Using the Municipal Climate Change Vulnerability Indicators Tool

ANR Municipal Day

November 1, 2024

VERMONT AGENCY OF NATURAL RESOURCES

CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION

Agenda

- Overview
- Tool walk-through
- Use cases
  - Town Planning (General)
  - Local Hazard Mitigation Plan
  - Flood Recovery Community Conversations
  - Heat Vulnerability – Washington County

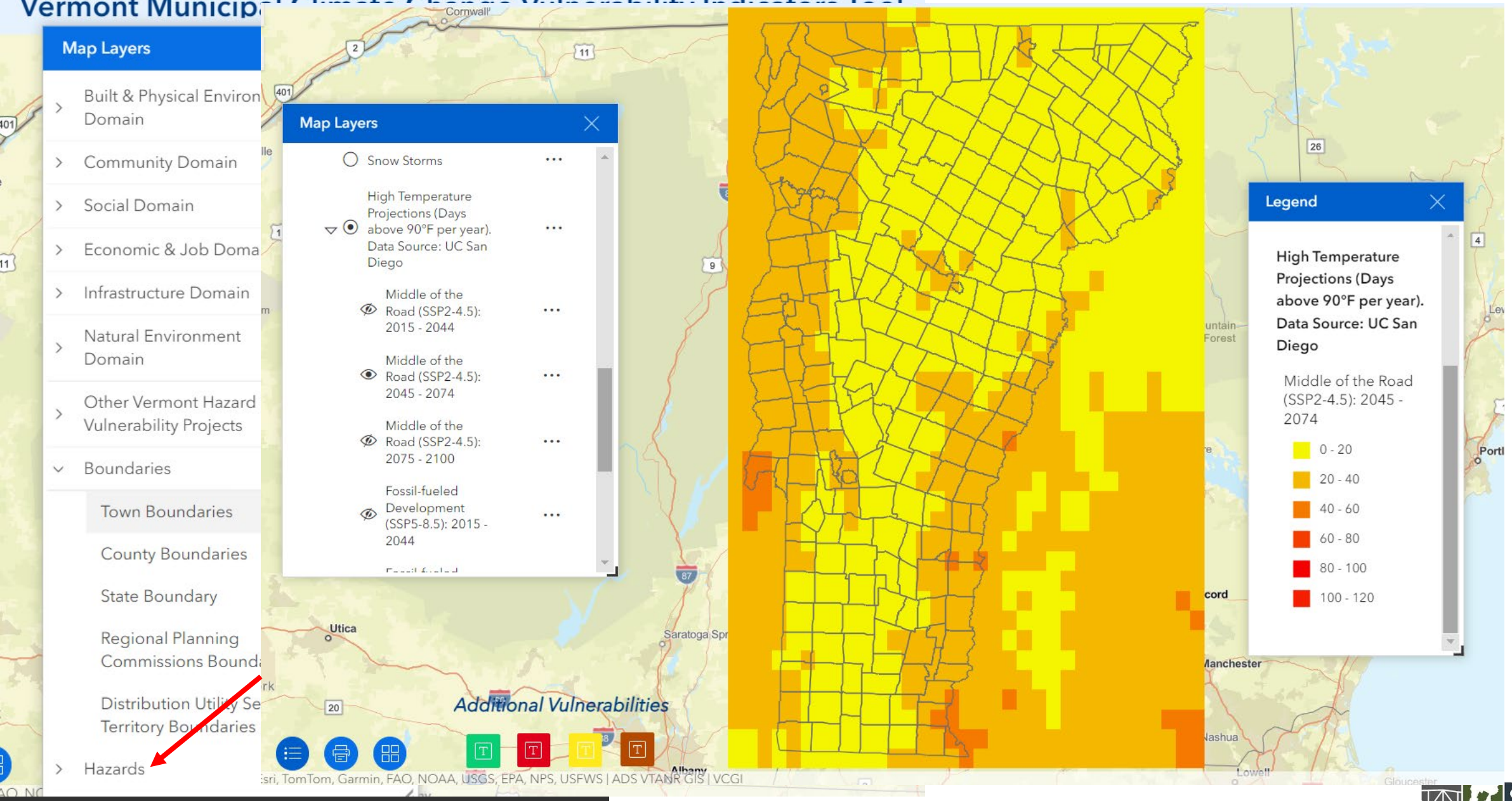
The Municipal Vulnerability Indicators Tool (MVI) is…

- a **mapping tool** to help municipalities understand their vulnerabilities to climate change across several social, economic, and environmental factors.
- a **conversation resource** to inform towns' hazard mitigation plans, local energy plans, municipal plans, or other municipal documents.
- a set of **climate hazard data** that includes both historic data, and climate projections, where possible.

VERMONT AGENCY OF NATURAL RESOURCES

CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION

Vermont Municipal Climate Change Vulnerability Indicators Tool



VERMONT AGENCY OF NATURAL RESOURCES

CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION

Climate Vulnerability Domains and Factors

Social	Community	Economic and Jobs	Built and Physical Environment	Infrastructure	Natural Environment	Hazards
• Population • Income • Elderly residents • Children • People with disabilities • Single parent households • Linguistic isolation • No vehicle • No internet • Rentership • Adult Asthma • Race and Ethnicity • Energy and transportation burden • Hosing cost burden • Access to healthy foods	• Municipal staff capacity • Emergency Relief and Assistance Fund (ERAF) rates • Designated areas • Plan and regulation status • Historic districts	• Outdoor worker • Agriculture • Tourism Industry	• Emergency services • Mobile homes • Other household types • Other site types • Housing age • Critical assets	• Roads, bridges, and culverts • Airports • Public transit • Power lines • Drinking water infrastructure • Wastewater infrastructure • Electric substations • Power plants • Impervious surfaces	• Municipal tree inventory • Toxic or contaminated sites • Conserved and protected lands • Community and species-scale priorities • Landscape-scale priorities	• Drought • Extreme precipitation • Fluvial Erosion-river corridors • Hail • Ice storms • Invasive species • Inundation flooding (FEMA) • Inundation flooding (Lake Champlain) • Landslides • Snow storms • High temperatures • Low temperatures • Wildlife • Wind

