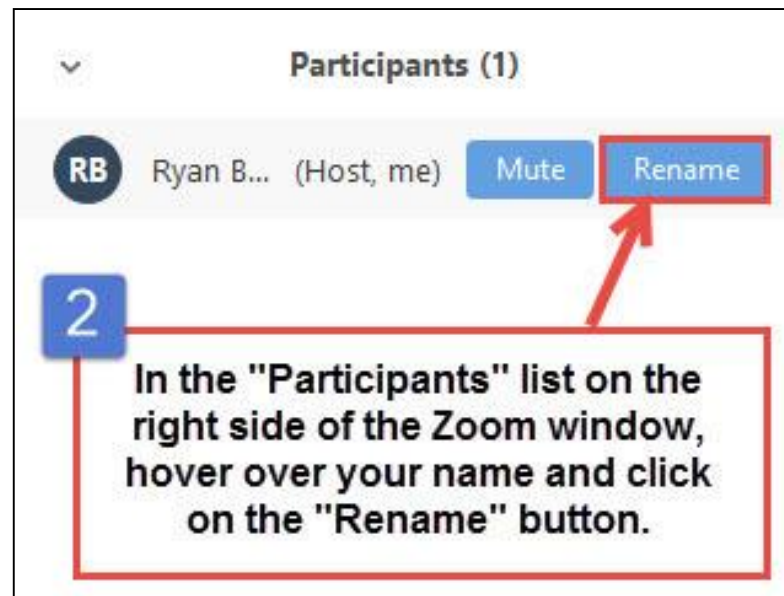


Zoom Meeting Logistics

This meeting is being recorded.

To minimize background noise, attendees are on mute.

Please enter your full name in the Participants panel.

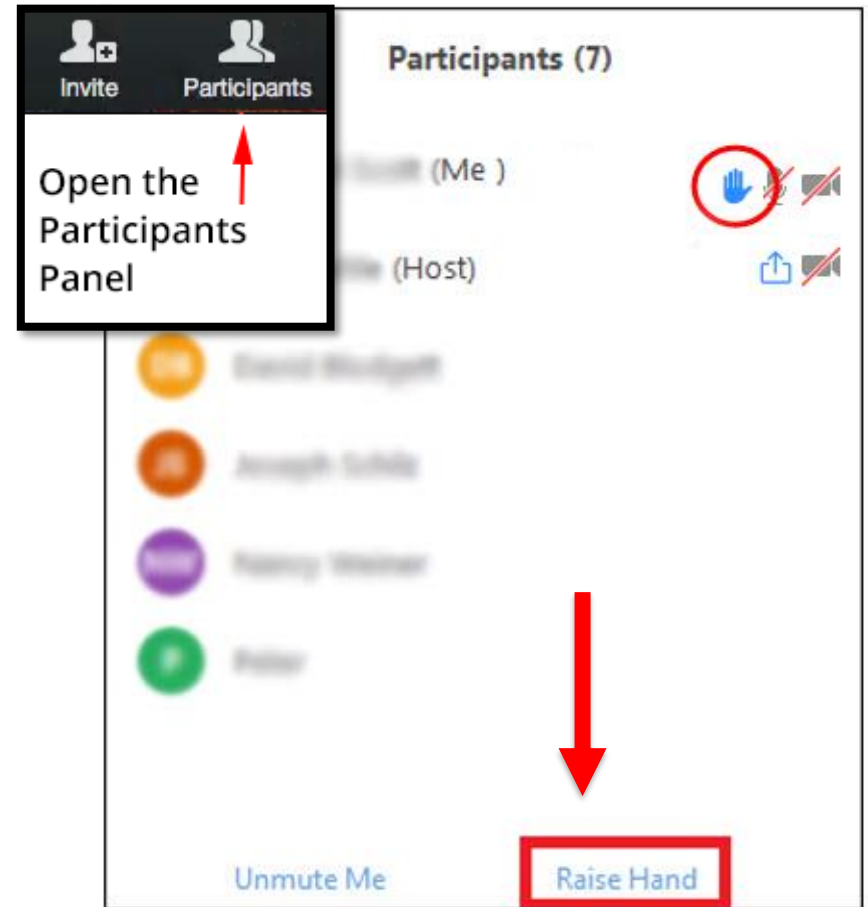


How to Participate via Zoom

Raise your virtual hand.

When it's your turn we will:

1. Notify you by chat.
2. Announce your name.
3. Unmute you and lower your raised hand.



CUMULATIVE IMPACT ANALYSIS

Stakeholder Meeting #2

September 29, 2021



Agenda

- 6:00 Welcome and Introduction (Christine Kirby)**
- 6:05 Terminology – (Joanne Morin)**
- 6:30 Data Sources and Mapping Tools (Sandy Baird)**
- 7:00 Examples From State Permit Programs (Glenn Keith)**
- 7:30 Discussion**
- 8:15 Adjourn**

Questions for discussion

- What does the issue of cumulative impacts mean to you?
- What are your major priorities or concerns with respect to cumulative impacts?
- What are the types of cumulative impacts that are of the greatest concern?
- What characteristics should be considered in a cumulative impact analysis (e.g., public health only, socioeconomic, timescale, impacts both positive and negative)?
- What community information should be included in a cumulative impact analysis?

