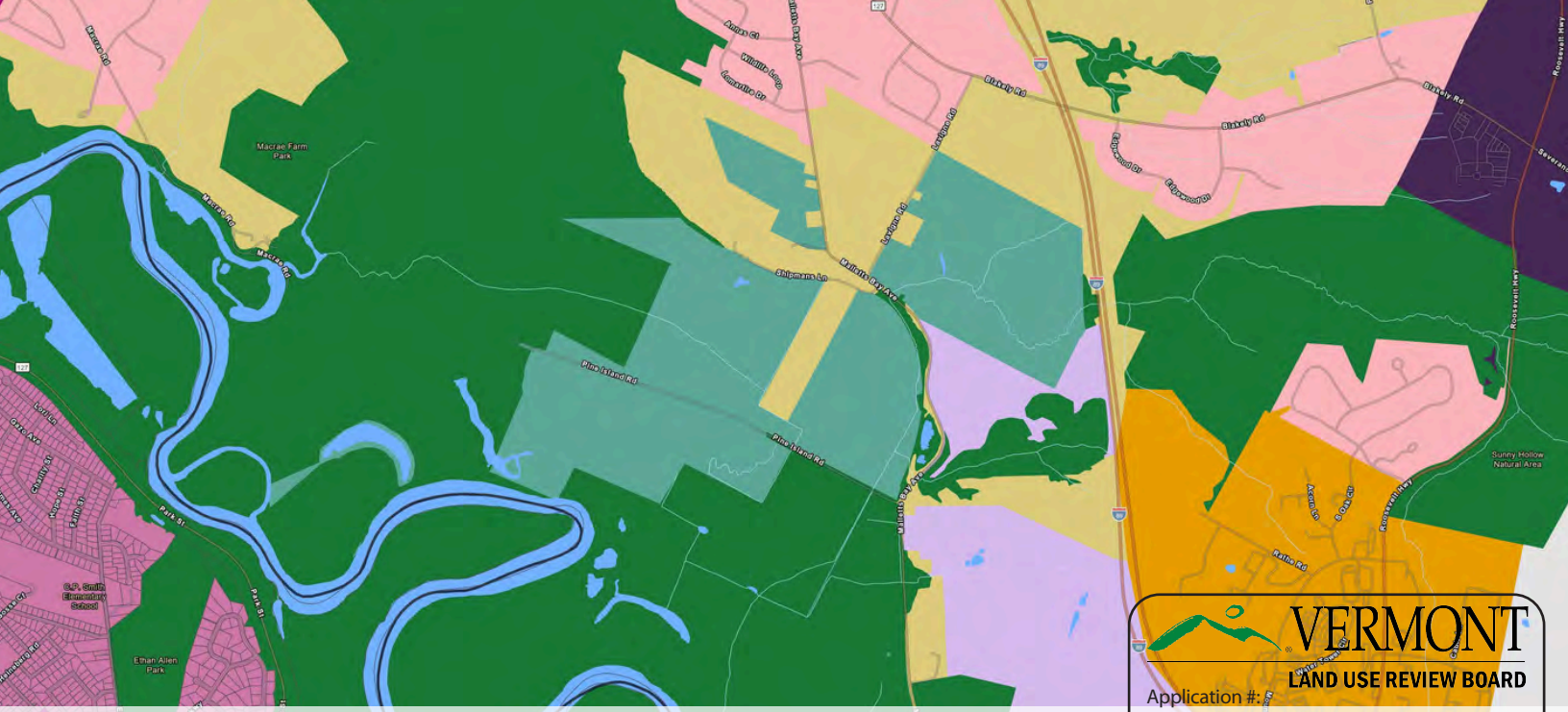


Chittenden County Regional ecos Plan

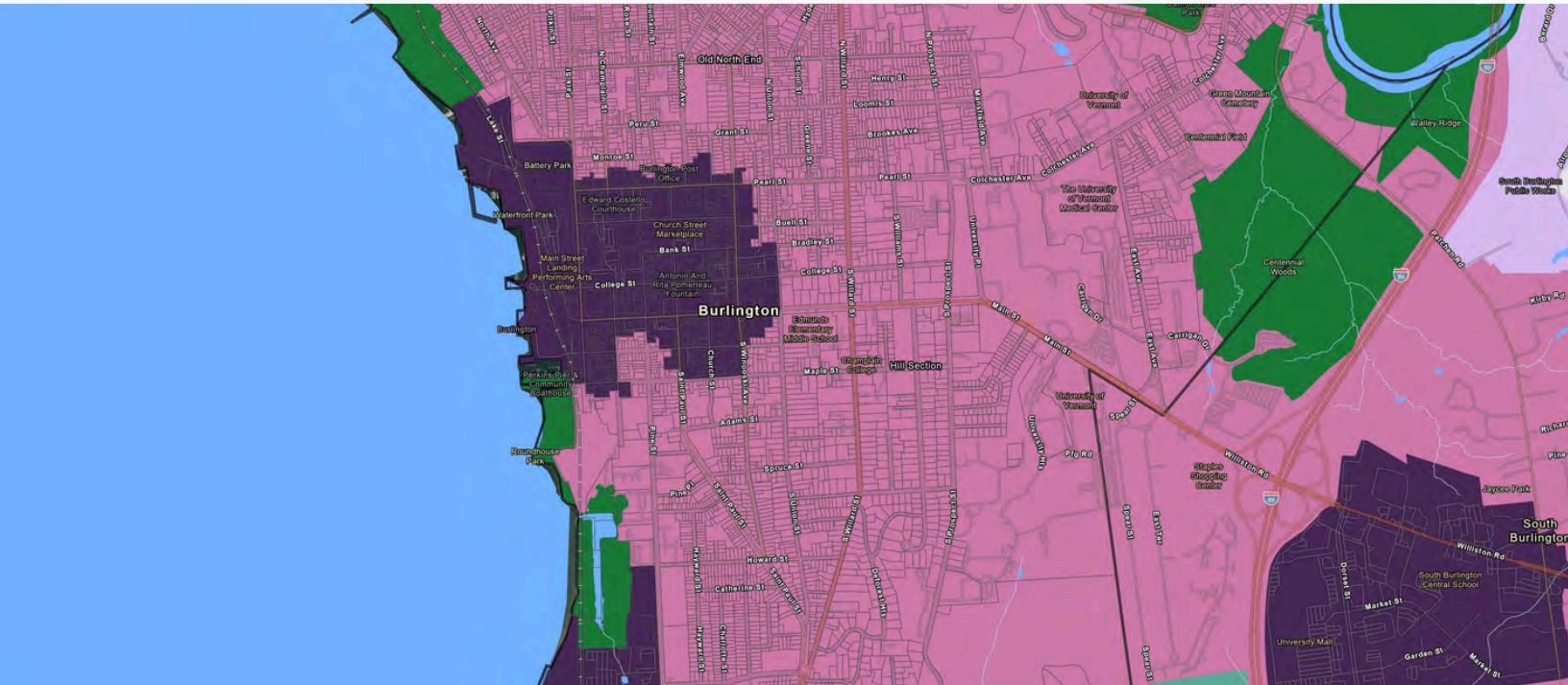
SUPPLEMENT 3:

ENVIRONMENTAL BENEFITS & BURDENS:

Analysis of the Impact of Regional Planning and the Future Land Use Map

CHITTENDEN COUNTY RPC

DRAFT: October 16, 2025



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Overview & Purpose

In 2022, the State of Vermont passed Act 154, the Vermont Environmental Justice (EJ) Law. The law is the state's first law specifically meant to address environmental health disparities and improve the health and well-being of all Vermont residents. The purpose of the Environmental Justice Law is to ensure all Vermonters regardless of race, cultural background, or income have equitable access to environmental benefits such as clean air and water, healthy food, and public transportation. The Environmental Justice Law also protects communities from disproportionate environmental burdens such as polluted air and water, climate change impacts, and limited access to green spaces. The Environmental Justice Law requires State agencies to meaningfully engage Vermonters in the environmental decision-making processes.

Under Vermont's Act 181 of 2021, advancing the equitable distribution of environmental benefits and burdens was added as an additional planning goal required for all regional plans. Because of this new goal, regional planning commissions (RPCs) must consider environmental justice principles into their planning processes and work to advance the goal through plan goals and action. CCRPC assessed environmental benefits and burdens, particularly in underserved or overburdened communities by evaluating the equity impacts of land use decisions, conducting public engagement with historically excluded groups, utilizing data and mapping tools to identify environmental inequities, and documenting efforts to address these issues in the regional plan. The goal is to ensure equitable and sustainable regional development that promotes environmental justice. The purpose of this document is to outline the CCRPC's approach for assessing environmental benefits and burdens in the process of updating the ECOS Regional Plan and Future Land Use map for the county.

Definitions

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, including the development, implementation, and enforcement of environmental laws, regulations, and policies. Environmental justice recognizes the particular needs of individuals of every race, color, income, class, ability, status, gender identity, sexual orientation, national origin, ethnicity or ancestry, religious belief, or English language proficiency level. Environmental justice redresses structural and institutional racism, colonialism, and other systems of oppression that result in the marginalization, degradation, disinvestment, and neglect of Black, Indigenous, and Persons of Color. Environmental justice requires providing a proportional amount of resources for community revitalization, ecological restoration, resilience planning, and a just recovery to communities most affected by environmental burdens and natural disasters.

Environmental Benefit: Assets and services that enhance the capability of communities and individuals to function and flourish in society. *Examples of environmental benefits include access to health environment, clean natural resources (air, water, land, green spaces, playgrounds, outdoor recreational facilities and venues), affordable clean renewable energy sources, public transportation, fulfilling and dignified green jobs, healthy homes and buildings, health care, nutritious food, Indigenous food and cultural resources, environmental enforcement, training and funding*.

Environmental Burden: Significant impact to clean air, water, and land, including any destruction, damage, or impairment of natural resources resulting from intentional or reasonably foreseeable causes. *Examples include climate change impacts, air and water pollution, improper sewage disposal, improper handling of solid wastes and other noxious substances, excessive noise, activities that limit access to green spaces, nutritious food, Indigenous*

food or cultural resources, or constructed outdoor playgrounds and other recreation facilities and venues, inadequate remediation of pollution, reduction of groundwater levels, increased flooding or stormwater flows, home and building health hazards (lead paint, lead plumbing, asbestos, mold), damage to inland waterways and waterbodies, wetlands, forests, green spaces, or constructed playgrounds of other outdoor recreation facilities and venues from private, industrial, commercial, and government operations or other activities that contaminate or alter the quality of the environment and pose a risk to public health.

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

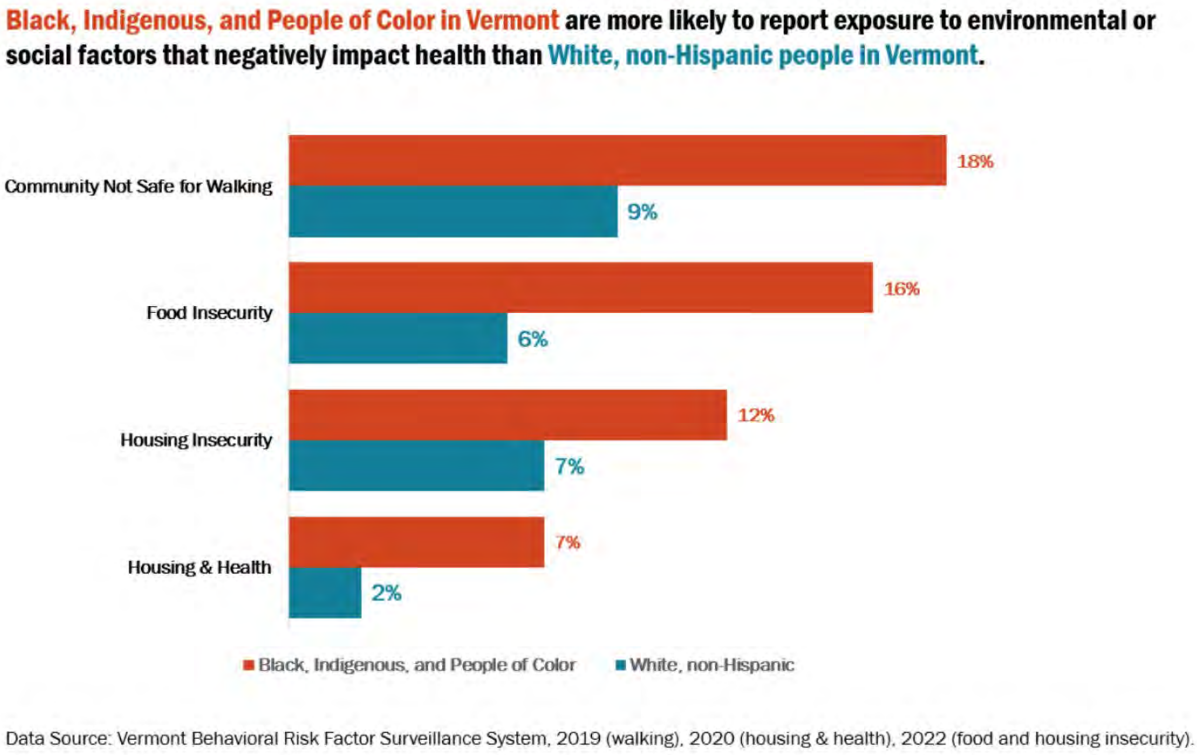
- The annual median household income is not more than 80% of the State median household income;
- Persons of Color and Indigenous Peoples comprise at least 6% or more of the population; or
- At least 1% or more of households have limited English proficiency (a household does not have a member 14 years or older who speaks English "very well" as defined by the U.S. Census Bureau.

