



Appendix II-R

Mapped Environmental Justice and Disadvantaged Communities

March 2024

The following environmental justice definitions are summarized in this Appendix:

- Analysis of Federal environmental justice definitions compared to state environmental justice definitions.
- Analysis of Federal Disadvantaged Community definitions compared to state definitions.

1.1 Analysis of Federal EJ Definitions Compared to State EJ Definitions

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994), requires Federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse environmental or health effects of Federal actions on minority and low-income populations. The Council on Environmental Quality (CEQ) oversees Federal government compliance with Executive Order No. 12898.

Environmental Justice is defined by the Environmental Protection Agency (EPA) as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (EPA 2015):

- Fair Treatment: “No group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies” (EPA 2015). In implementation, the EPA has expanded the concept of fair treatment to include the distribution of benefits across all populations.
- Meaningful Involvement: “(1) potentially affected populations have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; (2) the public’s contribution can influence the regulatory Agency’s decision; (3) the concerns of all participants involved will be considered in the decision-making process; and (4) the rule-writers and decision-makers seek out and facilitate the involvement of those potentially affected” (EPA 2015).

CEQ guidance defines minorities as “American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.” Minority populations are identified “where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.” Low-Income populations in an affected area “should be identified with the annual statistical poverty thresholds from the Bureau of the Census’ Current Population Reports, Series P-60 on Income and Poverty” (Council on Environmental Quality, 1997).

States may adopt Environmental Justice laws in addition to Federal requirements. New Jersey adopted NJ S232 in June 2020, requiring the New Jersey Department of Environmental Protection to evaluate environmental and public health stressors on overburdened communities. Under this law, overburdened communities are defined as “any census block group, as determined in accordance with the most recent

United States Census, in which: (1) at least 35 percent of the households qualify as low-income households; (2) at least 40 percent of the residents identify as minority or as members of a State recognized tribal community; or (3) at least 40 percent of the households have limited English proficiency.” Under the New Jersey law, low income is defined as “a household that is at or below twice the poverty threshold as that threshold is determined annually by the United States Census Bureau.” Limited English proficiency is defined as a household that “does not have an adult that speaks English “very well,” according to the United States Census Bureau” (New Jersey Senate, No. 232, 2020). Minority communities are identified using the same criteria as the national guidelines.

The New York State Department of Environmental Conservation (NYSDEC) adopted Commissioner Policy 29, which requires the NYSDEC to incorporate environmental justice concerns into the “environmental permit review process and the DEC application of the State Environmental Quality Review Act.” This policy defines low income as an annual income less than the poverty threshold determined by the U.S. Census Bureau. A low-income community is a census block group “having a low-income population equal to or greater than 23.59% of the total population.” Minorities are identified using the same criteria as the national guidelines and a minority community is defined as a census block group “having a minority population equal to or greater than 51.1% in an urban area and 33.8% in a rural area of the total population” (NYSDEC, 2003). The U.S. Census Bureau establishes urban area classifications. A summary table of Environmental Justice indicators defined by the U.S. EPA, the State of New Jersey, New York State, and New York City are listed in Table 1.

The Virginia General Assembly enacted SB 406 in April 2020, establishing the Virginia Environmental Justice Act to promote environmental justice and ensure it is carried out throughout the state (Virginia Legislative Information System, 2020). Under this law, the environmental justice community means any low-income community or community of color. A low-income community is any census block group where 30% or more of the population comprises low-income people. Low income is defined as “an annual household income equal to or less than the greater of i) an amount equal to 80% of the median income of the area in which the household is located, as reported by the Department of Housing and Urban Development, and (ii) 200% of the Federal Poverty Level.” A community of color is “any geographically distinct area where the population of color, expressed as a percentage of the total population of such area, is higher than the population of color in the Commonwealth expressed as a percentage of the total population of the Commonwealth” (Va. Code § 2.2-234).

There is no state definition of environmental justice in Texas; the state refers to Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994) (Texas CEQ, 2023). Therefore, federal Environmental Justice thresholds were used for the State of Texas.