Terminology



Terminology

- **Risk** - the **chance of harmful effects** to human health or to ecological systems resulting from exposure to an environmental stressor... used to characterize the nature and magnitude of risks to human health for various populations (EPA)
- **Cumulative risk assessment** - an analysis, characterization, and possible quantification of the **combined risks** to human health or the environment from **multiple** agents or **stressors** (EPA 2003)
- **Stressor** - any physical, chemical, or biological entity that can induce an adverse effect in humans or ecosystems. Stressors may adversely affect specific natural resources or entire ecosystems, including plants and animals, as well as the environment with which they interact. (EPA)

Terminology

- **Health Impact Assessment** evaluates the potential effects policies, plans, programs, or projects will have on the health of a community, neighborhood, or other population. It also examines the distribution of effects within a population – by demographic, location, and other factors (Metropolitan Area Planning Commission)

Terminology

- **Cumulative impacts (California EPA):** exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socio-economic factors, where applicable and to the extent data are available

Terminology

- **Cumulative Impacts (EPA – Interim Draft)**
 - Refers to the total burden of health-affecting conditions or circumstances on an individual or community
 - At a given point in time or over a period of time
 - Considered within the context of an action or specific exposure to a stressor
 - Provides context for characterizing the potential state of “vulnerability” of the individual or community, i.e., their ability to withstand or recover from additional hazardous exposures under consideration
 - Are the total effects on an individual or a human community directly or indirectly through impacts on resources and ecosystems from actions or stressors and all other activities

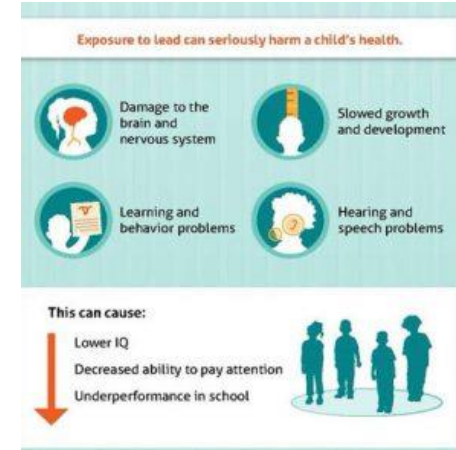
Terminology

- **Environmental Justice (EJ)** - is the equal protection and meaningful involvement of all people with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies and the equitable distribution of environmental benefits (Massachusetts 2021 EJ Policy)



Terminology

- **Vulnerable Health EJ Populations** are those segments of the population that have
 - evidence of higher-than-average rates of environmentally-related health outcomes,
 - and including, but not limited to, childhood asthma, low birth weight, childhood lead poisoning, and/or heart disease morbidity (Massachusetts 2021 EJ Policy)



Terminology

- **Disproportionate impacts** refer to a consistent pattern of greater exposure to multiple and cumulative environmental, health, and social stressors falling on the same populations and places—primarily, low-income communities, communities of color and indigenous communities (proposed by Charles Lee 2021).
- For example, in Minnesota, ...

Air quality risk

These communities are more likely to be near higher levels of air pollution.



Why are we interested in Cumulative Impacts?

- Cumulative impacts result when the effects of an action are added to other effects in a particular place and within a particular time
- There are places where people already have a higher burden of environmental pollution that contributes to increased vulnerability
- Many of the people that have a greater burden of effects are people of color, have low incomes or limited ability to speak English
- Want to ensure protection from environmental pollution as well as promote community involvement in planning and environmental decision-making to maintain and/or enhance the environmental quality of neighborhoods

What is a Cumulative Impact Analysis?

An analytic approach used for decision-making

- Looks at the potential impacts of a proposed project in combination with the impacts of other past, present, and reasonably foreseeable projects
- Uses quantitative and qualitative information
- Considers multiple routes of exposure
- Considers non-chemical/pollutant stressors
- Is population focused or geography-based
- Conducted with community stakeholder emphasis

Cumulative Impact Analysis Conceptual Process



Step	Description
1	Define the Study Area and Project Context
2	Describe the Historical and Current Environmental and Health Context (baseline)
3	Identify Environmental, Health, and Socioeconomic Indicators to Consider in the Cumulative Impact Analysis
4	Identify Incremental Impacts of the Proposed Project
5	Identify Other Current and Future Actions that could have Cumulative Impacts
6	Assess Potential Cumulative Impacts
7	Assess Mitigation, Project Conditions, and other Regulatory Review Decisions
8	Report the Results



Data Inputs for Cumulative Impact Analysis

- Cumulative Impact Analysis requires data on important environmental, health and socioeconomic indicators
- Potential sources of this data for Massachusetts include:
 - Department of Public Health
 - Department of Environmental Protection
 - Office of Technical Assistance & Technology
 - Department of Conservation and Recreation
 - Department of Transportation
 - And other agencies with relevant data

Environmental and Public Health Screening Tools

Several existing screening tools use various environmental, public health and demographic data to identify overburdened and environmental justice communities

Provide insights on types of data that could be utilized for determining baseline conditions or setting thresholds for requiring cumulative impact analyses

Example tools:

- MA Department of Public Health EJ Tool
- EJSCREEN
- CalEnviroScreen
- Washington Environmental Health Disparities

Other data sets - NATA, TRI/RSEI

Benefits of Screening/Mapping Tools

- Great way to see where people, facilities, pollution sources, resources..... are located
- Help individuals and agencies better understand local and community conditions
- Two general types
 - Indicators (data) one at a time
 - Combine two or more indicators for a “score”
- Two general ways to present data
 - Actual value of an indicator
 - Values compared to each other or some other point of comparison, like the state average.