VERMONT AGENCY OF NATURAL RESOURCES

CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION

Training Materials

www.climatechange.vermont.gov/mvi

Launch the MVI Tool
MVI Introduction Video – February 20, 2024
MVI User Guide

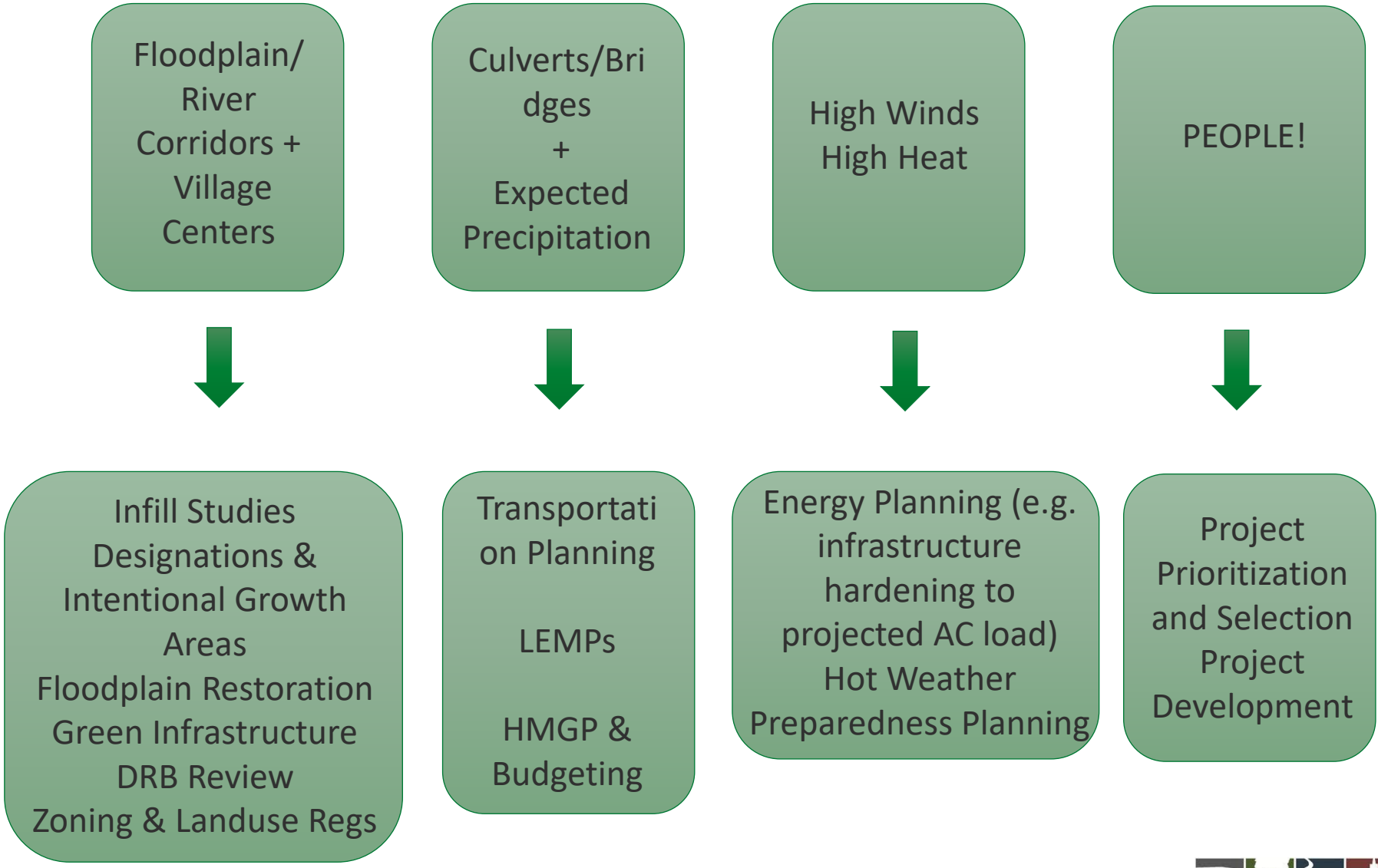
VERMONT
AGENCY OF NATURAL RESOURCES

CVRPC
CENTRAL VERMONT REGIONAL PLANNING COMMISSION

Use Cases

- Town Planning (general)
- Local Hazard Mitigation Plan
- Flood Recovery Community Conversations
- Heat Vulnerability – Washington County

Town Planning (General)



