

APPENDIX A: EQUITY AND ENVIRONMENTAL JUSTICE

DEFINING ENVIRONMENTAL JUSTICE, BENEFITS & BURDENS (3 V.S.A. 6002)

Environmental Justice: All individuals are afforded equitable access to and distribution of environmental benefits; equitable distribution of environmental burdens; and fair and equitable treatment and meaningful participation in decision making processes, in the development, implementation, and enforcement of environmental laws, regulations, and policies.

Environmental Benefits: The assets and services that enhance the capability of communities and individuals to function and flourish in society.

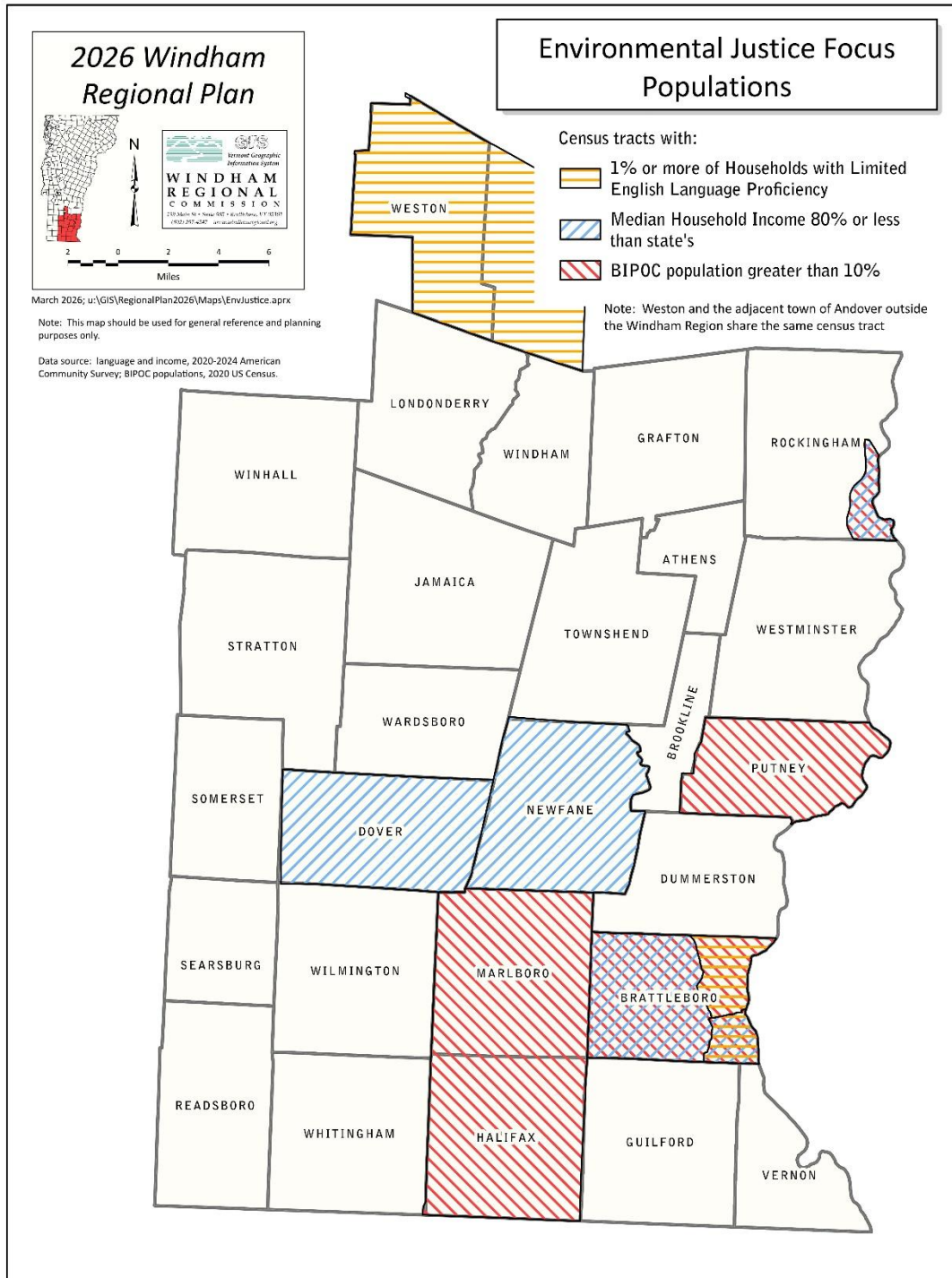
Environmental Burdens: Any significant impact to clean air, water, and land, including any destruction, damage, or impairment of natural resources resulting from intentional or reasonably foreseeable causes.

