TURI
TOXICS USE REDUCTION INSTITUTE

ENVIRONMENTAL JUSTICE
THROUGH TOXICS USE REDUCTION
OPPORTUNITIES IN MASSACHUSETTS

A Report by the Toxics Use Reduction Institute of Massachusetts

MARCH 2026

Acknowledgments

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Disclaimer

The analysis contained here is meant to provide an overview of the environmental justice landscape in Massachusetts. It is not a robust statistical analysis. The report is neither meant to be used to concretely link health outcomes to chemical releases nor as a comprehensive risk assessment. Most data used in the analysis comes from reporting by facilities under the Massachusetts Toxics Use Reduction Act, which may be incomplete or erroneous.

This report is not meant to cast companies located near environmental justice communities in a negative light. TURI recognizes the benefits businesses provide to their communities. Rather, this report is meant to help the TURA Program and others prioritize companies and communities that could benefit the most from toxics use reduction.

Design

David Gerratt/NonprofitDesign.com

Contact

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About TURI

The Toxics Use Reduction Institute (TURI) of Massachusetts is a research and training organization with a statutory mandate to help protect workers, communities and the environment from toxic chemicals and pollution. TURI was established in 1989 under the Massachusetts Toxics Use Reduction Act (TURA) and is housed at the University of Massachusetts Lowell. TURA's passage was partly driven due to the emergence of childhood cancer clusters near mismanaged hazardous waste sites in the state.[1]

Since the adoption of TURA, Massachusetts has seen significant reductions in the use of and environmental releases of hazardous chemicals while maintaining competitiveness of Massachusetts businesses. Working in close collaboration with businesses of all sizes, as well as government agencies, local communities and international organizations, TURI helps identify actions companies and communities can take to reduce the use of toxics upstream. Thus, the mandate given to TURI contributes to and closely aligns with the environmental justice agenda.

Implemented by TURI and its sister agencies, the Massachusetts Office of Technical Assistance (OTA) and Massachusetts Department of Environmental Protection (MassDEP), the TURA Program is an internationally recognized model for reducing the use of toxic chemicals. TURI is committed to advancing environmental justice by helping communities and their businesses apply toxics use reduction to prevent harm and protect human health and the environment.

TURI
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UMASS LOWELL

[1] Ellenbecker, M., & Geiser, K. (2011). At the source: The origins of the Massachusetts toxics use reduction program and an overview of this special issue. Journal of Cleaner Production, 19(5), 389–396. https://doi.org/10.1016/j.jclepro.2010.10.018

Introduction

In Massachusetts, environmental justice is based on the principle that all people have a right to be protected from environmental hazards and to live in and enjoy a clean and healthful environment regardless of race, color, national origin, income, or English language proficiency.[2] While progress has been made over several decades to reduce the use of various toxic pollutants, vulnerable and marginalized communities continue to endure the adverse impacts of unequal protection from these and other environmental hazards.

Toxics use reduction is a best practice for advancing the pursuit of environmental justice for all. This approach involves upstream interventions and helps users of chemicals find safer alternatives to hazardous substances, which can minimize or even eliminate potential harms to communities and the environment. Prioritizing the adoption of safer alternatives upstream is the preferred means of protecting those most vulnerable or at risk—children, income-disadvantaged people, workers, persons with disabilities, older persons, indigenous peoples, migrants, and people of color—while taking into account gender-specific risks.

A wealth of data is generated by the Massachusetts Toxics Use Reduction Act (TURA) on the use and release of toxics[3] in the Commonwealth. This report draws upon TURA Data,[4] aiming to help government agencies, businesses and communities identify opportunities to advance environmental justice by reducing the use of toxics in Massachusetts.

In Massachusetts, environmental justice is based on the principle that all people have a right to be protected from environmental hazards

This report analyzes the use and release of toxics in Massachusetts through an environmental justice lens. The base analysis is on a municipality-by-municipality basis, distinguished by the percentage of the population living in Environmental Justice Neighborhoods "EJ Neighborhoods".[5] It considers municipalities in Massachusetts with high levels of the population living in EJ Neighborhoods, as well as the specific populations and groups that make up those communities.

[2] Massachusetts General Law, Chapter 30, Section 62. Retrieved from https://malegislature.gov/Laws/GeneralLaws/PartI/TitleIII/Chapter30/Section62 See also Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs. EEA environmental justice strategy (2024). https://www.mass.gov/doc/february-2024-environmental-justice-strategy-english/download (Accessed November 5, 2025).

[3] "Toxics" are substances in a gaseous, liquid, solid or other form as identified on the toxic or hazardous substance list established pursuant to section 9 of TURA.

[4] Available at: www.TURAData.org

[5] A definition of EJ Neighborhood is provided in Box 1 (p 5).

DEFINING ENVIRONMENTAL JUSTICE POPULATIONS AND NEIGHBORHOODS

In the Commonwealth of Massachusetts, an Environmental Justice Population is defined as a census block group where one or more of the following criteria are true:[6]

1. The annual median household income is 65 percent or less of the statewide annual median household income;
2. Minorities make up 40 percent or more of the population;
3. 25 percent or more of households identify as speaking English less than "very well"; and/or
4. Minorities make up 25 percent or more of the population and the annual median household income of the municipality in which the neighborhood is located does not exceed 150 percent of the statewide annual median household income.

As this analysis uses the U.S. census block group, it will refer to those census block groups which fulfill one or more of the above criteria as Environmental Justice Neighborhoods (EJ Neighborhoods).

The report divides the 351 municipalities in Massachusetts into three groups based on the percentage of the population living in an EJ neighborhood. The percentage of the populations living in an EJ Neighborhood for each municipality was obtained from data gathered by the Massachusetts Department of Public Health[7]. The total populations for each group and total number of municipalities was determined using data from the 2020 census for Massachusetts.[8]

1. Greater than 75% of the population living in an EJ Neighborhood
2. Between 25% and 75% of the population living in an EJ Neighborhood
3. Less than 25% of the population living in an EJ Neighborhood

This report often uses an average of the toxics data by finding the release and use totals for the three groups and dividing by the number of municipalities in each group. This analysis method draws upon a similar environmental justice study carried out at Northeastern University in 2002 which also used TURA reporting data[9]. Figure 1 (p. 6) helps illustrate the three categories of municipalities and their populations.

[6] Massachusetts General Law, Chapter 30, Section 62. Retrieved from https://malegislature.gov/Laws/GeneralLaws/PartI/TitleIII/Chapter30/Section62 See also Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs. EEA environmental justice strategy (2024). https://www.mass.gov/doc/february-2024-environmental-justice-strategy-english/download (Accessed November 5, 2025).

[7] Massachusetts Department of Public Health Environmental Justice Tool. EJ Data and Report. Retrieved from https:// matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html

[8] Commonwealth of Massachusetts. (n.d.). Massachusetts census data: City & town. Massachusetts Legislature. Retrieved from https://malegislature.gov/Redistricting/MassachusettsCensusData/CityTown

[9] Daniel R Faber, and Eric J Krieg, 2002. Unequal exposure to ecological hazards: environmental injustices in the Commonwealth of Massachusetts. Environmental Health Perspectives: https://pmc.ncbi.nlm.nih.gov/articles/PMC1241174/