Meaningful Participation: All individuals have the opportunity to participate in energy, climate change, and environmental decision making (*needs assessments, planning, implementation, permitting, compliance and enforcement, and evaluation)*. It integrates diverse knowledge systems, histories, traditions, languages, and cultures or Indigenous communities in decision-making processes. It requires that communities are enabled and administratively assisted to participate fully through education and training. It requires the State to operate transparently regarding opportunities for community input and encourages the development of environmental, energy, and climate change stewardship.

Environmental Injustice in Vermont

Environmental injustice exists in Vermont in large part due to structural inequities embedded in housing, economic and educational practices and policies. These inequities result in disproportionate environmental and health burdens for residents with fewer resources or less power in decision-making—such as renters, people with low incomes, individuals with disabilities, older adults, and BIPOC communities. Based on national trends, these communities are more likely to live in areas with environmental hazards, lack access to safe and healthy housing, and experience higher levels of economic stress.

According to data from the 2019–2020 Vermont Behavioral Risk Factor Surveillance System Survey (BRFSS), adult Black, Indigenous, and People of Color (BIPOC) living in Vermont are significantly more likely than white, non-Hispanic adults to report that environmental or social factors negatively affect their health.



Data Source: Vermont Behavioral Risk Factor Surveillance System, 2019 (walking), 2020 (housing & health), 2022 (food and housing insecurity).

The disparities observed in the distribution of environmental burdens and benefits have direct links to health outcomes. As seen above, BIPOC people in Vermont are more likely to report:

- **Feeling communities are not safe for walking.** This may translate to spending less time being active outside or even spending less time enjoying a neighborhood park.
- **Sometimes running out of food and not having enough money to get more.** This may lead to increases in stress hormones, leading to higher blood pressure, fatigue, higher risk of heart disease, weaker immune system, etc.
- **Worrying about being able to pay mortgage, rent, or utility bills.** This may also lead to increases in stress hormones, leading to higher blood pressure, fatigue, higher risk of heart disease, weaker immune system, etc.
- **Having an illness or symptom that was made worse by the conditions in homes, such as air quality, mold, pests, or inability to heat or cool homes.** Such home conditions may lead to respiratory issues or asthma. Additionally, home conditions may be worse in rented or temporary housing where the resident has limited control over home environments.[1]

These findings begin to point to broader patterns of environmental injustice that also affect other marginalized or underserved groups. Addressing these injustices requires changing the systemic conditions that make some residents more vulnerable than others.

[1] Vermont Department of Health. (2025, July 30). *Environmental Justice & Public Health*. Vermont Department of Health. Retrieved September 16, 2025, from https://www.healthvermont.gov/environment/environmental-justice-public-health

Methodology: Benefits & Burdens Analysis Framework

There is no standardized methodology for conducting an environmental benefits and burdens analysis. The following methodology is CCRPC's initial attempt at examining how environmental benefits and burdens are impacted by the ECOS Plan and Future Land Use mapping process. The analysis is informed by the State of Vermont's statutory definitions and indicators of environmental benefits and burdens, which provide a foundation for the evaluation. The methodology draws heavily from the SEDA Council of Governments Metropolitan Planning Organization's analysis of benefits and burdens.

Rather than determining thresholds, the approach emphasizes understanding when cumulative impacts become "disproportionate," particularly for EJ populations. This involves assessing both quantitative data, such as mapping and data layers, and qualitative insights from community members. The evaluation focuses only on areas where there may be relevant changes between the 2018 and 2026 ECOS Plan and FLU map, rather than having a more open-ended analysis. The outcome of this effort is a clearer understanding of how proposed plan updates might affect EJ populations and their environments, laying the groundwork for more equitable regional planning practices.

CCRPC used the following methodology:

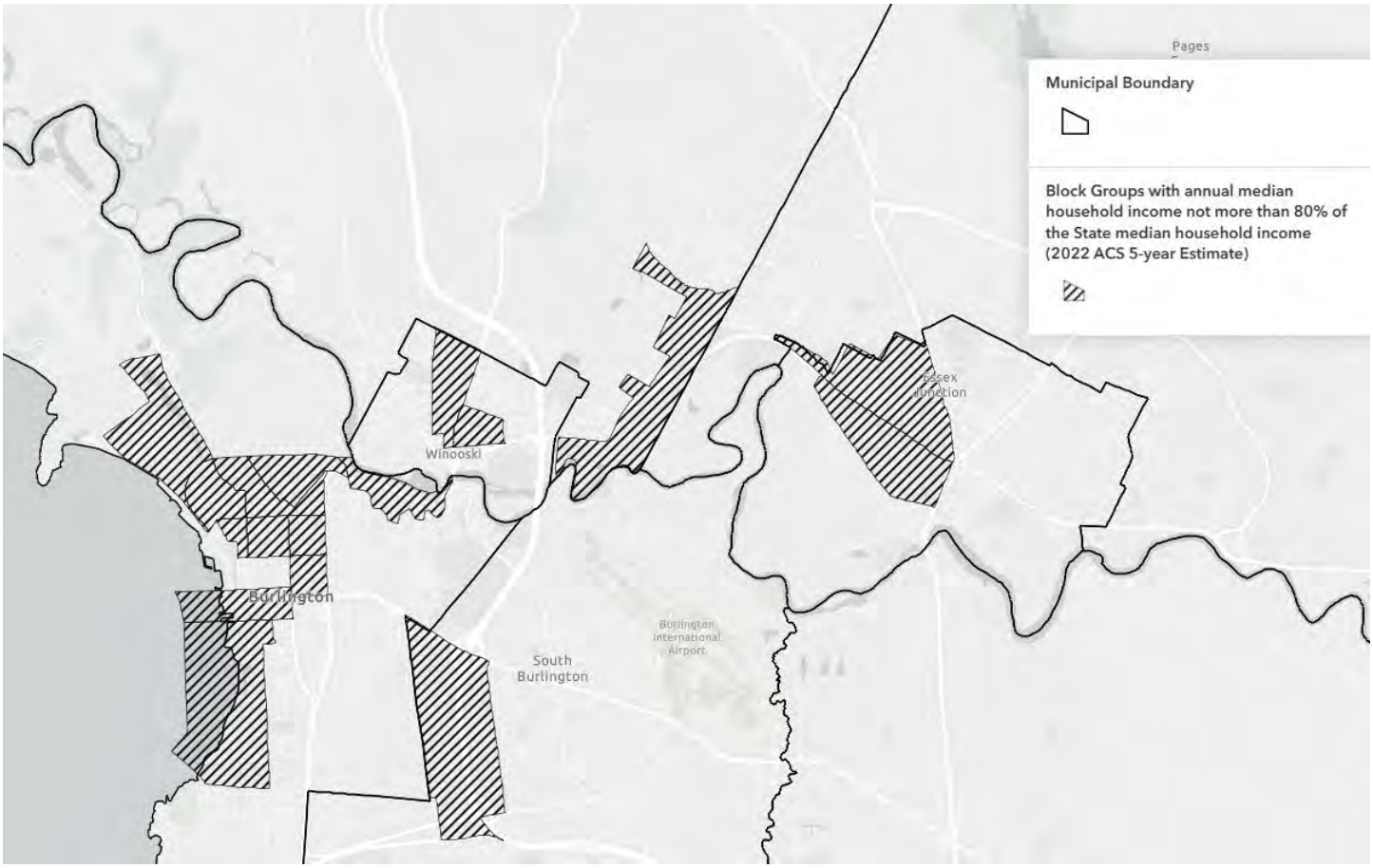
1. **Visualize Environmental Justice Focus Populations in Chittenden County:** Determine the location of Environmental Justice Focus Populations (EJFPs) within Chittenden County, using the State-established definition.
2. **Define Benefits and Burdens:** Determine which environmental benefits and burdens are relevant to CCRPC-led actions in the ECOS Regional Plan and the included updated Future Land Use map. Determine indicators for each environmental benefit and burden.
3. **Baseline Benefits & Burdens Analysis:** Determine whether there are existing/baseline environmental justice concerns for EJFPs in Chittenden County. Focus on the list of burdens flagged as "most likely to be impacted" by the FLU map and ECOS actions.
    a. Identify indicators for cumulative burden and/or a baseline (e.g., layered exposure to pollution, lack of benefits).
    b. Determine which areas in the county are already experiencing environmental burdens (i.e. hot spots/areas of focus for the county)
4. **Integrate Community Knowledge:** Gather qualitative data through community engagement to ensure EJ indicators are locally relevant and discuss how the ECOS plan and changes to the FLU Map may influence EJFPs. Summarize qualitative findings in a report highlighting potential positive and negative impacts. Integrate these findings with any quantitative indicators or analysis.
5. **Equity Analysis and Subsequent Plan Updates:** Determine potential EJ concerns associated with the benefits and burdens listed above that are affected by *updates to the ECOS Regional Plan and to the FLU map* for EJFPs and make changes to the plan, where possible, to address inequitable distribution of environmental benefits and burdens. equitable distribution.
    a. Determine which areas on the FLU map are changing/may potentially change and *which of these changes* have potential EJ impacts on EJFPs. Review and update the FLU Map based on findings.
    b. Review and update ECOS Plan Actions based on findings.

Analysis

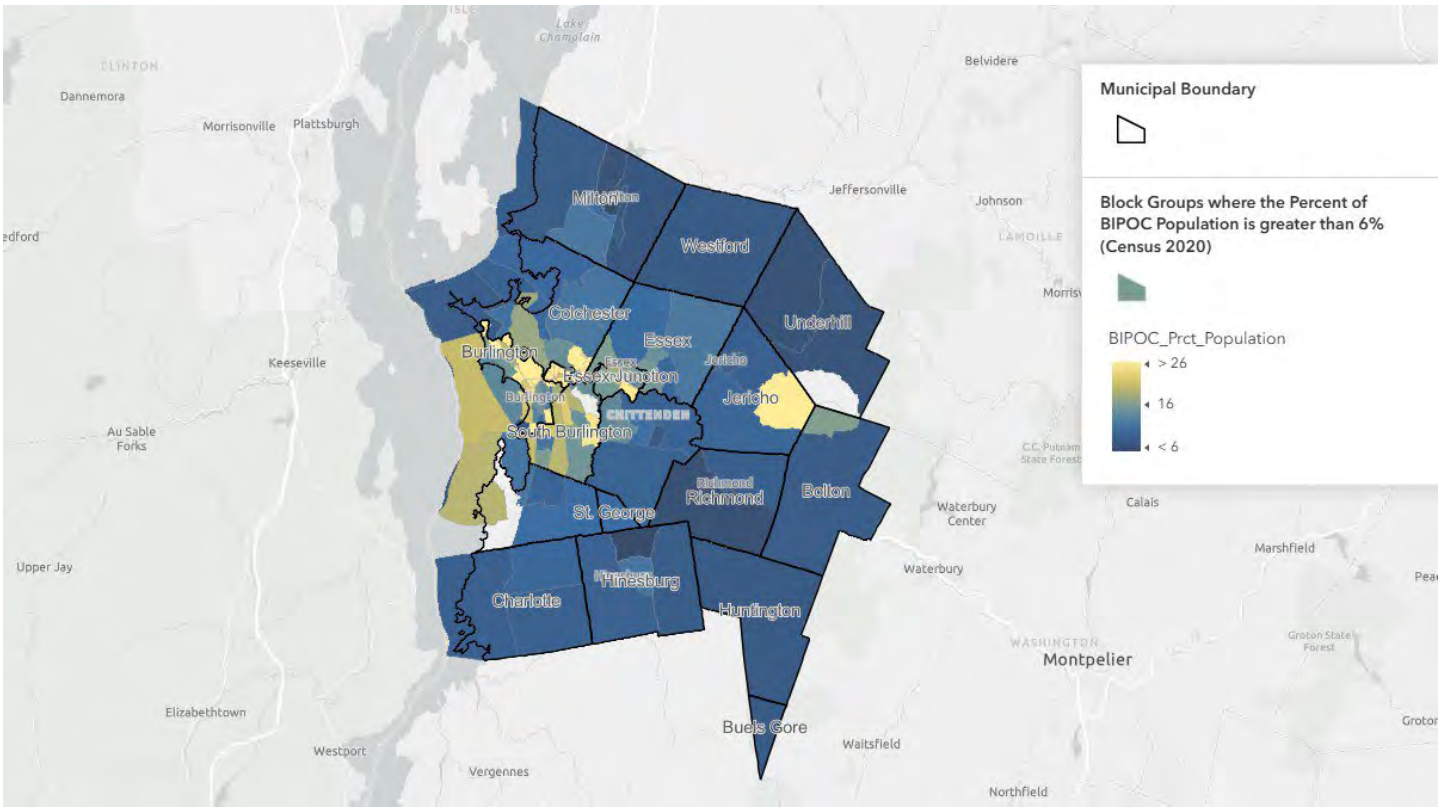
Visualizing Environmental Justice Focus Populations in Chittenden County

The CCRPC identified census block groups in Chittenden County that meet the state's definition of Environmental Justice Focus Populations (EJFP). To visualize these areas, refer to CCRPC's Demographic Map Viewer, which highlights census tracts aligned with the state's current EJFP criteria. For more information on the EJFP definition and the data used, consult the State's EJFP Fact Sheet and Visual Aids. Mapping of these populations provides a baseline for assessing environmental impacts and aids in the development of meaningful participation plans.

