

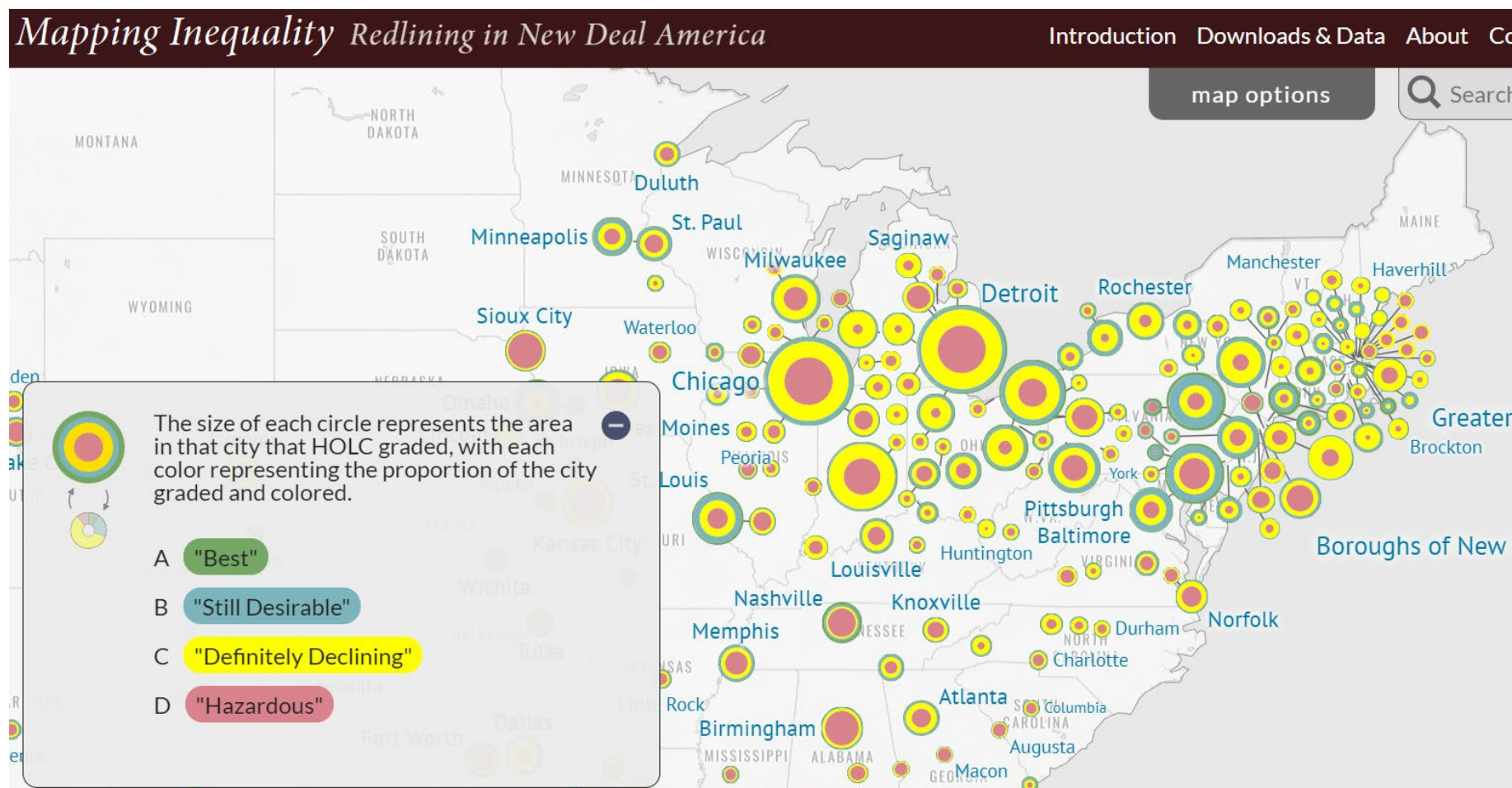


Environmental Justice (EJ) Mapping Tools in Massachusetts

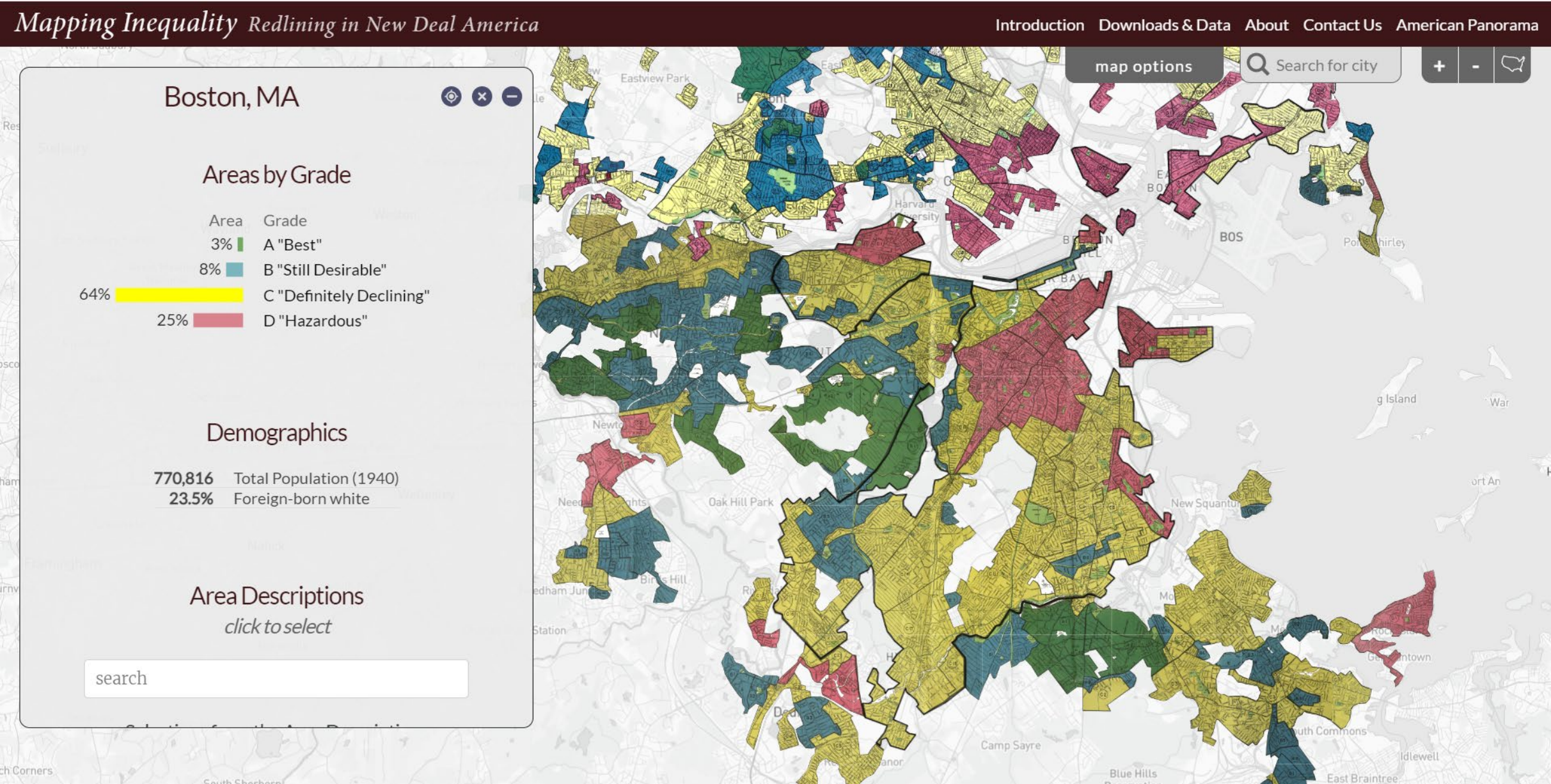
Kari Sasportas, MSW, MPH, REHS/RS
Outreach & Chemical Policy Analyst
Massachusetts Office of Technical Assistance

May 29, 2024

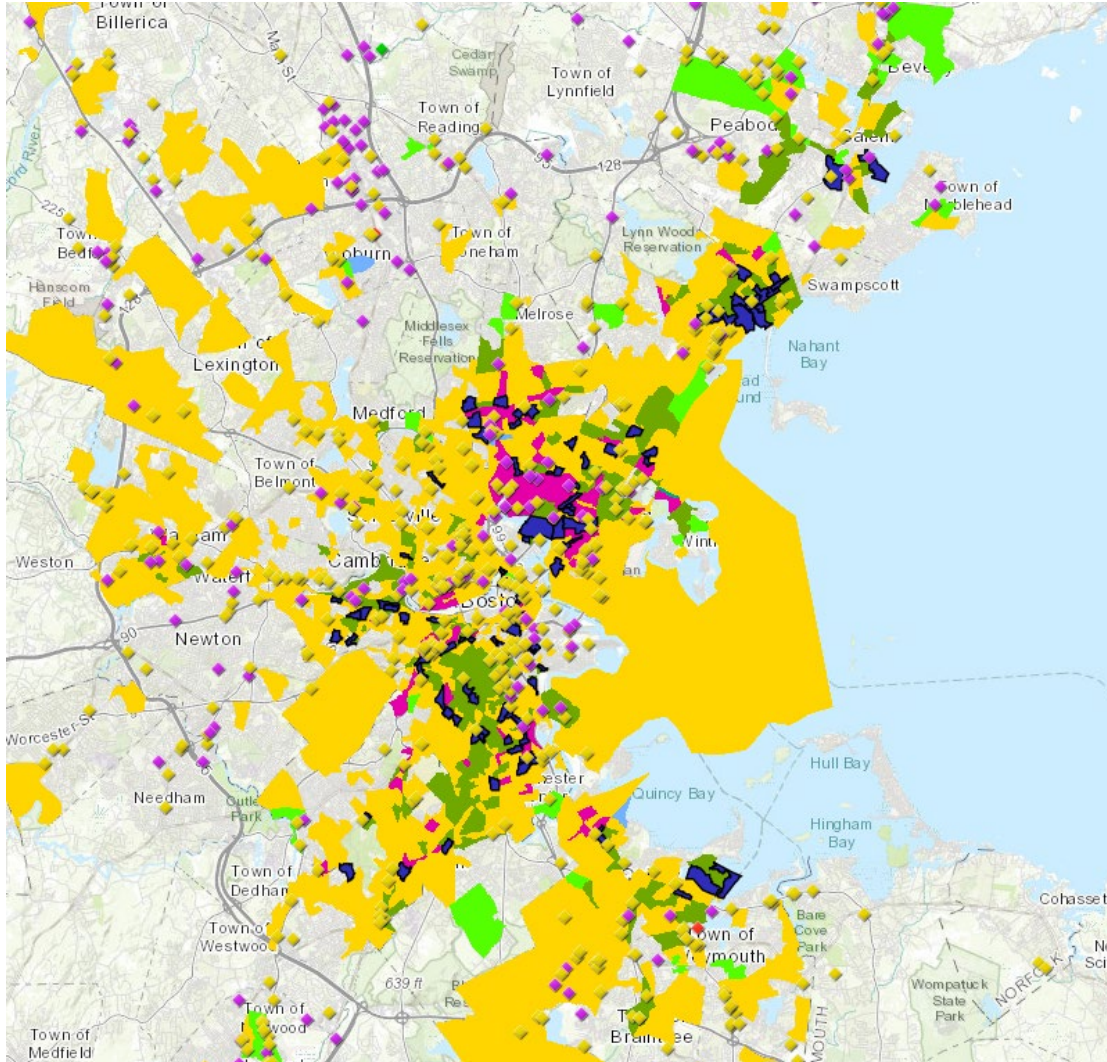
Context for Environmental Justice (EJ): Historical and Systemic Practice of “Redlining”