FIGURE 1

Percentage of Total Population for each of the three municipality groups

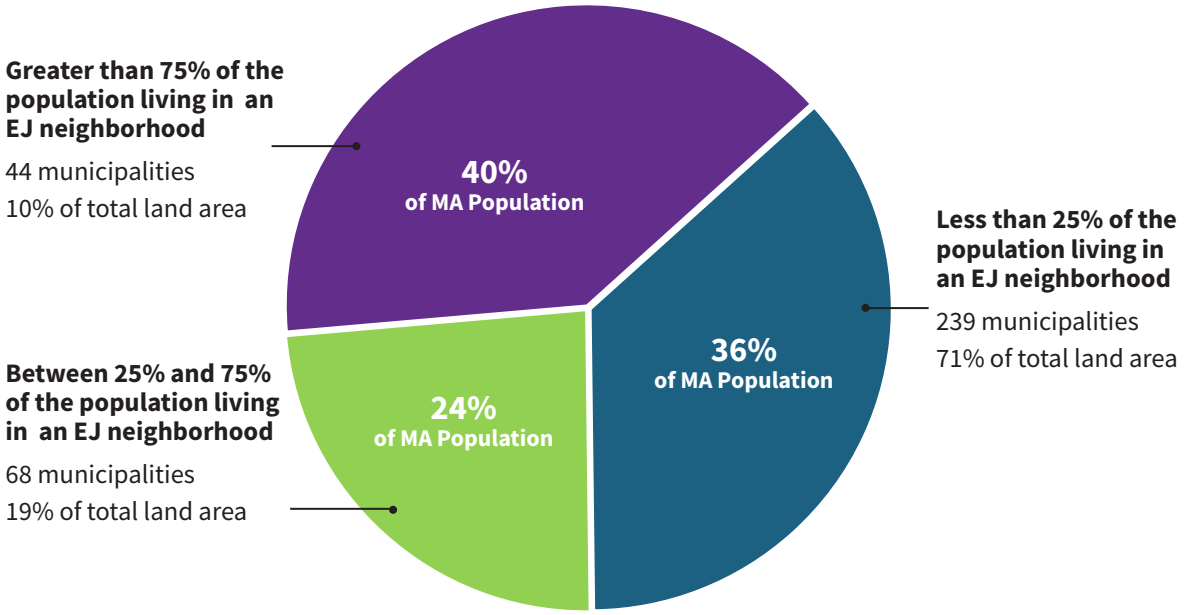


Chart illustrating the populations living in each of the three municipality groups as defined by the percentage of the population living in an EJ Neighborhood.

SOURCE: MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL. EJ DATA AND REPORT.
Retrieved from: https://matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html

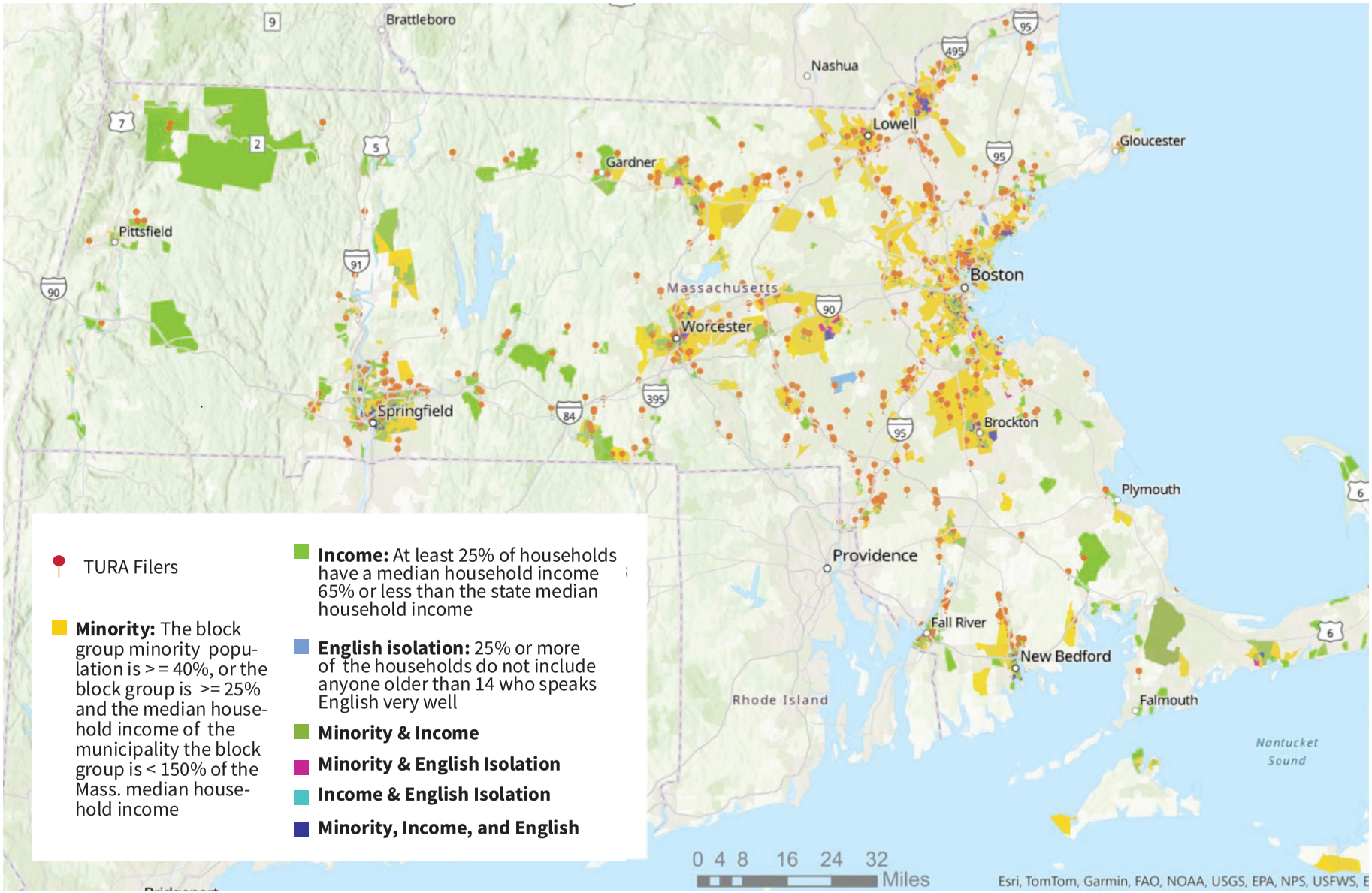
According to data from the Massachusetts Department of Public Health, 21 percent of Massachusetts residents live in an EJ Neighborhood when averaged across all municipalities in the state. Figure 2 (p. 7) shows facilities filing reports under TURA in 2021 overlaid on EJ Neighborhoods. Similar maps which provide additional context for the present environmental justice landscape in MA and beyond with respect to toxics can be explored using the EJScreen Tool, originally developed by the EPA.[10,11]

[10] Environmental Protection Agency (n.d.). EJ Screen Tool Retrieved August 8, 2024 from https://www.epa.gov/ejscreen

[11] In February of 2025, public access to the EPA EJScreen tool was discontinued. As of February 2026, a reconstruction of the tool can be accessed at https://screening-tools.com/epa-ejscreen

FIGURE 2

Map Environmental Justice Neighborhoods in Massachusetts



Map which overlays 2021 TURA filers on U.S. census block groups which fulfil at least one of the environmental justice criteria as defined by MA EEA (see footnote 6).
SOURCE: MassGIS Data: 2020 Environmental Justice Populations (https://www.mass.gov/info-details/massgis-data-2020-environmental-justice-populations), MassGIS Data: MassDEP Major Facilities (https://www.mass.gov/info-details/massgis-data-massdep-major-facilities)

KEY TAKEAWAYS

The following are some of the key findings from the analysis of TURA Data:

- From 2000 to 2023, the average use of toxics per municipality was greatest in those with 75% or more of their population living in EJ Neighborhoods.
- A preliminary analysis using the EJ Screen Tool[10,11] found that communities with high densities of EJ Neighborhoods were above state averages for several environmental burden indicators (e.g., lead paint risk and exposure to air pollution). This, combined with barriers that impede at-risk groups from organizing for increased protection from the use and release of toxics,[12] suggests that these communities are more susceptible to negative health outcomes due to toxics exposure.
- Toxics use reduction efforts have had a significant positive impact on reducing the releases of toxics in Massachusetts, including in those municipalities with 75% or more of the population living in EJ neighborhoods. However, the average release of toxics per municipality was still highest in this group.
- In 2023, the average use and release of toxics, number of TURA facilities and the quantity of chemicals shipped were all highest for the group of municipalities with 75% or more of the population living in EJ Neighborhoods. This suggests that those living in EJ Neighborhoods may continue to face comparatively greater risk of negative health outcomes due to toxics use and release.
- Toxics use reduction efforts by businesses in municipalities with higher EJ populations have been highly effective at reducing the total use and release of certain TURA Higher Hazard Substances (e.g. carcinogens). However, use and release of many of these substances has historically, and continues to be, greatest in the municipality groups with more of the population living in an EJ Neighborhood.
- Asthma prevalence is comparatively higher in many municipalities with significant environmental justice populations, and among lower-income and African American populations statewide.[13] Municipalities with the highest share of residents in EJ neighborhoods have historically shown higher average use and release of toxics linked to asthma. However, toxics use reduction actions by businesses under TURA have been successful in reducing both the use and release of these chemicals, including in the most affected municipalities.
- Massachusetts PFAS testing data as of October 2025 does not show greater PFAS concentrations in the drinking water of municipalities with higher proportions of their population living in EJ Neighborhoods.[14] However, two facilities that reported PFAS releases under TURA in 2023 are located within or close to EJ Neighborhoods.