VERMONT AGENCY OF NATURAL RESOURCES

CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION

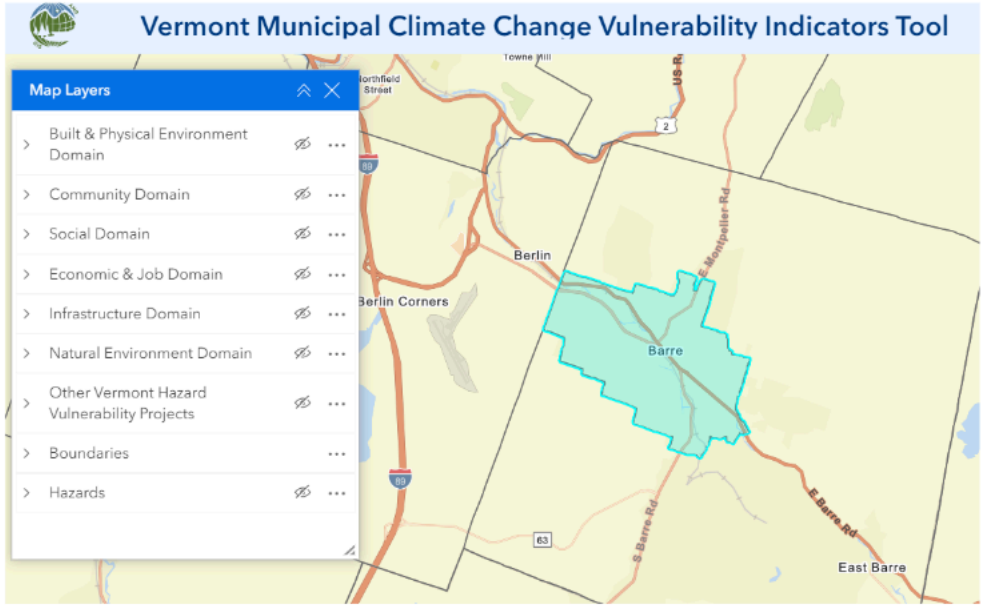
Grant Programs: eligibility and project development

Local Projects and Planning:
- project prioritization

- project impacts (distribution of benefits & burdens)

-community outreach & engagement

- intersectional planning: health equity, transportation access, housing, +



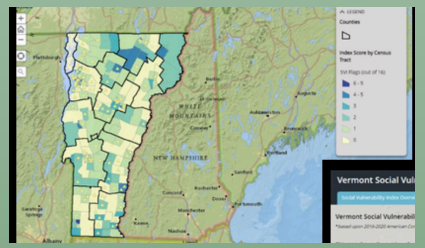
MVI Tool (2024)
Washington County
City Population: 8,590

Flagged Factors that Contribute to Climate Vulnerability:

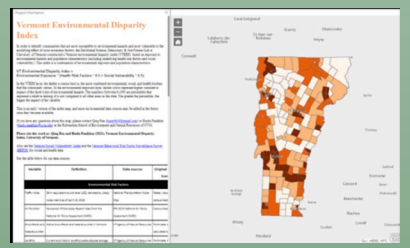
- Low Income Residents: 44%
- Elderly Residents: 13%
- People with Disabilities: 24%
- No Vehicle Access: 24%
- No internet access: 17%
- Transportation & Energy Burden: 12%
- African American: 1.7%
- Multiracial Residents: 3.9%
- Housing Built Prior to 2000: 92%
- Rentership Cost Burden: 22%

These factors are higher than the state average.

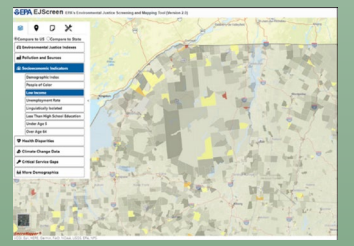
Next Steps: Data & Resources



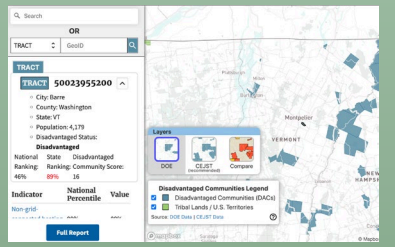
VT Dept Health Social Vulnerability Index



VT Environmental Disparity Index



EJ Screen



Energy Justice Mapping Tool- Disadvantaged Communities & Climate &Economic Justice Tool