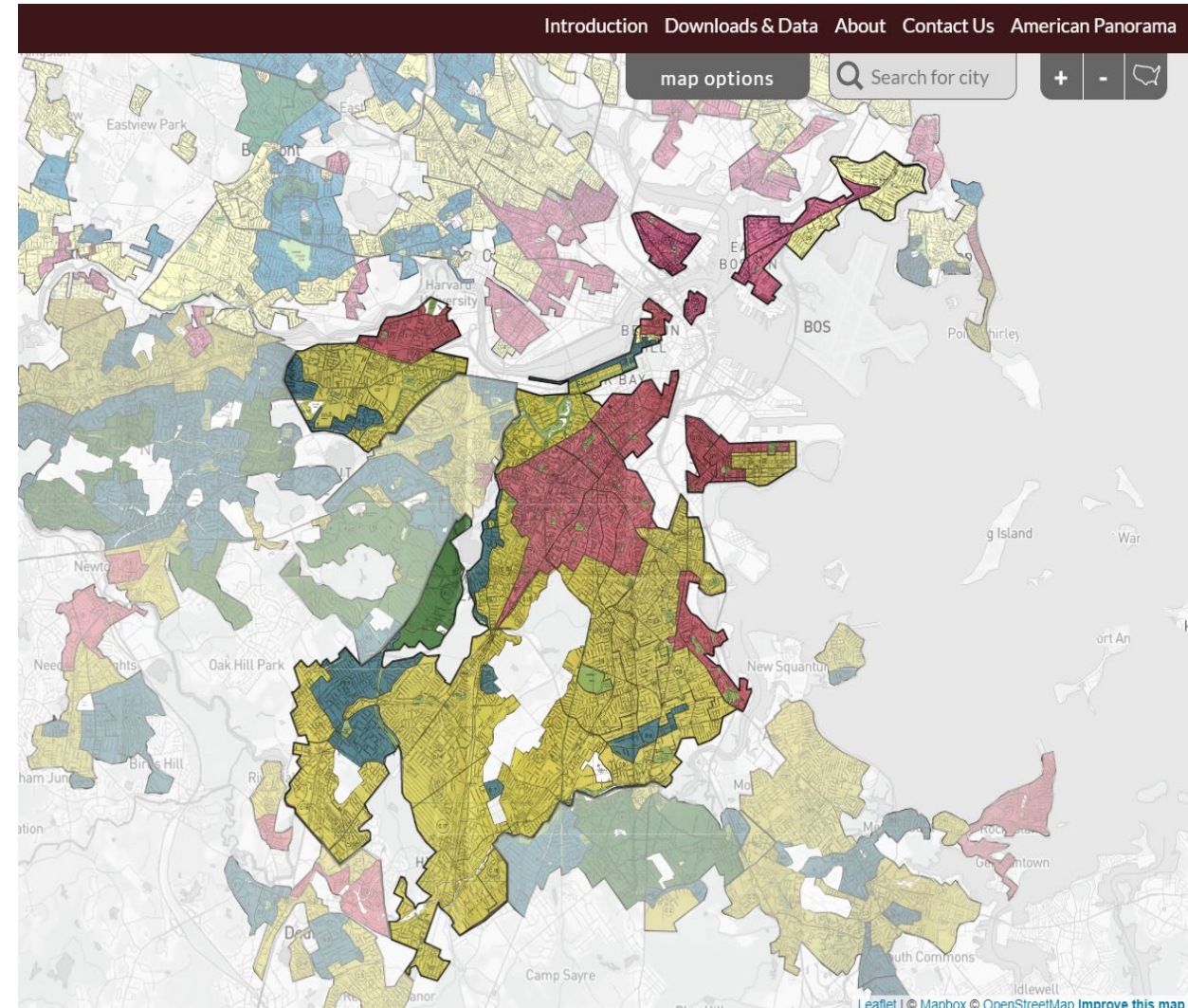
Mapping Inequality: Redlining in New Deal America



Current EJ Populations vs. HOLC Red-lining map



[OTA Mapping Tool](#)



[Mapping Inequality: Redlining in New Deal America](#)

Key Definitions of Environmental Justice in Massachusetts

Environmental Justice

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. (MA EEA Environmental Justice Policy, 2021)

Equal Protection

The protection of all groups of people regardless of income, ethnicity, class, handicap, race, color, religious creed, national origin, sex, gender identity, sexual orientation, genetic information, or ancestry from an unfair burden of environmental hazards and/or limited access to environmental benefits (e.g., clean and natural resources). (MA EEA Environmental Justice Policy, 2021)

Meaningful Involvement

All neighborhoods have the right and opportunity to participate in energy, climate change, and environmental decision making. (MA EEA Environmental Justice Policy, 2021)

Environmental Justice Populations in Massachusetts

In Massachusetts, a neighborhood that meets one or more of the following:

Low Income

- Block group whose annual median household income is equal to or less than 65 percent of the statewide median (\$89,026 based on 2017 – 2021 census ACS 5-year estimates).

People of Color (Minority)

- 40% or more of the residents identify as a race other than white.

Limited English Proficiency (English Isolation)

- 25% or more of households lack English language proficiency

People of Color (Minority) and Low Income

- 25% or more of the residents identify as a race other than white and annual median household income of the municipality in which the block group is located does not exceed 150% of the statewide annual median household income.

EEA EJ Strategy

- OTA priorities & metrics:
 - Outreach
 - Strategic outreach based on density analysis
 - TURA EJ website development
 - Referrals and site visits
 - Updated PVQ and report language
 - % facility site visits near EJ populations
 - Trainings delivered



Executive Office of Energy & Environmental Affairs

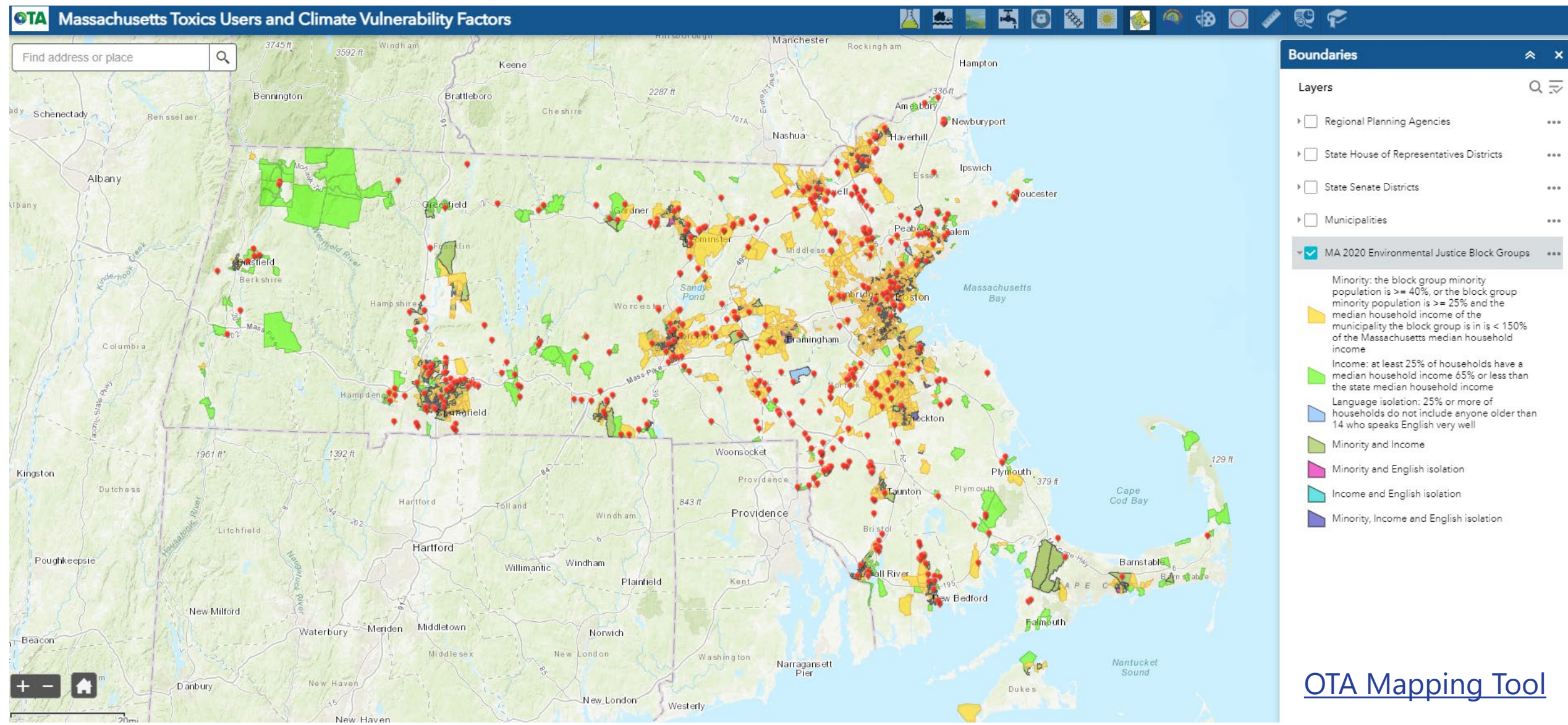
February 2024

Environmental Justice Strategy

Secretariat and agency strategies for proactively promoting environmental justice in the Commonwealth of Massachusetts