[12] Shapiro, M.D. (2005). Equity and information: Information regulation, environmental justice, and risks from toxic chemicals. J. Pol. Anal. Manage., 24: 373-398. https://doi.org/10.1002/pam.20094

[13] Massachusetts Department of Public Health. (2017). Prevalence of asthma among adults and children in Massachusetts. Retrieved from https://www.mass.gov/doc/prevalence-of-asthma-among-adults-and-children-in-massachusetts/download

[14] More information on efforts to test for PFAS in Massachusetts drinking water can be found here https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas-in-drinking-water

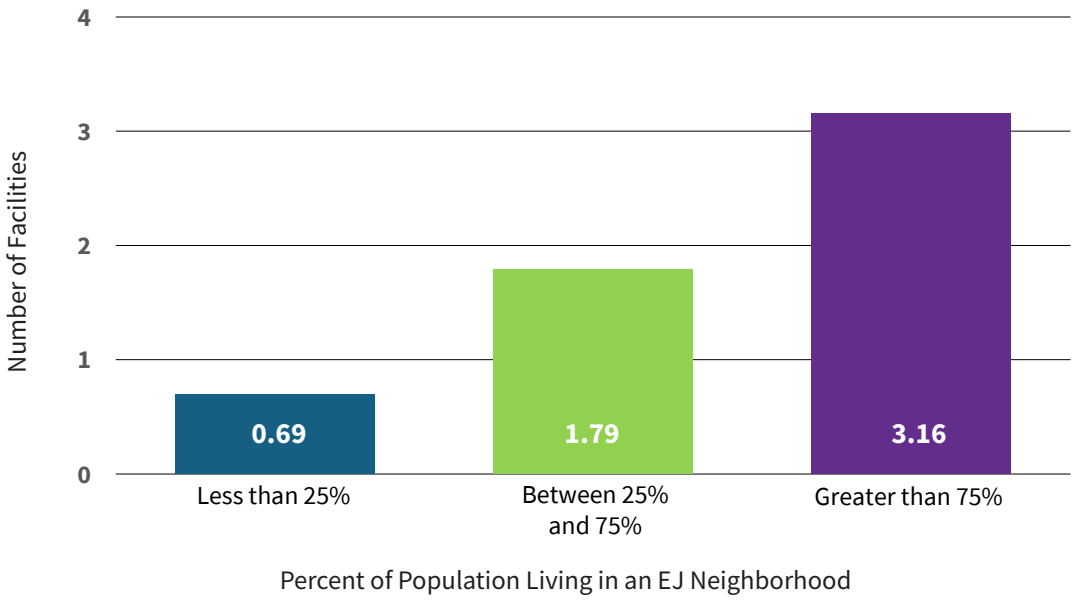
The Unequal Burden of Toxics in Massachusetts

This analysis of the data reported annually by hundreds of chemical users in Massachusetts (See the TURA Data box on p. 11) helps illustrate opportunities to advance environmental justice. The data suggests that residents living in EJ Neighborhoods may face greater exposure due to the use and release of toxics for many years.

As is often the case, chemicals are disproportionately used and released in lower income, minority and/or linguistically marginalized communities. For example, the average number of TURA reporting facilities (i.e., large-quantity users of toxics) per municipality is greatest for the group of municipalities where over 75% of the population lives in an EJ Neighborhood (Figure 3). What is encouraging is that toxics use reduction efforts have had a significant impact on reducing the releases of toxics in Massachusetts, including in those municipalities with 75% or more of the population living in EJ Neighborhoods. The following discussion takes a closer look at the communities where toxics are used, released and transported in Massachusetts.

FIGURE 3

Average Number of TURA Facilities per Municipality, 2023



The average number of TURA facilities per municipality in 2023 for each of the three groups as defined by the percentage of the population which lives in an EJ neighborhood.

SOURCE: WWW.TURADATA.ORG, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL: Retrieved From: https://matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html

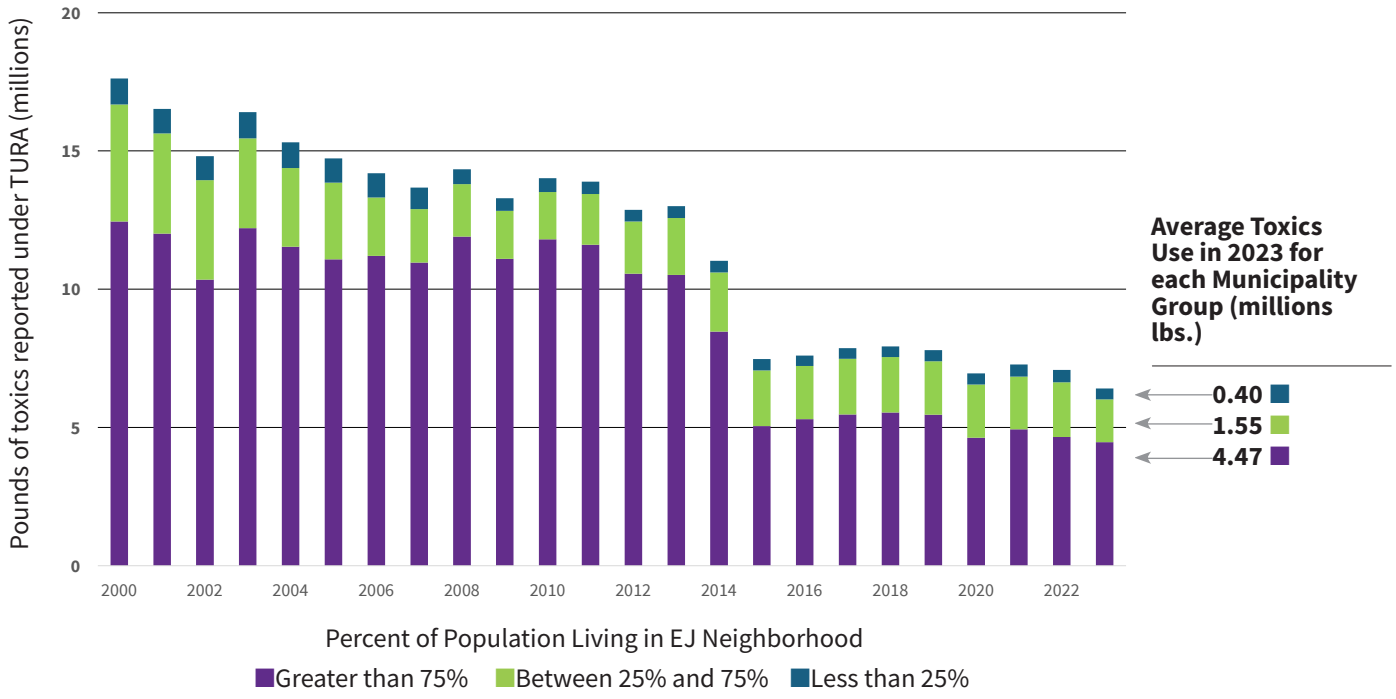
Use of Toxics in EJ Neighborhoods of Massachusetts

The most recent TURA Data at the time of this report's publication shows that the average per municipality use and release of toxics is greater in those municipalities where 75% or more of the population lives in an EJ Neighborhood. The disparity is most stark in the average toxics use per municipality, in which municipalities with over 75% of the population living in an EJ neighborhood average over 10 times the toxics use when compared to the average in municipalities with less than 25% of the population living in an EJ Neighborhood. Figure 4 aims to illustrate the present and historic differences in toxics use among the three municipality groups using data from 2000 to 2023.