Table 1. Environmental Justice Community Identification Standards

Geography/ Indicator	Indicator Definition	Threshold for Environmental Justice Community
Federal (used for the State of Texas)		
Low-income population	Poverty thresholds from the US Census Bureau’s current population reports (series p-60 on income and poverty)	Undefined. Assumed similar thresholds as minority populations
Minority population	American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; Hispanic	If the minority population exceeds 50% of the total population or is meaningfully greater than the general population
New Jersey		
Low-income population	A household at or below twice the poverty threshold as determined annually by the US Census Bureau	At least 35% of households qualify as low-income
Minority population	American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; Hispanic	At least 40% of residents
Limited English proficiency	A household does not have an adult who speaks English “very well,” according to the US Census Bureau	At least 40% of households have limited English proficiency
New York State and New York City		
Low-income population	A population having an annual income that is less than the poverty threshold	A low-income population equal to or greater than 22.82% in an urban or rural area of the total population
Minority population	Hispanic; African American or Black; Asian and Pacific Islander; or American Indian	Having a minority population equal to or greater than 52.42% in an urban area and 26.28% in a rural area of the total population
Virginia		
Low-income community	Annual household income equal to or less than the greater of (i) an amount equal to 80% of the median income of the area in which the household is located, as reported by the Department of Housing and Urban Development, and (ii) 200% of the Federal Poverty Level.	Any census block group of 30% or more low-income people.

Geography/ Indicator	Indicator Definition	Threshold for Environmental Justice Community
Community of color	The population of individuals who identify as belonging to one or more of the following groups: Black, African American, Asian, Pacific Islander, Native American, another non-white race, mixed race, Hispanic, Latino, or linguistically isolated.	Any geographically distinct area where the population of color, expressed as a percentage of the total population of such area, is higher than the population of color in the Commonwealth expressed as a percentage of the total population of the Commonwealth (37.8%; 2014-2018 American Community Survey). If a community of color is composed primarily of one of the groups listed in the definition of "population of color," the percentage population of such group in the Commonwealth shall be used instead of the percentage of population of color in the Commonwealth.

Sources: Council of Environmental Quality. 1997. Environmental Justice Guidance Under the National Environmental Policy Act. Available at <https://ceq.doe.gov/docs/ceq-regulations-and-guidance/regs/ej/justice.pdf>; State Of New Jersey 219th Legislature. New Jersey Senate, No. 232 (2020); New York State Department of Environmental Conservation. 2003. Commissioner Policy 29 Environmental Justice and Permitting. Available at <https://www.dec.ny.gov/regulations/36951.html>; New York City Office of Climate and Environmental Justice. 2017. Environmental Justice Legislation. Available at <https://www1.nyc.gov/site/sustainability/our-programs/environmental-justice.page>; Note: L.L. 2017/060 and L.L. 2017/064 require all New York City agencies to identify and address environmental justice issues. Definitions and standards for identifying environmental justice communities under these laws are the same as NYSDEC Commissioner Policy 29. Code of Virginia Article 12. Virginia Environmental Justice Act. Available at: <https://law.lis.virginia.gov/vacodefull/title2.2/chapter2/article12/>

1.2 Analysis of Federal Disadvantaged Communities Definitions Compared to State Disadvantaged Communities Definitions

Executive Order 14008, Tackling the Climate Crisis at Home and Abroad, was announced on January 27, 2021, and expands upon the 1994 Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (discussed in the previous section). This recent executive order establishes the Justice40 Initiative as an inter-agency framework to recommend how Federal investments into clean energy and workforce development might be made toward the goal that 40 percent of the overall benefits flow to Disadvantaged Communities. Additionally, Executive Order 14008 specifies that the Disadvantaged Communities be highlighted through maps available on a Climate and Economic Justice Screening Tool. Since the release of Executive Order 14008, the beta site of the Climate and Economic Justice Screening Tool has been released as an early, in-progress version with limited datasets to be updated regularly. Under the version of the tool released in November 2022, a census tract is identified as a Disadvantaged Community if it is at or above the thresholds in one or more of the following eight categories of burdens, defined by environmental/climate indicators and related socioeconomic indicators (See Table 2).