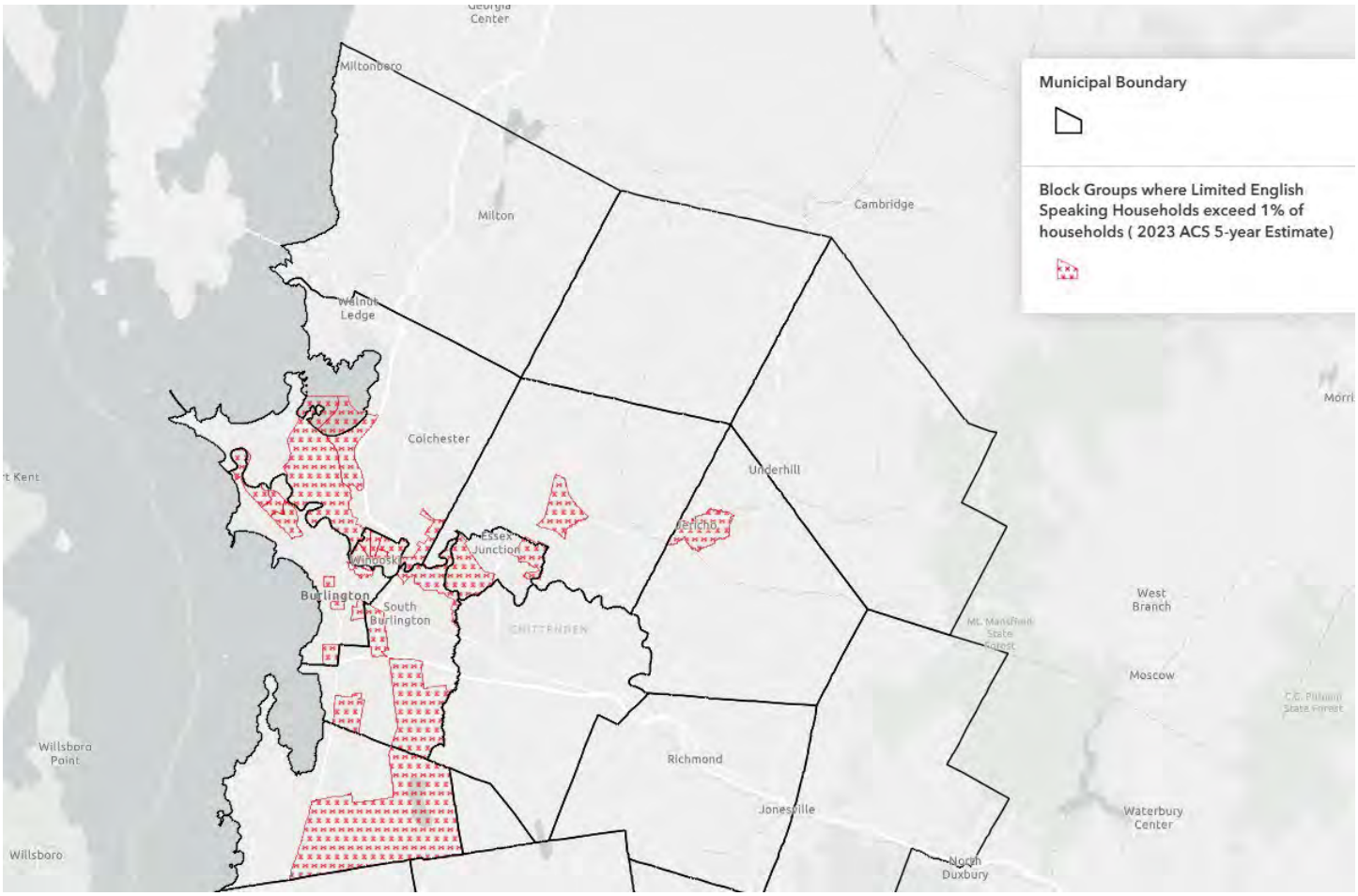
Census block groups in Chittenden County that meet the Median Household Income (MHI) threshold in the definition of EJFP (households making less than 80% of the state's AMI), using 2022 American Community Survey 5-year Data:



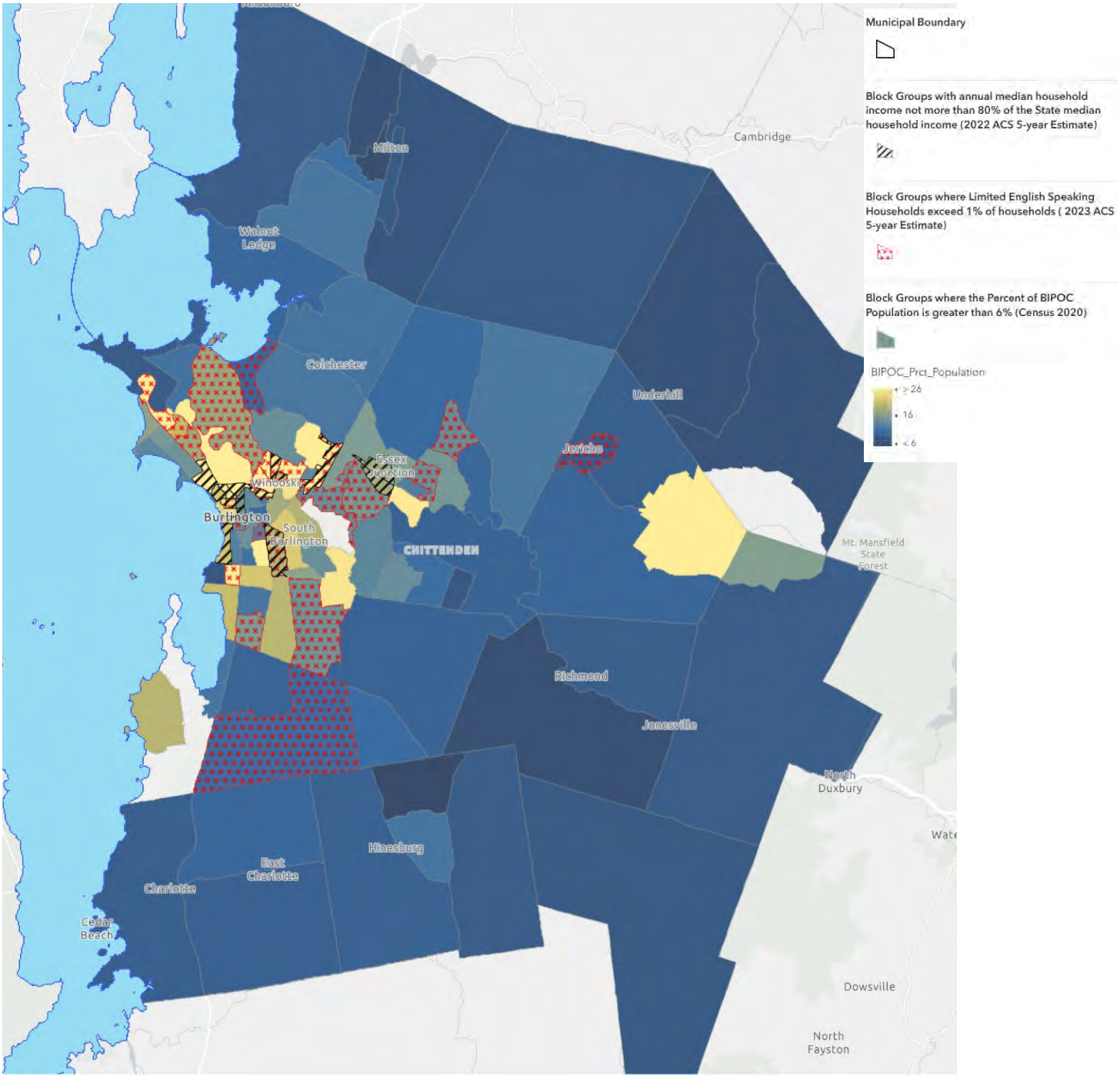
Census block groups in Chittenden County that meet the Black, Indigenous, and People of Color (BIPOC) threshold in the definition of EJFP (6%), using 2020 US Decennial Census Data:



Census block groups in Chittenden County that meet the Limited English Proficiency (LEP) threshold (1%) in the definition of EJFP, using 2023 American Community Survey 5-year data:



Census block groups in Chittenden County that meet the definition of EJFP:



INSIGHTS

Nearly every census block group in Chittenden County meets at least one of the EJFP criteria. The following Chittenden County municipalities meet two or all three of the criteria, and thus deserve special attention in the analysis:

- Burlington
- Colchester
- Essex Junction
- Jericho
- South Burlington
- Williston
- Winooski

Defining Benefits and Burdens

CCRPC staff reviewed the State's definitions of environmental benefits and burdens to identify those relevant to the ECOS Plan and FLU mapping process. Specifically, staff determined which benefits and burdens are *most likely* to be directly impacted (high relevance), which may be *indirectly impacted* (medium relevance), and which are unlikely to be impacted by CCRPC-led ECOS Plan actions and the FLU Map update (low relevance). For a detailed list, refer to the Chittenden County Environmental Benefits & Burdens Table. Below is a summary of key environmental benefits and burdens and their relevance to the ECOS Plan:

BENEFITS & BURDENS	RELEVANCE TO ECOS PLAN ACTIONS	REASONING	RELEVANCE TO FLU MAP UPDATE	REASONING
Access to Healthy Air (Benefit) / Air Pollution (Burden)	High	The plan includes policies and actions that support compact growth and transportation choices, which can influence air quality. See additional details regarding the FLU Map as a policy.	High	The FLU Map guides development towards compact areas and identifies forest blocks. This can help mitigate vehicle emissions and protect air quality in urban areas. Dispersed development patterns could intensify air-related burdens for EJFPs due to vehicular travel. Enterprise district locations could disproportionately affect air quality in EJFPs.
Land Resources & Access (Benefit)	High	The plan includes strategies to guide land conservation and development, potentially affecting land access. See additional details regarding the FLU Map.	High	The FLU map guides development intensity and conservation, directly affecting land access. Land access can in turn affect public health (recreation), economic opportunity (working lands businesses) and housing choice.
Transportation Access (Benefit)	High	Plan actions encourage compact development, which may improve	High	The FLU map prioritizes development in locations and patterns that can support transit, walking, and biking, enabling more transportation choices.

		transportation options. See additional details regarding the FLU Map.		
Healthy Ecosystems (Benefit)	High	Plan actions support ecosystem health through land use, watershed health, and conservation efforts. See additional details regarding the FLU Map.	High	The FLU map highlights areas of high natural resource value, which supports reducing forest fragmentation and facilitating wildlife connectivity. Prioritizing compact areas for redevelopment is likely to lead to additional assessment and remediation of brownfields.
Healthy Homes (Benefit)	High	The plan includes policies to increase housing variety and affordability. See additional details regarding the FLU Map.	High	The FLU map highlights areas for housing development, particularly in Centers and Planned Growth Areas. These areas are eligible for reduced regulation. This can facilitate increased affordable housing across the county.
Climate Change Impacts (Burden)	High	The plan outlines climate adaptation and mitigation strategies that relate to land use, hazard protection, and infrastructure. See additional details regarding the FLU Map.	High	The location of development (avoiding development in flood prone areas and focusing growth in less vulnerable places) can help mitigate climate burden (flood risk, wildfire vulnerability, and greenhouse gas emissions), especially for lower-income households.
Access to Clean Water (Benefit) / Water Pollution (Burden)	High	Plan policies address stormwater and water quality concerns through watershed restoration, support for local regulations, and infrastructure planning. See additional details regarding the FLU Map.	High	The FLU map impacts the scale and location of development, which in turn influences impervious surface, runoff and pollution risks.
Increased Flooding, Stormwater Flows, and Erosion (Burden)	High	The plan includes general support for flood mitigation and erosion control. See additional details regarding the FLU Map.	High	The FLU map can help identify flood-prone or steep areas, reducing erosion and downstream risk. Development in floodways and river corridors can put homes in harm's way and cause negative downstream effects by displacing floodwater. Development on steep slopes can cause erosion, leading to increased sedimentation in streams and rivers.

Damage to Forests	High	The plan promotes conservation and discourages forest fragmentation. See additional details regarding the FLU Map.	High	The FLU map prioritizes development away from high-value forest blocks and wildlife habitat.
Affordable and Clean Renewable Energy Sources (Benefit)	Medium	The plan supports clean energy but has limited influence over siting decisions. The Regional Plan contains and Enhanced Energy Plan.	Low	Not influenced by FLU mapping, particularly given the existence of a separate energy siting map.
Access to Health Care (Benefit)	Low	The plan does not directly influence health care access.	Medium	Compact development patterns in the FLU map may reduce travel distances to health services, but access is influenced more greatly by total population, age of population, and workforce.
Access to Nutritious and Indigenous Food (Benefit) / Limited Access to Nutritious and Indigenous Food (Burden)	Medium	The plan references food access as a secondary goal.	Medium	The FLU map may impact land availability for indigenous food cultivation and foraging, but not directly.
Excessive Noise (Burden)	Medium	Noise is not a focus area, though acknowledged in planning discussions. Factors influencing noise, such as siting and mitigation requirements, are decided at a local level.	Medium	Areas identified for growth, especially those near to existing noise generators like airports, may experience higher noise levels, while rural zones may be quieter. The FLU map will indirectly affect ambient noise levels but not large, existing infrastructure like airports or highways.
Inadequate Remediation of Pollution (Burden)	Medium	The plan encourages redevelopment that may support site cleanup.	Medium	The FLU Map may have implications for where remediation investments are targeted, but not directly.
Access to Healthy Buildings (Benefit) / Home and Building Health Hazards (Burden)	Low	The plan supports housing but does not address building health directly. Factors influencing building qualities are influenced more at the local or state level.	Medium	Compact development requires less land and leads to more efficient use of infrastructure, which supports housing production and improving access to homes. However, home health and building hazards are not directly impacted by the FLU Map.