MA DPH Environmental Justice Tool

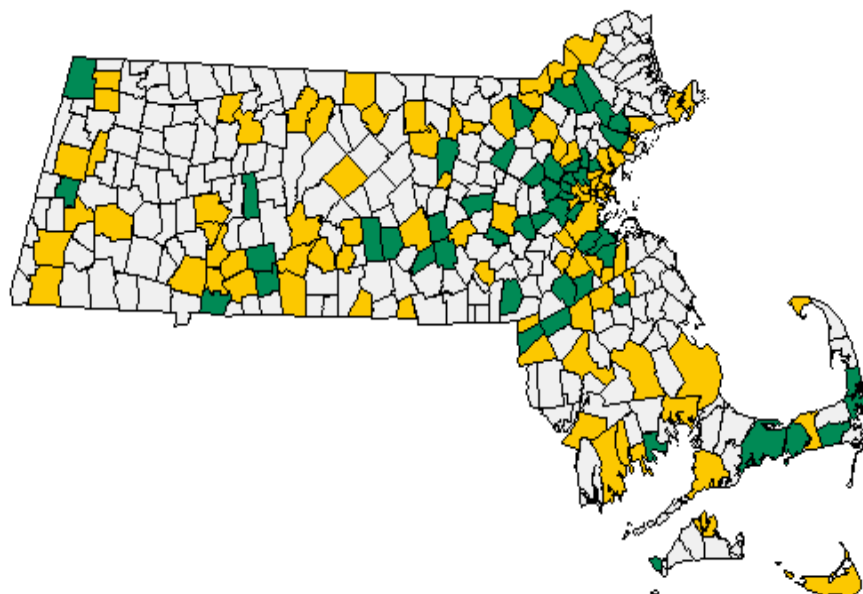
- Massachusetts EJ Neighborhoods by block group and community
- Vulnerable Health EJ by community
 - Asthma
 - Heart attack
 - Low birthweight
 - Childhood blood lead
- MassDEP major air and waste facilities
- 21E sites
- Tier II facilities
- MassDEP sites with activity and use limitations
- MassDEP groundwater discharge permits,
- MassDEP public water suppliers
- Wastewater treatment plants
- Underground storage tanks
- EPA facilities
- Federal flood hazards and sea level rise,
- Municipal buildings and healthcare facilities
- Road infrastructure
- MBTA bus and rapid transit
- Other transportation infrastructure
- Regional transit agencies
- Energy generation and supply

EJ Data and Reports - Summary

☒ Summary
 ☐ EJ Criteria
 ☐ Vulnerable Health EJ Criteria

State

- ☐ Contains no EJ neighborhoods
- ☒ Contains at least 1 EJ neighborhood
- ☒ Contains at least 1 EJ neighborhood and meets at least 1 Vulnerable Health criteria



City/Town

Click a city/town for detailed data

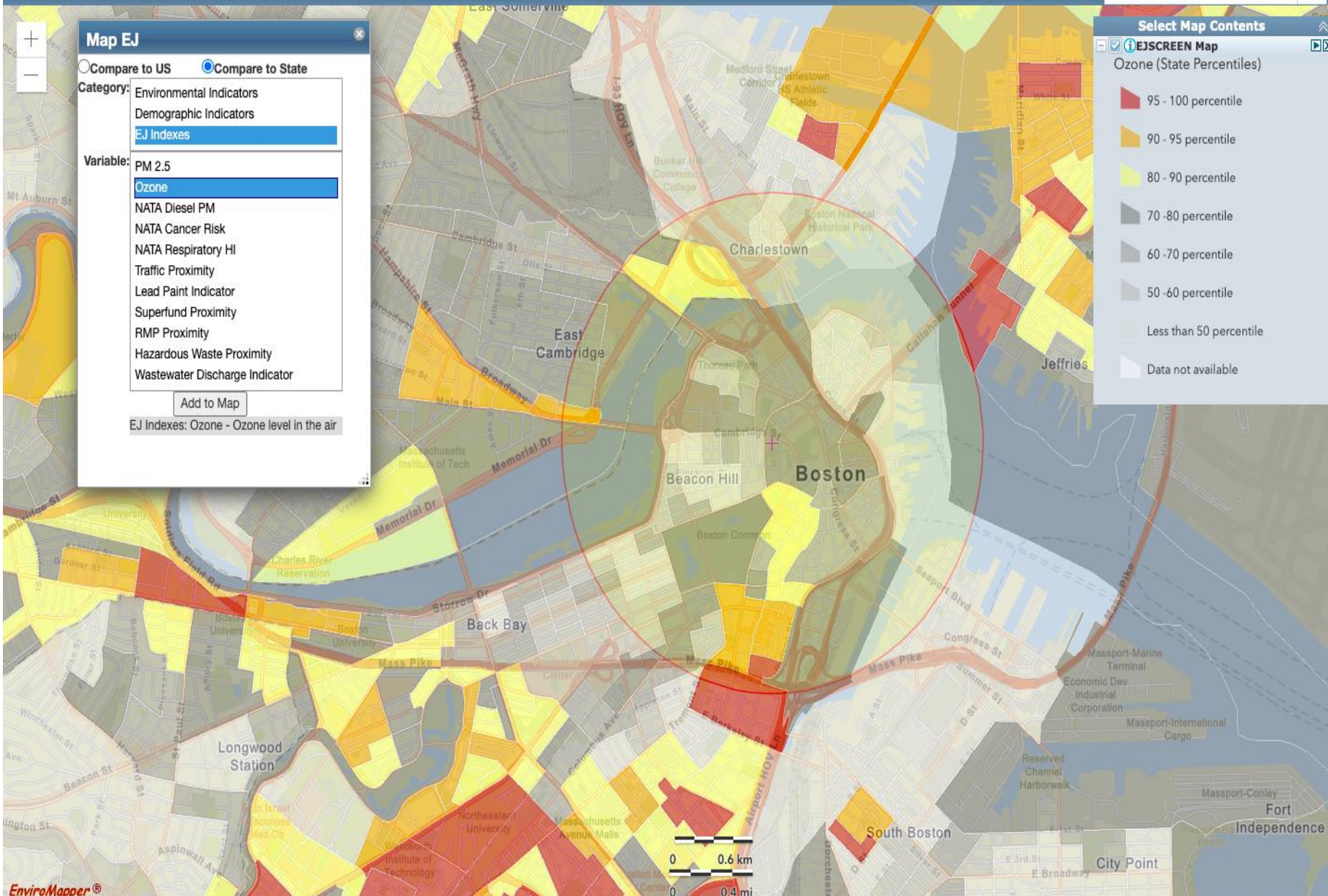
City or Town	EJ and Vulnerable Health EJ Criteria Status	# of EJ Criteria Met	EJ Criteria Met	# of Vulnerable Health EJ Criteria Met	Vulnerable Health EJ Criteria Met
Abington	No EJ criteria met				
Acton	Meets at least one EJ criteria	1	Community of Color		
Acushnet	No EJ criteria met				
Adams	Meets at least one Vulnerable Health EJ criteria	1	Income	3	Heart Attack, Lead Poisoning, Low Birth Weight
Agawam	Meets at least one EJ criteria	1	Income		