Table 2. Draft Federal Disadvantaged Community Identification Standards

Burden Category/ Indicator	Threshold for Disadvantaged Community	Indicator Definitions
Climate Change		
Environmental or Climate Indicators	If at or above the 90th percentile for expected agriculture loss rate OR expected building loss rate OR expected population loss rate OR projected flood risk OR projected wildfire risk	<p>Agricultural Loss Rate: Percent of agriculture value at risk from losses due to fourteen types of natural hazards that have some link to climate change: avalanche, coastal flooding, cold wave, drought, hail, heat wave, hurricane, ice storm, landslide, riverine flooding, strong wind, tornado, wildfire, and winter weather. The rate is calculated by dividing the agriculture value at risk in a census tract by the total agricultural value in that census tract.</p> <p>Expected Building Loss Rate: Percent of building value at risk from losses due to fourteen types of natural disasters that have some link to climate change: avalanche, coastal flooding, cold wave, drought, hail, heat wave, hurricane, ice storm, landslide, riverine flooding, strong wind, tornado, wildfire, and winter weather. The rate is calculated by dividing the building value at risk in a census tract by the total building value in that census tract.</p> <p>Expected Population Loss Rate: Rate relative to the population of fatalities and injuries due to fourteen types of natural hazards each year that have some link to climate change: avalanche, coastal flooding, cold wave, drought, hail, heat wave, hurricane, ice storm, landslide, riverine flooding, strong wind, tornado, wildfire, and winter weather. Population loss is defined as the Spatial Hazard Events and Losses, or the National Centers for Environmental Information’s (NCEI) reported number of fatalities and injuries caused by the hazard occurrence. To combine fatalities and injuries to compute population loss value, an injury is counted as</p>

Burden Category/ Indicator	Threshold for Disadvantaged Community	Indicator Definitions
		<p>one-tenth of a fatality. The NCEI Storm Events Database classifies injuries and fatalities as direct or indirect. Both direct and indirect injuries and fatalities are counted as population loss. This total number of injuries and fatalities is then divided by the population in the census tract to get a per-capita rate of population risk.</p> <p>Projected Flood Risk: A high precision, climate-adjusted model that projects flood risk for properties in the future. The dataset calculates how many properties are at risk of floods occurring in the next thirty years from tides, rain, riverine and storm surges, or a 26% risk total over the 30-year time horizon. The risk is defined as an annualized 1% chance. The tool calculates tract-level risk as the share of properties meeting the risk threshold. The risk does not consider property value.</p> <p>Projected Wildfire Risk: A 30-meter resolution model projecting the wildfire exposure for any specific location in the contiguous U.S. today and with future climate change. The risk of wildfire is calculated from inputs associated with fire fuels, weather, human influence, and fire movement. The risk does not consider property value.</p>
Related Socioeconomic Indicators	And is above the 65th percentile for low income.	Low Income: Percent of a census tract's population in households with household income at or below 200% of the Federal poverty level, not including students enrolled in higher education.
Energy		
Environmental or Climate Indicators	If at or above the 90 th percentile for energy cost OR PM2.5 in the air	<p>Energy Cost: In U.S. dollars, the average household annual energy cost is divided by the average household income.</p> <p>PM2.5 in the air: Fine inhalable particles with diameters that are generally 2.5 micrometers and smaller. The value in the fields is the weight of these particles in micrograms per cubic meter.</p>