VERMONT AGENCY OF NATURAL RESOURCES

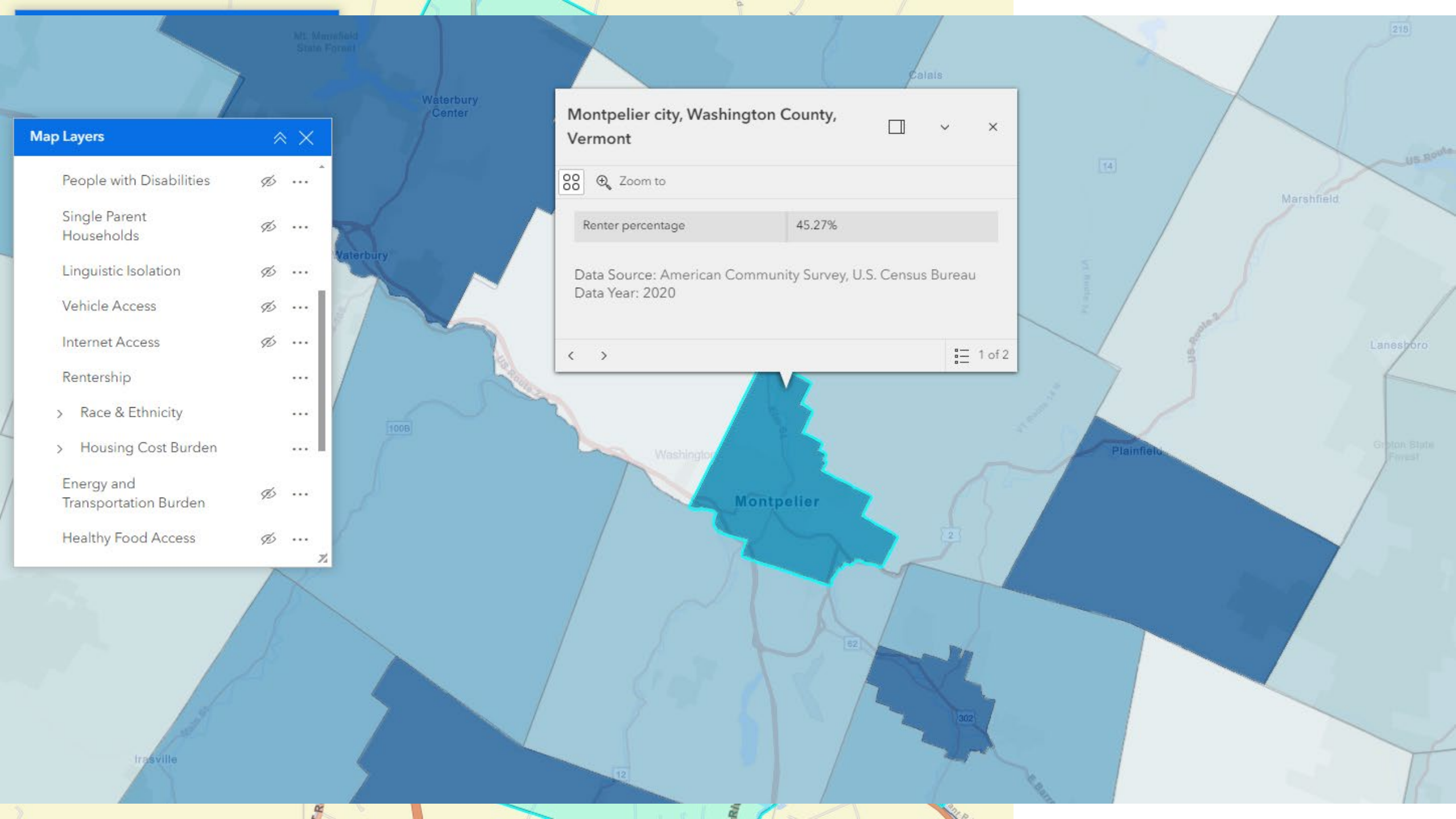
CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION

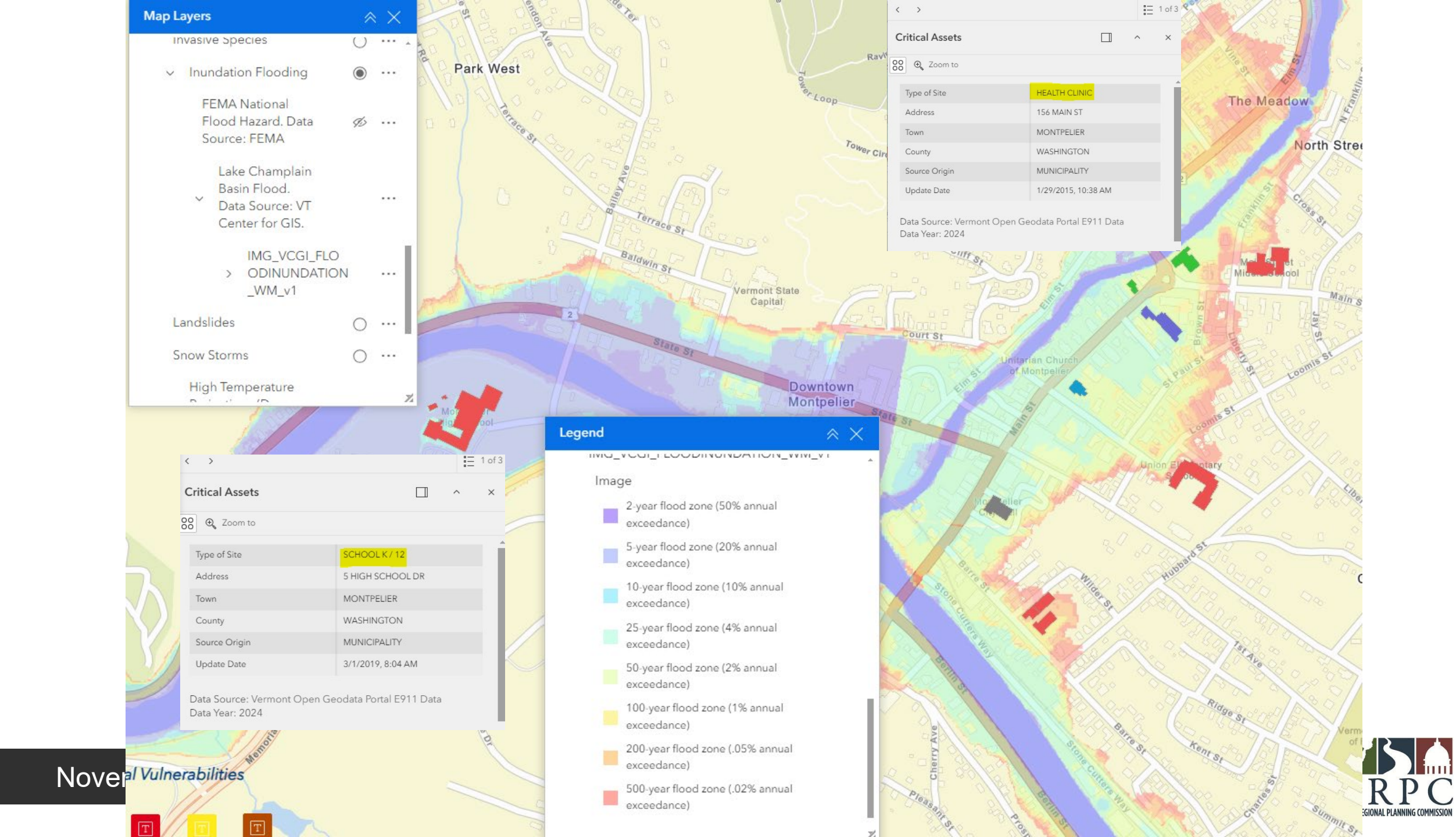
Local Hazard Mitigation Planning

MVI tool can help you get ready for meeting the FEMA LHMP standards, by providing a high-level climate vulnerability assessment of your community.