EPA EJSCREEN

- **Purpose:** Identify geographic areas meriting further review, outreach or analysis
- **EJ Indexes:** Combining environmental and demographic data for eleven environmental factors
- **High Resolution Data:** Census block groups as basic unit of analysis
- **Accessible and Intuitive:** Web-based, interactive; standard printable reports, maps & bar graphs; importable data sets

Environmental Indicators	Demographic Indicators
☐ PM 2.5	☐ Low-Income
☐ Ozone	☐ Minority
☐ NATA Diesel PM	☐ Less than High School Education
☐ NATA Air Toxics Cancer Risk	☐ Linguistic Isolation
☐ NATA Respiratory Hazard Index	☐ Individuals under Age 5
☐ Lead Paint (pre-1960s Housing)	☐ Individuals over Age 64
☐ Traffic Proximity	
☐ Proximity-NPL Sites	
☐ Proximity-RMP Facilities	
☐ Proximity-TSD Facilities	
☐ Proximity-Major Water Dischargers	

Select Location Add Maps Clear Selected Locations Print Measure Save Session Basemap 100 Cambridge Street, Bc



What is CalEnviroScreen?



UPDATE TO THE CALIFORNIA
COMMUNITIES
ENVIRONMENTAL HEALTH
SCREENING TOOL:

CALENVIROSCREEN 4.0

PUBLIC REVIEW DRAFT



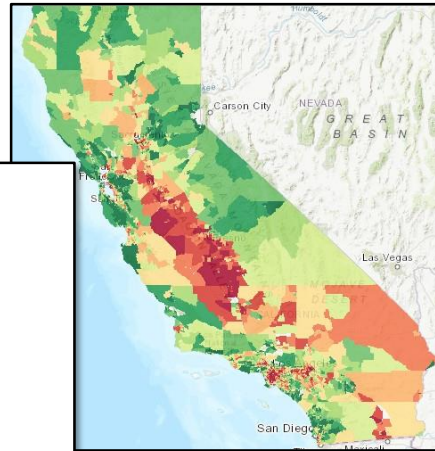
February 2021



California Environmental Protection Agency



Office of Environmental Health Hazard
Assessment

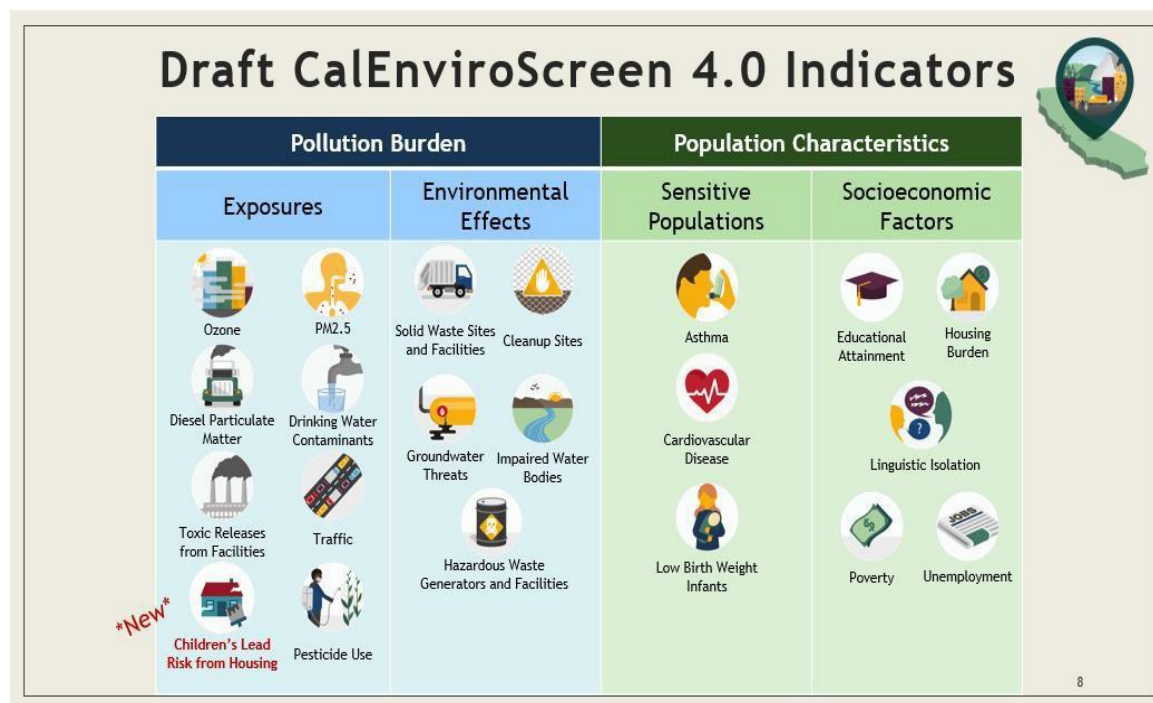


- Spatial analysis of relative burdens in California communities from pollution and population vulnerability
- 21 indicators combined into a single score
- Census tract scale
- The draft of CalEnviroScreen 4.0 was released for public comment on 2/19/2021

Source: CalEPA <https://calenviroscreen-oehha.hub.arcgis.com/>

CalEnviroScreen (v. 4.0)

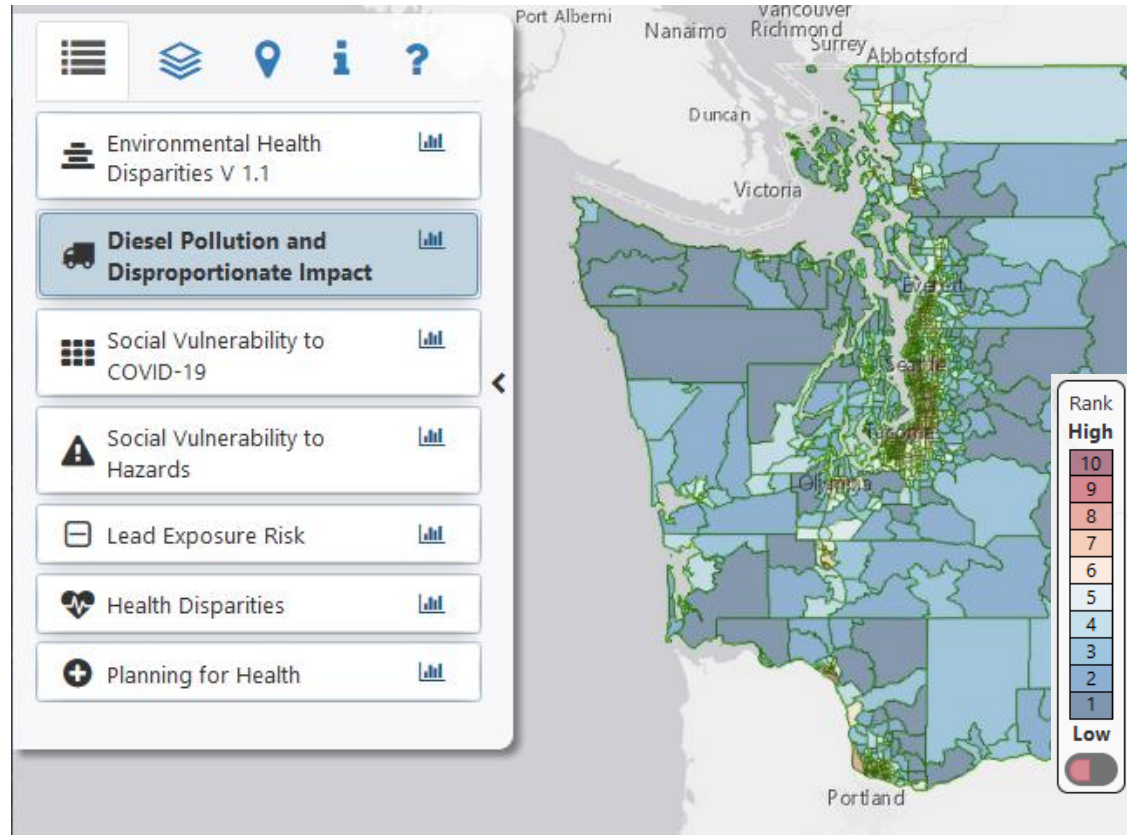
- Uses 21 statewide indicators of pollution burden and vulnerable population characteristics
- Derives a weighted **score** for each census tract (reported as percentiles)
- Calculates a measure of pollution burden for each census tract relative to the other tracts in the state but is **not a measure of health risk**



Source: CalEPA

Washington Tracking Network (WTN)

- Washington Tracking Network was developed to make public health data more accessible
- Dashboards contain interactive maps, charts and graphs with a wide range of data for the state of Washington