Burden Category/ Indicator	Threshold for Disadvantaged Community	Indicator Definitions
Related Socioeconomic Factors	And is above the 65 th percentile for low income.	Low Income: Percent of a census tract's population in households with household income at or below 200% of the Federal poverty level, not including students enrolled in higher education.
Transportation		
Environmental or Climate Indicators	If at or above the 90 th percentile for diesel particulate matter exposure OR transportation barriers OR traffic proximity and volume	<p>Diesel Particulate matter exposure: Mixture of particles that is part of diesel exhaust in the air. The value in the fields is the weight of these particles in micrograms per cubic meter.</p> <p>Traffic Proximity and Volume: Count of vehicles (average annual daily traffic) at major roads within 500 meters, divided by distance in meters.</p> <p>Transportation Barriers: Average relative cost and time spent on transportation relative to all other tracts. This burden applies only to census tracts with populations greater than 20 people.</p>
Related Socioeconomic Factors	And is above the 65 th percentile for low income.	Low Income: Percent of a census tract's population in households with household income at or below 200% of the Federal poverty level, not including students enrolled in higher education.
Housing		
Environmental or Climate Indicators	If experienced historic underinvestment OR at or above the 90 th percentile for housing cost OR lack of green space OR lack of indoor plumbing OR lead paint.	<p>Historic Underinvestment: Census tracts that experienced historic underinvestment based on redlining maps created by the federal government's Home Owners' Loan Corporation (HOLC) between 1935 and 1940. The tool uses the National Community Reinvestment Coalition's methodology for converting boundaries in the HOLC maps to census tracts. Census tracts meet the threshold when they score 3.25 or more out of 4.</p> <p>Housing Cost: Percent of households in a census tract earning less than 80% of HUD Area Median Family Income by county and</p>

Burden Category/ Indicator	Threshold for Disadvantaged Community	Indicator Definitions
		<p>spending more than 30% of their income on housing costs.</p> <p>Lack of Green Space: Share land with developed surfaces covered with artificial materials like concrete or pavement, excluding cropland used for agricultural purposes.</p> <p>Lack of Indoor Plumbing: Housing without indoor kitchen facilities or complete plumbing facilities.</p> <p>Lead Paint: The percentage of housing units built pre-1960 indicates potential lead paint exposure in census tracts with median home values less than the 90th percentile.</p>
Related Socioeconomic Factors	And is above the 65 th percentile for low income.	<p>Low Income: Percent of a census tract's population in households with household income at or below 200% of the Federal poverty level, not including students enrolled in higher education.</p>
Legacy Pollution		
Environmental or Climate Indicators	If they have at least one abandoned mine land OR Formerly Used Defense Sites OR at or above the 90 th percentile for proximity to hazardous waste facilities OR proximity to Superfund sites (National Priorities List (NPL)) OR proximity to Risk Management Plan (RMP) facilities.	<p>Abandoned Mine Land: Presence of an abandoned mine left by legacy coal mining operations.</p> <p>Formerly Used Defense Sites: Properties owned, leased, or possessed by the United States under the jurisdiction of the Secretary of Defense before October 1986.</p> <p>Proximity to Hazardous Waste Facilities: Count of hazardous waste facilities (treatment, Storage, and Disposal Facilities and Large Quantity Generators) within 5 kilometers (or nearest beyond 5 kilometers), each divided by distance in kilometers.</p> <p>Proximity to Superfund Sites: Number of proposed or listed Superfund or NPL sites within 5 kilometers (or nearest one beyond 5 kilometers), each divided by distance in kilometers.</p>