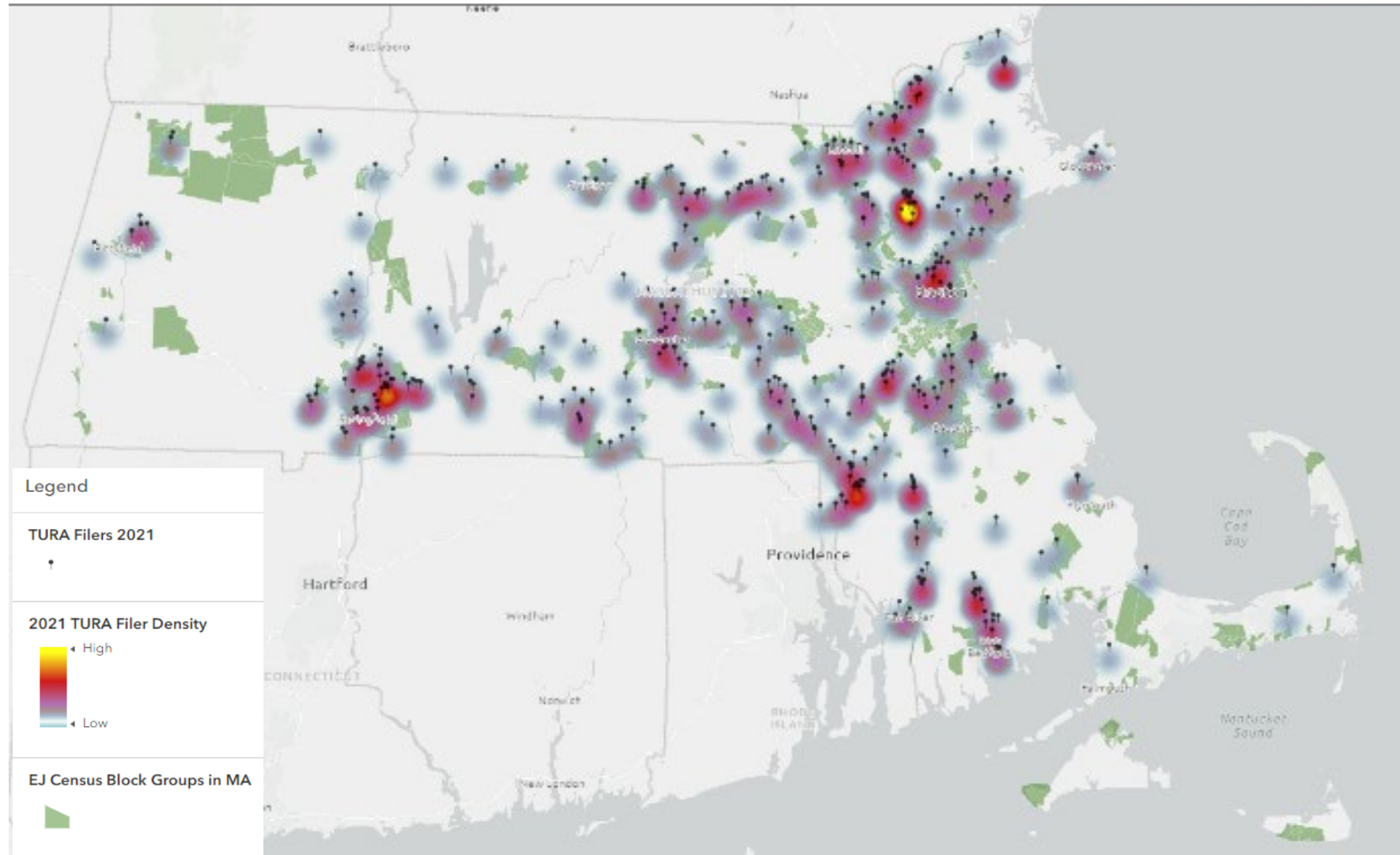


Using OTA's Mapping Tool: Environmental Justice



TURA Filer Density and Environmental Justice

TURA Filer Density and EJ Census Block Groups



OTA Environmental Justice Story Map



The TURA Program & Environmental Justice



About the TURA Program

OTA & Environmental Justice

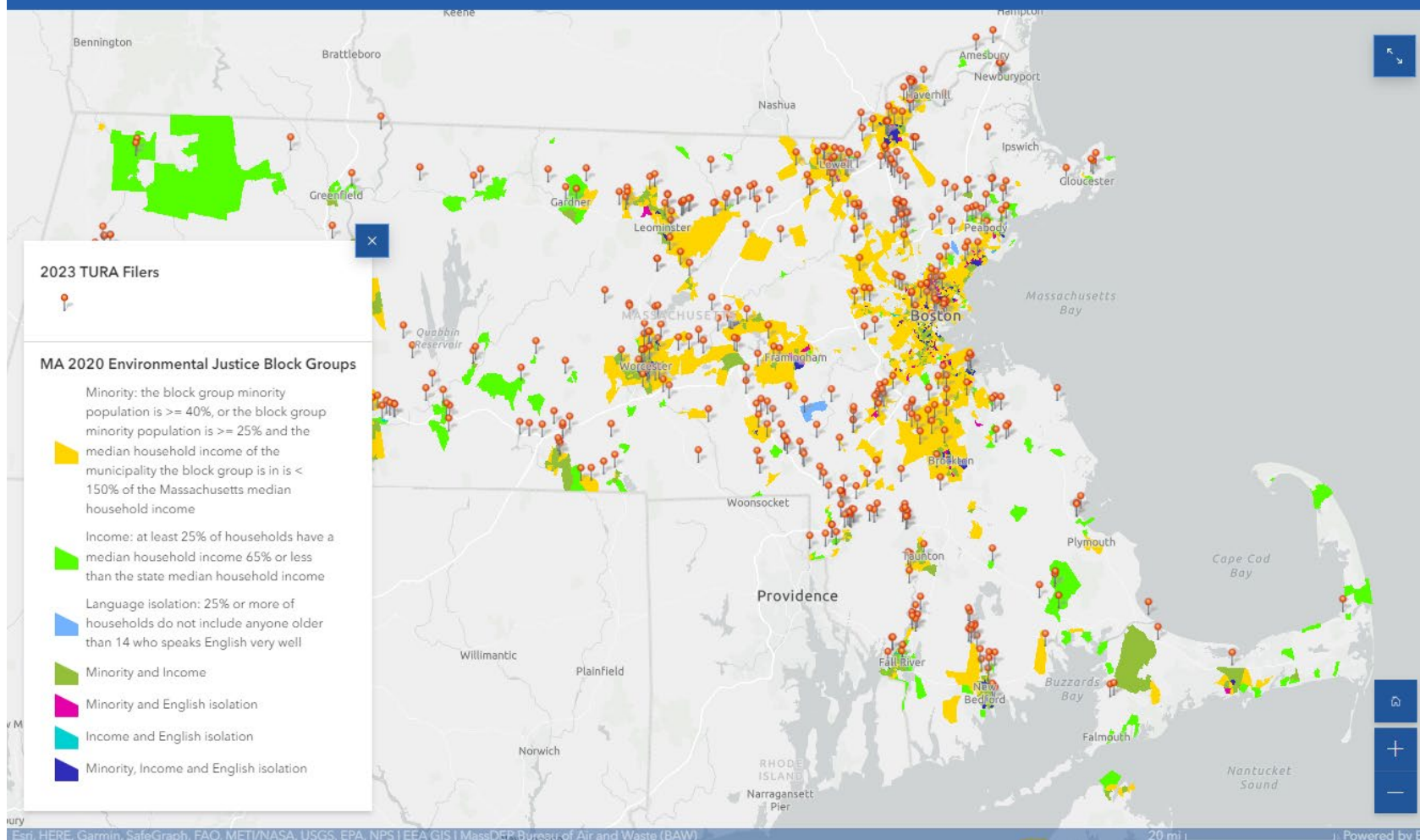
What is EJ?

The History of EJ

Pollution Prevention Terms

TURA Filers & EJ Populations

EJ & Climate Justice



Recognizing the importance of reducing the impact of pollutants and toxics for public health and environmental safety, in 1989 Massachusetts adopted the Toxics Use Reduction Act (TURA), which created the [TURA Program](#). Under this law, businesses and manufacturers who use, process, or manufacture threshold quantities of TURA-designated toxic chemical(s) are required to file with the Massachusetts Department of Environmental Protection (MassDEP), to report on these chemical(s), and conduct toxics use reduction planning every two years.

[Learn more about the TURA Program](#)

About 78% of TURA filers in 2021 were in or within a mile of an EJ community. OTA, through its statutory obligations to implement the TURA Program, provides free and confidential technical assistance to these businesses and manufacturers to help them reduce their use of toxic chemicals and/or find

Other Mapping Tools – Resilient MA & MassDEP CIA

The screenshot shows the 'Resilient MA' web application. The header includes the logo, the text 'Resilient MA', and the subtitle 'Climate Change Clearinghouse for the Commonwealth'. There is a search bar and a menu icon. The left sidebar has a 'Layers' tab selected, showing a search bar and a list of sectors. Under 'Climate Observations', there are sub-sections for 'Precipitation' and 'Temperature'. Under 'Climate Projections', there is a 'Precipitation' sub-section with several checkboxes: 'Consecutive Dry Days (Projected)', 'Extreme Precipitation > 1" (Projected)', 'Extreme Precipitation > 2" (Projected)', 'Extreme Precipitation > 4" (Projected)', and 'Total Precipitation (Projected)' (which is checked). There is also a 'Sea Level Rise' section and a 'Temperature' section. The main map area shows a map of Massachusetts with various locations labeled, including Nashua, Concord, Boston, Plymouth, Falmouth, Barnstable, Bridgewater, Waterbury, Hartford, and Providence. A scale bar indicates 50 km and 50 mi.

<https://resilientma.mass.gov/map/>

The screenshot shows the 'MassDEP' web application. The header includes the logo, the text 'MassDEP', and the subtitle 'Commonwealth of Massachusetts Department of Environmental Protection'. There is an 'About' tab selected, showing a text box with the following content: 'This application is designed to help air permit applicants prepare an assessment of existing community conditions as required by proposed cumulative impact analysis regulations 310 CMR 7.02(14). The application allows applicants to specify a location and gather data on EJ block groups within a specified radius around their proposed project. MassDEP has developed draft guidance on how to use the application available at: [MassDEP Cumulative Impact Analysis in Air Quality Permitting website](#). For questions please...'. The main map area shows a map of Massachusetts with various locations labeled, including Nashua, Lowell, Gloucester, Boston, Brockton, Plymouth, Providence, Fall River, New Bedford, and Falmouth.

[MassDEP Cumulative Impact Analysis](#)

MA DPH Environmental Justice Tool

Map How-to

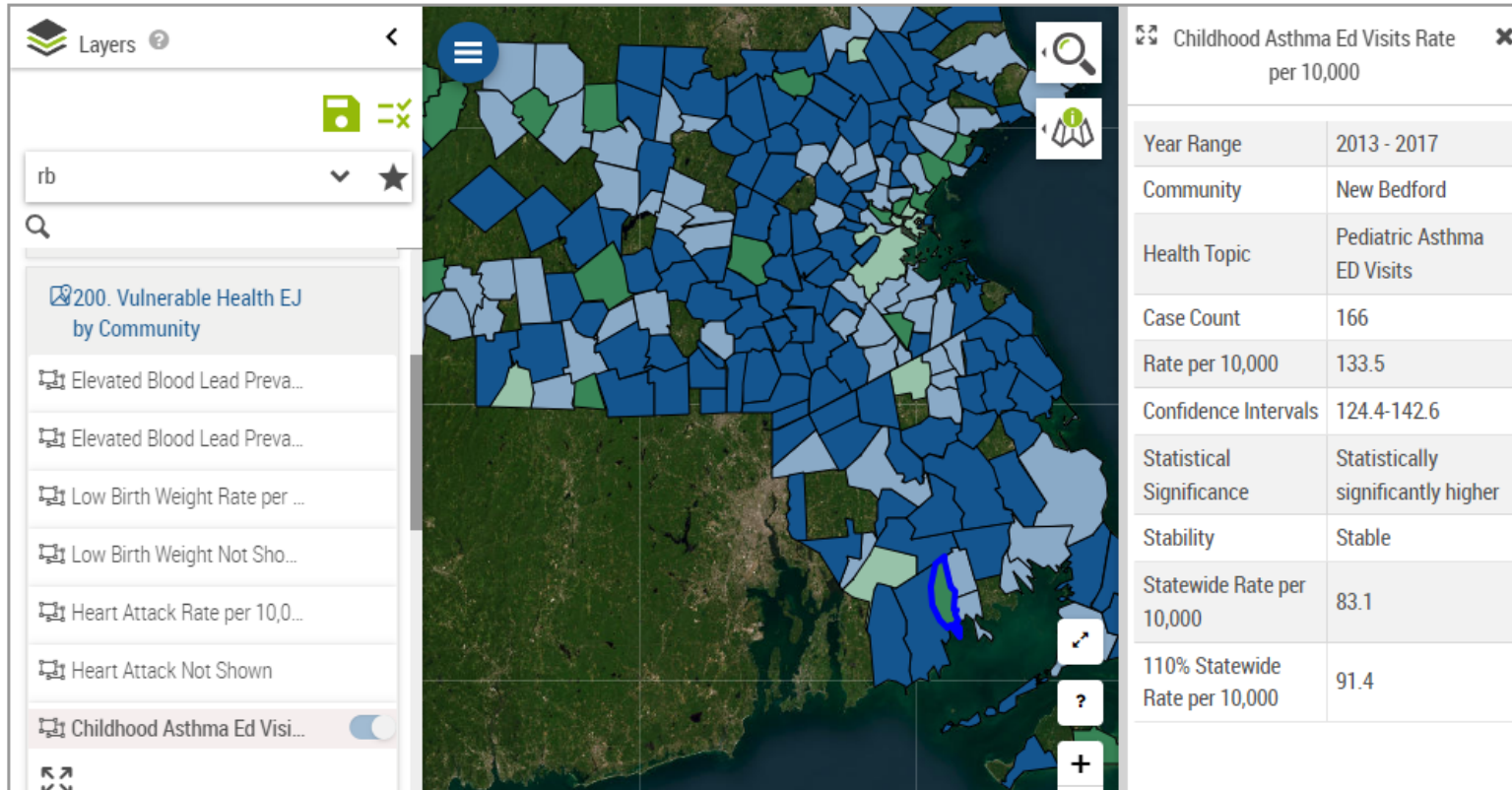
Buffer Selection
Tutorial

Map Glossary

POWERED BY
MASSACHUSETTS
TRACKING

Custom Mapping

The "Vulnerable Health EJ by Census Tract" data layers are in the process of being updated to 2020 Census Tract boundaries. The "Vulnerable Health EJ by Census Tract" data layers currently displayed, are mapped to 2010 Census Tract boundaries. If you have any questions, please email us at DPH-MA-EPHT@mass.gov.