Environmental Justice Focus Populations: Any census block group in which:

- The annual median household income is not more than 80 percent of the State median household income;
- Persons of Color and Indigenous Peoples comprise at least six percent or more of the population; or
- At least one percent or more of households have limited English proficiency.

ENVIRONMENTAL JUSTICE POPULATIONS

Using the criteria outlined in Vermont State Statute 3 V.S.A. 6002 of an Environmental Justice Focus Population, Windham Regional Commission (WRC) analyzed data from the 2020 U.S. Census as well as the American Community Survey to identify environmental justice census tracts in the Windham Region. WRC created a map to highlight which census tracts in the Windham Region have focus populations. Using the state definition for percent of persons of Color or Indigenous Peoples, most of the census tracts in the Windham Region would be considered Environmental Justice focus populations. To be able to analyze disproportionate impacts at the regional scale, WRC updated the map to show census tracts where at least 10%, as opposed to 6%, or more of the population are persons of Color or Indigenous Peoples.



As WRC moves forward with planning activities in the Windham Region, WRC will consider identified Environmental Justice Focus Populations in policies and actions. It is important to note that due to the rural nature of the Windham Region, the margin of error in the American Community Survey data, as well as other nation-wide data sources used in deeper analysis of environmental benefits and burdens, can be quite large. This leads to the

importance of WRC also balancing equity across the region and not just in environmental justice communities. By looking at multiple screening factors, WRC can begin to see patterns in the data and provide more equitable attention to communities with consistent higher percentages of vulnerable populations.

WRC has looked at data from several analytical tools that have been developed by State and Federal agencies to help identify vulnerable communities across a number of different factors. The tools that WRC considered include:

- Vermont Heat Vulnerability Index – Vermont Department of Health¹
- Vermont Social Vulnerability Index – Vermont Department of Health²
- Vermont Environmental Disparity Index – University of Vermont³
- The Climate and Economic Justice Screening Tool - Federal Council on Environmental Quality⁴
- Environmental Justice Mapper – Environmental Protection Agency⁵

VERMONT HEAT VULNERABILITY INDEX

The heat vulnerability index indicates the vulnerability of each town to heat related illness. This index is a composite of the following themes: population, socioeconomic, health, environmental, acclimatization, and heat emergency.

In the Windham Region, towns identified as having a higher than the state average (with a standard deviation of 0.5 – 1.5) vulnerability include:

- Brattleboro
- Readsboro
- Searsburg
- Somerset

¹ Vermont Department of Health. Tool was retired in 2016. Data included in this report is from [May 2016 mapping results](#).

² Vermont Department of Health. *Based upon 2016-2020 American Community Survey data*

³ University of Vermont. <https://uvm.maps.arcgis.com/apps/webappviewer/index.html?id=68a9290bde0c42529460e1b8deee8368>

⁴ Originally developed by the federal Council on Environmental Quality, it was removed from the agency website January 2025. Plan data is from 2023. *Archived Version of the Climate and Economic Justice Screening Tool*: <https://climateprogramportal.org/resource/climate-and-economic-justice-screening-tool-cejst/>

⁵ Originally developed by the Environmental Protection Agency, it was removed from the agency website January 2025. Plan data is from 2023. Archived data was found on: <https://www.arcgis.com/apps/dashboards/446dcf37ead342cc91fac21f8a7740d2>

VERMONT SOCIAL VULNERABILITY INDEX

This index identifies census tracts where each of the identified social vulnerability measures are given a flag if they are above the 90th percentile. Overall, looking across all 16 of the identified social vulnerability measures, the census tracts with the highest number of flags, therefore are more socially vulnerable are:

- Downtown Brattleboro
- Downtown Bellows Falls

Census tracts in the WRC region that are of medium social vulnerability risk include:

- Dover
- Whitingham
- Western Brattleboro

VERMONT ENVIRONMENTAL DISPARITY INDEX

The Vermont Environmental Disparity Index is a combination of environmental exposure and population characteristics: $\text{VT Environmental Disparity Index} = \text{Environmental Exposure} * (\text{Health Risk Factors} * 0.5 + \text{Social Vulnerability} * 0.5)$. Census tracts with the highest environmental risk:

- Downtown Brattleboro

Census tracts with above average environmental risk:

- Vernon
- Northwest Brattleboro
- Westminster
- Weston

CLIMATE AND ECONOMIC JUSTICE SCREENING TOOL

The original version of this tool was designed to identify census tracts that are marginalized by underinvestment and overburdened by pollution. These tracts are labeled as disadvantaged.