Considering the cumulative health and environmental effects which toxics use and release has on communities, a historical perspective is also crucial to this analysis. While chemical use and release has decreased throughout the country and the state, some municipalities may have benefitted from these reductions more than others. Every year from 2000 to 2023, average toxics use per municipality was greatest for the group of municipalities with over 75% of the population living in an EJ neighborhood.

FIGURE 4

Average Use of Toxics per Municipality, 2000–2023



The per municipality average toxics use from 2007 to 2023 for each of the three groups as defined by the percentage of the population which lives in an EJ neighborhood.

SOURCE: WWW.TURADATA.ORG, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL
Retrieved from: https://matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html

Since 2000, Toxics use per municipality has been greater in those municipalities with over 75% of the population living in an EJ neighborhood.

TURA DATA: A UNIQUE TOOL FOR ENVIRONMENTAL JUSTICE

Access to information on the use of toxic chemicals empowers businesses, researchers and community organizations to enable the adoption of alternatives that are less hazardous to human health and the environment. The adoption of safer alternatives advances environmental justice for communities that are at elevated risk of pollution, contamination and hazardous exposures in the workplace.

Communities in Massachusetts have unique access to information about the use of toxic chemicals. Under the Massachusetts Toxics Use Reduction Act (TURA), manufacturing facilities in the state are required to report their use of thousands of different toxic chemicals if they more than ten employees and use at least one listed substance above the applicable TURA threshold. Information is collected yearly about what chemicals are being used and their quantities, in which locations, for which industries and by which companies.

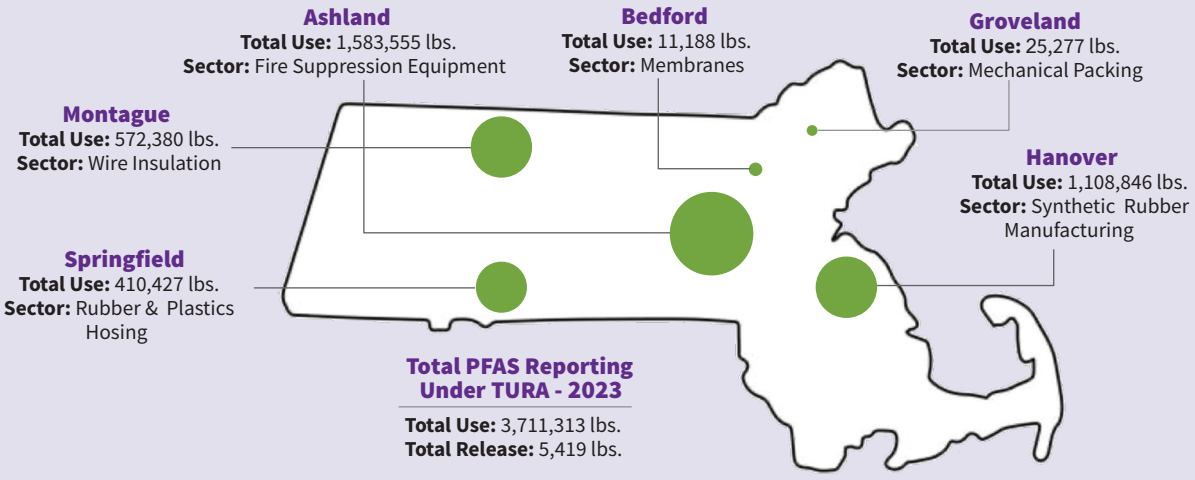
Communities in Massachusetts can find information on the use of toxics in their vicinity, as well as on their byproduct and releases. This information can be found on "TURAData," a user-friendly website (www.TURAdata.org) maintained by TURI.

The findings of this report utilize the reporting information generated under TURA. For example, the addition of a category of PFAS substances to the TURA list of chemicals in 2022 enabled the generation and disclosure of information about the use of these toxics in Massachusetts (see Figure 14, p. 19). Innovators are now better able to identify needs and develop solutions to help prevent pollution and protect workers by reducing the use of these toxics at the source. Figure 5 visualizes the unique information on PFAS use offered by TURA Data.

A dataset like TURA Data on the use of toxic chemicals is rare. Massachusetts is the only state in the country with a comprehensive mechanism to collect such information on chemical use.

FIGURE 5

Use of Certain PFAS Reported Under TURA in 2023 (lbs.)



The TURA Data website contains a wealth of information about the use, release and byproducts of chemicals that can help drive innovation toward safer alternatives. The map above shows businesses which reported under the TURA PFAS category in 2023. Facility name and information can be found at www.TURAData.org.

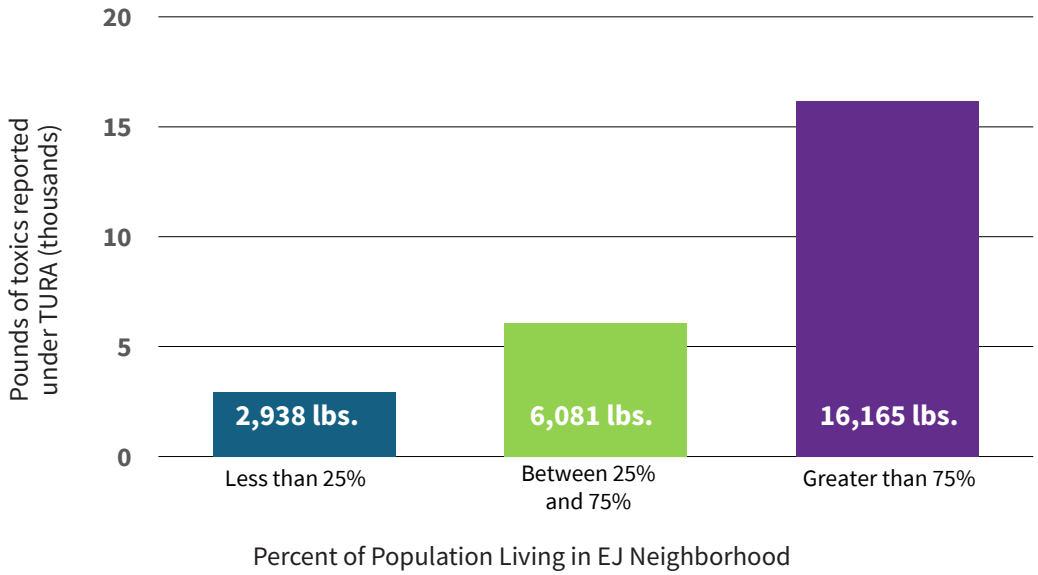
Release of Toxics in EJ Neighborhoods of Massachusetts

As illustrated in Figure 6, the average per municipality release of toxics is higher in municipalities with greater than 75% of the population living in EJ Neighborhoods, averaging five times more releases per municipality when compared to those municipalities with less than 25% of the population living within an EJ Neighborhood. The maps in Figure 7 (p. 13) show the three facilities with the highest releases of toxics in 2023 in relation to EJ Neighborhoods.

The average release of toxics per municipality has decreased significantly since 2000, especially in those municipalities with at least 75% of the population living in an EJ Neighborhood (Figure 8, p. 13). This is due in part to collaboration between companies and the TURA program to implement innovations that have reduced chemical releases which operate in municipalities with the highest levels of the population residing in EJ neighborhoods.

FIGURE 6

Average Release of Toxics per Municipality, 2023



The per municipality average toxics release in 2023 for each of the three groups as defined by the percentage of the population which lives in an EJ neighborhood.