Additional Mapping Tools – MA DPH EJ Tool

<https://matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html>

Environmental Justice Populations in Massachusetts



EEA Languages Spoken in MA

Environmental Justice Populations in Massachusetts

2020 Environmental Justice Block Groups

Languages Spoken in Massachusetts

Why is this block group in or not in EJ?

P

This map displays two different datasets
for languages spoken in Massachusetts



1) 2015 data from the Census Bureau's American Community Survey Table B16001, available only at the census tract geography: these detailed language data groups were discontinued in 2016. This map displays languages spoken by 5% or more of the population in each tract who do not speak English very well.



2) Languages spoken as the primary language in the homes of elementary and secondary school students in October 2022: this is data collected through a survey provided to students in public schools. Languages spoken in 1% or more of the homes of the public school student population in each ZIP code are displayed in this map.

This map is a tool to indicate limited English proficiency populations in Massachusetts neighborhoods. This data is always changing and difficult to quantify. Because of these limitations, this map should be used in conjunction with other forms of inquiry, such as outreach to community groups, contact with local boards of public health, and personal knowledge to gather the most accurate data possible.

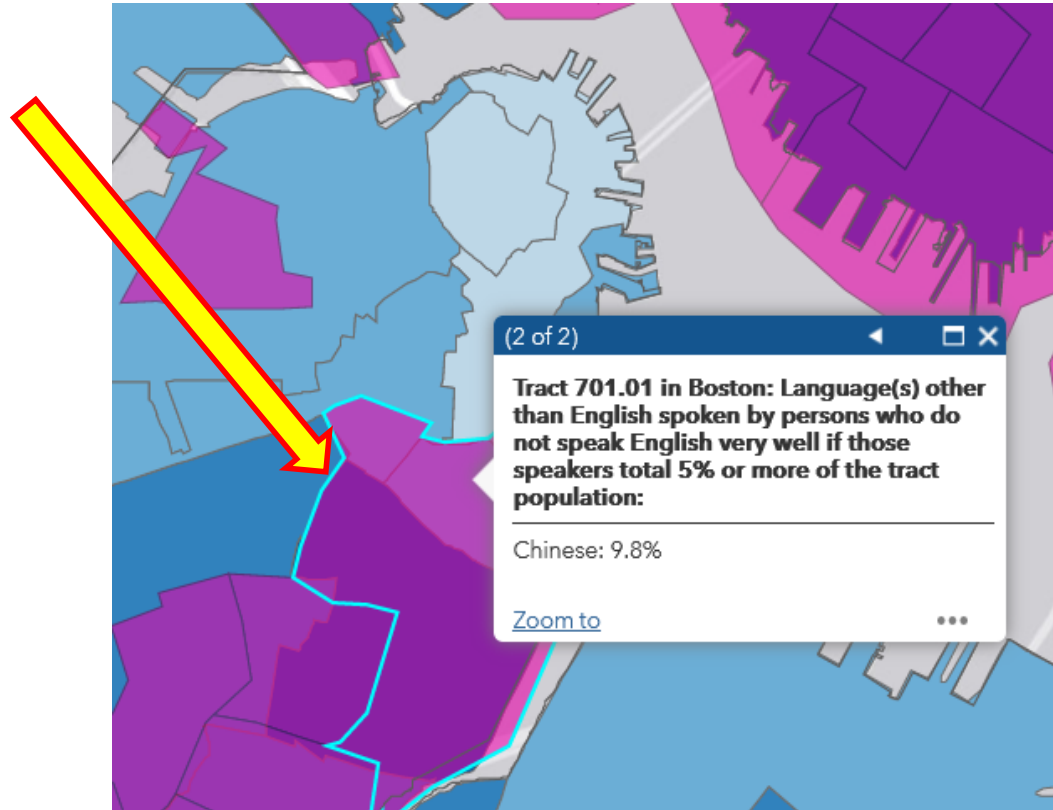
[Link to EEA language access map](#)

This map shows two datasets:

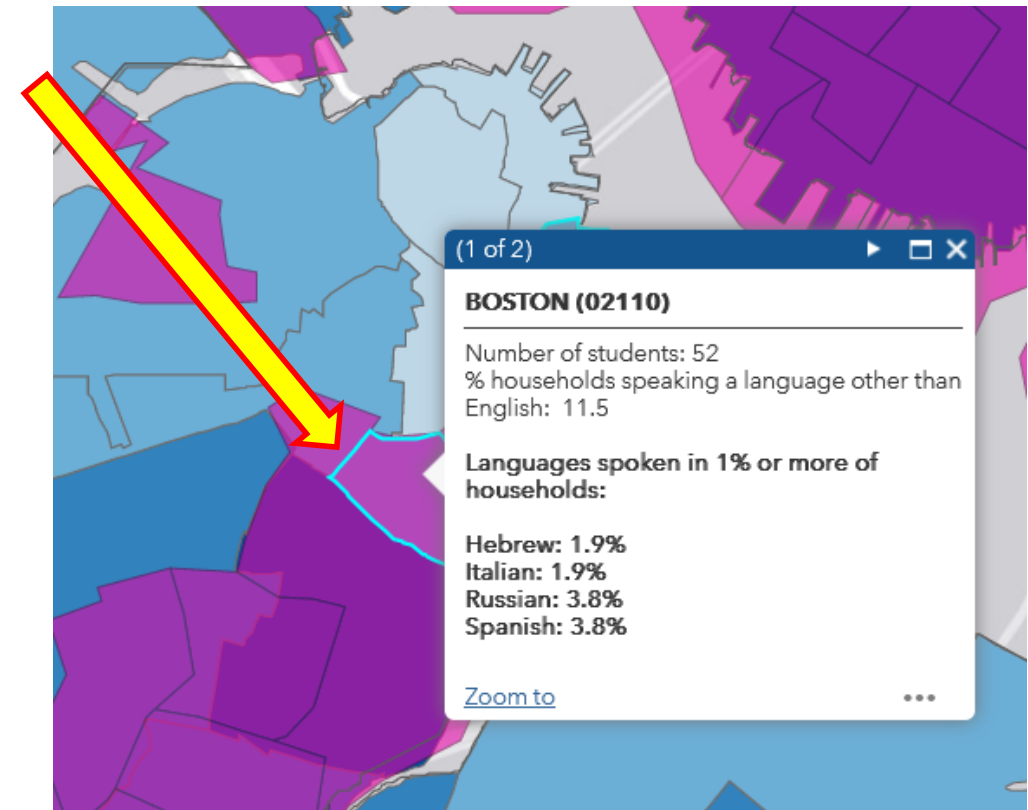
1. Census Bureau's American Community Survey table B16001
 - a. 2015 data
 - b. census tract geography
 - c. languages spoken by 5% or more of the population in each tract who do not speak English very well.
2. DESE family survey data
 - a. 2022 data
 - b. ZIP code geography
 - c. languages spoken in the homes of elementary and secondary students* totaling 1% or more of these homes

* public school students only.

Language Data Source Variations



ACS data



DESE data

Top Non-English Languages Spoken in MA

Language	# MA Households	% MA Households	% Non-English Households in MA
Spanish	623,189	9.39	38.6
Portuguese	205,246	3.09	12.7
Chinese (inc. Mandarin, Cantonese)	142,362	2.15	8.81
Haitian Creole	89,391	1.35	5.53
French	50,412	0.76	3.12
Vietnamese	44,472	0.67	2.75
Russian	38,402	0.58	2.38
Arabic	37,001	0.56	2.29
Hindi	29,433	0.44	1.82
Italian	28,480	0.43	1.76

[Source: ACS 5-year estimate](#)

Language Access and Digital Accessibility

- The office of the Chief IT Accessibility Officer was created by [Executive Order 614](#), signed by Governor Healey in 2023 corresponding with the 33rd anniversary of the Americans with Disabilities Act.
- The order established the Digital Accessibility and Equity Governance Board to advance the Healey-Driscoll Administration's goal of providing a more equitable, inclusive, and accessible digital experience for everyone, including those who are Blind, have low vision, Deaf or hard of hearing, and other disabilities.



EEA Language Access Plan

- Purpose: to reduce barriers and ensure that limited English proficiency persons (LEP) have equitable and meaningful access to all agency services, programs, and activities.
- Language service needs assessment process
- Translation of vital documents into top 5 languages spoken in program area
- Live interpretation, ASL, & CART for events
- Protocol for requesting language services and vendors on state contract
- EEA language access working group
- Living document – monitoring & review

EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS



LANGUAGE ACCESS PLAN

Environmental Justice (EJ) TURA Analyses Report

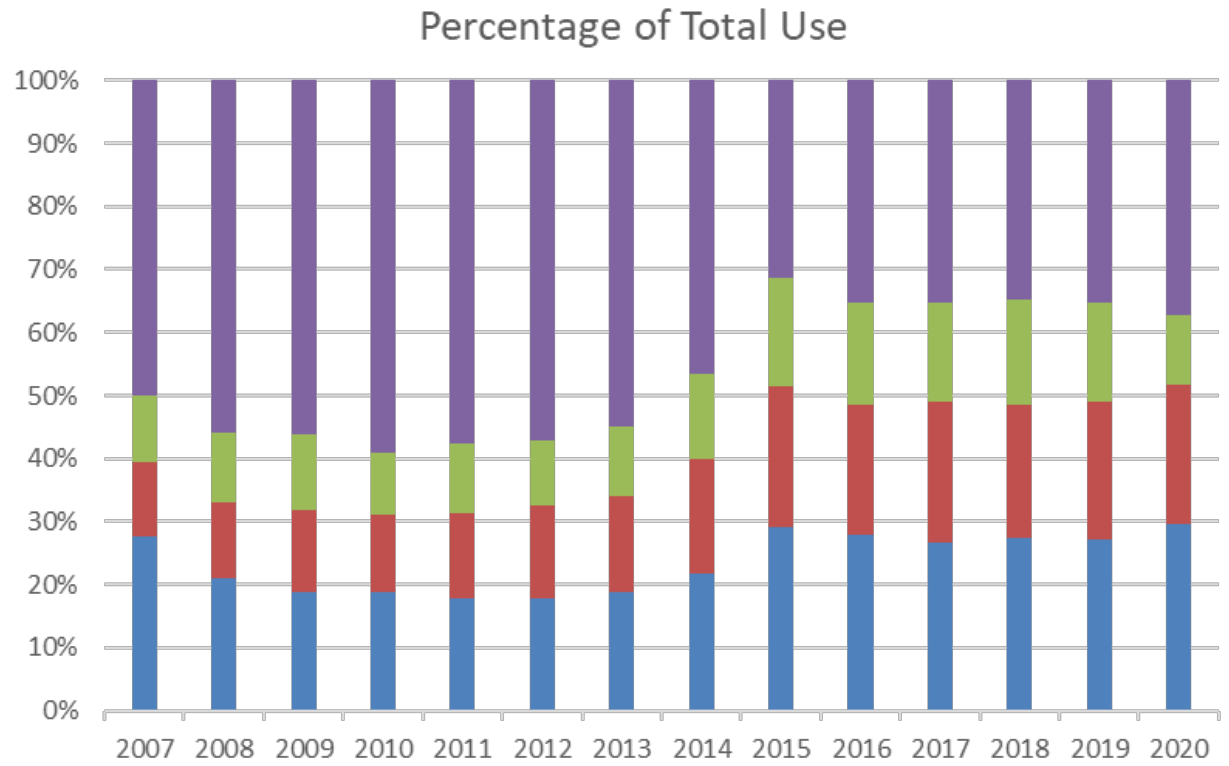
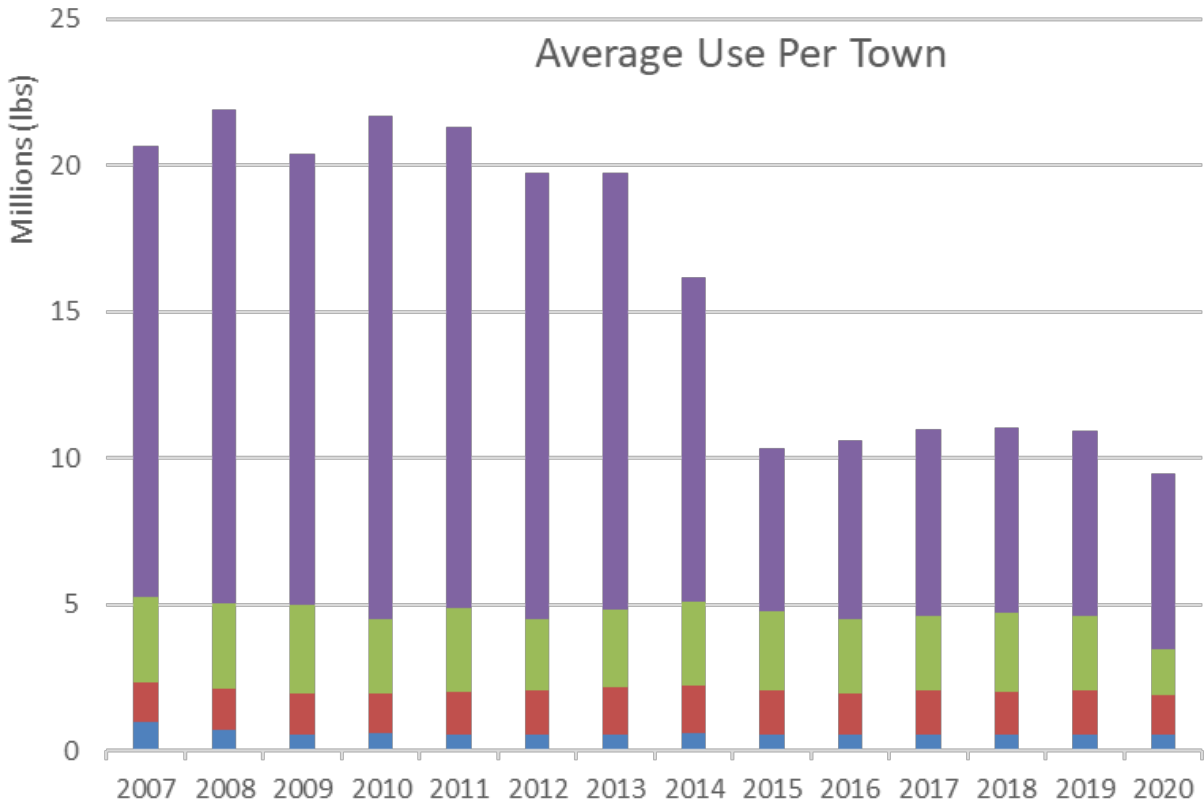