VERMONT AGENCY OF NATURAL RESOURCES

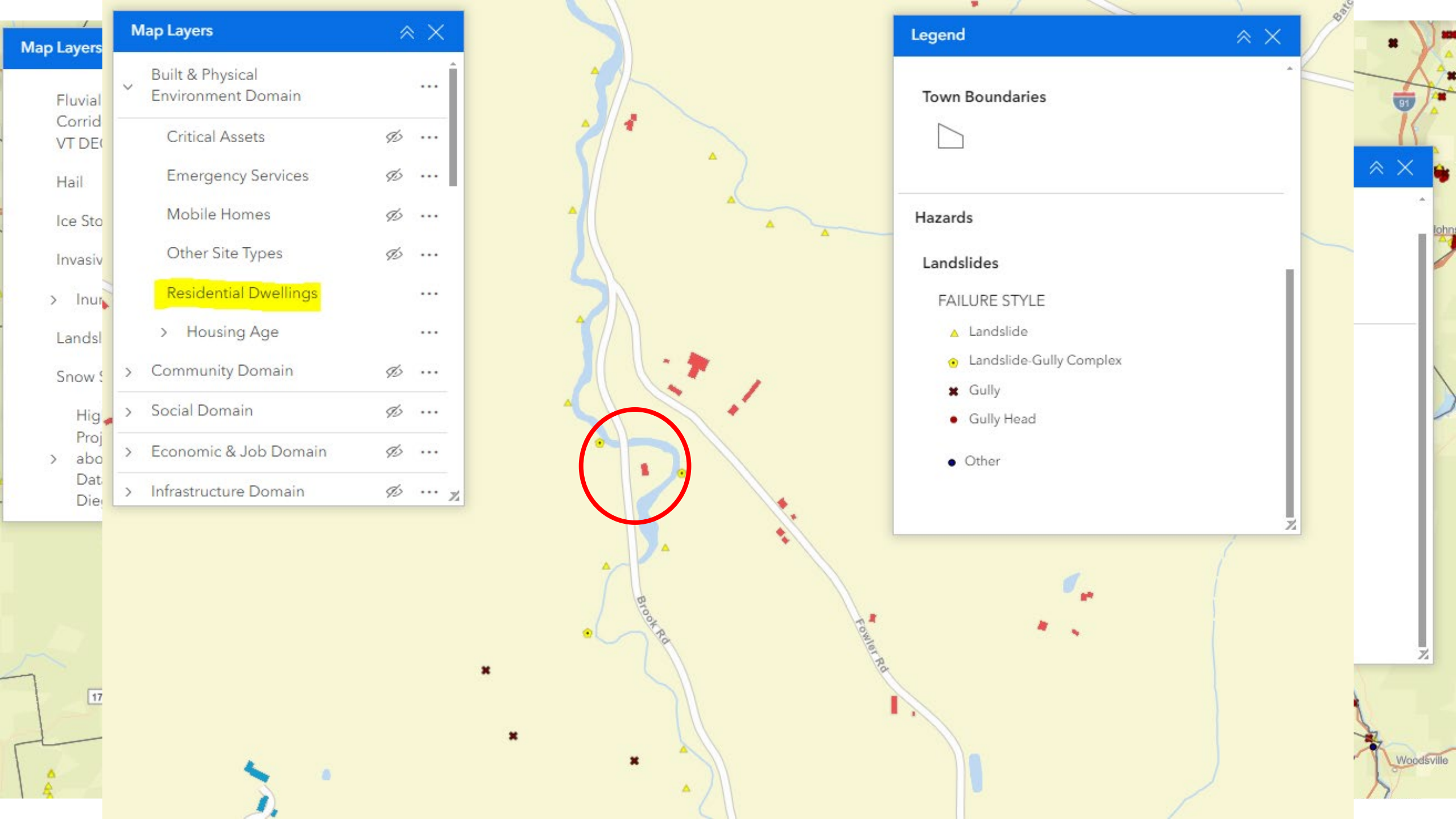
CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION


Map Layers
People with Disabilities
Single Parent Households
Linguistic Isolation
Vehicle Access
Internet Access
Rentership
Race & Ethnicity
Housing Cost Burden
Energy and Transportation Burden
Healthy Food Access
Montpelier city, Washington County, Vermont
Zoom to
Renter percentage
45.27%
Data Source: American Community Survey, U.S. Census Bureau
Data Year: 2020
1 of 2
Montpelier
Waterbury
Waterbury Center
Marshfield
Plainfield
Calais
Lanesboro
Irasville
Mt. Mansfield State Forest
Groton State Forest
US Route 2
100B
302



