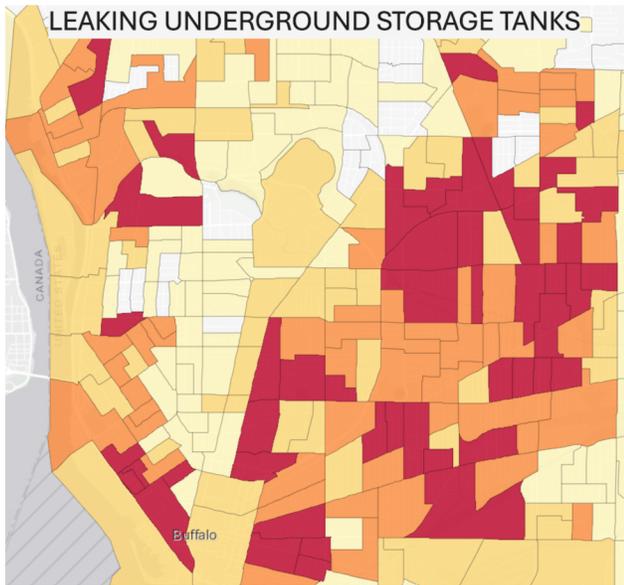
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Appendix B

Mapped Locations of Existing Environmental Threats



Source: Environmental Justice Screening and Mapping Tool (Version 2.3)

Appendix C

Infrastructure Disparities - Sidewalks