Damage to Inland Waterways, Waterbodies and Wetlands (Burden)	Medium	Plan supports wetland protection under state/federal regulation.	Medium	Waterways and wetlands are impacted by development, but they're protected/regulated via state permitting and therefore the FLU will only have marginal impact on these resources.
Access (Benefit) or Damage (Burden) to Other Green Spaces, Constructed Playgrounds, or Other Outdoor Recreation Facilities and Venues (Burden)	Low	The plan acknowledges recreation but does not focus on site-scale investments. Factors influencing green space access are primarily decided at a local level.	Low	Not influenced by FLU mapping.
Access to Fulfilling & Dignified Jobs (Benefit)	Medium	The plan supports job access and workforce development.	Low	Not influenced by FLU mapping.
Environmental Enforcement, Training, and Funding (Benefit)	Low	The plan encourages support but lacks regulatory authority in this area.	Low	Not influenced by FLU mapping.
Improper Sewage Disposal or Solid Waste Handling (Burden)	Medium	Plan addresses infrastructure generally, but not specific waste handling issues.	Low	Not influenced by FLU mapping.
Reduction of Groundwater Levels (Burden)	High	The plan identifies groundwater as a concern and includes relevant policies.	Medium	FLU map guides development intensity, which can affect groundwater drawdown in specific areas.
Access to Cultural Resources	Medium	Plan acknowledges cultural heritage but includes few specific actions.	Low	Not influenced by FLU mapping.
Other Activities Posing Public Health Risks (Burden)	High	The plan promotes health equity and can influence the location of public health hazards and benefits.	Low	Not influenced by FLU mapping.

Baseline Benefits & Burdens Analysis

This section summarizes existing environmental benefits and burdens across Chittenden County using publicly available data and screening tools. Findings are organized by environmental benefits and burdens identified as relevant to the ECOS Plan and Future Land Use Map updates (see above). The analysis highlights geographic patterns and disparities among municipalities, with particular attention to how historically marginalized communities experience cumulative environmental burdens or limited access to benefits. These findings provide a foundation for understanding how future planning decisions may reinforce or reduce these disparities.

NATIONAL AND LOCAL ENVIRONMENTAL JUSTICE DATA AND MAPPING RESOURCES

CCRPC Staff used the following data and mapping resources:

- Climate and Economic Justice Screening Tool (CJEST)
- EPA's Environmental Justice Screen (EJScreen)
- Municipal Climate Change Vulnerability Indicator Tool (ANR)
- Vermont Natural Resources Atlas
- The Vermont Social Vulnerability Index (VDH)

For a full list of resources, please see the Resources section below.

ACCESS TO HEALTHY AIR (BENEFIT) / AIR POLLUTION (BURDEN)

Access to healthy air means breathing air that is clean and free from harmful levels of pollutants, supporting overall health and well-being. Exposure to air pollution occurs when people regularly breathe air containing harmful substances like fine particulate matter, ozone, and nitrogen dioxide. This exposure can increase health risks such as asthma, chronic obstructive pulmonary disease (COPD), heart disease, stroke, lung cancer, and premature death.

Key Indicators:

- PM2.5 concentration
- Ozone levels
- Nitrogen Dioxide (NO_2)
- Diesel Particulate Matter
- Traffic proximity
- Asthma rates

Municipal Trends:

- **Burlington, Winooski, South Burlington** – Elevated NO_2 (50–80th percentile nationally) (Old North End and South Burlington flagged as higher levels compared to state), diesel particulate matter and traffic exposure (Levels of PM2.5 in 80–90th percentile statewide by *EJScreen*); flagged for higher asthma rates (Burlington above the 90th percentile nationally) and proximity to major roads.
- **Winooski** – 93rd percentile nationally for asthma and 90th percentile nationally for traffic proximity and flagged as low-income (*CJEST)*.
- **Essex Junction** – Elevated NO_2 (50–80th percentile nationally) (north-west area in 95—100th percentile statewide) (*EJScreen*).

- **Burlington, Winooski, Colchester, Westford, Underhill, Bolton** – Higher ozone levels compared to the state average (*PurpleAir*, *EJScreen*).

General Observations:

- Countywide PM2.5 average (2001–2020) = 6.8 µg/m^3, well below national thresholds (*PurpleAir*).
- One recorded exceedance day for ozone; Chittenden County receives an "B" grade from the *American Lung Association*.
- All areas have a "satisfactory" Air Quality Index (AQI) (*PurpleAir*).
- Municipal-level asthma data is limited, but county rates are below the state average (*VDH*).

Environmental Justice Insights:

- EJFPs in urban cores face a greater cumulative burden from vehicle emissions and related health concerns, even though overall county air quality is acceptable.
- Traffic proximity and diesel exposure are key localized burdens that align with socioeconomic and racial disparities.

Implications for Regional Planning Actions and the FLU Map:

- Compact development patterns can reduce car dependence and mitigate vehicle emissions in overburdened areas.
- Avoid siting new industrial or enterprise districts near EJFP neighborhoods.
- Expand tree canopy and green buffers in high-exposure zones.
- Support alternative transportation options to reduce traffic volumes near EJFPs.

Data Sources: *PurpleAir*, *EJScreen*, *Climate and Economic Justice Screening Tool (CJEST)*, *VDH Asthma Surveillance*, *American Lung Association*

LAND RESOURCES & ACCESS (BENEFIT)

Land resources such as conserved acreage, parkland, working lands, and green infrastructure create potential opportunities for people to use and benefit from land. Land access means having the opportunity to use, manage, or benefit from land for housing, agriculture, recreation, cultural practices, or conservation. When access is limited by high costs, restrictive zoning, environmental degradation, or legal and historical barriers, it can lead to displacement, loss of livelihoods, reduced food sovereignty, and fewer opportunities for cultural and community activities.

Key Indicators:

The indicators below represent the best available data sources currently accessible to CCRPC to begin exploring patterns related to land access. However, we acknowledge that these measures are indirect and do not fully capture the definition above, as they focus primarily on the presence of land resources rather than actual ability of individuals and communities to obtain, use, or benefit from that land.

- Conserved land acreage
- Impervious surface area

- Access to parks and green spaces
- Urban tree canopy
- Proximity to parks

Municipal Trends:

- **Huntington, Bolton, Underhill, Richmond** – Large swaths of conserved land and forest blocks, especially along the Green Mountains; protected lands include parcels under conservation easement and/or state ownership (*VCGI Conserved Lands Database*, *ANR Atlas*).
- **Charlotte, Hinesburg, Shelburne, Williston** – Numerous small, conserved parcels, likely agricultural (*VCGI Conserved Lands Database, ANR Atlas*).
- **Bolton, Underhill, Milton** – Large state-owned land parcels (*VCGI Conserved Lands Database, ANR Atlas*).
- **Burlington** – Some conserved land (e.g., the Intervale) but also flagged for low-income status and limited green space (90th percentile nationally) due to high impervious coverage (*CJEST*).
- **Winooski, Essex, Essex Junction, South Burlington** – Less conserved land than other Chittenden County municipalities (*VCGI Conserved Lands Database*).

General Observations:

- 85% of the Chittenden County population resides within 1/2 mile of parks or publicly accessible natural areas in urban areas and 1 mile in rural areas. (Park, Open Space: CCRPC, Population, U.S. Census (2010)
- Impervious surface data indicates that EJFPs in urban centers are more likely to live in neighborhoods with limited access to open green space (*CJEST* – "Lack of Green Space" indicator).
- Burlington scores above the 90th percentile nationally for impervious surface burden and low income (*CJEST*).
- Urban Tree Canopy Maps from *VT ANR* and *Tree Equity Score* data show significant variation across municipalities, with lower canopy in denser areas like Burlington, Winooski, South Burlington, Williston, and Essex Junction.
- While conserved lands provide ecological benefits like clean air and water, not all conserved lands are publicly accessible.

Environmental Justice Insights:

- Access to open space, natural environments, and tree cover varies throughout the region.
- EJFPs in urbanized areas often lack nearby green space, conserved land, or shade-providing tree canopy.
- These disparities may affect mental health, physical activity, and resilience to heat stress.

Implications for Regional Planning Actions and the FLU Map:

- Plan actions should prioritize green space and conservation investment in urban EJFP neighborhoods.
- Within areas planned for growth, regional plan actions could support municipal efforts to integrate requirements or incentives for nearby public open space.
- Encourage future conservation efforts to consider both ecological value and proximity to EJFP communities.

Data Sources: *VCGI Conserved Lands Database*, *ANR Atlas*, *Multi-Resolution Land Characteristics Consortium (MRLC)*, *Climate and Economic Justice Screening Tool (CJEST)*, *VT ANR Urban Tree Canopy Map*, *Tree Equity Score*

TRANSPORTATION ACCESS (BENEFIT)

Transportation access refers to the ability to reach essential destinations (such as jobs, schools, healthcare, and grocery stores) safely, affordably, and efficiently by a variety of modes, including walking, biking, public transit, and driving.

Key Indicators:

- Transit access (bus stop coverage, ridership)
- Walkability (National Walkability Index)
- Vehicle ownership
- Sidewalk and bike lane coverage
- CarShare VT pod locations
- Commute time

Municipal Trends:

- **Burlington, Winooski, South Burlington** – Strongest access to public transit (*GMT*), highest walkability, highest percentage of households without vehicles (*EJScreen*, *CJEST*), and most sidewalk and bike infrastructure.
- **Essex, Essex Junction, Shelburne, Williston** – Served by GMT in village/town centers, though service is more limited than urban core (*GMT Transit Performance Dashboard*).
- **Rural towns (e.g., Bolton, Huntington, Underhill, Buel's Gore, St. George, Charlotte)** – Very limited or no access to public transit or walking infrastructure. Most households rely entirely on private vehicles.
- **CarShare VT** pods are present in Burlington and Winooski only (*CarShare VT*).

General Observations:

- Walkability and transit service are highly concentrated in the urban core. Burlington and Winooski score high on the *National Walkability Index* and have higher proportions of zero-vehicle households (*EJScreen*).
- Commute times are longer and costs higher in rural and suburban areas (*CCRPC Transportation Stats*).

Environmental Justice Insights:

- Residents of EJFPs in urban areas benefit from multiple, lower-cost transportation modes — but also may be carless by necessity, or live in neighborhoods disconnected from infrastructure, which can limit access to jobs or services beyond the core.
- In contrast, EJFPs in rural or suburban areas face high transportation burdens due to car dependency, limited transit, and lack of safe walking/biking options.
- These disparities intersect with income, age, disability, and language barriers, affecting access to opportunity.

Implications for Regional Planning Actions and the FLU Map:

- Concentrate development in areas with strong transit and walkability to support equitable mobility.
- Expand appropriate transit options, active transportation infrastructure, and rideshare choices to more rural and underserved areas.

- Use FLU map to encourage transit-accessible development and reduce transportation cost burdens.

Data Sources: *EJScreen*, *CJEST*, *National Walkability Index*, *CarShare VT*, *GMT Transit Performance Dashboard*, *CCRPC Transportation Stats Portal*

HEALTHY ECOSYSTEMS (BENEFIT)

Healthy ecosystems are natural environments that support biodiversity, clean air and water, climate resilience, and human well-being. Access to these ecosystems provides health, recreational, cultural, and spiritual benefits, while also providing ecosystem services like flood control and carbon storage.

Key Indicators:

- Primary agricultural soils (PAS)
- Habitat health and connectivity (Vermont Conservation Design / BioFinder)
- Proximity to hazardous waste facilities, Superfund sites, and underground storage tanks (USTs)

Municipal Trends:

- **Burlington** – Flagged as above the 90th percentile nationally for proximity to superfund sites (Count of proposed or listed Superfund (or National Priorities List (NPL)) sites within 5 kilometers) and hazardous waste facilities (Count of hazardous waste facilities within 5 kilometers) and low-income (CJEST).
- **Bolton, Underhill, Huntington, Westford** – Extensive intact forest, high-value habitat, and high priority landscape-scale ecological features (*Vermont Conservation Design*, *BioFinder*).
- **Colchester, Hinesburg, Richmond, Essex, South Burlington** – Smaller but important ecological "hotspots" along river corridors (*BioFinder*).
- **Winooski, Burlington, Essex Junction** – Limited ecological integrity; closer to hazardous waste facilities and USTs; more fragmented landscapes (*EJScreen*).
- **Burlington, Winooski, South Burlington –** Higher exposure risk to pollution from underground storage tanks, due to the density of commercial sites and population proximity to USTs (CJEST, EJScreen). Burlington and Winooski flagged as above 90th percentile nationally for underground storage tanks and releases and low-income (CJEST).

General Observations:

- Most of Chittenden County, outside of developed areas or communities with significant areas of agricultural uses, falls within Highest Priority for habitat.
- Areas with large forest blocks and priority wildlife corridors are concentrated in eastern and rural towns.
- Urbanized municipalities, where many EJFPs live, are farther from intact ecosystems and closer to environmental stressors like hazardous waste sites and leaking USTs (*EJScreen*).
- Every municipality contains some Primary Agricultural Soils (PAS), but access to them is typically lower in built-out areas (*VT Geodata Portal*).
- There are potential disparities in access to ecological benefits such as emotional and spiritual benefits and access to food through hunting and foraging (*BioFinder*, *VCGI*).

Environmental Justice Insights:

- EJFPs in urban centers have limited access to healthy, connected ecosystems and are more likely to be near hazardous environmental conditions.
- Rural EJFPs may benefit from proximity to forests and wildlife but may face accessibility or stewardship barriers.
- Urban-rural disparities in ecosystem exposure reflect broader land use, zoning, and conservation patterns.

Implications for Regional Planning Actions and the FLU Map:

- Use FLU mapping to highlight contiguous forest blocks, wetlands, and critical wildlife corridors.
- Support conservation efforts that provide benefits to environmental justice focus populations.
- Where feasible, increase access to ecological spaces for EJFPs through trail networks, urban ecological restoration, or green buffers.
- Direct redevelopment toward brownfield areas to remediate environmental hazards.

Data Sources: *Vermont Conservation Design*, *BioFinder*, *VT Geodata Portal* (PAS layers), *EJScreen*, *VCGI Conserved Lands Database*

HEALTHY HOMES (BENEFIT)

Healthy homes are safe, stable, and well-maintained living environments that protect residents from health hazards. When homes are affordable and readily available, they support long-term physical and mental well-being by reducing housing stress and ensuring that all residents have access to safe and healthy shelter.