<https://www.doh.wa.gov/DataandStatisticalReports/WashingtonTrackingNetworkWTN>

Other Data Sources

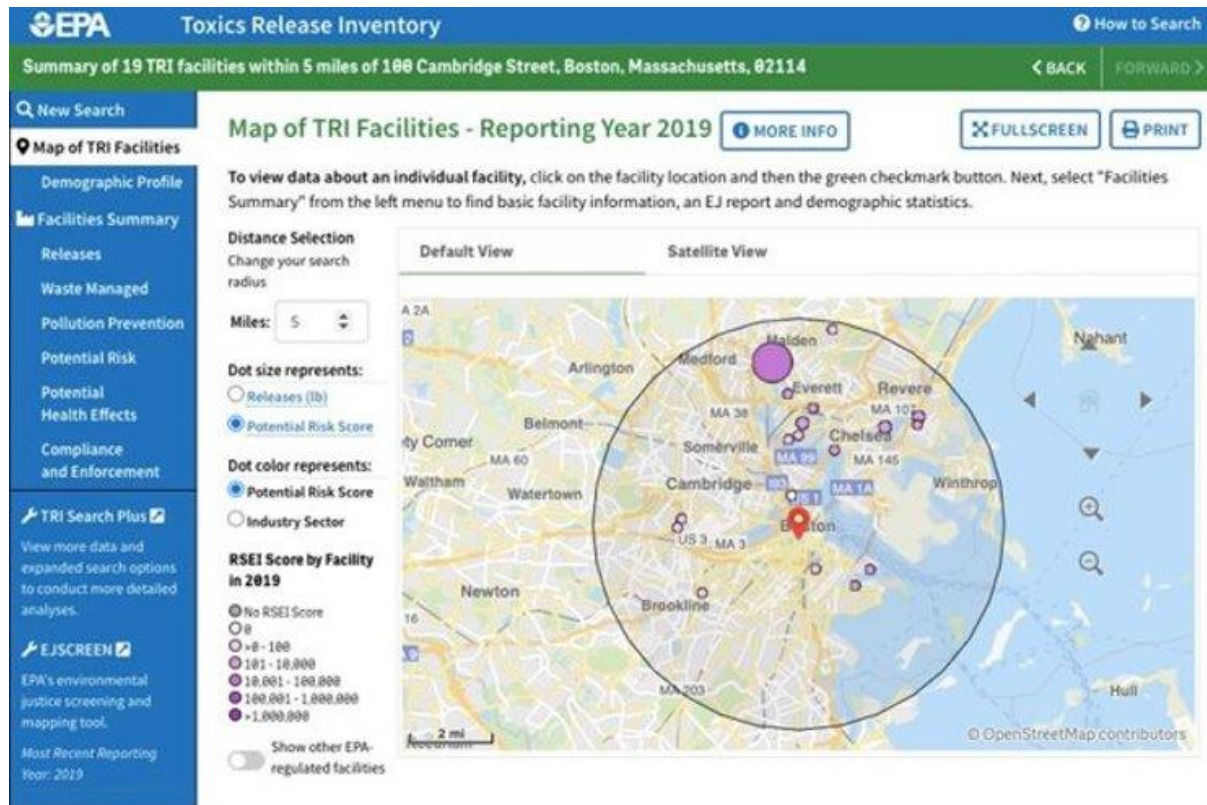
- U.S. EPA's National Air Toxics Assessment (NATA)
 - NATA gives a snapshot of outdoor air quality resulting from the release of air toxics and suggests the long-term risks to human health if the air toxics emissions are steady over time.
 - NATA estimates the cancer risks from breathing air toxics over many years. It also estimates noncancer health effects for some pollutants, including diesel particulate matter (PM).
 - NATA calculates air toxics concentrations and risks at the census tract level
 - Included in EJScreen (<https://www.epa.gov/ejscreen>) and other mapping tools

Other Data Sources (cont)

- U.S. EPA's Toxic Release Inventory (TRI) and Risk-Screening Environmental Indicators (RSEI) model
 - RSEI provides important community-level information about the potential health-related impacts of toxic chemical releases from facilities
 - RSEI incorporates information from the TRI on the amount of toxic chemicals released, together with factors such as the chemical's fate and transport through the environment, each chemical's relative toxicity, and potential human exposure.
 - RSEI Scores are a relative indicator of potential health risk and can be used to compare facilities.
 - Included in EJScreen and at <https://www.epa.gov/rsei>

Other Data Sources (cont)

- The RSEI results map provides a user-friendly visual tool to locate and compare facilities in your area to other facilities in your state or county



Screening/Mapping Tool Benefits

- Allows for quick and easy assessment of baseline environmental and health conditions
- Provides useful information on pollution burden (i.e., potential exposure) and population characteristics (i.e., vulnerability)
- Enables comparisons between geographic areas to identify areas of concern
- Empowers involvement of affected communities, especially environmental justice communities