- Downtown Bellows Falls: Low Income, High Energy Cost, High Asthma, Lack of Indoor Plumbing, Lead Paint, % of people 25 or older with no High School Diploma

- Downtown Brattleboro: Low Income, High Energy Costs, Lack of Indoor Plumbing
- Northwest Brattleboro: High Energy Cost

ENVIRONMENTAL JUSTICE MAPPER

The original version of the environmental justice mapper was designed to identify geographic areas with potential environmental justice concerns—specifically communities with low-income or minority populations that may face higher pollution burdens. Tracts identified as disadvantaged in the Windham Region include:

- Downtown Brattleboro
- Northwest Brattleboro
- Downtown Bellows Falls

PLAN BENEFITS AND BURDENS ASSESSMENT

Windham Regional Commission identified the key environmental benefits and burdens mentioned in Vermont State Statue 3 V.S.A. 6002 that are relevant to WRC's work and the Regional Plan. For each listed benefit and/or burden, WRC then identified measures to see if the WRC Environmental Justice census tracks were disproportionately burdened more than the WRC region as a whole. The Environmental Benefits/Burdens Analysis Table at the end of Appendix A shows a breakdown of the analysis conducted. The table shows the benefit and/or burden, the measure used to analyze if the environmental justice track was burdened more than the region, the goals and policies in the Regional Plan that address the benefit and/or burden, and how the Regional Plan addresses the burden.

~~correlated any goals and policies in the Regional Plan that would address mitigating for the environmental benefit or burden.~~

Environmental Benefits & Burdens Analysis: Regional versus Environmental Justice Census Tracts

Environmental Benefit	Environmental Burden	Measure for Environmental Benefit/Burden	Data Source	Greater Burden indicated by (higher/lower) value	Regional Level Assessment	Environmental Justice Focus Assessment	Are the Environmental Justice Tracts disproportionately burdened?	Goals and Policies in the WRC Regional Plan addressing the Environmental Benefit/Burden	How the Regional Plan Mitigates Disproportionate Benefits and Burdens
Access to clean air	Air pollution	Concentration of fine particulates in the air with 2.5 or smaller micrometer diameter expressed as a percentile (Measure for burden is >75 th percentile nationwide)	EPA Environmental Justice Screen ⁶ (base data collected from a fusion of model and monitor data, 2017)	Higher	3%	3%	No	Natural Resources, Air Quality, Policies 31-32	While there was a disproportionate burden related to traffic proximity and diesel exposure, none of the measures rose close to the >75% nationwide measure of burden. WRC policies address protecting clean air from direct and indirect impacts from development activities as well as monitoring emissions by commercial operations for their impacts on human health.
		Average percentile traffic proximity and volume (Measure for burden is >75 th percentile nationwide)	EPA Environmental Justice Screen (base data collected from traffic data, 2017)	Higher	15%	25%	Yes		

⁶ Environmental Protection Agency Climate and Environmental Justice Screening Tool. Official site no longer supported on EPA website. Data derived from archived version: <https://public-environmental-data-partners.github.io/j40-cejst-2/en/#8.56/43.2599/-72.7895>

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		Average percentile for diesel particulate exposure (Measure for burden is >75 th percentile nationwide)	EPA Environmental Justice Screen (base data collected from National Air Toxics Assessment , 2014)	Higher	7%	9%	Yes		
Access to clean water	Water pollution	Miles of impaired streams/rivers per 1000 land acres	303(d) map in Tactical Basin Plans	Higher	0.91 miles per 1000 acres	0.41 miles per 1000 acres	No	Natural Resources, Surface Waters, Policies 7-20 Natural Resources, Groundwater, Policies 21-23	There was no disproportionate burden related to access to clean water. Overall, WRC clean water policies protect surface and groundwater. Policies also address the safe disposal of wastewater.
	Reduction of ground water levels	Percent of land acreage in impaired watersheds	303(d) map in Tactical Basin Plans	Higher	53% in impaired watershed	37% in impaired watershed	No	Community Utilities, Facilities and Services, Water and Wastewater Facilities, Policies 4-8	