Nover al Vulnerabilities

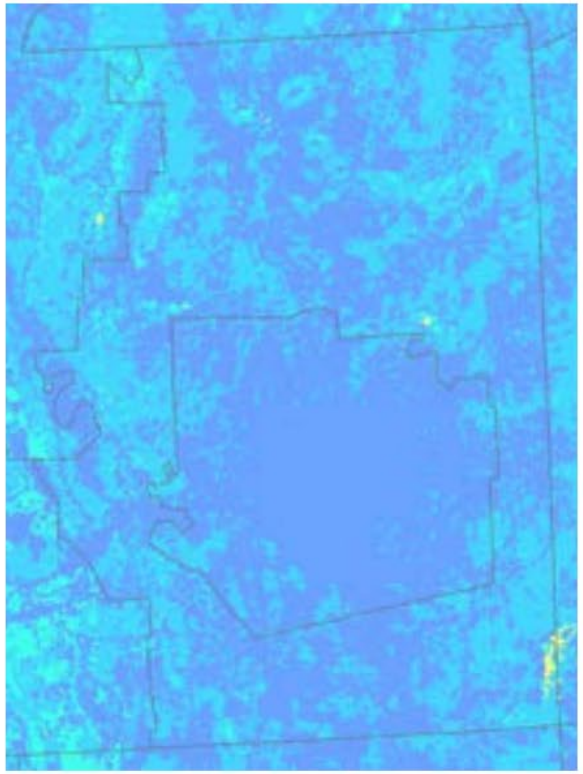
RPC
EGIONAL PLANNING COMMISSION


Map Layers
Built & Physical Environment Domain
Critical Assets
Emergency Services
Mobile Homes
Other Site Types
Residential Dwellings
Housing Age
Community Domain
Social Domain
Economic & Job Domain
Infrastructure Domain
Legend
Town Boundaries
Hazards
Landslides
FAILURE STYLE
Landslide
Landslide-Gully Complex
Gully
Gully Head
Other
Brook Rd
Fowler Rd
Woodsville

Hazard Profile Basics

November 1, 2024 |

NATURAL HAZARDS & RISKS



WILDFIRE

Hazard Potential:

- Very low
- Low
- Medium low
- Medium
- Medium high

INVASIVE SPECIES

Emerald Ash Borer

DROUGHT

17.48 - average number of weeks in severe to exceptional drought per year from 2000-2022

SNOW STORMS

13.11 - average number of snow storms per year from 1996-2022

ICE STORMS

0.04 - average number of ice storms per year from 1996-2022

EXTREME TEMPERATURE PROJECTIONS

0-20 - number of days **above 90-degrees F** projected between 2015-2044

120-140 - number of days **below 32-degrees F** projected between 2015-2044

ACTIVE MVI MAP LAYER(S)

- Hazards

Hazard Profile Basics

Bridport Hazard: Transportation Vulnerability

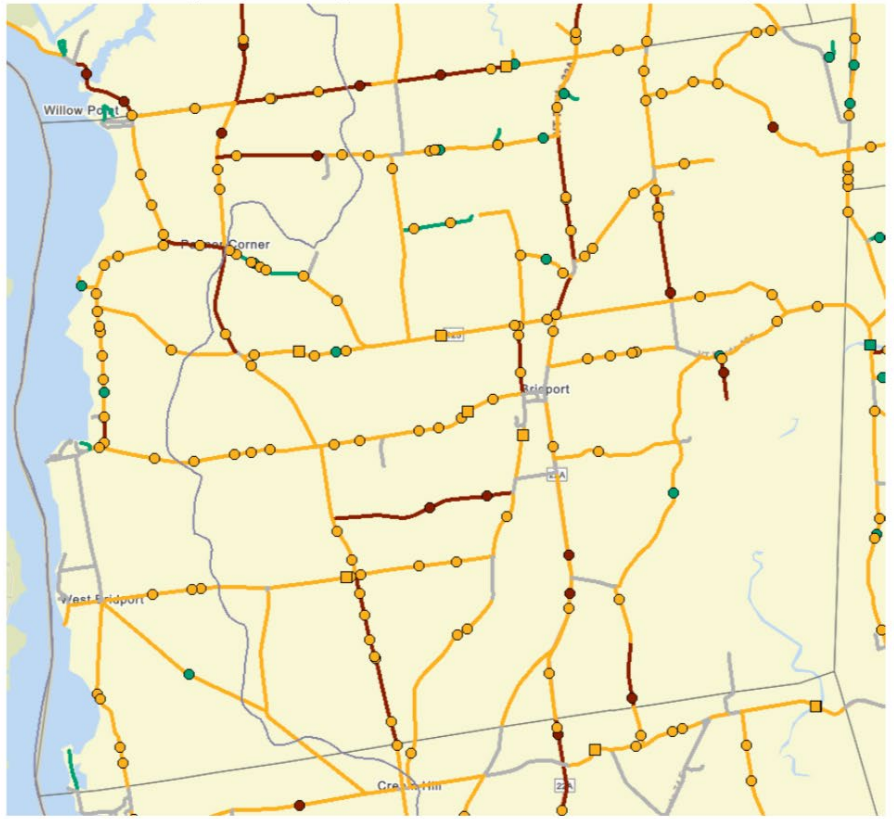
Extreme Precipitation | Erosion

Transportation structures are exposed to threats from **flood inundation, erosion, and deposition.**

The Municipal Vulnerability Indicators Tool includes information from the Vermont Transportation Resilience Planning Tool (TRPT).

TRPT identifies bridges, culverts, and road embankments that are vulnerable to damage from floods, estimates that risk and the criticality of roadway segments.