SOURCE: WWW.TURADATA.ORG, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL
Retrieved from: matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html

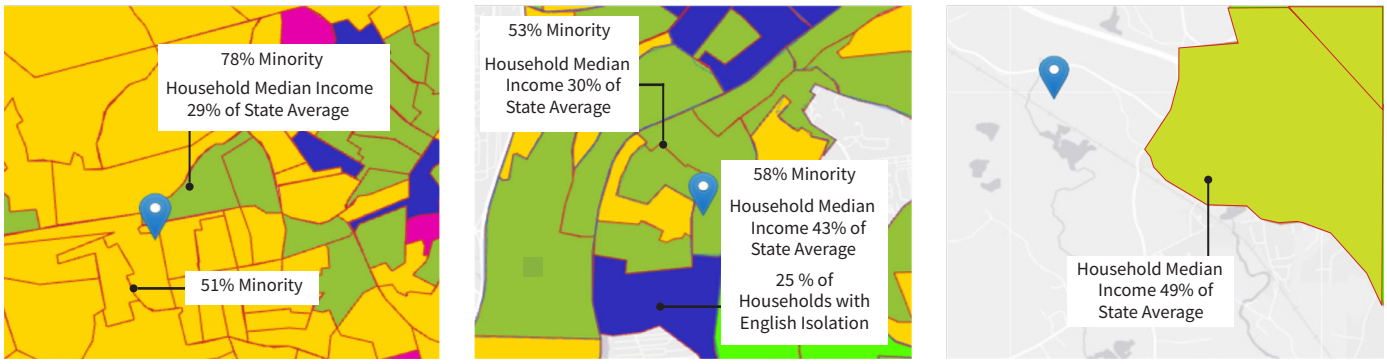
FIGURE 7

Map of Facilities with the Highest Reported Toxic Releases, 2023

Lowell, Mass.
#1 Highest Releasing Facility in 2023

Chicopee, Mass.
#2 Highest Releasing Facility in 2023

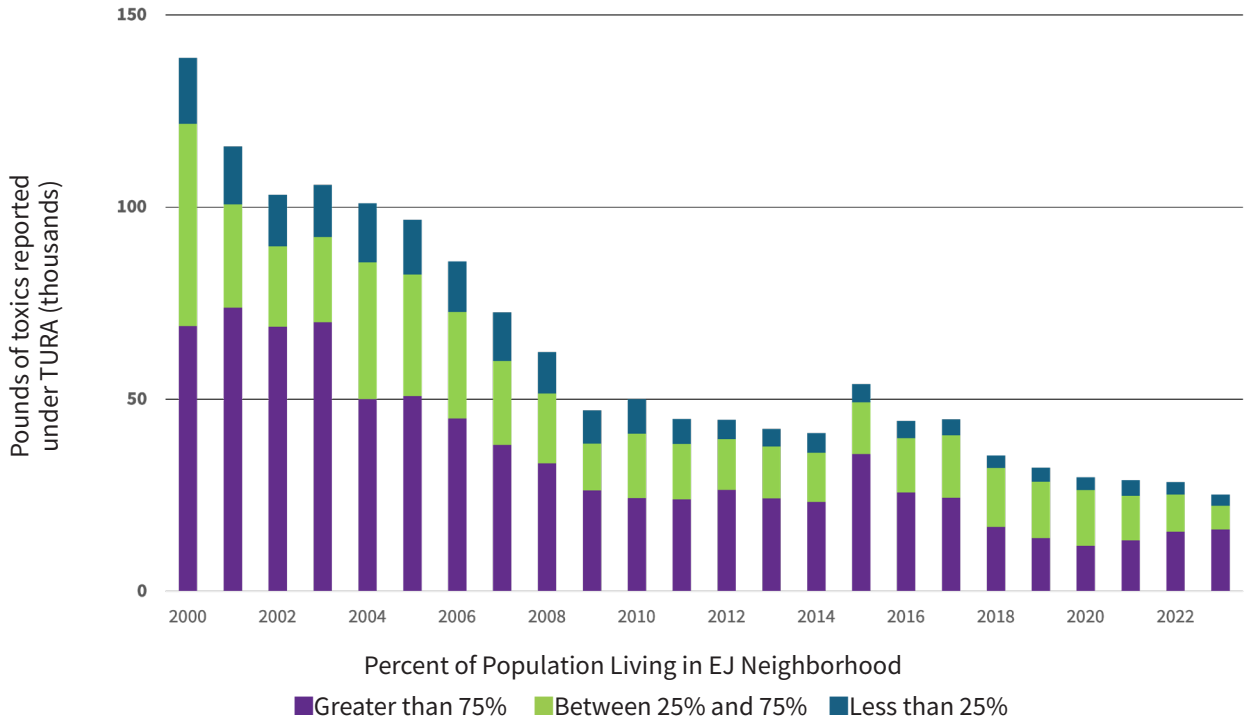
Rochester, Mass.
#3 Highest Releasing Facility in 2023



Maps showing the three facilities with the highest releases of toxics in 2023 in relation to EJ neighborhoods.
SOURCE: WWW.TURADATA.ORG, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL
Retrieved From: matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html
See Figure 2 for definitions and criteria.

FIGURE 8

Average Release of Toxics per Municipality, 2000–2023



The per municipality average toxics release from 2000 to 2023 for each of the three groups as defined by the percentage of the population which lives in an EJ neighborhood.

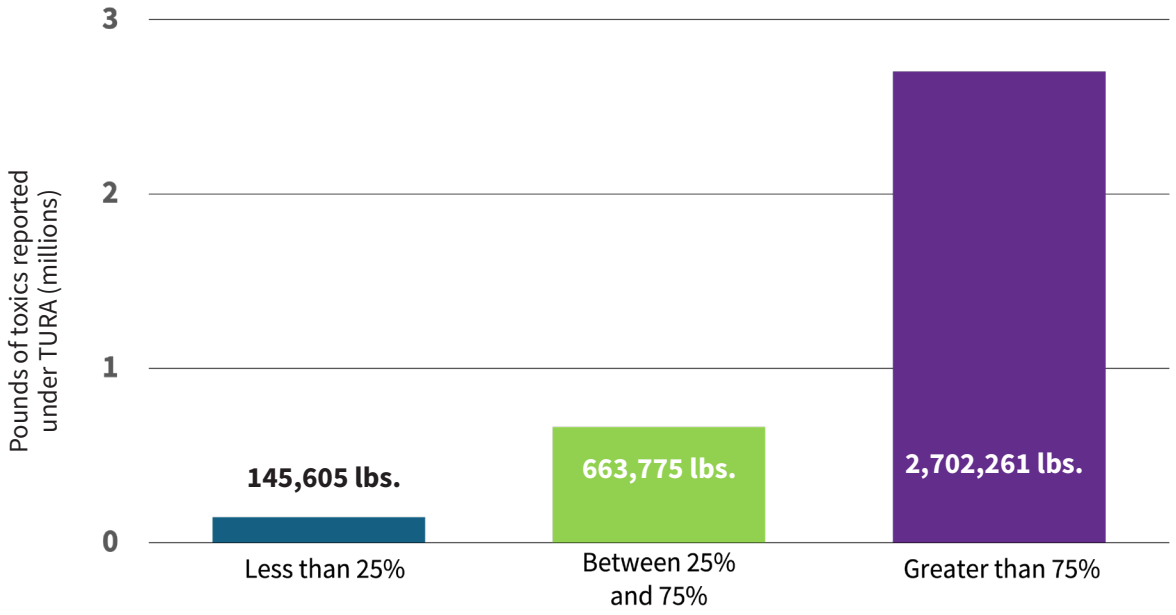
SOURCE: WWW.TURADATA.ORG, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL
Retrieved From: matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html

Transport of Toxics in EJ Neighborhoods of Massachusetts

Analyzing toxics transport is important as it can be a useful indicator for the risk of chemical accidents. Those communities where chemicals are being moved at higher rates may face more risk of accidental, acute exposures.[14] This concern is underlined by nationwide focus on the possibility of hazardous spills, as in the case of the 2023 train derailment in East Palestine, Ohio. Figure 9 shows that Massachusetts municipalities where more than 75% of residents live in EJ neighborhoods have the highest average amount of chemicals shipped in products per municipality. Figure 10 (p. 15) shows the location of the facility which reported the most chemicals shipped in product in 2023. The shipped in product TURA reporting category does not include chemicals transported away from facilities as hazardous waste. It also does not include chemicals shipped to facilities for use in operations.