Screening/Mapping Tools Limitations

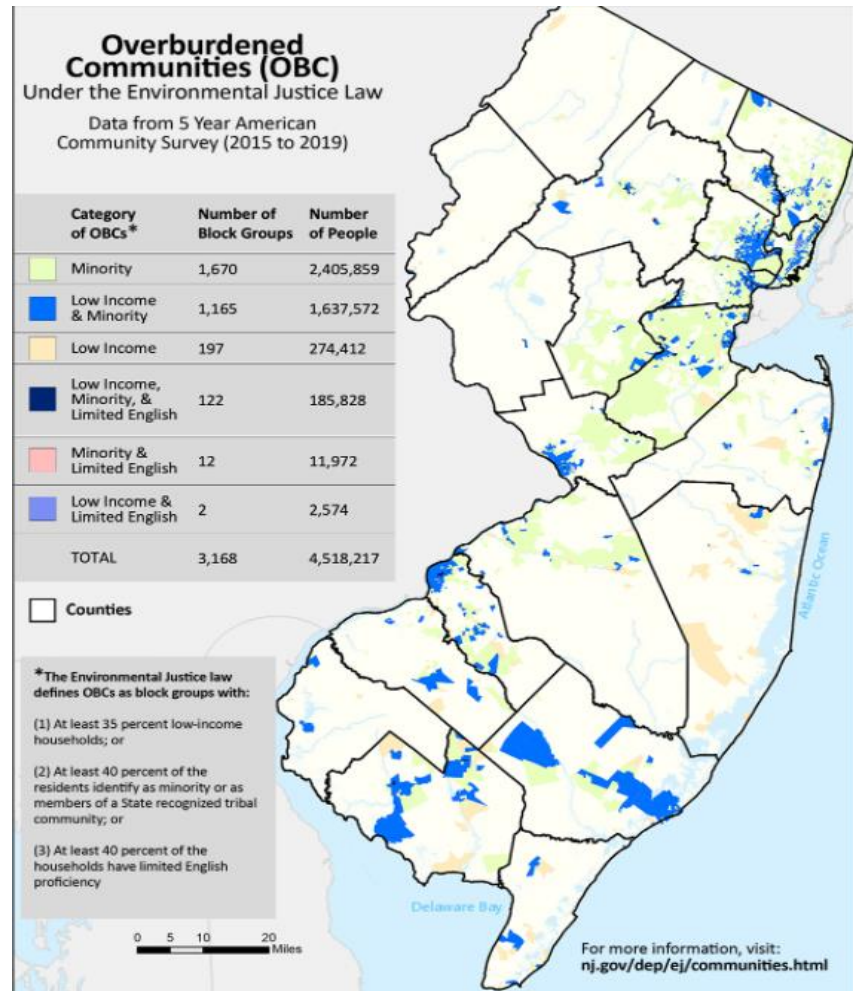
- Provides screening level information but does not provide direct measures of exposures or health risk
- Are limited by spatial scales of the available data (i.e., census block, census tract, community)
- Use data that varies in quality and may not be current
- Does not address all environmental and health issues and may not address issues important to local community
- Provides results that are not designed to be the basis of agency decision-making

Examples of Other States Considering Cumulative Impacts in Permit Programs

- New Jersey (under development)
- Minnesota

New Jersey - Environmental Justice Law

- Requires the New Jersey DEP to evaluate the contributions of certain facilities to existing environmental and public health stressors in overburdened communities (OBC) when reviewing certain permit applications
- Overburdened communities are defined in the law
- Rulemaking ongoing



Source: NJDEP

New Jersey - Potential Process

- **Initial Screen:** Using the publicly-available data (including NJDEP's EJ mapping tool), determine whether an Overburdened Community is subject to adverse environmental and public health stressor levels that are higher than the appropriate geographic point of comparison.
- **EJ Impact Statement (EJIS):** Through development of an EJIS, including public comment period and hearing in OBC, assess whether and how proposed facility will cause or contribute to adverse stressor levels in OBC that are higher than the appropriate geographic point of comparison; if higher must propose measures to avoid or eliminate those impacts. If the Applicant cannot avoid causing or contributing to those “higher” stressor levels, a disproportionate impact is present.

Source: NJDEP

New Jersey - Potential Process

- **NJDEP Review:** Where a disproportionate impact is present:
 - New Facilities: Denial, unless Demonstrated Compelling Public Interest in Overburdened Community: The Department shall deny the permit application for a new facility unless the facility is of the type that will serve a Compelling Public Interest in the Overburdened Community where it is to be located. If so, the Department may impose binding permit conditions on the construction and operation of the facility to protect public health and improve baseline environmental and public health stressors in the Overburdened Community.
 - Facility Expansions/Title V Renewals, Permit Conditions: The Department may impose binding permit conditions concerning the construction and operation of the facility.

Source: NJDEP



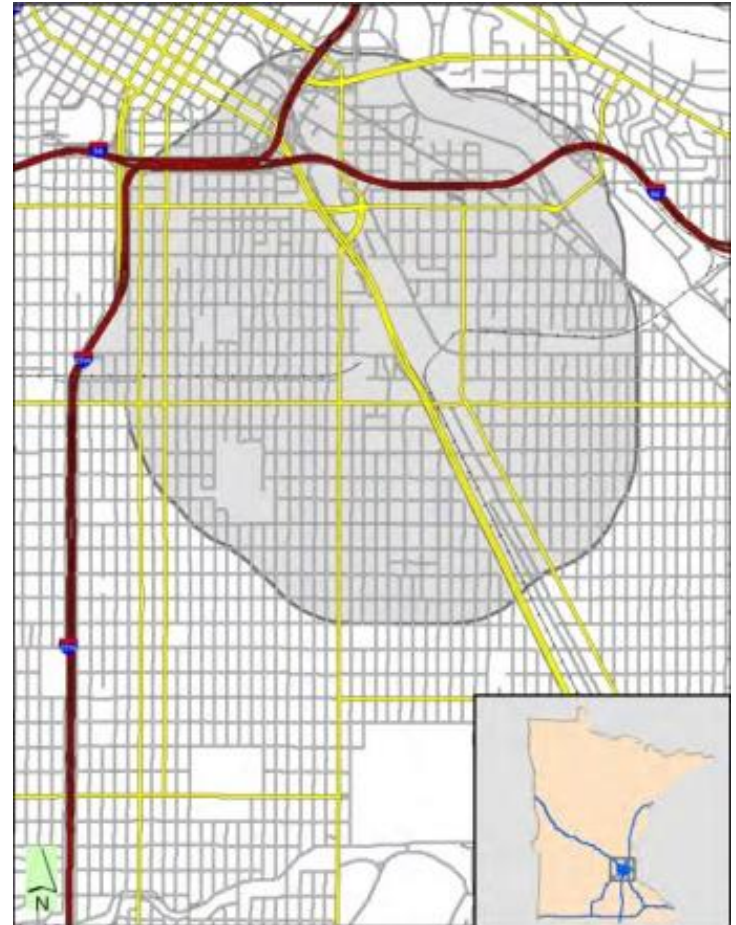
New Jersey - Environmental and Public Health Stressors (potential direction)