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		Percent of water acreage in impaired lakes/ponds	303(d) map in Tactical Basin Plans	Higher	42% of water acreage impaired	12% of water acreage impaired	No		
Access to clean land	Improper handling of solid wastes Improper sewage disposal	Share of the census tract's land area that is covered by impervious surface or cropland as a percent (Measure for burden is >75 th percentile nationwide)	EPA Environmental Justice Screen	Higher	11%	16%	Yes	Natural Resources, Soils, Topography and Mineral Resources, Policy 24 Community Utilities, Facilities and Services, Solid Waste Management, Policies 9-11	While there was a disproportionate burden related to impervious surface, proximity to hazardous waste sites, proximity to Risk Management Plan (RMP) facilities, and wastewater discharge, none of the measures rose close to the >75% nationwide measure of burden. WRC policies support working with solid waste entities and towns to plan for waste disposal needs and to support local actions that reduce the volume and toxicity of solid waste.
		Proximity to hazardous waste sites (percentile) (Measure for burden is >75 th percentile nationwide)	EPA Environmental Justice Screen (base data collected from Treatment, Storage & Disposal Facilities,	Higher	18%	25%	Yes		

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			2020)						
		Proximity to NPL (Superfund) sites (percentile) (Measure for burden is >75 th percentile nationwide)	EPA Environmental Justice Screen (base data collected from CERCLIS Database, 2020)	Higher	39%	36%	No		
		Proximity to Risk Management Plan (RMP) facilities (percentile) (Measure for burden is >75 th percentile nationwide)	EPA Environmental Justice Screen (base data collected from RMP Database, 2020)	Higher	23%	34%	Yes		
		Wastewater discharge (percentile) (Measure for burden is >75 th percentile)	EPA Environmental Justice Screen (base data collected from Risk Screening	Higher	41%	46%	Yes		

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		nationwide)	Environmental Indicators Model, 2020)						
		Leaky underground storage tanks (percentile) (Measure for burden is >75 th percentile nationwide)	EPA Environmental Justice Screen (base data collected from EPA's UST Finder, 2021)	Higher	24%	36%	Yes		
Access to outdoor recreation facilities/green spaces		Number of public recreational sites per 1,000 population (pool, playground, ballfield, court, skate park/pump track)	VT Outdoor Recreation Sites Inventory	Lower	2.53 sites per 1000 residents	2.25 sites per 1000 residents	Yes	Natural Resources, Forest Resources, Policy 4 Educational, Cultural and Recreational Resources, Recreational	There was a disproportionate burden related to the number of public recreational sites and miles of foot trails. Policies in the Regional Plan support the establishment and

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		Miles of foot trail per 1000 residents	WRC Trails data	Lower	6.18 miles per 1000 people	3.35 miles per 1000 people	Yes	Resources, Policies 9-17	protection of public access to forested lands through the preservation of historic access points and by promoting public access in development proposals. Policies support providing varied and accessible opportunities for outdoor recreation.
Affordable/ Clean energy sources		Municipal Total Energy Burden Percentage	Efficiency Vermont Energy Burden Report, 2019	Higher	10.4%	10.4%	No	Energy, Energy Conservation, Efficiency and Resilience, Policies 1-9	There was no disproportionate burden related to affordable/ clean energy sources. Overall, policies support energy efficiency and conservation measures that reduce costs, usage, and emissions.
Public transportation		Percent of population with a transit route in their municipality	WRC bus stop data	Lower	71%	95%	No	Transportation, Transit, Policies 47-55	There was no disproportionate burden related to public transportation.

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		Feet of sidewalk per person	WRC Sidewalk Data	Lower	6.82 feet per person	11.65 feet per person	No		Overall, WRC transportation policies support walkable villages and public transportation. Policies encourage the consideration of equity for all transit users, in particular vulnerable populations such older adults, disabled persons, and low-income or car-less residents.
Fulfilling and dignified green jobs		Inadequate data for analysis						Economic Development Policies 3, 4, 7, 8	There was no disproportionate burden related access to fulfilling and dignified green jobs. Overall, WRC economic development policies support a strong and diverse economy that maintains environmental standards and promotes environmental justice. The plan supports educational programs for technical and trade skills to improve the value of opportunities for the workforce.