Key Indicators:

- Homeownership rates
- Housing cost burden
- Access to affordable rental housing
- Indoor plumbing
- Radon exposure
- Vacancy rates

Municipal Trends:

- **Winooski and Burlington**– Lowest homeownership rates in the county (37% and 38%, respectively); Contain the majority of the county's affordable rental units (734 and 2,384, respectively) (*HousingData.org Subsidized Housing Directory*); High housing cost burdens (Burlington flagged as in 99th percentile nationally by CJEST) (H*ousingData.org*); Higher rates of homelessness than the rest of Chittenden County.
- **Burlington, Winooski, Hinesburg, Richmond, Jericho, Underhill** – Percentage of houses built before the year 2000 is above state average *(ANR Municipal Vulnerability Index)*
- **South Burlington** – Moderate homeownership (58%), moderate amount of affordable rental housing (891), but high housing cost burden (*HousingData.org*).
- **Rural towns (e.g., Westford, Underhill, St. George, Jericho, Milton)** – Higher homeownership (70–89%), lower cost burden, and fewer subsidized rental units.
- **Radon exposure** – Only 9.3% of homes have been tested. 11% show elevated results (*VDH Radon Data*).

General Observations:

- High concentrations of renters in urban core correlate with poorer housing conditions and reduced ability to mitigate environmental health risks (e.g., mold, pests, poor air quality).
- Housing cost burden is higher in Burlington, Winooski, and South Burlington, where high housing costs combined with a high percentage of rentals may lead to more deferred maintenance (*EJScreen)*.
- Housing vacancy rates are low across the county, indicating tight housing supply, especially in Burlington and Winooski.

Environmental Justice Insights:

- EJFPs are more likely to rent, face overcrowding, and lack control over their living conditions — amplifying vulnerability to environmental exposures indoors.
- While subsidized housing in compact locations increases affordability, provides more transportation options, and increases access to services, its concentration in already-burdened urban neighborhoods raises equity concerns.
- Poor indoor infrastructure, including plumbing and ventilation, disproportionately affects low-income communities and communities of color.

Implications for Regional Planning Actions and the FLU Map:

- Expand affordable and healthy housing opportunities beyond traditional urban cores by supporting municipal implementation of the housing targets.
- Encourage diverse housing types in mixed urban-rural and rural towns through the municipalization of Regional Housing targets.
- Integrate housing quality standards and indoor environmental health considerations into land use and housing policies.
- Consider incentives or requirements for landlords to address hazards in older housing stock.

Data Sources: *HousingData.org*, *EJScreen*, *CJEST*, *VDH Radon Program*, *HousingData.org Subsidized Housing Directory*

CLIMATE CHANGE IMPACTS (BURDEN)

Climate impacts refer to the increasing frequency and severity of hazards such as flooding, heatwaves, storms, and droughts that are driven by climate change.

Key Indicators:

- Flood hazard exposure (FEMA SFHAs and river corridors)
- FEMA National Risk Index (NRI)
- Storm damage and disaster declarations
- Drought and wildfire risk
- Temperature and precipitation trends
- Heat Vulnerability Index (VT Dept of Health)
    - Emergency Room Visits for Heat Stress

Municipal Trends:

- **Huntington, Richmond, Shelburne, Bolton** – High percentages of structures and/or public infrastructure (roads) located in Special Flood Hazard Areas (SFHAs); increased vulnerability to riverine and/or erosion flooding (*FEMA DFIRM*, *ANR Flood Hazard Data – Community Reports*).
- **Colchester, South Burlington** – Downstream of high-growth areas with impervious surface expansion; face growing stormwater and flood management challenges (*MRLC*, *CCRPC* impervious surface data).
- **Rural communities (e.g., Buel's Gore, Bolton)** – Fewer resources to manage emergency preparedness and climate infrastructure adaptation.
- **Certain urbanized communities (Burlington, S. Burlington, Williston, Shelburne)** have higher heat risk (*VDH Heat Vulnerability Index*).
- **All municipalities** – Low wildfire and drought vulnerability according to *FEMA NRI*.

General Observations:

- Flooding is the primary acute climate risk in Chittenden County. Many EJFPs live in or near flood-prone areas, particularly along the Winooski River corridor.
- FEMA's *National Risk Index* rates all municipalities in the county as low or very low overall climate risk, but this index doesn't fully reflect localized flooding realities, nor does it account for recent and future trends in precipitation and flood risk.
- July 2023 flooding illustrated vulnerabilities in Richmond, Bolton, and Winooski, including mobile home parks and apartment buildings in floodplains.
- Climate models project increased precipitation, especially during intense storms, leading to greater flash flood and erosion risks (*VT Climate Assessment 2021*).
- Climate models also project increased days with extreme heat, which has a greater impact on urbanized areas due to a combination of high impervious surface coverage and low tree canopy cover.

Environmental Justice Insights:

- EJFPs are more likely to live in flood-prone neighborhoods, especially in older or low-cost housing stock that is uninsured or poorly protected.
- Income, housing status, and mobility limitations may reduce adaptive capacity before, during, and after climate events.
- Rural towns may struggle with funding and capacity for climate resilience infrastructure, compounding risks for isolated EJFP households.
- People with lower incomes, poorer health, and those living in upper floors of multi-story buildings (all of which are correlated with EJFPs) are also more vulnerable to heat-related illness during extremely hot weather.

Implications for Regional Planning Actions and the FLU Map:

- Future growth should be directed away from SFHAs and river corridors.
- Strengthen floodplain regulations, stormwater infrastructure, and support for retrofitting vulnerable housing.
- Design urban areas with minimal impervious coverage, more greenspace, and access to cooling areas to improve resilience to extreme hot weather.
- Implement smart growth principles to minimize carbon emissions from transportation, increase heating and cooling efficiency in buildings, and avoid disturbance to natural habitats that sequester and store carbon while buffering the impacts of climate change.

- Assist small towns in planning for climate resilience and emergency preparedness.

Data Sources: *FEMA DFIRM*, *ANR Flood Hazard Data*, *FEMA National Risk Index (NRI)*, *VT Climate Assessment 2021*, *MRLC Impervious Surface Data*, *CCRPC Planning Data*

ACCESS TO CLEAN WATER (BENEFIT) / WATER POLLUTION (BURDEN)

Access to clean water means having safe, reliable, and affordable water for drinking, cooking, and sanitation. Water pollution occurs when harmful substances contaminate water sources, making them unsafe for human use or ecological health.

Key Indicators:

- Impaired streams and surface waters
- Stormwater infrastructure and impervious surface coverage
- Drinking water quality violations
- PFAS detection
- Onsite wastewater system reliance

Municipal Trends:

- **Winooski, Burlington, South Burlington, Essex, Colchester, Shelburne** – Higher density, more impervious surface, and numerous impaired streams (e.g., Allen Brook, Bartlett Brook, Centennial Brook, Englesby Brook, Indian Brook, Morehouse Brook, Munroe Brook, Potash Brook, Sunderland Brook) (*ANR Atlas*, *DEC Impaired Waters List*).
- **Winooski, Burlington** – Flagged as above 90th percentile nationally for density of leaking underground storage tanks and number of all active underground storage tanks within 1500 feet of the census tract boundaries (CJEST).
- **Colchester, Milton, Hinesburg, Shelburne, S. Burlington, Williston** – Multiple impaired surface waters and issues related to stormwater runoff from development & agriculture.
- **Rural towns** – Rely heavily on private wells and onsite septic systems, with limited oversight or funding for upgrades (*VDH*, *Vermont Wastewater System and Potable Water Supply Permit Program*).

General Observations:

- Surface water pollution is most pronounced in urban and suburban towns with high levels of impervious surface and aging stormwater infrastructure.
- PFAS detections are concentrated in areas with industrial histories, including higher density parts of the county, and rural communities with high intensity use (like the old Hinesburg landfill). No current municipal water source exceeds national public health thresholds.
- Rural municipalities lack centralized water and wastewater infrastructure, making them vulnerable to individual system failures or contamination.
- Data on pH, lead, and nitrates in drinking water is incomplete or not reported at the municipal level.

Environmental Justice Insights:

- EJFPs in urban areas may face elevated risks from impaired surface water, while EJFPs in rural areas often rely on less regulated or aging private systems.
- Public investment in water infrastructure is often prioritized for areas of high-density housing, which are often in municipal centers or planned growth areas. Mobile home parks often provide higher density housing but can be overlooked when it comes to accessing investments in water and wastewater infrastructure.
- Both urban and rural water burdens have equity implications, particularly for renters or mobile home park residents with little control over water quality.

Implications for Regional Planning Actions and the FLU Map:

- Direct growth away from impaired watersheds and promote green stormwater infrastructure in developed areas.
- Support adequate water and wastewater service expansion in FLU areas that may see increased development rates (Centers, Planned Growth Areas, Village Areas, Transition).
- Identify and prioritize water quality and drinking water system upgrades for EJFP neighborhoods.
- Advocate for additional data collection and testing support, especially for private well users.

Data Sources: *VT ANR Atlas*, *VT DEC Impaired Waters List*, *ANR Public Water System Viewer*, *VDH Drinking Water Data*, *Vermont Wastewater and Potable Water Permit Program*

INCREASED FLOODING, STORMWATER, AND EROSION (BURDEN)

Increased flooding, stormwater and erosion refers to the heightened risk of property damage, infrastructure failure, and environmental degradation caused by more frequent and intense storms, inadequate stormwater systems, and development in vulnerable areas.

Key Indicators:

- Flood hazard exposure (FEMA SFHAs and river corridors)
- River corridor development
- Impervious surface area
- Road washouts and stormwater infrastructure failures
- Participation in ERAF and flood resilience programs

Municipal Trends:

- **Bolton, Richmond** – 8% of structures located in SFHAs, the highest proportion in the county (*FEMA DFIRM*). Huntington follows at 4% of structures located in SFHAs. (Flood Ready Vermont Community Reports)
- **Burlington, Charlotte, Colchester, Milton** – In these communities, the total number of structures in SFHAs is high (>80), even if the percent of total structures in SFHAs is low. (Flood Ready Vermont Community Reports).
- **South Burlington, Colchester** – Rapid growth and increasing impervious surface contribute to higher downstream flood risks (*MRLC Impervious Surface Data*, *CCRPC*).
- **Burlington, Underhill, Buel's Gore** – Not fully participating in ERAF (Emergency Relief and Assistance Fund) and/or lacking adopted flood resilience measures (*VT DEC ERAF Participation List*).

- **All municipalities** – Likely to experience more frequent and intense storm events due to climate change (*VT Climate Assessment 2021*).

General Observations:

- Development within and SFHAs and near river corridors remains a major contributor to flood vulnerability, particularly in smaller towns with less regulatory enforcement or limited staff capacity.
- July 2023 and July 2024 flood events underscored local vulnerability, damaging homes, roadways, and businesses—especially in river-adjacent communities like Richmond, Huntington, and Bolton.
- Increased impervious surfaces in suburban areas (e.g., Williston, Essex, Colchester) compound stormwater burdens downstream.
- Existing and proposed FEMA flood maps do not include future risk zones or reflect recent hydrological changes due to climate change.

Environmental Justice Insights:

- Low-income residents and renters in towns like Winooski and Richmond are more likely to live in vulnerable areas and lack resources for recovery or relocation.
- Mobile home parks, often housing lower-income residents, are disproportionately located in floodplains.
- In rural towns, limited staff and resources delay hazard mitigation investments—raising equity concerns.

Implications for Regional Planning Actions and the FLU Map:

- FLU area mapping should discourage development in flood-prone areas and encourage climate-resilient siting.
- Require green infrastructure, riparian buffers, and low-impact development in new construction.
- Coordinate with state and municipal emergency planners to identify and prioritize vulnerable sites for mitigation investment.

Data Sources: *FEMA DFIRM*, *VT ANR Flood Hazard and River Corridor Data*, *VT DEC ERAF Participation List*, *MRLC Impervious Surface Data*, *VT Climate Assessment 2021*, *CCRPC Planning and Stormwater Analysis*

DAMAGE TO FORESTS (BURDEN)

Damage to forests includes loss or degradation of forested land due. This burden reduces biodiversity, impairs ecosystem services, and can limit public access to natural areas for recreation and cultural use.

Key Indicators:

- Forest fragmentation and parcelization
- Invasive species and pest detections
- Intact forest block acreage
- Tree canopy coverage
- Forestland ownership trends

Municipal Trends:

- **Bolton, Underhill, Huntington** – Contain some of the largest intact forest blocks in the region and provide critical wildlife connectivity (*VT Conservation Design*, *BioFinder*).
- **Bolton** – Lost nearly 31% of woodland parcels from 2005 to 2020, indicating significant parcelization pressure (*Forest Ecosystem Monitoring Cooperative (FEMC)*).
- **12 of 19 municipalities** – Have documented invasive forest pests (e.g., emerald ash borer, hemlock woolly adelgid), contributing to forest degradation (*VT Invasives*).
- **Burlington, South Burlington** – Highest total presence of pest detections, likely due to monitoring density and tree stress in urban environments (*VT Invasives Dashboard*).
- **Rural towns with smaller budgets** – May lack resources to proactively manage forest health and pest infestations.

General Observations:

- Forest fragmentation is progressing across the region, especially along suburban and rural edges.
- Urban tree canopy coverage is uneven and declines sharply in older, densely built neighborhoods.
- Like in much of Vermont, land conversion and parcelization are the most pressing threats to long-term forest ecosystem health in Chittenden County.
- Many municipalities lack updated forest block protection policies or local conservation dollars.
- Between 2007 and 2022, Chittenden County has seen a steady decrease totaling 7.6% in acres of cropland. Between 2007 and 2022, the region saw a 1.9% decrease in the acreage in woodland parcels, though this figure has fluctuated up and down over the years.