Burden Category/ Indicator	Threshold for Disadvantaged Community	Indicator Definitions
		<p>Proximity to Risk Management Plan (RMP) Facilities: Count of RMP facilities within 5 kilometers (or nearest one beyond 5 kilometers), each divided by distance in kilometers.</p>
Related Socioeconomic Factors	And is above the 65 th percentile for low income, not including students enrolled in higher education.	<p>Low Income: Percent of a census tract's population in households with household income at or below 200% of the Federal poverty level, not including students enrolled in higher education.</p>
Water and Wastewater		
Environmental or Climate Indicators	If at or above the 90 th percentile for underground storage tanks and releases OR wastewater discharge.	<p>Underground Storage Tanks: Weighted formula of the density of leaking underground storage tanks and the number of all active underground storage tanks within 1,500 feet of the census tract boundaries.</p> <p>Wastewater Discharge: Risk-Screening Environmental Indicators (RSEI) modeled toxic concentrations at stream segments within 500 meters, divided by distance in kilometers.</p>
Related Socioeconomic Factors	And is above the 65 th percentile for low income.	<p>Low Income: Percent of a census tract's population in households with household income at or below 200% of the Federal poverty level, not including students enrolled in higher education.</p>
Health		
Environmental or Climate Indicators	If at or above the 90 th percentile for asthma, diabetes, heart disease, or low life expectancy	<p>Asthma: Weighted percent of people who answer "yes" to both of the following questions: "Have you ever been told by a doctor, nurse, or other health professional that you have asthma?" and "Do you still have asthma?"</p> <p>Diabetes: Weighted percent of people ages 18 years and older who report having ever been told by a health professional that they have diabetes other than diabetes during pregnancy.</p> <p>Heart Disease: Weighted percent of people ages 18 years and older who report ever</p>

Burden Category/ Indicator	Threshold for Disadvantaged Community	Indicator Definitions
		<p>having been told by a health professional that they had angina or coronary heart disease.</p> <p>Low Life Expectancy: The average number of years of life a person can expect to live. (Note: Unlike most of the other datasets, high values of this data indicate low burdens. For percentile calculations of burden, the percentile is calculated in reverse order so that the census tract with the highest life expectancy relative to area life expectancy (lowest burden on this measure) is at the 0th percentile, and the census tract with the lowest life expectancy relative to area life expectancy (highest burden on this measure) is at the 100th percentile. Census tracts with the highest number have the lowest life expectancy.</p>
Related Socioeconomic Factors	And is above the 65 th percentile for low income.	Low Income: Percent of a census tract's population in households with a household income at or below 200% of the Federal poverty level, not including students enrolled in higher education.
Workforce Development		
Environmental or Climate Indicators	If at or above the 90 th percentile for low median income as a percentage of area median income OR linguistic isolation OR unemployment OR percent individuals in households at or below the 100% Federal poverty level.	<p>Low Median Income: The median income of the census tract is calculated as a percent of the area's median income. (Note: Unlike most of the other datasets, high values of this data indicate low burdens. For percentile calculations of burden, the percentile is calculated in reverse order so that the census tract with the highest median income relative to area median income (lowest burden on this measure) is at the 0th percentile. The census tract with the lowest median income relative to area median income (highest burden on this measure) is at the 100th percentile. Census tracts with the highest number have the lowest median income.</p> <p>Linguistic Isolation: Percent of households where no one over the age of 14 speaks English very well.</p>

Burden Category/ Indicator	Threshold for Disadvantaged Community	Indicator Definitions
		<p>Unemployment: Number of unemployed people as a percentage of the civilian labor force.</p> <p>Poverty: Percent of a census tract's population in households with a household income below 100% of the Federal poverty level.</p>
Related Socioeconomic Factors	And more than 10% of people ages 25 years and older whose high school education is less than a high school diploma.	<p>High School Education: Percent of people ages 25 years or older in a census tract who didn't graduate high school.</p>

Source: Council on Environmental Quality. 2022. Climate and Economic Justice Screening Tool. Available at: <https://screeningtool.geoplatform.gov/en/methodology#exp-agr-loss-rate> (Released November 2022).