Colin Hannahan
Policy Analyst
Toxics Use Reduction Institute

May 29, 2024

EJ Analytical Report — Toxics Use from 2007 to 2020

- Greater than 75%
- Between 50 and 75%
- Between 25% and 50%
- Less than 25%



EJ Analytical Report — Toxics

Release from 2007 to 2020

2020 EJ Criteria Met

- Minority
- Income
- English isolation
- Minority and Income
- Minority and English isolation
- Income and English isolation
- Minority, Income and English isolation

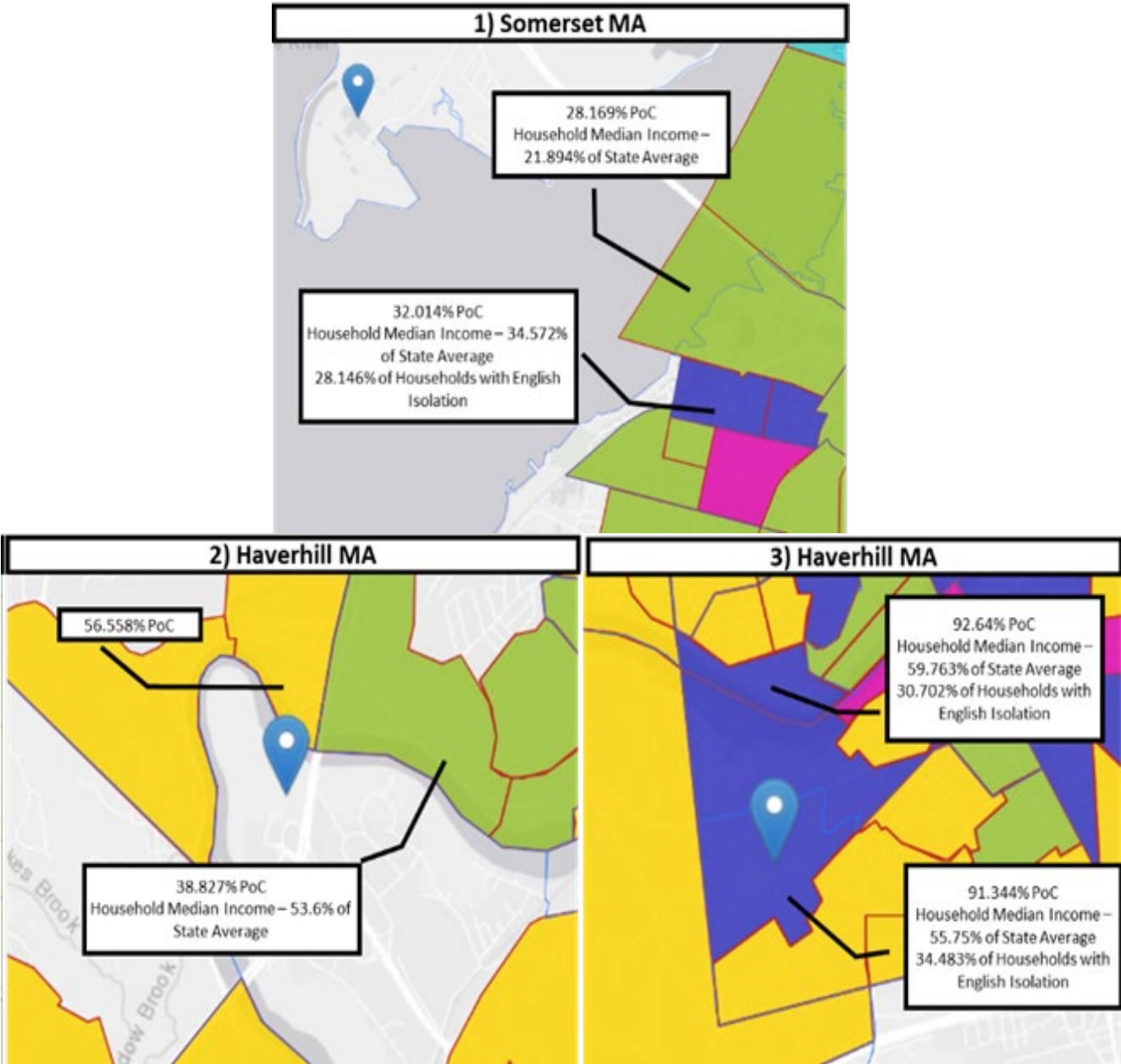
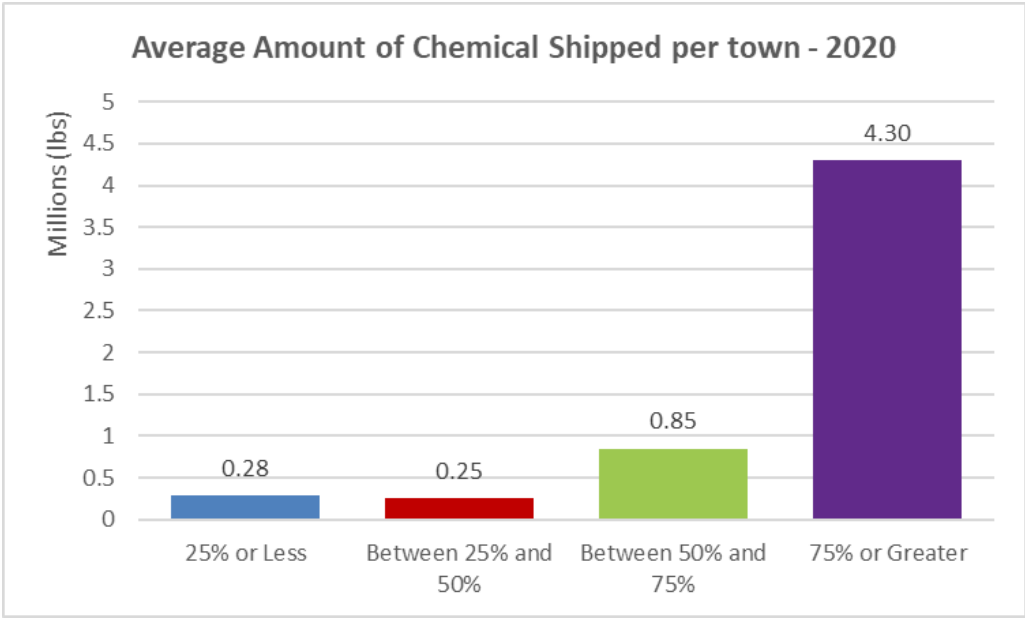
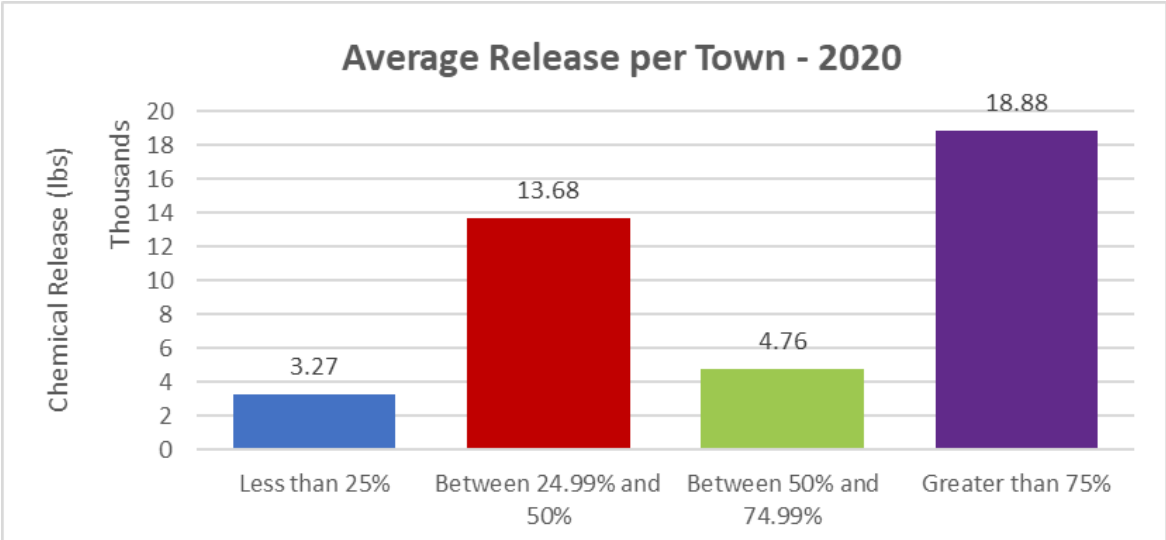
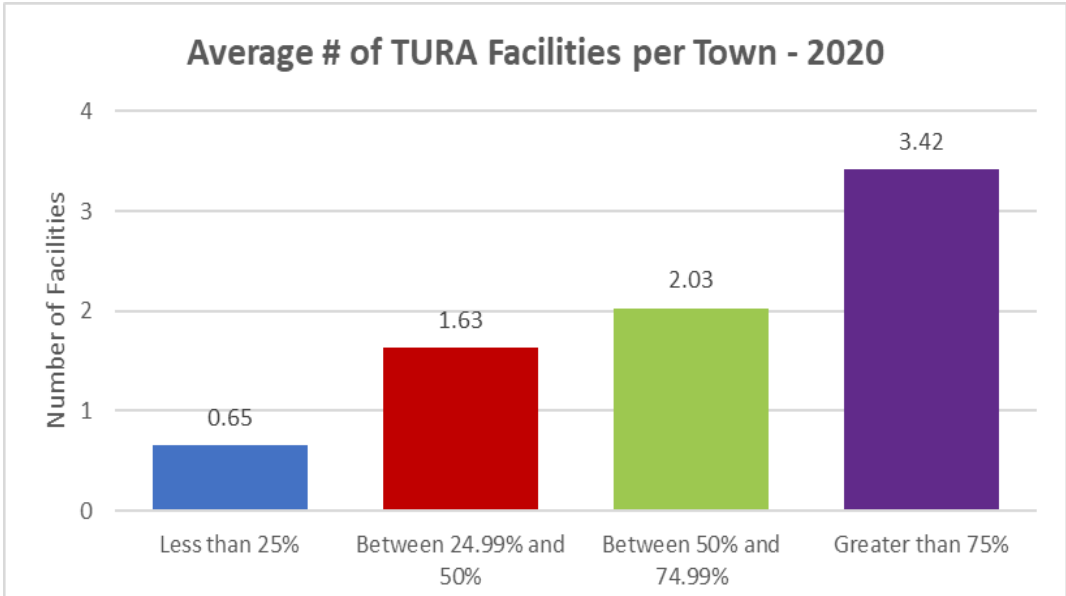
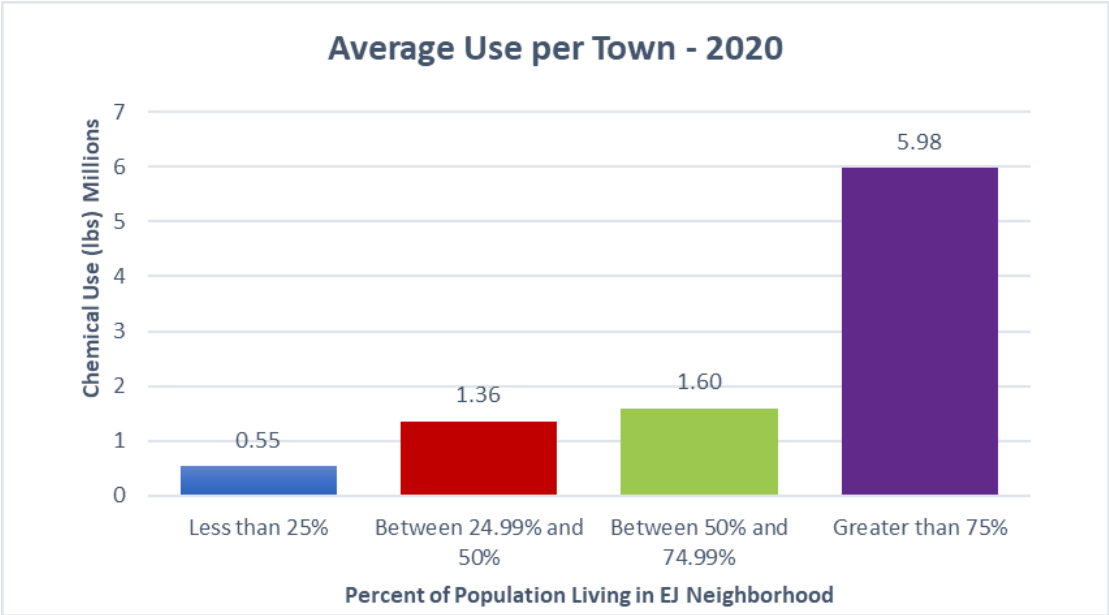
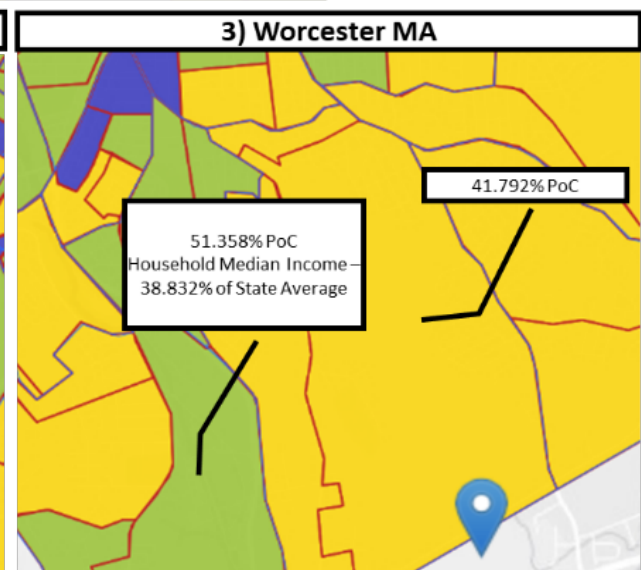
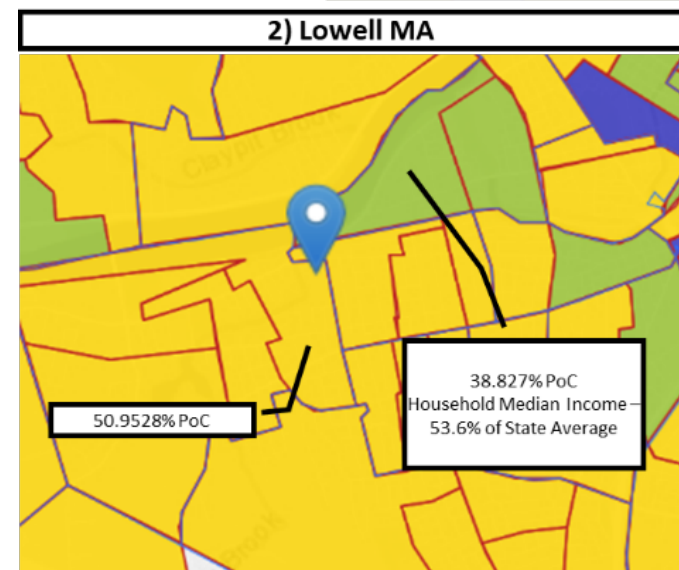
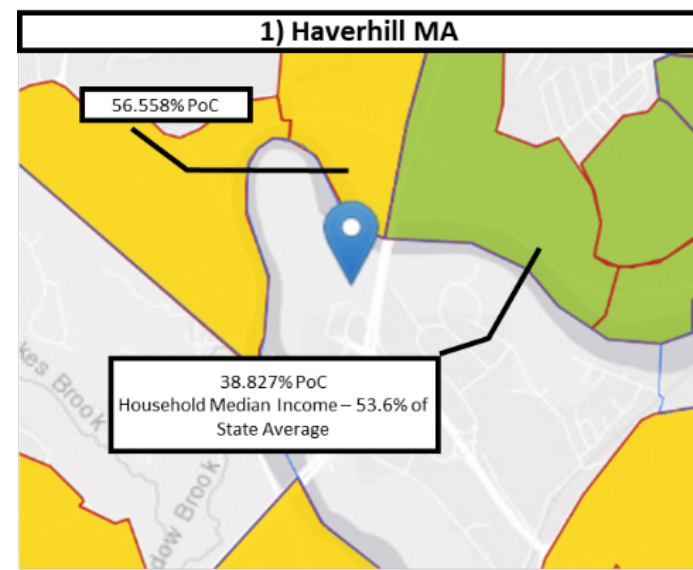