Environmental Justice Insights:

- Urban EJFPs experience disproportionate heat island effects due to limited tree canopy and reduced access to forested areas.
- In rural EJFP communities, loss of forest land can erode cultural, recreational, and economic opportunities to place.

Implications for Regional Planning Actions and the FLU Map:

- Use the FLU map to identify contiguous forest blocks (VT Conservation Design Highest Priority Forest Blocks) as Rural Conservation land use areas which may discourage new development in areas with landscape-scale forest blocks.
- Support preservation of contiguous forest blocks through education, mapping, and assisting municipalities with developing regulatory solutions in towns with fragmentation pressure.
- Encourage strategic conservation easements and community forests that preserve and connect forest blocks.
- Support urban forestry programs in EJFP neighborhoods to expand canopy and reduce heat burden.
- Include invasive species monitoring and response in climate and land use adaptation planning.

Data Sources: *VT Conservation Design*, *BioFinder*, *Forest Ecosystem Monitoring Cooperative (FEMC)*, *VT Invasives Dashboard*, *VCGI Parcel Data*, *VT Urban Tree Canopy Assessment*

REDUCTION OF GROUNDWATER LEVELS (BURDEN)

Reduction of groundwater levels refers to the long-term decline in underground aquifers caused by over-extraction, impervious surface expansion, or changing precipitation patterns. Lower groundwater levels can lead to dry wells, reduced water quality, and limited water availability for drinking, agriculture, and ecosystem health.

Key Indicators:

- There is a lack of data in Vermont about groundwater levels, so currently CCRPC does not have indicators about the status of groundwater throughout the County beyond anecdotal reports. Indicators will be tracked once available, which is not anticipated soon.

Environmental Justice Insights:

- Communities reliant on private wells, especially in rural or isolated areas, are more vulnerable to groundwater depletion due to limited alternative water sources.
- Households with lower incomes or in rental housing may lack the resources to address declining groundwater levels (e.g., drilling deeper wells).
- Risks include disproportionate impacts on health, household budgets, and property value for EJFPs in affected areas.
- Rapid development without coordinated water management can heighten vulnerability.

Implications for Regional Planning Actions and the FLU Map:

- Direct high-water-demand development to areas with water service rather than regions with known groundwater limitations.
- Incorporate groundwater monitoring and recharge protection into development review processes.
- Partner with municipalities to conserve and protect key groundwater recharge areas.
- In EJFP areas reliant on wells, invest in water infrastructure, conservation education, and drought preparedness to reduce inequities in water security.

Data Sources: *Not Applicable. No consistent, municipality-level data currently available; future analysis would benefit from groundwater monitoring data from the Vermont Department of Environmental Conservation, U.S. Geological Survey aquifer studies, and local well performance reports.*

OTHER ACTIVITIES POSING PUBLIC HEALTH RISKS (BURDEN)

Other public health risks refers to the presence of contaminated or high-risk sites, such as Superfund sites, hazardous waste facilities, abandoned mines, or defense-related properties, that can expose nearby communities to harmful chemicals or pollutants.

Key Indicators:

- Formerly used defense sites
- Abandoned mine land
- Proximity to hazardous waste facilities
- Proximity to Superfund sites

Municipal Trends:

- **Burlington, South Burlington, Winooski, and Williston** – contain clusters of hazardous waste generators, likely due to historical and ongoing industrial, commercial, and transportation activity. These communities face the highest cumulative exposure risk from these facilities.
- **Hinesburg, Jericho, and Milton** - show moderate presence of hazardous waste generators and may be affected by specific legacy uses or small-scale industrial operations.
- **Parts of Hinesburg** - show locations of abandoned mines, indicating potential risk from soil or water contamination.
- **Burlington** contains a known Superfund/National Priority List sites, increasing long-term cleanup needs and potential for community exposure.

General Observations:

- Public health risks from environmental contamination are concentrated in urban and industrial corridors, particularly around Burlington, South Burlington, and Williston.
- Mixed urban-rural communities like Hinesburg, and parts of Milton may face risks from legacy land uses (e.g., mining, shooting ranges, or past military use) not always visible in contemporary development patterns.
- Contaminated site data is often incomplete or lacks status updates, posing challenges for site tracking and community awareness.
- BTV airport-adjacent areas may pose specific risks from PFAS or other contaminants associated with fire suppressant use or aircraft maintenance.

Environmental Justice Insights:

- Lower-income residents in urban centers may live near multiple hazardous waste generators or legacy industrial sites, compounding exposure to pollutants.
- Renters, mobile home park residents, and New American communities—often concentrated near industrial corridors—may have limited ability to relocate away from contamination risks.
- Environmental health concerns may be underreported in rural areas due to limited site monitoring and lack of public engagement on legacy contamination.
- Language access and technical complexity may limit public understanding of potential exposure risks, making transparent data-sharing and community engagement critical.

Implications for Regional Planning Actions and the FLU Map:

- Avoid residential intensification in proximity to hazardous waste facilities or known contaminated sites unless cleanup is complete and protective barriers are in place.
- Target brownfield assessment and remediation funding to high-priority areas, especially where vulnerable populations reside.
- Integrate land use planning with public health approaches.
- Encourage mixed-use development and housing in areas with lower cumulative environmental risk.

Data Sources: *VTrans, VT Center for Geographic Information VT Mineral Resources, ANR Hazardous Waste Generators, Superfund National Priorities List*

Integrate Community Knowledge

THE LIMITATIONS OF DATA

CCRPC staff collaborated with community partners throughout this analysis to ensure that the quantitative information in section 3 is grounded in the lived experience of community members, especially those from marginalized groups. These conversations underscored a central finding: the data and quantitative methods used to assess environmental benefits and burdens often does not fully reflect the realities or felt needs of many residents.

For example, while South Burlington was identified in this analysis as having a high percentage of affordable housing units compared to the regional average, residents reported it is challenging to find affordable housing in South Burlington. This highlights a broader point raised by community participants: while indicators can be a useful starting point, they often fail to capture the underlying systems and structures that perpetuate environmental and social harm, which community members see as a higher priority for action.

In another case, the CJEST tool flagged Burlington and Winooski as being above the 90th percentile for lack of indoor plumbing. This statistic prompted CCRPC staff to investigate further. The data came from the American Community Survey (ACS), which relies on a small, self-reported sample. Given the ACS definitions and the high margins of error, especially at the census tract level, this measure is not reliable enough to draw firm conclusions. A more accurate approach would be to obtain records directly from municipal code enforcement offices, which are likely to have more complete and timely information on housing facilities.

Beyond these examples, several broader limitations shaped the analysis:

- Data availability and quality – Many datasets, particularly from ACS, have large margins of error due to Vermont's small population, making local-level estimates less reliable.
- Newness of the analysis – This is CCRPC's first environmental benefits and burdens analysis, so indicators, definitions, and methodologies are still evolving.
- Time constraints – The short project timeline limited opportunities to fill data gaps or validate findings with alternative sources.

Given these constraints, the analysis above should be viewed as an initial, incomplete picture. It is critical to pair quantitative results with community knowledge to develop a more accurate and nuanced understanding of environmental benefits and burdens.

BRINGING IN COMMUNITY VOICES

Collaboration with the Land Access Opportunity Board (LAOB)

CCRPC partnered with the Land Access and Opportunity Board (LAOB) throughout the Future Land Use (FLU) Map development process. This collaboration was grounded in the shared goal of ensuring that marginalized communities not only participate in regional planning processes but also shape how access to land, shelter, and environmental resources are understood and addressed.

Key insights and priorities surfaced through CCRPC–LAOB collaboration:

Access to environmental and planning resources is unequal:

- LAOB emphasized that marginalized communities often lack equitable access to the planning information, legal support, and decision-making forums that shape environmental policy and land use. They urged CCRPC to make planning processes more transparent, accessible, and accountable, especially where these decisions influence exposure to environmental risks or access to environmental benefits.

Environmental burdens and housing insecurity are deeply connected:

- Housing instability often forces low-income residents into areas with higher exposure to environmental hazards, such as flood zones, industrial corridors, or areas lacking green space and transit. This illustrates how environmental burdens fall disproportionately on those with fewer housing options.

Historically excluded voices need safe, structured spaces to influence land use decisions:

- LAOB staff noted that people with lived experience of housing precarity and environmental harm often feel extracted from rather than engaged by planning processes. They recommended affinity-based forums that center these voices while minimizing harm. This may help to rebalance who gets to shape environmental and land use outcomes.

Planning systems must reduce—not reinforce—inequity:

- LAOB members challenged CCRPC to assess how regional planning structures may unintentionally concentrate power and perpetuate environmental and infrastructure disparities. They emphasized that the burden of navigating complex systems to access environmental protections or benefits should not fall disproportionately on those least resourced.

This collaboration also informed CCRPC's understanding of how environmental burdens can be compounded by housing instability, systemic underfunding, and uneven infrastructure investment. The insights from LAOB continue to inform CCRPC's engagement strategies, especially in communities disproportionately impacted by climate and land use pressures.

Collaboration with CCRPC's Community Engagement Advisory Committee

CEAC members emphasized that CCRPC's analysis must not only reflect cumulative environmental risks but also consider how past planning decisions continue to drive disparities in land use, housing, and health. They advocated for upstream solutions that address systemic environmental injustice. They also questioned whether the terminology "benefits and burdens" resonates with the lived experiences of communities and encouraged CCRPC to frame the work more explicitly around equity and systems change.

Insights from CEAC engagement:

- CEAC members raised concern about affordable housing being sited in flood-prone or environmentally degraded areas, reinforcing patterns of disinvestment and exposure to harm.
- Members emphasized a desire for CCRPC to take a more visible advocacy role around state environmental enforcement, home sale disclosures, and infrastructure investments in historically underserved communities.
- The CEAC emphasized that the new FLU Map should not concentrate new development solely in white or wealthy neighborhoods and should explicitly link land use planning with access to clean water, air, green space, and public services.
- They supported environmental education, student design competitions, and co-location of community services as ways to embed equity into both environmental and land use planning processes.

- They also emphasized the need to reevaluate broader systems that reinforce existing inequities in land ownership, housing access, and economic mobility.
- Members encouraged CCRPC to include more definitions and a narrative response highlighting that achieving the equitable distribution of environmental benefits and burdens is not possible within current policy parameters/without structural change.

Future Land Use Map Community Engagement

In addition to regional outreach and small group discussions, CCRPC staff coordinated with municipal leaders to understand environmental equity issues in context. The following findings reflect locally specific insights about environmental benefits and burdens gathered during the mapping process:

Insights from community engagement:

Mobile Home Parks & Low-Income Areas

- Residents shared concerns about limited walkability, frequent flooding, and exposure to traffic-related air pollution.
- There was frustration over the lack of infrastructure investment in these neighborhoods, and skepticism that regional growth policies would benefit them directly**.**

Rural & Agricultural Communities

- In multiple towns, community members emphasized the importance of preserving forests and farmland. Concerns were raised about habitat loss, erosion from development, and pesticide use near homes and water bodies.
- BIPOC and immigrant farmers reported barriers to land access and participation in conservation programs, calling for more support to sustain environmentally responsible agriculture.

Countywide Themes

- Across communities, residents called for more public access to safe, swimmable water bodies and better coordination around stormwater management.
- Participants repeatedly stressed that climate action must account for basic needs, such as housing, food, and transportation, before it can be effective or equitable.
- Numerous comments emphasized that climate resilience and environmental stewardship (e.g., protecting forest blocks and surface waters) must be considered environmental benefits that all communities deserve access to, not just burdens to mitigate.
- Many people emphasized the importance of providing a range of housing types in all communities, to reduce concentration of rental and affordable housing in cities and provide people with affordable options for living and participating in rural places.

MUNICIPAL SUMMARIES

To address these limitations and ensure that community perspectives are integrated, the following section provides a municipality-by-municipality summary that combines the quantitative results with qualitative insights from two years of focused engagement across Chittenden County. These summaries reflect not only what the data shows, but also what residents experience and prioritize in their communities.

Bolton

Bolton's natural landscape provides many residents with environmental benefits, including access to forested areas, clean air, and recreational opportunities. Large portions of the town are state-owned, have steep topography,

or are under active forestry uses which helps preserve environmental quality, but also presents barriers to development and land access. Community engagement emphasized the impact of repeated flood events, including road washouts and prolonged isolation of residents, which have compounded burdens related to transportation access, emergency response, and property vulnerability. While Bolton has relatively few EJFPs compared to other municipalities, low-income households may face challenges tied to geographic isolation, and limited services.

Buel's Gore

Buel's Gore is a remote and sparsely populated area, with roughly two-thirds of its land held in public or institutional ownership. These characteristics preserve forested landscapes, clean air, and habitat connectivity. However, the limited private ownership and absence of a municipal government also create challenges in accessing infrastructure, services, and representation in regional planning. While no EJFP concentrations have been identified, any individuals residing or working in Buel's Gore may face burdens related to isolation, transportation access, and a lack of direct decision-making authority at the regional level.

Burlington

Burlington provides strong environmental benefits, including clean air, open space, and walkable access to jobs, services, and recreation. The City's mix of waterfront access points, neighborhood green spaces, and transit corridors supports active transportation and reduces car dependency for many residents. However, vehicular traffic, and the cumulative impacts of large institutional, industrial, and waterfront uses create environmental burdens, particularly in neighborhoods adjacent to Pine Street, North Avenue, and the Intervale. Community engagement highlighted concerns about air and noise pollution near busy roads and rail lines, stormwater runoff and flooding in low-lying areas like the Old North End and Intervale, and reduced tree canopy in denser neighborhoods. There is also an old, capped landfill proximate to the Old North End that is of concern to residents. Community engagement also revealed that numerous Burlington residents from EJFP communities do not trust their drinking water and either buy bottled water or boil their tap water. While areas with higher EJFP concentrations, such as the Old North End, parts of the South End, and along Riverside Avenue, benefit from proximity to services, they also face higher exposure to environmental burdens, aging housing stock, and rising housing costs. Ensuring equitable access to waterfront and green spaces, addressing localized flooding and heat island effects, and investing in infrastructure in historically marginalized neighborhoods will be critical.