MVI Map: Transportation Vulnerability



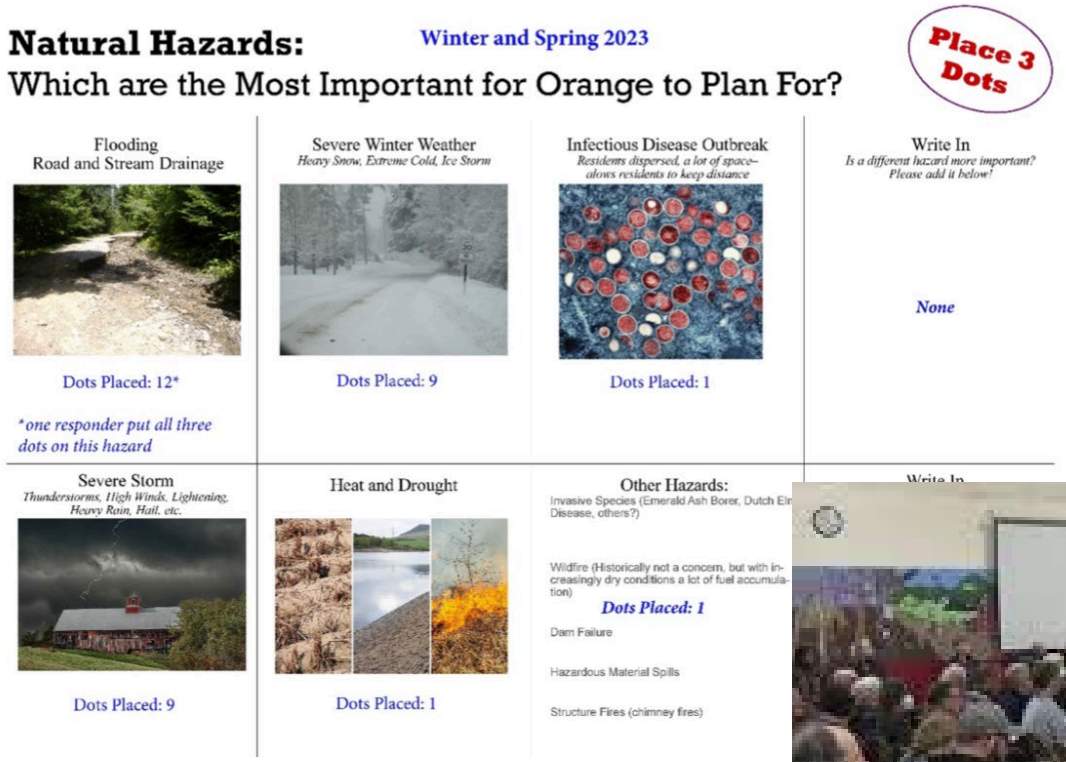
https://climatechange.vermont.gov/mvi

In Bridport, the highest vulnerability and greatest criticality road segments are Rattling Bridge Road, Swinton Road, Town Line Road, Bridge Road, Basin Harbor Road, and East Street

MVI Activated "Open" Layers:

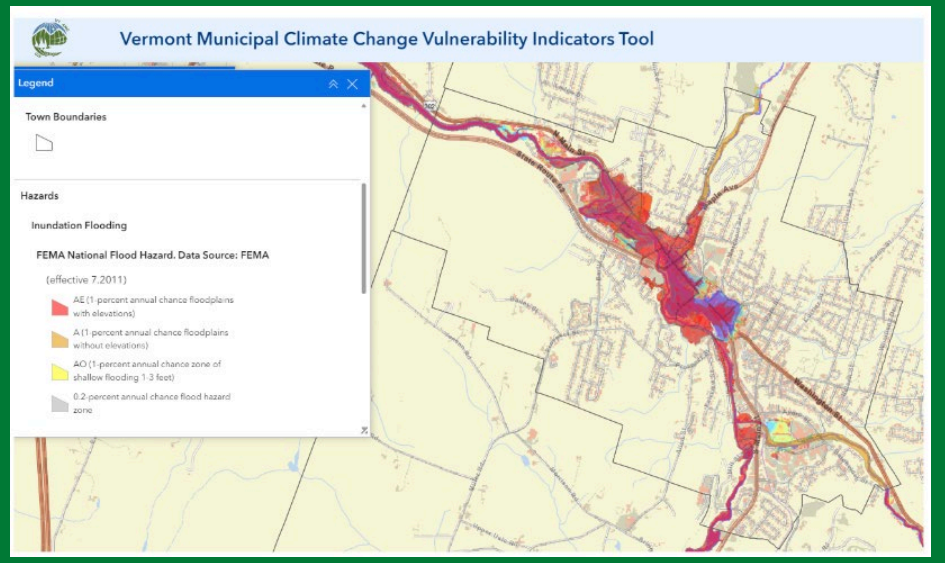
1. Other Vermont Hazard Vulnerability Projects > Transportation Resilience Planning > Bridges
2. Other Vermont Hazard Vulnerability Projects > Transportation Resilience Planning > Culverts
3. Other Vermont Hazard Vulnerability Projects > Transportation Resilience Planning > Roads