Figure 2-11 Facilities with highest cumulative release from 2007 to 2020

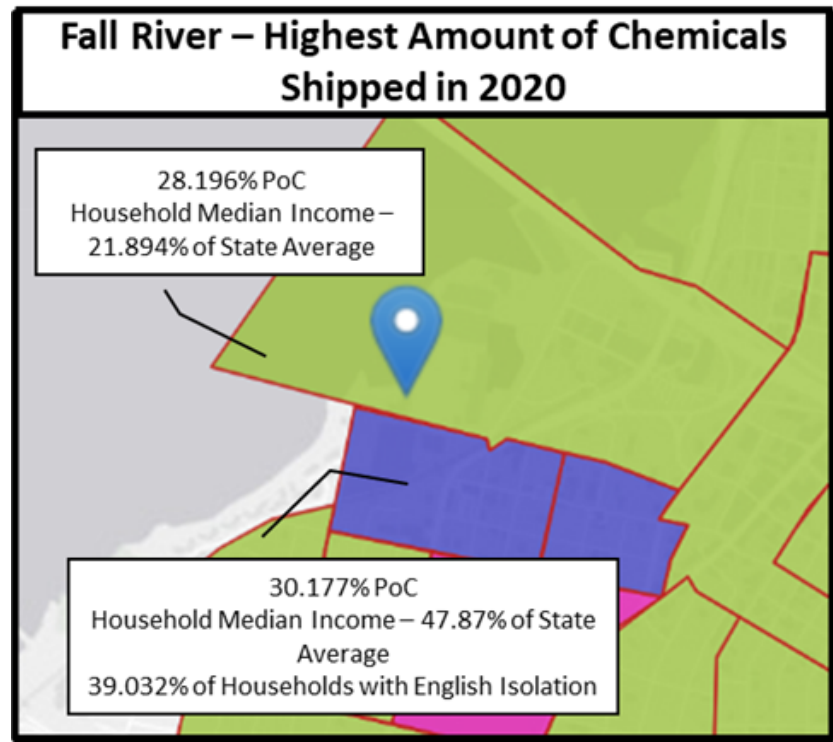
EJ Analytical Report – Present Overview



EJ Analytical Report – Present Overview



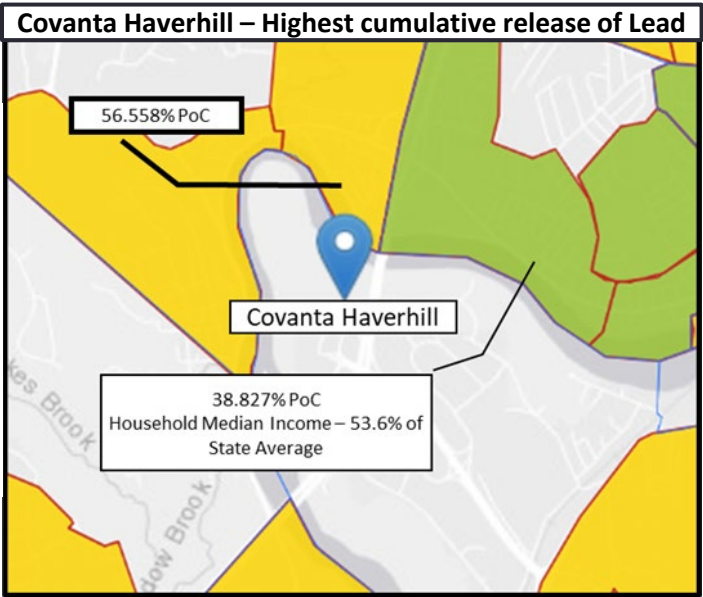
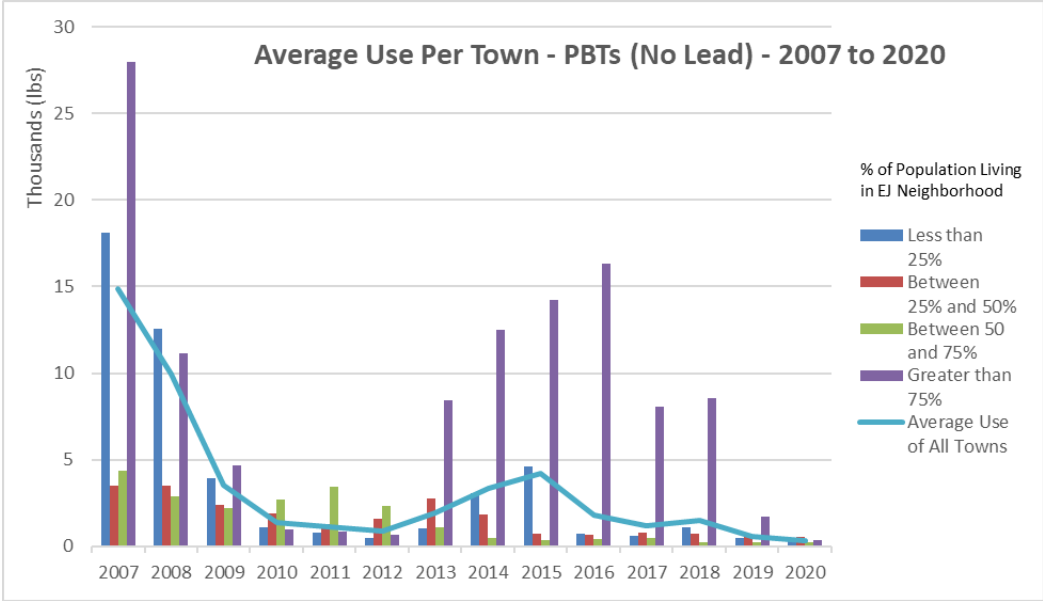
- 2020 EJ Criteria Met
- Minority
 - Income
 - English isolation
 - Minority and Income
 - Minority and English isolation
 - Income and English isolation
 - Minority, Income and English isolation