FIGURE 9

Average Amount of Toxics Shipped in Product per Municipality, 2023



The per municipality average amount of toxics shipped in 2023 for each of the three groups as defined by the percentage of the population which lives in an EJ neighborhood.

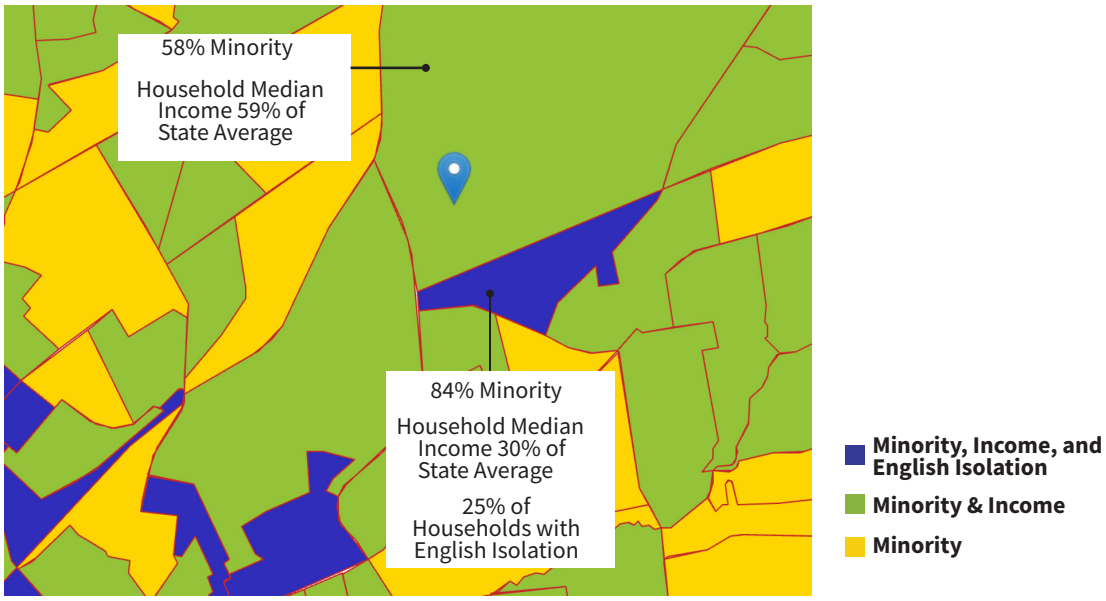
SOURCE: WWW.TURADATA.ORG, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL
Retrieved From: matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html

[14] Centers for Disease Control and Prevention. (2015). Geographic distribution of acute chemical incidents—Hazardous Substances Emergency Events Surveillance, nine states, 1999–2008. Morbidity and Mortality Weekly Report: Surveillance Summaries, 64(SS02), 32-38. Retrieved from https://www.cdc.gov/mmwr/preview/mmwrhtml/ss6402a5.htm

FIGURE 10

Facility with Greatest Amount of Toxics Shipped in Product, 2023

Springfield, Mass.



Map showing the facility with the largest amount of chemicals shipped in/as product 2023 in relation to EJ neighborhoods.

SOURCE: WWW.TURADATA.ORG, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL
Retrieved From: matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html
See Figure 2 for definitions and criteria.

Specific Toxics of Concern: Chemicals Linked to Asthma and Cancer, and "Forever Chemicals"

The use and release of certain types of toxics are examined here in the context of environmental justice. The classes of toxics chosen—those linked to asthma and cancer, and PFAS or "forever" chemicals—draw on the chemical groups covered in annual TURA information releases.

Asthmagens

An asthmagen is a substance that can cause or trigger asthma in exposed people. Asthmagens include various fumes and dusts, as well as various chemicals used in the manufacture of textiles, footwear, plastics, rubber and cleaners, among many other products. Of the over 350 chemicals identified by the Association of Occupational and Environmental Clinics as asthmagens, sixteen are reported under TURA.

Asthma is a significant issue of concern for many communities in Massachusetts. According to data from a 2017 report by the Massachusetts Department of Public Health, asthma is more prevalent among certain vulnerable groups (e.g., low-income, people of color). The trend is even more exaggerated among children with asthma.[15] Of the 15 municipalities identified in the report with the highest asthma prevalence in the state, all have more than 75% of their population residing in an EJ neighborhood.[16]

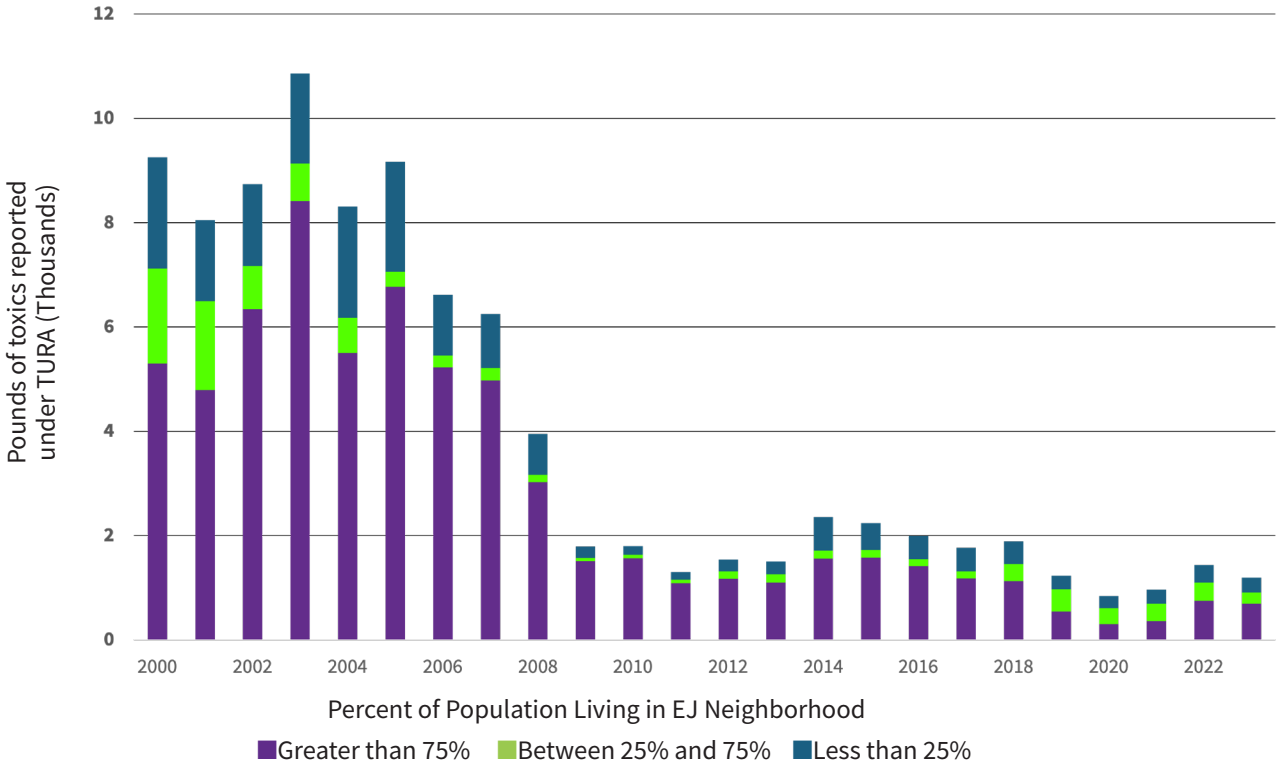
[15] Massachusetts Department of Public Health. (2017). Prevalence of asthma among adults and children in Massachusetts. Retrieved from https://www.mass.gov/doc/prevalence-of-asthma-among-adults-and-children-in-massachusetts/download
[16] *Id.*

Asthma is a particularly difficult problem in Springfield, MA which has asthma rates above the 95th percentile for the nation. Hospital visits for childhood asthma in Springfield in 2020 were 220.5 per 10,000 residents, almost three times higher than the state average.[10,11] Between 2007 and 2014, a TURA reporting facility in Springfield reported cumulative releases of 3,351 pounds of methyl methacrylate and 63,372 pounds of styrene monomer, both of which are asthmagens. The facility is now closed.