On July 18, 2019, New York State signed the Climate Leadership and Community Protection Act (Climate Act) into law. The Climate Act sets statewide greenhouse gas (GHG) reduction and renewable energy requirements while incorporating statewide equity considerations. A cornerstone of the Climate Act is to identify and consider Disadvantaged Communities in regulatory actions and implementation of the Climate Act, specifically to direct clean energy and energy efficiency investments in a manner to ensure that Disadvantaged Communities receive no less than 35% of benefits, with a goal of 40% of benefits¹. Under the Climate Act, Disadvantaged Communities (DACs) are “communities that bear burdens of negative public health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high concentrations of low- and moderate-income households.” This analysis references the draft NYS DAC criteria; the Climate Justice Working Group finalized the final criteria on March 27, 2023. The list and mapping data of Disadvantaged Communities have been published, but the final criteria and methodology have not been publicly released as of September 2023. Under the March 2022 version of the draft NYS DAC methodology, a census tract is identified as a Disadvantaged Community if it ranks relatively high in terms of both indicator categories: “Environmental and Climate Change Burdens and Risks” and “Population Characteristics and Health Vulnerabilities” (or very high on one of the two categories) (see Table 3 and Table 4). Since the types and concentration of exposures, burdens, risks, historical discrimination, and vulnerabilities experienced by New Yorkers can vary considerably between New York City and communities in the rest of the state, the draft criteria consider each census tract's relative score by two broad regions: New York City (five counties; 43 percent of population) and Rest of State (57 counties; 57 percent of population). Draft criteria also include low-income households located anywhere in the State, defined as households reporting annual total income at or below 60 percent of the State Median Income or households otherwise categorically eligible for low-income benefits. The draft geographic DAC list includes approximately 35 percent of New York's population and 35 percent of the state's households.

¹ <https://climate.ny.gov/-/media/Project/Climate/Files/Technical-Documentation-on-Disadvantaged-Community-Criteria.ashx>

Table 3. Draft New York Disadvantaged Community Identification Standards: Environmental Burdens and Climate Change Risk Indicators

Environmental Burdens and Climate Change Risk Indicators		
Potential Pollution Exposures	Land use and facilities associated with historical discrimination or disinvestment	Potential Climate Change Risks
Vehicle traffic density diesel truck and bus traffic	Proximity to remediation sites	Extreme heat projections
Particulate matter	Proximity to regulated management plan sites	Flooding in coastal and tidally influenced areas (projected)
Benzene concentration	Proximity to major oil storage facilities	Flooding in inland areas (projected)
Wastewater discharge	Proximity to power generation facilities	Low vegetative cover
-	Proximity to active landfills	Agricultural land
-	Proximity to municipal waste combustors	Driving time to hospitals or urgent/critical care
-	Proximity to scrap metal processors	-
-	Industrial/manufacturing/mining land use	-
-	Housing vacancy rate	-

Source: New York State Climate Justice Working Group. 2022. Disadvantaged Community Criteria. Available at: <https://climate.ny.gov/-/media/Project/Climate/Files/Technical-Documentation-on-Disadvantaged-Community-Criteria.ashx> (last updated March 9, 2022).

Table 4. Draft New York Disadvantaged Community Identification Standards: Population Characteristics and Health Vulnerabilities Indicators

Population Characteristics and Health Vulnerabilities Indicators			
Income	Race and Ethnicity	Health Outcomes & Sensitivities	Housing Mobility & Communications
Percent <80% Area Median Income	Percent Latino/a or Hispanic	Asthma emergency department visits	Percent renter-occupied homes
Percent <100% of the Federal Poverty Line	Percent Black or African American	COPD emergency department visits	Housing cost burden (rental costs)
Percent without bachelor's degree	Percent Asian	Heart attack (MI) hospitalization	Energy poverty/cost Burden
Unemployment rate	Percent Native American or Indigenous	Premature deaths	Manufactured homes
Percent single-parent households	Limited English proficiency	Low birth weight	Homes built before 1960

Population Characteristics and Health Vulnerabilities Indicators			
Income	Race and Ethnicity	Health Outcomes & Sensitivities	Housing Mobility & Communications
-	Historical redlining score	Percent without health insurance	Percent without internet
-	-	Percent with disabilities	-
-	-	Percent adults age 65+	-

Source: New York State Climate Justice Working Group. 2022. Draft Disadvantaged Community Criteria. Available at: <https://climate.ny.gov/-/media/Project/Climate/Files/Technical-Documentation-on-Disadvantaged-Community-Criteria.ashx> (last updated March 9, 2022).