Considering 31 Stressors:

- Concentrated areas of air pollution (e.g., ozone, particle pollution, cancer risk from diesel, permitted air sites)
- Mobile sources of air pollution (e.g., traffic, major roadways, railways)
- Point sources of water pollution (e.g., surface water quality, combined sewer overflows)
- Solid waste facilities & scrap yards
- Contaminated sites
- May cause public health impacts (e.g., regulated facilities, age of housing, lack of recreational open space, poverty, minority)

Minnesota Cumulative Levels and Effects Analysis (CL&E)

- 2008 Law directs Minnesota Pollution Control Agency (MPCA) to require cumulative levels and effects (CL&E) analysis for all air permits in a specific area in South Minneapolis
- CL&E analysis is a comprehensive look at all the environmental health related information in the area that could be affected by a project.



Area defined by Statute
Source: MPCA Process Document

Minnesota CL&E Analysis Process

1. Submit criteria pollutant and air toxics modeling protocol to MPCA for approval
2. Perform Air Emission Risk Analysis (AERA) and criteria pollutant modeling after approval
3. CL&E analysis scoping to define the study area and identify pollutants and human/environmental health endpoints to include
4. CL&E analysis and report, including both quantitative and qualitative information
5. Public participation and community outreach
6. Prepare permit application, including CL&E analysis report
7. MPCA reviews permit, considering the CL&E analysis for decision

Minnesota CL&E Scoping and Data

- Conduct air dispersion modeling to calculate maximum air concentrations and compare modeled air concentrations with screening levels
- If screening levels are not exceeded beyond the facility's property boundary, no further cumulative analysis is required
- If screening levels are exceeded beyond the property boundary, the applicant must conduct a CL&E:
 - Identify pollutants that exceed screening levels
 - Identify human health endpoints related to the identified pollutants
 - List the types of environmental health data associated with the identified human health endpoints to be included in the CL&E analysis
 - Hazard indicators
 - Exposure indicators
 - Health indicators

Minnesota CL&E Analysis (continued)

- Discuss the potential contribution of the facility to existing community stressors and vulnerabilities

	Specific descriptors	General discussion *
Stressors	-Ambient air toxics measurements -Ambient PM _{2.5} measurements -traffic densities -exposure to tobacco smoke -consideration of potential exposures from nearby facilities (point sources)	-Similar to other urban areas in St. Paul/Minneapolis -Lower than national std, similar to other urban areas in St. Paul/Minneapolis -Similar to 10X statewide averages -Tied for highest smoking rates in the area -~8 nearby facilities with potential exposures
Descriptions of vulnerabilities	-Asthma hospitalizations and emergency room visits -Cardiovascular hospitalizations -Socioeconomic status -Percent of population without health insurance -Ranking in AAFA 100 Cities Asthma ranking -Comparisons with Healthy People 2020 Objectives	-~1.5 – 2 times higher than Minneapolis city-wide average -High variability, uncertain -Potential environmental justice area -One of the higher in Hennepin County -Ranked best place in the nation to live with asthma** -Asthma hospitalizations and ED visits in the Study Area do not meet the 2020 Healthy People objectives
Pathways/media	Outdoor air, indoor air (surrogate), ingestion of homegrown produce, incidental ingestion of soil	
Routes	Inhalation, ingestion	
Subpopulations	General population in the Study Area	Consideration for children included (early lifestage exposure)
Endpoints	i.e. Short-term respiratory or cardiovascular effects	
Proposer risk reduction activities	Activity 1 Activity 2 Activity 3	-lower NO ₂ emissions -lower particulate and VOC emissions -lower run-off from the site

Example provided in MPCA Process Document

Minnesota CL&E Analysis (continued)

- The CL&E report:
 - includes an evaluation of environmental health data, community stressors and vulnerabilities, contributions from nearby sources, and modeling results for air toxics and criteria pollutants
 - describes the potential for exposures related to the identified health effects
 - describes mitigation, risk reduction programs, or other actions to reduce potential risks resulting from the proposed project
- The statute requiring the CL&E analysis does not create unique emissions limits for disproportionately impacted areas, set a threshold for estimated risks, or establish a cumulative risk guideline
- The MPCA and Board “considers” the CL&E analysis in its decision-making/regulatory process

Questions for discussion

- What does the issue of cumulative impacts mean to you?
- What are your major priorities or concerns with respect to cumulative impacts?
- What are the types of cumulative impacts that are of the greatest concern?
- What characteristics should be considered in a cumulative impact analysis (e.g., public health only, socioeconomic, timescale, impacts both positive and negative)?
- What community information should be included in a cumulative impact analysis?

Further Information

	MassDEP CIA	MEPA Regulation Changes
Comments/ input	massdep.impact@mass.gov	MEPA-regs@mass.gov
Distribution list	Please enter your information at this link: https://massgov.formstack.com/forms/subscribe_cia	Send <u>blank</u> email to subscribe-mepa_reg_review@listserv.state.ma.us to receive ongoing alerts
Website	https://www.mass.gov/info-details/cumulative-impact-analysis-in-air-quality-permitting	http://mass.gov/service-details/information-about-upcoming-regulatory-updates