Map of the top three chemical releasing facilities in MA in 2020

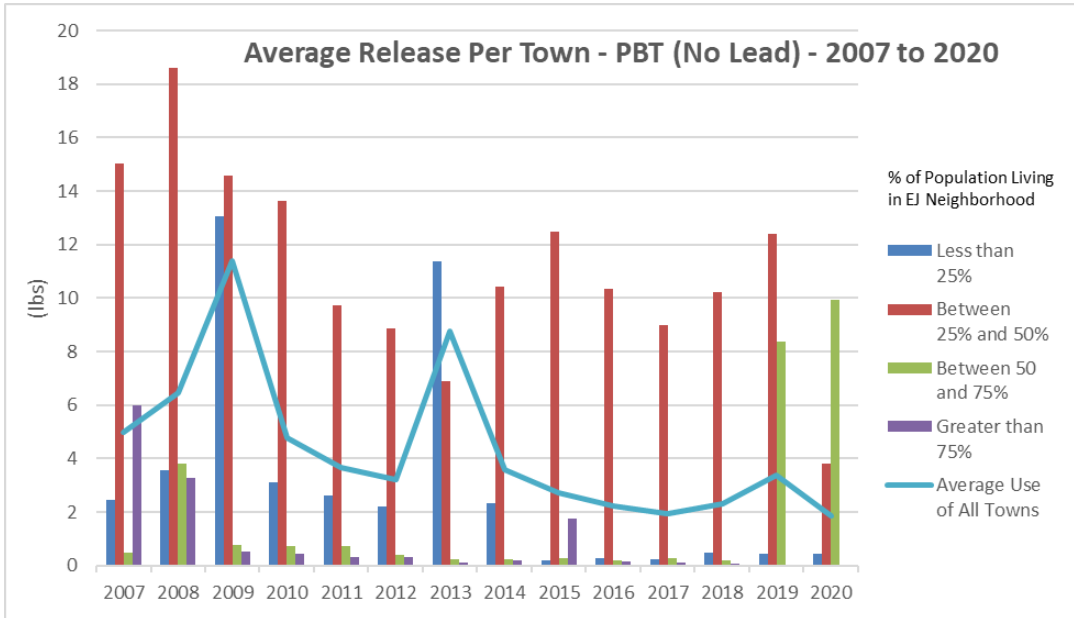
EJ Analytical Report – Chemicals of Interest – PBTs – 2007 to 2020

Substance	Threshold (lbs or grams for dioxin)	# Filers in 2020	Use	Byproduct	Shipped in Product	On-Site Releases	Transfers Off-Site
Benzo[ghi]-perylene	10	16	2,312	746	1,304	0	746
Dioxin and Dioxin Compounds	0.1 Gr	7	2,114	2,114	0	195	1,926
Lead	100	61	2,949,336	2,481,954	497,549	454,537	2,123,472
Lead Compounds	100	39	307,433	205,278	93,478	390	205,329
Mercury	10	15	11,447	2,394	3,317	351	865
Mercury Compounds	10	1	615	5	802	0	5
Polychlorinated Biphenyls	10	2	22,356	22,356	0	0	22,357
Polycyclic Aromatic Compounds	100	17	82,299	6,366	50,351	102	6,213
Tetrabromo-Bisphenol	10	1	337	17	320	0	17



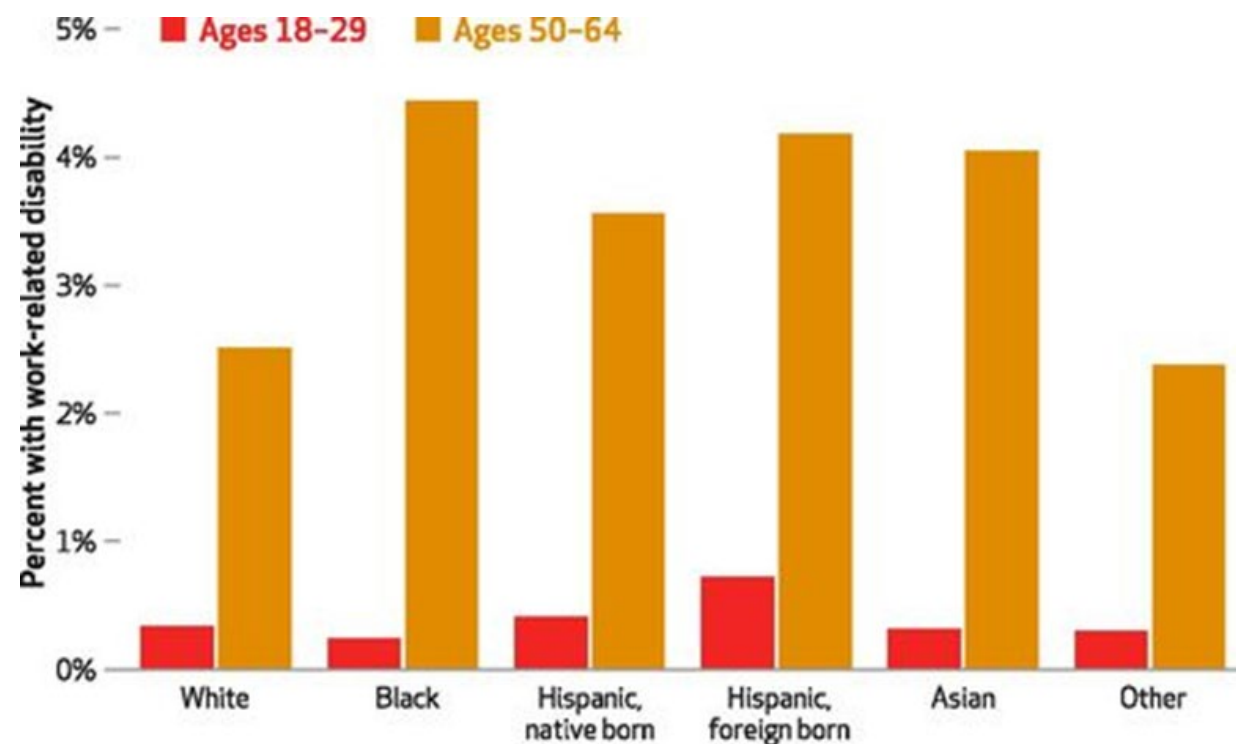
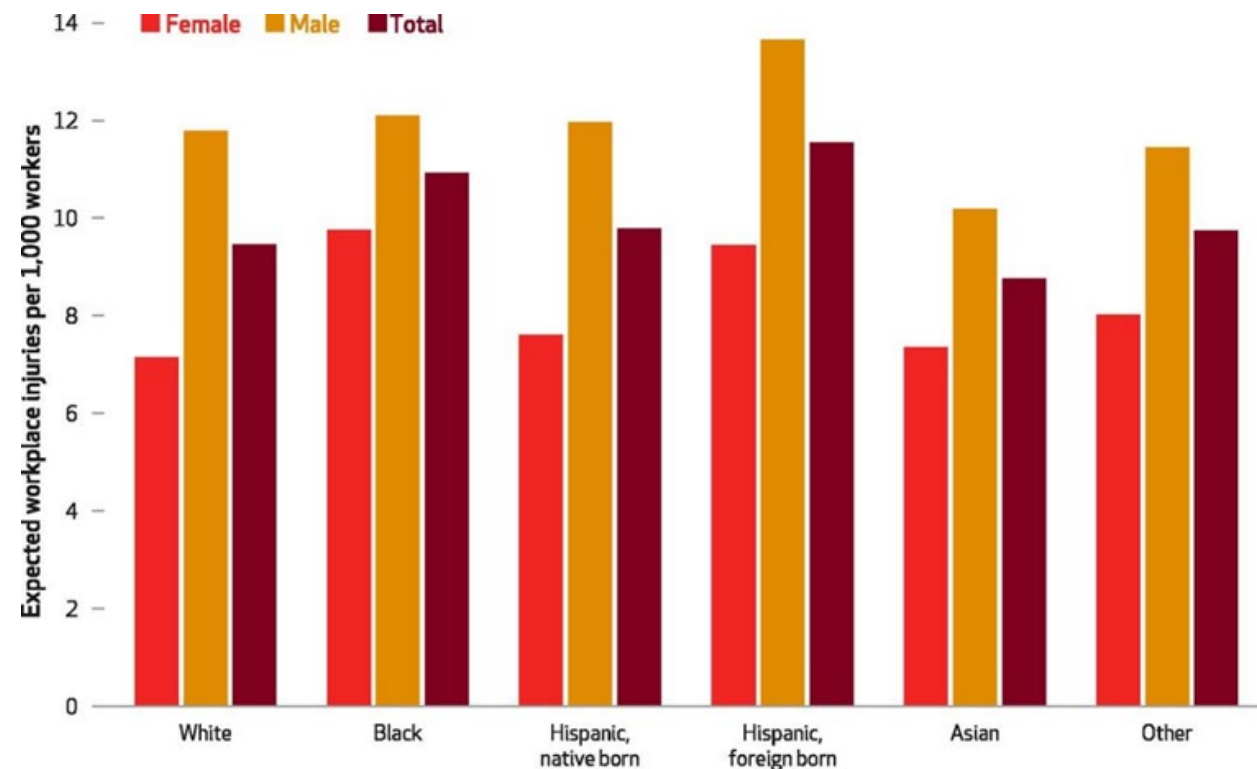
2020 EJ Criteria Met

- Minority
- Income
- English isolation
- Minority and Income
- Minority and English isolation
- Income and English isolation
- Minority, Income and English isolation



EJ Analytical Report – Workers and Toxic Use in MA

“As those groups which make up EJ communities often face disproportionate environmental risks at home, they also often face disproportionate risk in the workplace”



EJ Analytical Report –

Workers and Toxic Use in MA –
Chemicals of Interest –
Halogenated solvents

- Dichloromethane and trichloroethylene are the most commonly used halogenated solvents.
- Adhesives and sealants, metal finishing are some of the most common industries using halogenated solvents

Halogenated Solvent Use (lbs) – 2020 – Top Facilities							
Facility / SIC Description		DICHLOROETHYLENE	DICHLOROMETHANE	N PROPYL BROMIDE	TETRACHLOROETHYLENE	TRICHLOROETHYLENE	Grand Total
ASTRO CHEMICALS INC	Chemicals and allied products, n.e.c.		506604		25660	104310	636574
ITW POLYMERS SEALANTS NORTH AMERICA	Adhesives and sealants		328220				328220
JOHNSON MATTHEY PHARMA SERVICES	Pharmaceutical preparations		309378				309378
PCI SYNTHESIS INC	Pharmaceutical preparations		95694				95694
JOHNSON MATTHEY PHARMA SERVICES INC	Pharmaceutical preparations		87178				87178

OSHA Inspection Data – Methylene Chloride (Dichloromethane) Personal Air Samples, PEL (25 ppm)			
Facility	Number of Inspections	Average Result (mg/m ³)	Max Result (mg/m ³)
ROBERTSON'S FURNITURE REFINISHING	3	303.3905663	484.839812
OPTICRAFT, INC.	2	140.941413	225.10392
DIP 'N STRIP REALTY, LLC	2	85.3311595	117.456109
EMERSON & CUMINGS MICROWAVE PRODUCTSS INC	2	40.750019	50.691788

Environmental Justice – Breakout Section

Integrating EJ into your own work

Outreach to EJ communities and those which can impact EJ (companies, municipalities, advocates)

- TUR training example
- Relaying information and work done by advocacy orgs (CPA Best Practices)
- Consistent messaging and helpful strategies to engage with private sector.