Charlotte

Charlotte's commitment to conservation and rural character ensures many residents benefit from forested landscapes, open space, and clean air. However, this strong emphasis on preservation, coupled with limited wastewater capacity and restrictive zoning, has contributed to a pattern of large-lot development and a limited range of housing or transportation options. Though Charlotte has relatively few EJFPs, the high cost of entry into the housing market and the scarcity of affordable or rental units may create barriers for lower-income households, seniors, and working families seeking to remain in or move to the community. These dynamics highlight the importance of aligning conservation goals with inclusive infrastructure and land use planning to ensure broader access to the town's environmental and social benefits.

Colchester

Colchester offers a mix of environmental benefits and burdens shaped by its development pattern, geography, and infrastructure. Access to water, green spaces, and recreation, especially in areas near existing village nodes, supports public health. At the same time, residents have raised concerns about aging or failing septic systems, and there is little access to public transportation throughout most of the Town. Participants voiced frustration that available land for housing is underutilized, and that growth is not keeping pace with need, particularly for lower-cost options. Despite having the second highest percentage of the county's stock of mobile homes, these units only

account for a very small proportion of all housing units in the town (3%). Areas with high population and proximity to services, such as Severance Corners and Fort Ethan Allen, provide opportunities to align development with infrastructure investments. In the southern part of town, concentrations of industrial uses may pose localized environmental burdens, such as air or noise pollution and risks to water quality. These areas also overlap with areas of the highest concentration of EJFPs in town.

Essex

Essex offers a range of environmental benefits through its proximity to open space, efforts to improve active transportation, and investments in mixed-use centers like ETC|NEXT and Fort Ethan Allen. At the same time, growth pressures, infrastructure constraints, and recent high-profile development proposals—such as an Amazon distribution center and a new correctional facility—have raised community concerns about environmental burdens and the cumulative impacts of large-scale projects. While some neighborhoods in Essex benefit from proximity to services and infrastructure, others face burdens tied to car dependency, stormwater runoff, and lack of housing diversity. Areas such as Fort Ethan Allen and along Susie Wilson Road, which have higher concentrations of EJFPs, offer opportunities for equitable investment but may also face increased exposure to development-related burdens if not carefully planned.

Essex Junction

Essex Junction's compact development pattern and full water and sewer coverage offers the strong environmental benefit of walkability, efficient infrastructure, and access to services. The City has prioritized infill housing, mixed-use development, and active transportation. At the same time, residents also expressed a desire for more consistent walkability, green space, and transit access across all neighborhoods. Regional engagement surfaced equity concerns about exclusionary zoning, affordability, and homeownership barriers, particularly for historically marginalized communities. Areas near Five Corners and along the VT-15 corridor have the highest concentrations of EJFPs and may face disproportionate exposure to development-related burdens if growth is not matched by equitable investments in housing, infrastructure, and public space.

Hinesburg

Much of Hinesburg benefits from proximity to nature, access to clean air and water, and protected landscapes, while emphasizing investment in a compact downtown center. The town has clear policies to support infill, which limits sprawl into forests and farmland. At the same time, residents raised concerns that development pressures, especially in areas near rural roads like New South Farm Road and within the evolving R-3 district, may introduce burdens related to stormwater erosion, or fragmented habitat. Additionally, public transit is very limited. Community engagement emphasized the need to better reflect lived environmental knowledge, such as the presence of wildlife not captured in official data. While EJFPs in Hinesburg are fewer than in more urbanized municipalities, mobile home parks and senior housing clusters face elevated burdens due to limited pedestrian infrastructure, constrained access to services, and less inclusion in planning processes. These areas surfaced as important sites for future outreach.

Huntington

Huntington contains the environmental benefits of unfragmented forests, working lands, and outdoor recreation opportunities. However, these same features—combined with steep topography, limited infrastructure, and the absence of a full wastewater system—also pose challenges to development and equitable access to services. The July 2024 floods caused severe financial impacts for many residents and have prompted ongoing buyout efforts and resilience planning. Public engagement revealed tensions around land use, especially in village areas where flood risk, rural character, and infrastructure limitations shape views about growth. There is no access to public transit.

While Huntington has relatively few mapped EJFPs, some residents may experience disproportionate burdens tied to geographic vulnerability and limited financial capacity for adaptation to environmental hazards.

Jericho

Jericho's three village centers, surrounding working lands, and forested areas provide residents with access to open space and clean air. However, physical constraints, restrictive covenants, and infrastructure limitations have raised concerns about whether growth will be distributed equitably or overly concentrated in existing centers. Community engagement surfaced tensions around how land use policies may perpetuate inequities in access to housing, with some residents emphasizing the need to expand development opportunities beyond the villages. Areas near Fort Ethan Allen Firing Range and Browns Trace Road have been identified as potential growth nodes but will require careful planning to avoid sprawl and ensure environmental quality. Lower-income Jericho households in existing centers and rural locations with limited transportation options may face disproportionate burdens if growth and infrastructure investments are not aligned.

Milton

Milton offers residents access to open space, clean air, and recreational opportunities. Ongoing planning efforts to strengthen the downtown center and direct growth toward areas with existing infrastructure support smart growth and can reduce environmental impacts from sprawl. However, infrastructure limitations—particularly for stormwater—and uneven walkability remain barriers to equitable access to these benefits. Engagement highlighted that residents of manufactured home parks face disproportionate burdens, including substandard infrastructure, limited public investment, and exclusion from some planning conversations, despite housing a significant share of the town's population. Disabled residents, seniors, and youth also face mobility and access challenges, particularly outside the town core areas.

Richmond

Richmond offers environmental benefits including clean air, open space, and recreational resources. At the same time, debates over how and where housing should develop reflect the town's competing priorities. Community engagement showed both caution toward additional development and strong interest in identifying realistic growth sites. While mapped EJFP concentrations in Richmond are relatively low, households in mobile home parks and rural fringe areas face disproportionate burdens from limited infrastructure, transportation access, and climate-related risks such as flooding.

Shelburne

Shelburne offers residents environmental benefits including clean air, open space, and recreational opportunities. Planned growth in the downtown center and along key corridors creates opportunities to expand housing options while maintaining these benefits. However, development proposals have raised concerns about traffic and impacts to wildlife habitat. Residents also identified the need for safe walking and biking connections within town and to neighboring communities, as well as lower-cost, higher-density housing to retain young families. Areas such as Wake Robin, Beaver Creek, and parts of Shelburne Road have infrastructure but remain largely car-dependent, creating inequities in access to services. Mobile home park residents and lower-income households in car-dependent neighborhoods face disproportionate burdens from transportation costs, limited public investment, and development patterns that prioritize higher-income households.

South Burlington

South Burlington's infrastructure network, including widespread water and sewer service, provides environmental benefits such as walkability in certain areas, and access to services. The City has prioritized infill development, including permanently affordable units, in its New Town Center, along major corridors, and in emerging mixed-use

nodes, all of which will be supported by investments like the East-West Crossing bike-ped bridge. However, rapid growth and redevelopment pressures raise concerns about traffic, loss of open space, and impacts to wildlife corridors. Community engagement highlighted tensions between preserving "rural" areas, often home to more expensive properties, and ensuring affordable housing choice across the city. While EJFP concentrations vary, neighborhoods near Shelburne Road, Williston Road, and the airport area face potential disproportionate burdens from traffic, air quality concerns, and development-related displacement if growth is not matched with equitable investment in housing, transportation, and green space.

St. George

St. George offers residents environmental benefits such as forested landscapes, and clean air. Limited wastewater capacity, and small land area constrain development potential. The town's mobile home park is its primary source of affordable housing and plays a critical role in the local housing ecosystem, yet residents report infrastructure needs, housing quality concerns, and a desire for greater inclusion in planning. Residents face burdens from limited infrastructure, and transportation access.

Underhill

Underhill's environmental benefits include clean air, open space, and strong connections to nature. However, limited wastewater capacity, steep topography, and outdated zoning present barriers to expanding housing options. Community engagement reflected concerns that regional policies could reinforce patterns of limited housing choice in rural areas, making affordability a challenge. While EJFP concentrations in Underhill are relatively low, lower-income households in rural areas or older housing stock may face disproportionate burdens from transportation costs, isolation, and climate-related risks such as flooding.

Westford

Westford's environmental benefits include expansive open space, forested landscapes, and clean air. However, the community remains divided over how and where to accommodate housing options, particularly following the failed wastewater bond that limited expansion opportunities in the historic village. While mapped EJFP concentrations are low, lower-income households in rural areas and those in car-dependent neighborhoods may face disproportionate burdens related to transportation costs, limited infrastructure, and climate-related risks.

Williston

Williston offers access to clean air, protected natural areas, and recreational opportunities in its rural and conserved lands. Compact development in and around Taft Corners reduces some sprawl-related impacts, while nearby trails and green space enhance access to nature for many residents, although transportation may be a barrier. Rapid growth and redevelopment pressures raise concerns about increased traffic, loss of open space, and impacts to water quality from stormwater runoff. Areas outside the core growth center remain heavily car-dependent, creating inequities in access to services and adding transportation-related burdens. Residents of mobile home parks and lower-income households may experience disproportionate exposure to environmental burdens such as limited pedestrian infrastructure, reduced access to parks and civic spaces, and higher vulnerability to climate-related hazards.

Winooski

Winooski's compact nature and full municipal water and sewer service provide strong environmental benefits, including reduced reliance on cars, efficient infrastructure use, and proximity to parks and community amenities. Residents value green spaces like Gilbrook Natural Area and ongoing investments in safe, inclusive public infrastructure. However, high population density, limited developable land, and older housing stock contribute to environmental burdens, including limited tree canopy, localized heat island effects, and stormwater management

challenges. Community members, particularly in West of Main Street neighborhoods, where EJFP concentrations are highest, have raised concerns about housing quality, overcrowding, and proximity of affordable housing to flood-prone or environmentally compromised areas. These conditions underscore the need for equitable investment in green space, infrastructure, and housing quality improvements to ensure environmental benefits are accessible to all residents. Like Burlington, community engagement also revealed that numerous Winooski residents from EJFP communities do not trust their drinking water and either buy bottled water or boil their tap water.

Equity Analysis and Necessary Plan Updates

This section summarizes CCRPC's review of the ECOS Plan goals and actions, along with updates to the Future Land Use (FLU) Map, to ensure that changes address environmental justice (EJ) concerns and promote a more equitable distribution of environmental benefits and burdens across Chittenden County. The analysis identifies potential EJ impacts resulting from changes to the Plan and FLU Map, assesses whether these impacts are likely to exacerbate, mitigate, or leave existing inequities unchanged, and pinpoints focus areas where adjustments may be needed. Where appropriate, changes have been made to policies, actions and map areas mitigation strategies have been incorporated to ensure that environmental justice focus populations are not disproportionately affected and that plan updates advance fairness and inclusion.

ECOS PLAN ACTIONS

CCRPC staff reviewed all 2026 ECOS Plan Actions in August 2025 and identified that roughly 60% of the actions are related to advancing the equitable distribution of environmental benefits and burdens. In addition, in direct response to 2025 community engagement and this analysis, CCRPC added the following actions to the draft 2026 ECOS Regional Plan:

1. **Equitable Planning Practices, 3.b - Equitable Resource Allocation**: Regularly monitor how and where CCRPC resources are distributed with respect to EJFP populations. Ensure that resources are distributed equitably, taking into account Supplement 3- the Environmental Benefits and Burdens Analysis.
2. **Equitable Planning Practices, 3.c - Environmental Benefits and Burdens Analysis.** Monitor development of State's environmental benefits and burdens analysis. Continue to refine CCRPC's approach to our own environmental benefits and burdens analysis to reflect best practices and qualitative data.
3. **Equitable Planning Practices, 2.d.i -Indigenous Participation in Land Use Decisions:** Ensure indigenous representation in the land use planning process through formal consultation, advisory roles, and the inclusion of traditional indigenous knowledge.
4. **Equitable Planning Practices, 4.d - Support Indigenous Planning Capacity:** Support Indigenous community access to funding, training, and technical support for Indigenous-led planning efforts, aligned with their priorities and knowledge systems.
5. **Land Use, 4.a - Indigenous Land Access**: Partner with indigenous communities to restore access to ancestral lands and culturally significant sites. Lean on models like First Light for how to do this in a way that centers indigenous priorities and decision-making power in land conservation efforts.
6. **Land Use, 4.b - Traditional Land Management and Food Sovereignty:** Incorporate Indigenous land practices into public and private land management. Support Indigenous food sovereignty through land access, seed keeping, and cultural harvesting rights.
7. **Land Use, 2d - Housing Targets.** Support planning and zoning modernization efforts that enable and encourage housing development in areas planned for growth, in order to help reach local and regional housing targets.