Despite the alarming statistics on asthma in environmental justice communities around Massachusetts, releases of asthmagens have declined significantly since 2000, including in those towns with 75% or more of the population living in an EJ neighborhood (Figure 11). A deeper dive into this decline may be helpful in crafting toxics use reduction strategies which focus on environmental justice.

FIGURE 11

Average Release per Municipality, Asthmagens, 2000–2023



The per municipality average release of asthmagens from 2000 to 2023 for each of the three groups as defined by the percentage of the population which lives in an EJ neighborhood.

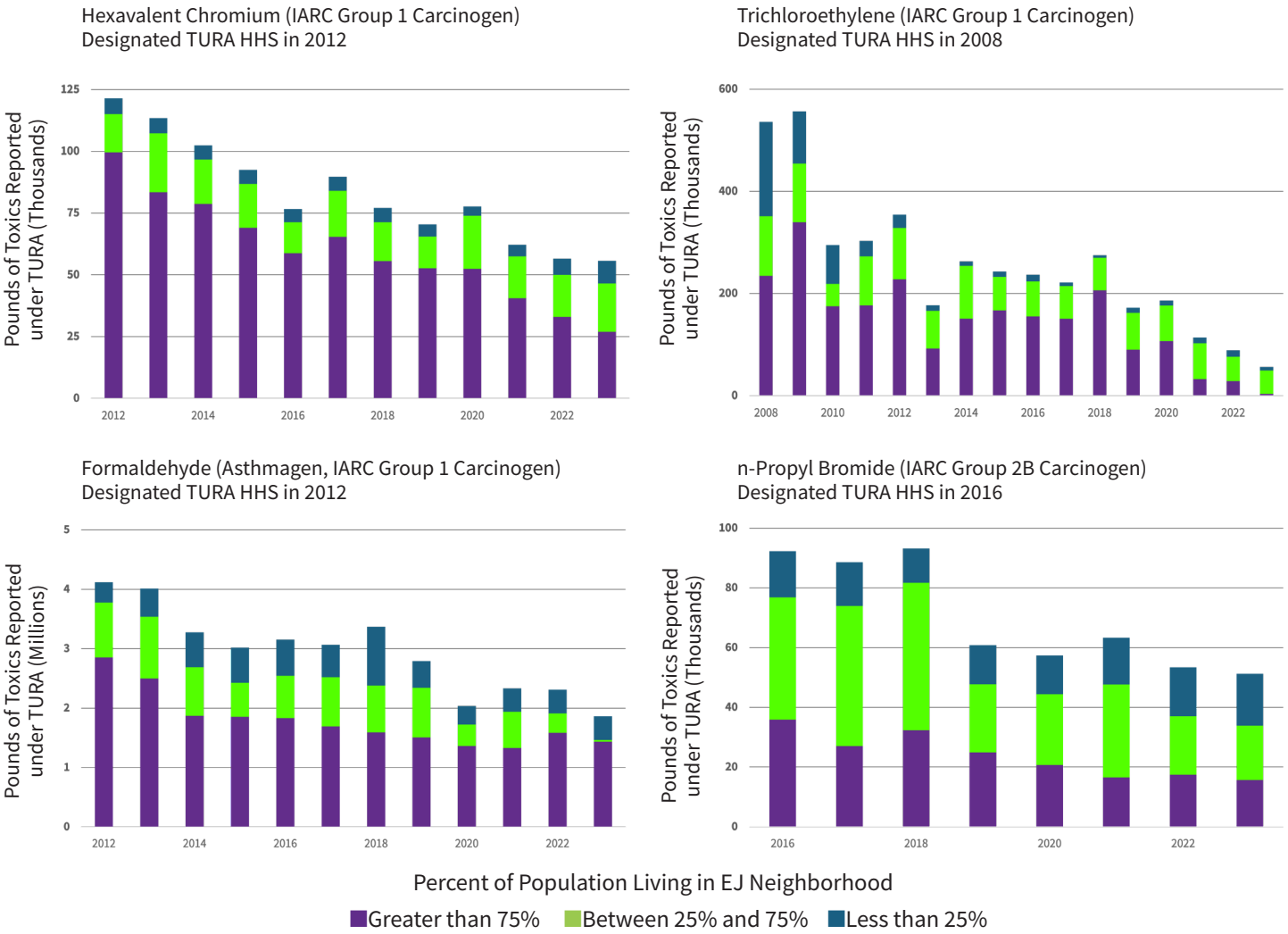
SOURCE: WWW.TURADATA.ORG, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL
Retrieved From: matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html

TURA Higher Hazard Substances (HHS)

Under TURA, certain substances can be designated as "Higher Hazard Substances" (HHS). The HHS list includes many halogenated solvents, toxic metals and other substances with associated chronic and acute health effects, including carcinogenicity. As illustrated in Figure 12 (p. 17), total use and release of HHS have been consistently higher in those municipalities with 75% or more of the population living in EJ Neighborhoods. However, the total use of many HHS has often decreased following designation, including in those municipalities with the highest levels of the population living in an EJ Neighborhood.

FIGURE 12

Total Use, Certain Higher Hazard Substances, Year of Designation - 2023



Total use of certain HHS from the year the substance was designated as an HHS to 2023 for each of the three groups as defined by the percentage of the population which lives in an EJ neighborhood.

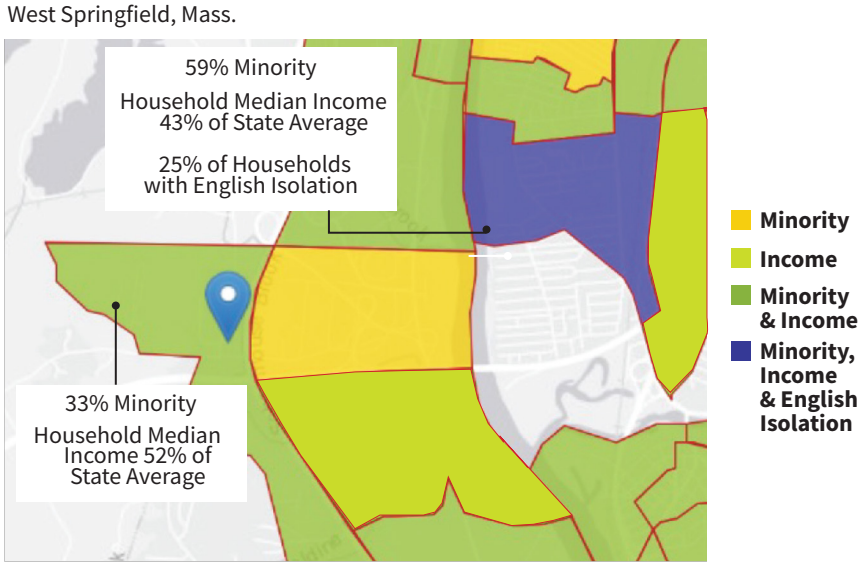
SOURCE: WWW.TURADATA.ORG, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL
Retrieved From: matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html

TURI's lab staff have a proven track record of helping companies replace their use of Higher Hazard Substances with safer alternatives to protect EJ neighborhoods and workers.

The facility shown in Figure 13 has released the highest cumulative amount of the carcinogen trichloroethylene (TCE) since 2008, the year it was designated as an HHS. It has also reported releases of other HHS such as hexavalent chromium and tetrachloroethylene. The facility did not report the use of TCE in 2022 or 2023.

FIGURE 13

Facility with Highest Cumulative Releases of Trichloroethylene, 2008–2023



Map showing facility with the highest cumulative release of the HHS trichloroethylene between 2008 and 2023 in relation to EJ neighborhoods.
SOURCE: WWW.TURADATA.ORG, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL
Retrieved From: matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html
See Figure 2 for definitions and criteria.