Filling information gaps

- Information on worker profiles in facilities (demographics, details on job functions)
- Statistical analyses ([GIS spatial regression analyses](#))

Prioritization (for projects, strategic direction)

- Orient research towards priority chemicals, products and processes.
- Identify and engage key facilities (workers and nearby communities)

EJ Learning Course - Brainstorm

Audience	Learning Goals	Case Study/s	Resources to include in the course (lectures, best practices, reports, examples)
• TUR Planners • Policymakers • Companies (Employees, managers) • University Students (Public Health, Chemistry, Chemical Engineering)	• Syllabus • E.g - be capable of advancing EJ in your place of employment	• OTA Site Visit which discussed EJ • A company which advanced an EJ goal or developed a strategy to consider EJ	• OTA Storyboard and mapping tools • Cleaner Production Action best practices

Community Engagement Best Practices

Identify your community

- Are there underrepresented populations in this community? What data can you gather?

Be thoughtful about location and time of meetings

- Hosting meetings at convenient times and accessible locations for community members.

Promote Language Access

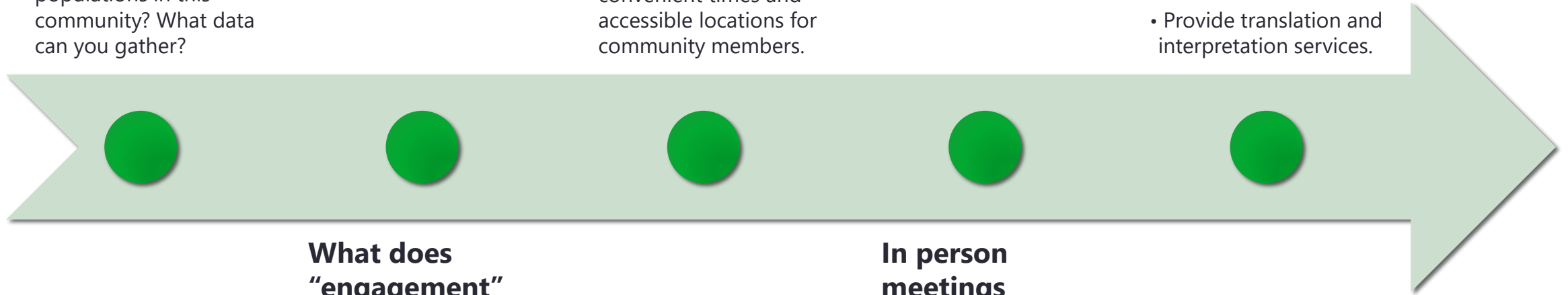
- Provide translation and interpretation services.

What does “engagement” look like?

- In person, virtual, or hybrid? How do you meaningfully engage community members?

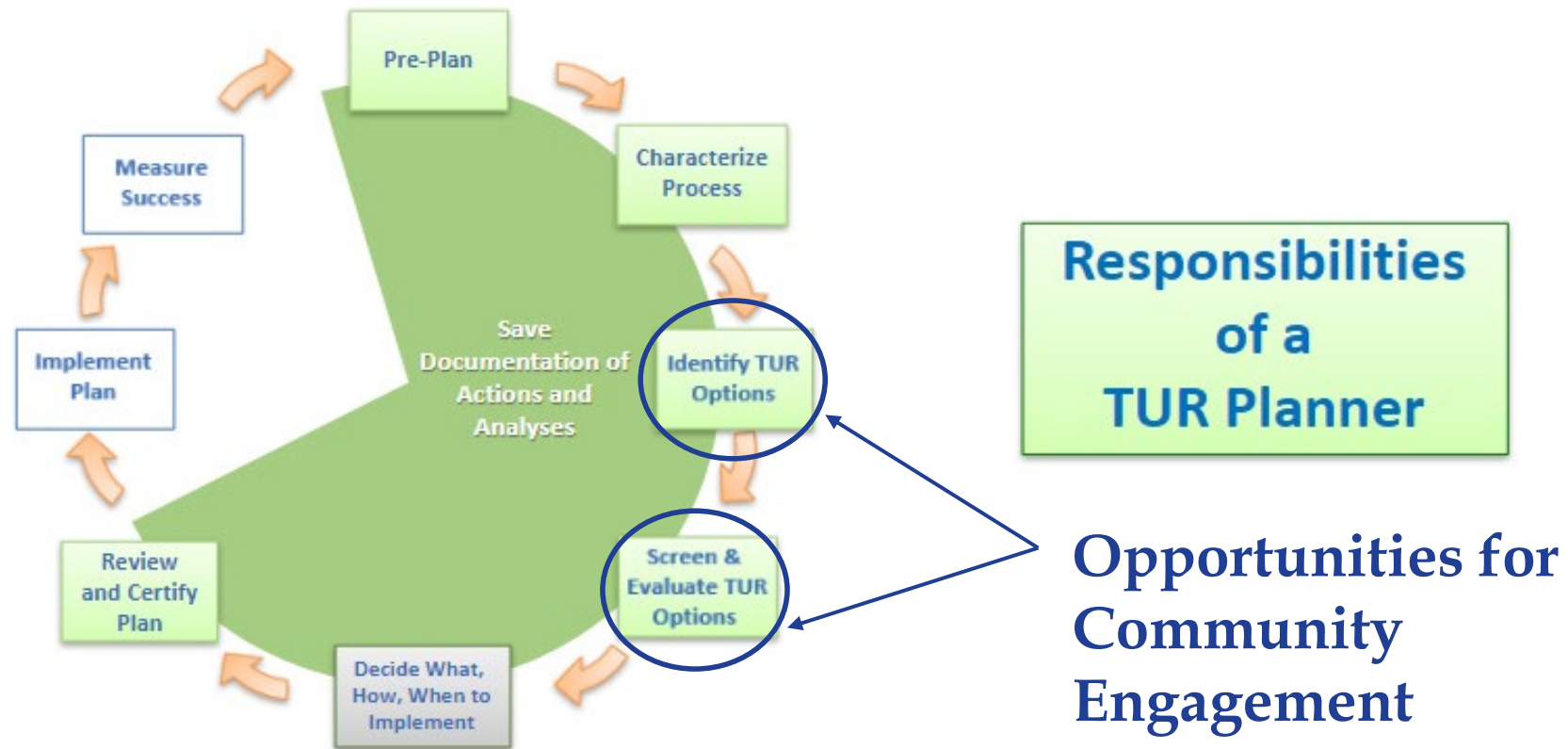
In person meetings

- Provide food and childcare.



Integrating EJ into TUR Planning

The TUR Planning Cycle

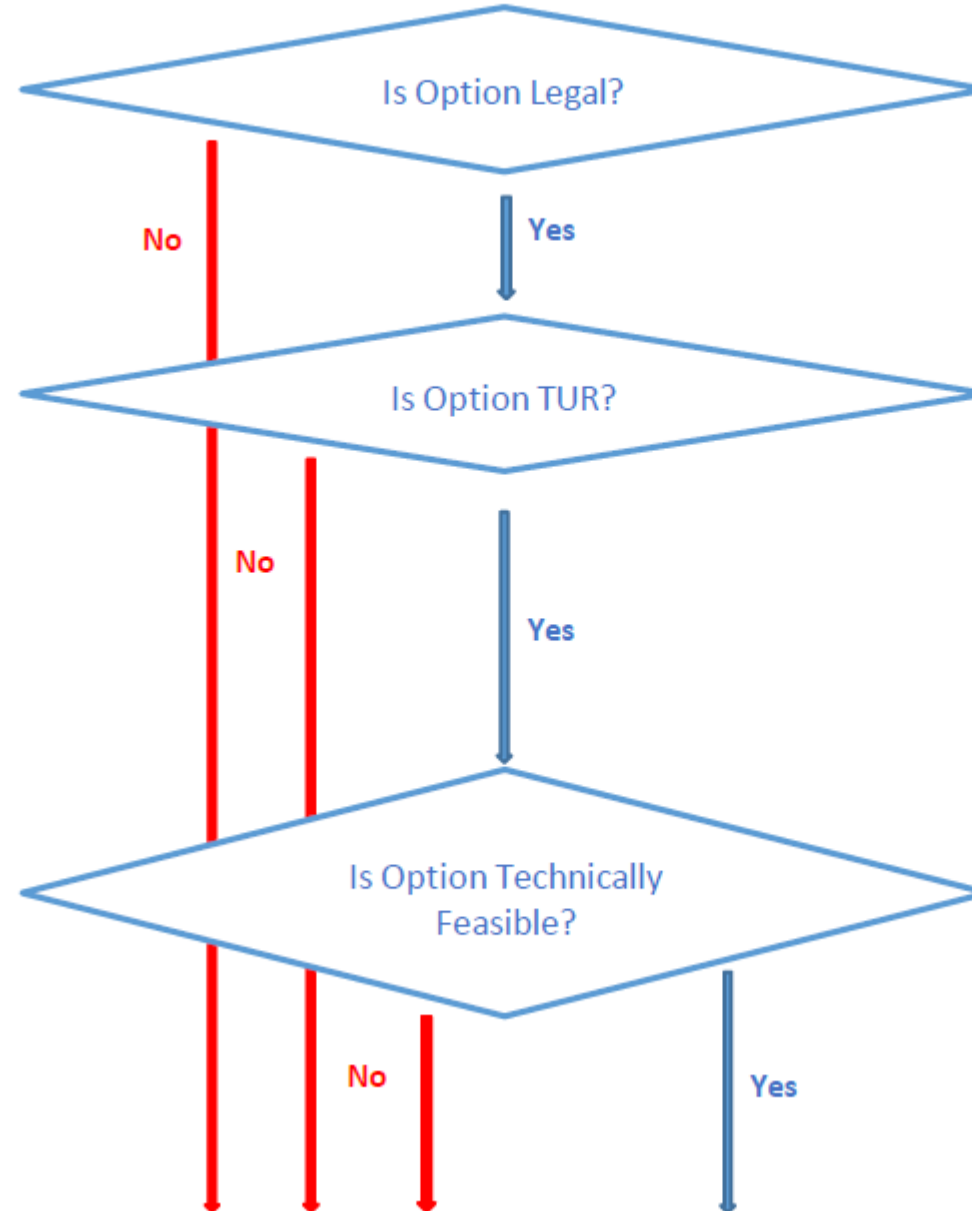


Regulatory Citations

310 CMR 50.46
(1)(c)

310 CMR 50.10
and MGL c 21I,
§2

310 CMR 50.46
(2)



Questions to Consider

- Will implementation of option violate any other law/regulation?

- Is it one of 6 TUR techniques?
- Is the substitute less toxic?
- Does it avoid shifting the risk?
- Is it likely to reduce use or byproduct per unit of product?

- Do you have enough information to complete the evaluation?
- Does technology exist?
- Is it reliable and stable?
- Does it work at production scale?
- Will it impact product quality?
- Can specifications be met?
- Is there sufficient physical space?
- Are worker skills adequate?
- Is training required and possible?
- Are there other limiting technical issues?

Discussion & Questions