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Healthy homes/buildings	Home and building health hazards: Lead paint, Lead pipes, Asbestos, Mold	Percent of Residential Structures built in 1939 or earlier	2020 American Community Survey	Higher	27%	37%	Yes	Housing, Policy 1, 6	There was a disproportionate burden related to the percent of residential structures built in 1939 or earlier. There is a higher likelihood of lead or asbestos in older homes, along with other potential health hazards such as mold and outdated electrical wiring. WRC policies support increasing the number of safe, adequate, accessible and affordable housing units to meet the needs of all residents. WRC provides financial support, through a federal program, to clean up brownfield sites. Priority for funding is given to projects in disadvantaged communities.
Health care		Percent of population with a healthcare center in municipality	WRC Healthcare Data	Lower	36.36%	49.89%	No	Human Services, Policies 37-39	There was no disproportionate burden related to health care. Overall, WRC policies support the development and location of health care services that provide for the care of children, elderly residents, and persons with disabilities throughout the region. WRC also provides planning technical assistance to social

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									service organizations throughout the region that are providing development solutions that address community needs.
Nutritious food		Inadequate data for analysis						Economic Development Policy 9	There was not enough data to determine if Environmental Justice census tracts had a higher burden than the region. Overall, WRC policies support the local agricultural economy which offers nutritious food options for residents. The Economic Development chapter includes a policy on encouraging development and support of land-based industries including production and distribution of local agricultural products.
Indigenous food & Cultural resources		Inadequate data for analysis						Cultural and Historical Resources Policies 6 and 7	There was not enough data to determine if Environmental Justice census tracts had a higher burden than the region. WRC policies overall encourage a vibrant cultural community through assistance and support for local cultural facilities and organizations. The plan calls for the protection of places of outstanding archeological or

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									historical value from adverse impacts.
	Excessive noise	Inadequate data for analysis						Natural Resources, Light and Noise Pollution, Policy 35	There was not enough data to determine if Environmental Justice census tracts had a higher burden than the region. Overall, New development projects must meet state and federal noise level standards. If there are questions about potential noise levels, a noise study is encouraged. WRC's Development Review Committee considers noise levels as part of their review of any Act 250 permits.
	Increased Flooding or stormwater flows (Risk of fluvial erosion, Increased	Percent of residential buildings in River Corridors	ANR River Corridor data	Higher	4.94%	4.35%	No	Land Use, Policies 3-4	The Regional Plan policies does not encourage any new development in identified flood areas or river corridors. If new development is permitted, then it should not increase the risks of flooding.
		Percent of residential buildings between 100 year and 500 year floodplains	FEMA Floodplain Maps	Higher	0.73%	0.56%	No		

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	exposure to flooding, Buildings at risk of flooding)	Percent of Residential buildings in the 100 year floodplain	FEMA Floodplain Maps	Higher	2.97%	2.83%	No		
	Climate change impacts (avalanche, flooding, heat wave, hurricane, ice storm, landslide, riverine flooding, strong wind, tornado, wildfire, and winter	Percent of expected building loss rate – natural hazards risk index (percentile) (Measure for burden is >75 th percentile nationwide) The rate is calculated by dividing the building value at risk by the total building value.	Climate Justice Screening Tool	Higher	1.22%	2.52%	Yes		While there was a disproportionate burden related expected building loss, none of the measures rose close to the >75% measure of burden. The effects of climate change are woven throughout all of the policies in the Windham Regional Plan. While climate change as a whole is not always directly specified, the repercussions of a changing climate are directly addressed.

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	weather)	Percent of agricultural value at risk from losses due to 14 types of natural hazards. (Natural Hazards Risk Index) (Measure for burden is >75 th percentile nationwide)	Climate Justice Screening Tool (base data gathered from National Risk Data, 2014-2021)	Higher	54%	51%	No		
		Percent of properties at risk of wildfire in 30 years (Measure for burden is >75 th percentile nationwide)	Climate Justice Screening Tool (base data collected from Climate Risk Data Access, 2022)	Higher	33%	33%	No		
	Inadequate remediation of pollution	WRC Brownfield clean-up funding provided between 2011-2026 Regional:	WRC Brownfields Records	Higher	\$191,593	\$3,009,714		Energy, Policy 9; Housing Policies 6	Almost all Brownfield Clean-Up funds distributed in the WRC Region since 2011 has been focused on Environmental Justice census tracts. WRC manages a Brownfields

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		Funding provided to non-Environmental Justice Census Tracts Environmental Justice: Funding provided to EJ census tracts							Program and in the project selection prioritization matrix, gives weight to projects that are in an area where the median household income is less than the county. The prioritization matrix also gives weight to projects that are located in an area where the unemployment rate exceeds the county rate.