PFAS

Per- and poly-fluoroalkyl substances (PFAS) represent a category of thousands of chemicals that are widely used in manufacturing and consumer products. These substances are often described as "forever chemicals" because they never fully break down in the environment. PFAS have been detected in drinking water, and are linked to numerous adverse health impacts, including cancer and interference with endocrine and metabolic systems.

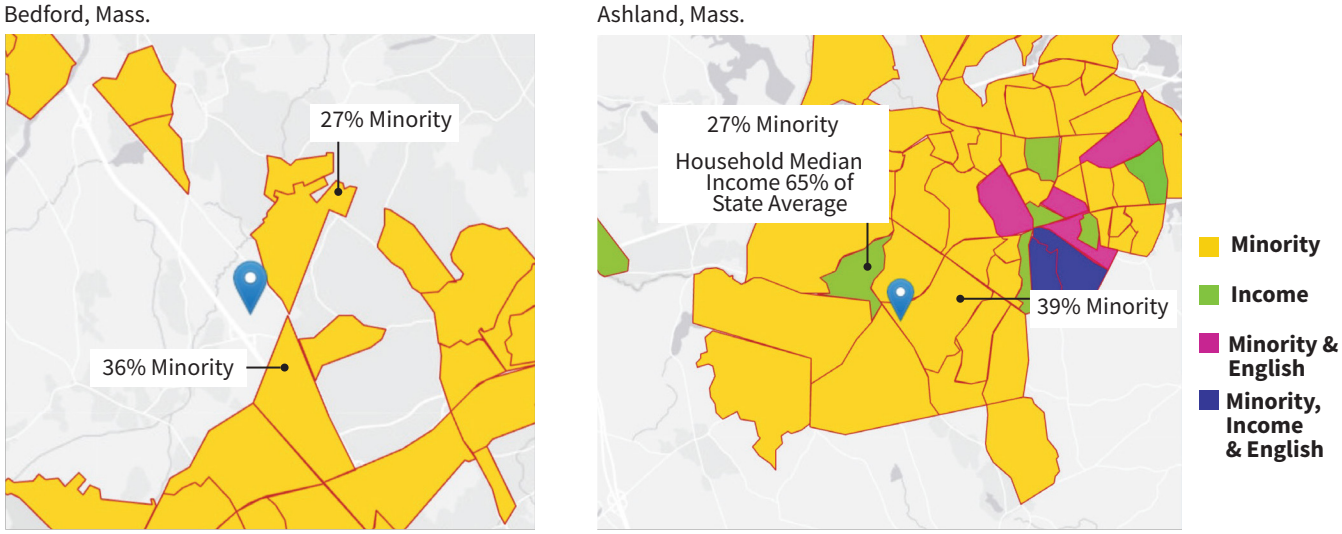
2022 was the first year in which reporting on the use of a new PFAS category[17] was required under TURA. Six facilities reported using PFAS covered in the TURA category. The two facilities which reported releases of these PFAS are shown in relation to EJ Neighborhoods in Figure 14 (p. 19). These were reported as point air and fugitive air emissions. Air emission and exposure of PFAS from manufacturing sources is not as well studied as PFAS in drinking water.[18]

17 For the 2022 reporting year, the "Certain PFAS NOL" category was added under TURA. The Certain PFAS NOL category is defined as those PFAS that contain: (i) a perfluoroalkyl moiety with three or more carbons (e.g., $-C_nF_{2n}-$, n ≥ 3; or $CF_3-C_nF_{2n}-$, n ≥ 2) or; (ii) a perfluoroalkylether moiety with two or more carbons (e.g., $-C_nF_{2n}OC_mF_{2m}-$ or $-C_nF_{2n}OC_mF_m-$, n and m ≥ 1), wherein for the example structures shown, the dash (–) is not a bond to a hydrogen and may represent a straight or branched structure, and that are not otherwise listed. Additional information on the TURA Certain PFAS n.o.l. category can be found here—https://www.mass.gov/info-details/pfas-tracking-and-reporting-guidance

18 Characterizing the Air Emissions, Transport, and Deposition of Per- and Polyfluoroalkyl Substances from a Fluoropolymer Manufacturing Facility. D'Ambro, Pye, Bash, et al. Science & Technology 2021 55 (2), 862-870 DOI: 10.1021/acs.est.0c06580

FIGURE 14

Facilities that Reported the Release of Certain PFAS under TURA, 2023



Maps showing facilities which reported the release of certain PFAS under TURA in 2022 in relation to EJ neighborhoods.
SOURCE: WWW.TURADATA.ORG, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH ENVIRONMENTAL JUSTICE TOOL
Retrieved From: matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html
See Figure 2 for definitions and criteria.

The ability of Massachusetts to collect data on industrial PFAS use under TURA is unique, as the EPA's Toxics Release Inventory covers a far less extensive group of PFAS substances. Access to this information puts the Commonwealth in a strong position to address PFAS sources using toxics use reduction. As data collection on PFAS use in manufacturing and in products continues, TURI will seek opportunities to provide targeted assistance to the relevant companies, prioritizing those near EJ neighborhoods.

In 2020 MassDEP published a PFAS public drinking water standard limiting the sum of six specific PFAS to no more than 20 parts per trillion (ng/L).[19] A U.S. Government Accountability Office report issued on October 19, 2022 concluded that, "In Massachusetts, communities with higher percentages of non-White or Hispanic/Latino residents and/or families living in poverty were less likely than other communities to have PFAS in their drinking water."[20] Testing of drinking water in Massachusetts is ongoing, and the results should continue to be monitored with explicit consideration of the potential impacts on vulnerable groups and environmental justice populations.

The ability of Massachusetts to collect data on industrial PFAS use under TURA is unique

[19] More information on efforts to test for PFAS in Massachusetts drinking water can be found at: https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas

[20] U.S. Government Accountability Office. (2022). Persistent Chemicals: EPA Should Use New Data to Analyze the Demographics of Communities with PFAS in Their Drinking Water. Retrieved from https://www.gao.gov/products/gao-22-105135

Opportunities for Intervention

Toxics use reduction is an internationally recognized best practice that can strengthen protection for all people from environmental and occupational hazards. TURI and its partner agencies, OTA and MassDEP, are a resource for businesses and communities to better ensure everyone enjoys the benefits of a healthy environment.

The data generated under TURA (TURAData.org) presented in this report provides a foundation for targeted interventions to help achieve equitable distribution of environmental benefits and burdens. Given the considerable potential to improve health outcomes, state and local governments, as well as businesses, may wish to redouble efforts to reduce the use of toxics in EJ Neighborhoods. Federal agencies may wish to use the analysis and conclusions found in this report to prioritize grant funding for EJ Neighborhoods described herein. State legislators and researchers may wish to prioritize the development of safer alternatives for those substances which pose the greatest risk of negative health outcomes for EJ Neighborhoods, including the toxics covered by this report.

Deeper analysis of the intersection of environmental justice and occupational health in Massachusetts based on TURA Data is ongoing. Further research would be beneficial to help support this analysis. For example, research is needed to better understand factors that may influence disproportionate exposure levels and susceptibilities and data on health endpoints, as well as environmental and biological monitoring for pollutants.

TURI continues to collaborate with communities and businesses to better ensure equal protection from toxic exposures. We encourage anyone who is interested in advancing environmental justice through toxics use reduction to contact us to discuss potential opportunities to reduce the use of hazardous chemicals.

The Toxics Use Reduction Institute (TURI) provides resources to help companies and communities make Massachusetts a safer place to live and work. Established by the state's Toxics Use Reduction Act of 1989, TURI's mission is to develop and facilitate the adoption of safer solutions to the use of toxic chemicals. For 35 years, TURI has provided research, training, technical support, laboratory services, and grant programs to reduce the use of toxic chemicals while enhancing the economic competitiveness of Massachusetts businesses.

TURI
TOXICS USE REDUCTION INSTITUTE
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Learn more at http://www.turi.org • Contact us at www.turi.org/contact-us

126 John Street Suite 14 (Second Floor), Lowell, MA 01852
info@turi.org • + 1 (978) 934-3275