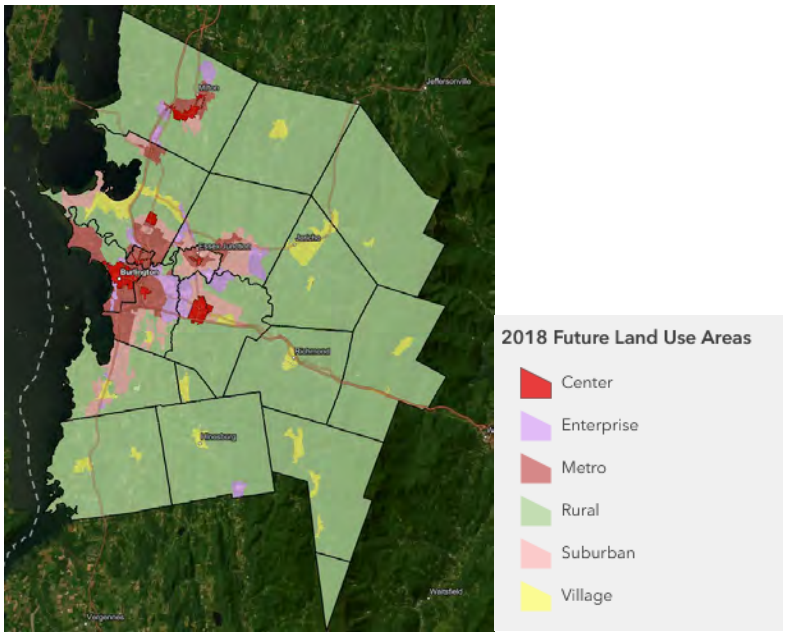
8. **Scenic, Recreational, and Scenic Resources, 3.c - Cultural Site Documentation and Protection:** Support Indigenous-led documentation and protection of sacred and cultural sides, with respect for community control over sensitive information.
9. **Infrastructure and Facilities, 1.d - Regional Infrastructure and Resource Mapping**. Build understanding of infrastructure needs and opportunities by pursuing a regional wastewater study. Pursue research to better understand groundwater resources and constraints.

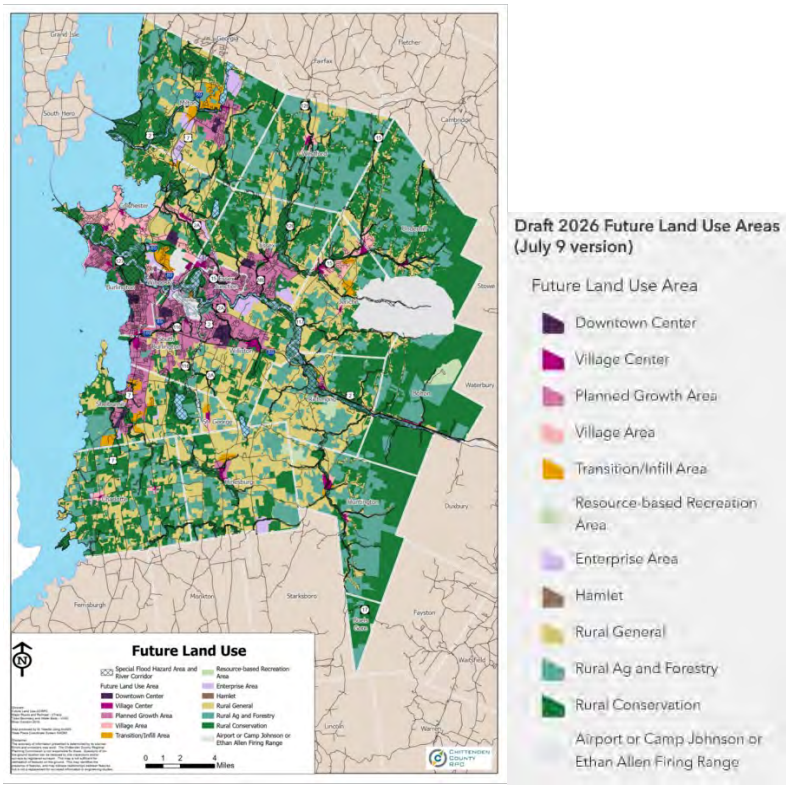
Also, in response to outreach and analysis, the following actions were amended (*amendments are indicated by underlined text):*

1. **Ecological Systems, 2a - Inventories and Mapping.** Assist with surveys, inventories, and mapping of forest blocks, wildlife crossings, natural communities (i.e. special features within forest blocks, surface waters, and riparian areas), and other significant habitats (e.g. wetlands), scenic resources, and locations of invasive species. Consider how to incorporate indigenous knowledge into these processes.
2. **Ecological Systems, 3 - Municipal Development Review Regulations**. Help municipalities create clear development regulations and definitions to protect ecological and habitat resources without having an exclusionary effect on current and future residents. Example measures may involve limiting intrusions to interior forest and connectivity blocks or maintaining vegetative cover and larger culverts around wildlife road crossings.
3. **Watershed Health, 1e - Increase flood resilience**. Support non-regulatory efforts to reduce damage from future floods. This includes: identifying repetitively damaged structures; providing technical and financial assistance to elevate, relocate, or buy out structures; supporting planning and mitigating for mobile home parks vulnerable to flooding; and identifying where flood storage capacity may be restored and conserved.
4. **Housing, 2g - Housing Preservation.** Take steps to preserve existing affordable housing from being converted to market rate housing and continue to encourage shared equity for new-owner homes. Provide technical assistance to municipalities that choose to regulate short-term rentals. Provide technical assistance and project management to support the preservation of, and reinvestment in, existing mobile home parks.

FUTURE LAND USE MAP

These images provide a comparison between the 2018 Future Land Use Map and the 2026 Future Land Use Map. The images can be viewed side by side by following this link.





Summary of Regional Map Changes (2018 → Draft 2026)

- The 2018 FLU map's growth areas were based largely on municipal zoning. *Center, Metro, Enterprise, Suburban,* and *Village* were the categories considered growth areas. These areas were broad, with less fine-grain distinction between rural subtypes and growth nodes.
- The 2026 FLU map applies statutory land use categories established by Act 181 and integrates municipal plans, adopted policies, and direct community engagement feedback.
- In the 2026 FLU map, the growth areas are *Downtown Centers, Village Centers, Planned Growth Area (PGA), and Village Area*. These categories are generally more compact and precise, often refined to align with infrastructure, services, and walkability.
- Rural areas are split into *Rural General, Rural Agriculture and Forestry, and Rural Conservation,* subcategories, providing clearer emphasis on conservation priorities, habitat connectivity, and climate resilience.
- In some locations, growth area boundaries have contracted to avoid floodplains or ecologically sensitive lands (e.g., along river corridors in Bolton, Huntington, Richmond). In others, growth area boundaries have expanded or shifted slightly to align with adopted local plans for growth (e.g., Milton town core, Essex Junction downtown, Hinesburg village).
- Enterprise Areas and other non-residential hubs remain, but are more clearly separated from residential growth categories, clarifying their intended uses.

Regional Environmental Justice (EJ) Implications

- Many of the county's largest EJFP concentrations — in Burlington (Old North End, parts of the South End, Riverside Avenue corridor), Winooski, Essex Junction, Colchester (Fort Ethan Allen, Severance Corners), and parts of Milton — are within or adjacent to *Downtown Centers, Village Centers,* or *PGAs*. This means future development and redevelopment activity is targeted to areas where historically marginalized residents already live – something that could bring both benefits and burdens to these groups.
- Targeting new development in these locations can improve access to jobs, transportation choices, and services, and can use infrastructure more efficiently. It can also create heightened risk of displacement, and housing cost escalation if safeguards aren't in place.
- The focus on certain areas for development on the 2026 FLU map aims to reduce the risk of sprawl into conservation and agricultural lands, which helps protect environmental benefits countywide. However, the corollary is that EJFP neighborhoods in urbanized cores may shoulder a higher proportion of future growth-related impacts.
- Some EJFP clusters — notably mobile home parks in Milton, Colchester, Williston, and Shelburne — currently sit just outside designated growth areas, which may limit their access to public investment and infrastructure upgrades compared to nearby PGA/Village Center neighborhoods.
- The updated FLU Map reduces exposure to environmental burdens by restricting new development in river corridors, which can lower flood risk for vulnerable communities and protect downstream neighborhoods.

Overall Comparison of 2018 and 2026 ECOS Plans: Advancing the Equitable Distribution of Environmental Benefits and Burdens

The 2026 ECOS Plan introduces several updates aimed at advancing environmental justice (EJ) and promoting a more equitable distribution of environmental benefits and burdens across Chittenden County compared to the 2018 Plan. These benefits include access to clean air and water, nature, active transportation, safe and affordable housing, and resilience to climate hazards. Burdens include exposure to flood risk, poor air quality, limited transportation options, and industrial or traffic-related pollution.

Key ways the 2026 Plan advances equity relative to 2018:

- **Stronger integration of EJ concepts.** While the 2018 Plan acknowledged vulnerable populations and community health, the 2026 Plan explicitly adopts definitions of environmental benefits and burdens and uses EJFP mapping to assess where inequities may exist.
- **Expanded engagement approach.** The 2026 Plan reflects targeted engagement with EJFPs, municipal officials, and community-based organizations. This goes beyond the 2018 Plan's primarily broad public outreach, though gaps remain, particularly where people's felt needs differ from available data.
- **Future Land Use Map.** The 2026 Plan replaces the zoning-based "areas planned for growth," which were based on local zoning, with statutorily defined growth areas (Centers, Priority Growth Areas, and Village Areas), identified by assessing adopted policy, infrastructure capacity, and community input. This refined approach to identifying areas for growth has the potential to improve access to benefits and reduce exposure to burdens, but the outcome will depend on how development and infrastructure investments are implemented.
- **Stronger climate and resilience focus.** The 2026 Plan integrates hazard risk reduction, climate resilience, and floodplain avoidance more directly into land use, housing, and infrastructure actions—building on the 2018 Plan's higher-level resilience language.
- **Broader integration of equity across topics.** The 2026 Plan weaves equity into housing, transportation, economic development, and natural systems strategies, rather than confining it to a few targeted actions as in the 2018 Plan.

Compared to 2018, the 2026 ECOS Plan makes a clearer and more systematic effort to identify and address inequities in environmental benefits and burdens. It embeds EJ considerations more deeply across policy areas and uses engagement and mapping to inform decisions. These advances are largely at the policy and planning framework level. The extent to which they translate into measurably more equitable outcomes will require sustained commitment to implementation, municipal capacity, and ensuring that development in or near EJFP areas delivers tangible benefits while avoiding new or amplified burdens.

Looking Forward

This is the first time CCRPC has completed an environmental benefits and burdens analysis, representing a significant step toward addressing Vermont's Planning Goal #15. While this effort provides a foundation for understanding how benefits and burdens are distributed across Chittenden County, feedback from municipalities, partners, and especially the Community Engagement Advisory Committee (CEAC) made clear that many of the region's environmental and equity challenges stem from deeper systemic issues. These challenges cannot be fully addressed within the current planning framework, which is constrained by standardized requirements and existing power structures.

Trusted community voices—particularly those representing Environmental Justice Focus Populations (EJFPs)—emphasized that the current analysis, while an important first step, does not yet capture the true felt needs of these communities. As a regional planning commission, CCRPC is both part of the system that has contributed to inequities and a potential driver of change. This dual role carries both responsibility and opportunity: to advocate for reforms that better align planning processes and outcomes with Vermont's equity and environmental justice goals, while recognizing that systemic change will require leadership and coordination at the state level.

Importantly, CCRPC undertook this analysis before the State of Vermont developed a methodology or conducted a similar statewide assessment. As such, it represents a "first, best attempt" using the data and tools available at the

time. CCRPC anticipates revisiting and refining this process once the state's definitions and methodology are available, ensuring alignment across jurisdictions and incorporating new guidance.

Finally, the process highlighted the need for more equitable frameworks and a willingness to ask different questions than those currently guiding state and regional planning. The list of "Questions and Considerations" below reflects CCRPC staff and community partner insights gathered throughout the process. These are intended to inform and strengthen future iterations of this work.

QUESTIONS AND CONSIDERATIONS FOR FUTURE WORK

1. Systems Change

- How can CCRPC help shape systemic change to better align with Vermont's equity and environmental justice goals?
- How can *underlying systems* be shifted so environmental benefits and burdens are more equitably distributed?
- What is needed to make planning goals achievable?
- How can the analysis be reframed to center equity as the primary driver, rather than environmental metrics?
- How can CCRPC ensure the right questions—framed by communities most affected—are driving planning and policy decisions?
- How has Act 250 contributed to inequitable distribution of benefits and burdens, and what additional reforms could address this?
- How can this analysis process help prepare for future climate-related challenges—such as extreme weather, flooding, and shifting resource availability—so that we are not just reacting to current conditions but actively planning for resilience?
- How can this analysis help proactively plan for and manage the cumulative impacts of growth in areas that are more fully built out? How can growth support EJFP needs? How can potential industrial/residential conflicts be avoided or mitigated?
- How can we continue to evaluate where possible expansion of infrastructure can improve equity? How can we guard against policies that limit infrastructure expansion and have an exclusionary effect?

2. Data and Measurement Improvements

- Develop more robust, diversified, and community-informed data sources to assess benefits and burdens.
- Address challenges in measuring broad benefits/burdens in Vermont where data is sparse or statistically unreliable due to low population and high margins of error.
- Replace municipality-to-municipality comparisons with evaluation against established "healthy" or equitable thresholds for each benefit/burden.
- Clarify definitions of environmental benefits and burdens so they are meaningful and actionable in local and regional contexts.
- Identify additional indicators to measure true *access* to land (e.g., agricultural land affordability, household tenure security, zoning and regulatory barriers, community land ownership models, access to traditional and cultural lands, hunting/fishing/foraging rights).

3. Community Engagement and Collaboration

- Maintain ongoing, iterative engagement with EJFP residents in and near growth areas to learn about the impacts of growth; adapt implementation actions based on this lived experience. Engage around both local and state policies.
- Support and collaborate with the state to ensure their analyses are informed by robust, early, and ongoing community engagement.
- Incorporate CEAC and partner feedback into recommendations to the state when they conduct their own analysis.

This first iteration is a starting point, not a conclusion. The work ahead will require ongoing dialogue, refinement of methods, and coordinated action to ensure that environmental benefits are shared equitably, and that the burdens of development and change do not fall disproportionately on communities that have historically been marginalized.

Resources

To develop this methodology, CCRPC staff reviewed several established and emerging best practices and guidance documents. These resources provided insights into current approaches for evaluating environmental justice (EJ) concerns, including cumulative impact assessments and health disparities mapping. CCRPC also relied on regional, state and national data sources for its baseline analysis.

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