LHMP: Local Planning Team Risk Assessment & Community Engagement



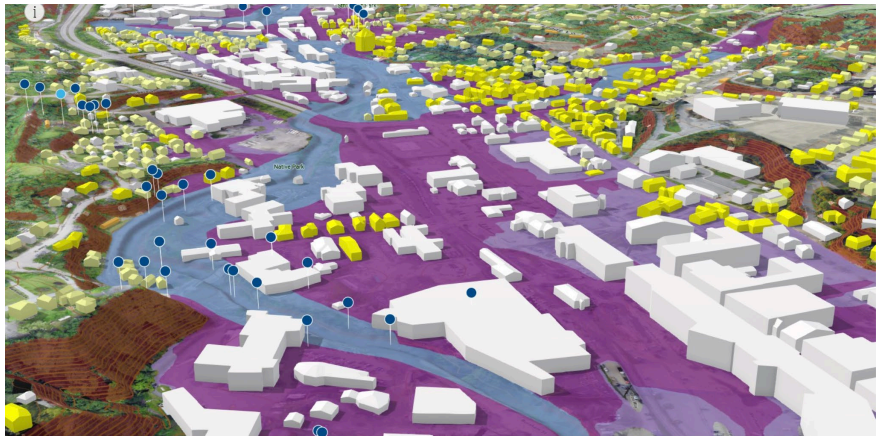
VERMONT AGENCY OF NATURAL RESOURCES

CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION

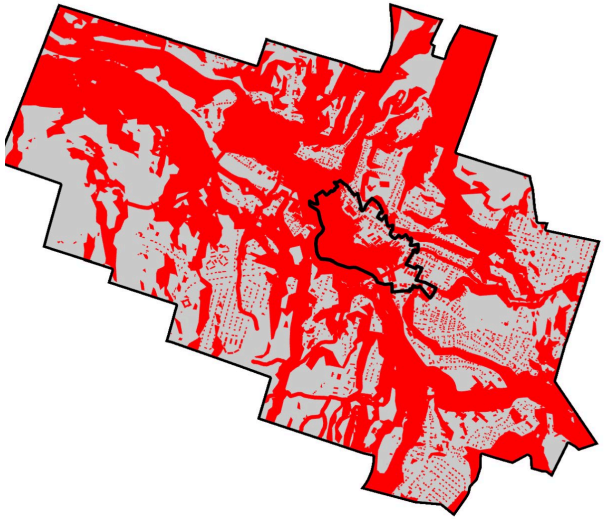


Supporting Flood Recovery Community Conversations & Next Steps

November 1, 2024 | 17



Tracking recent events, impacts, and extent

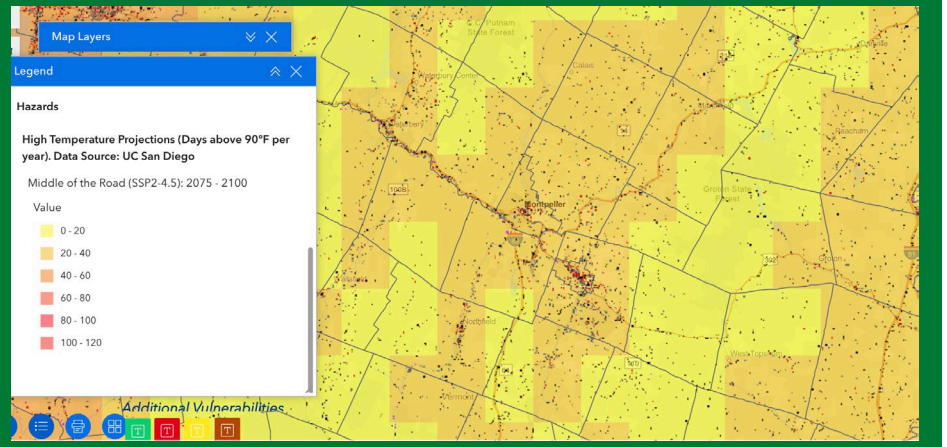


Infill Analyses and Development Limiting Factors

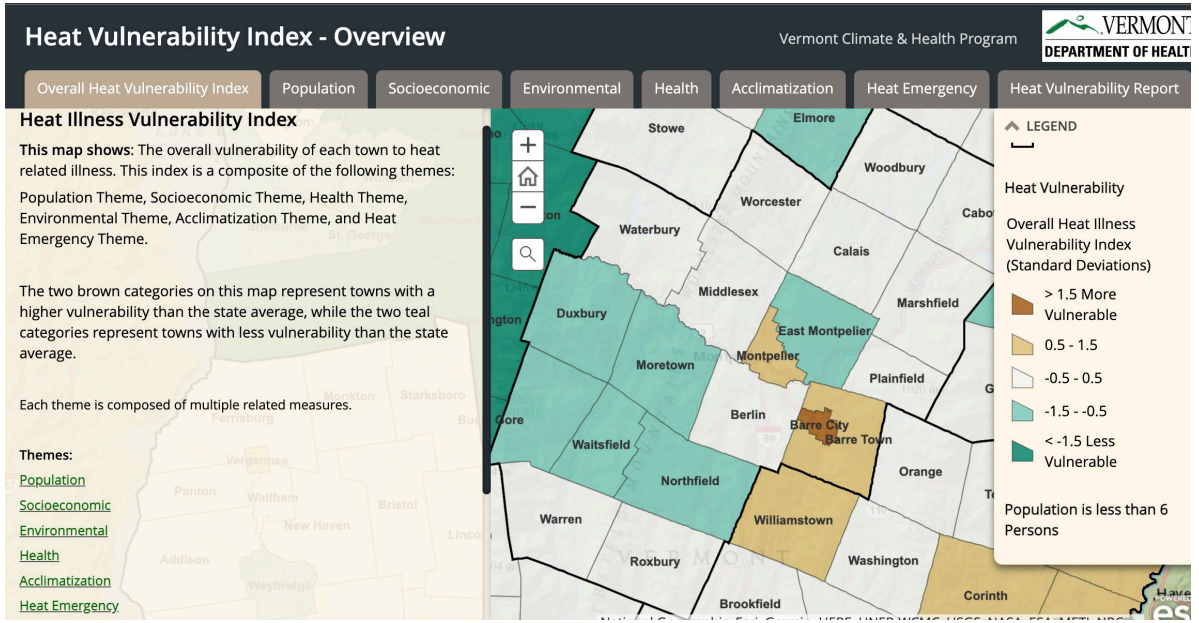
Hydrological studies and far more!

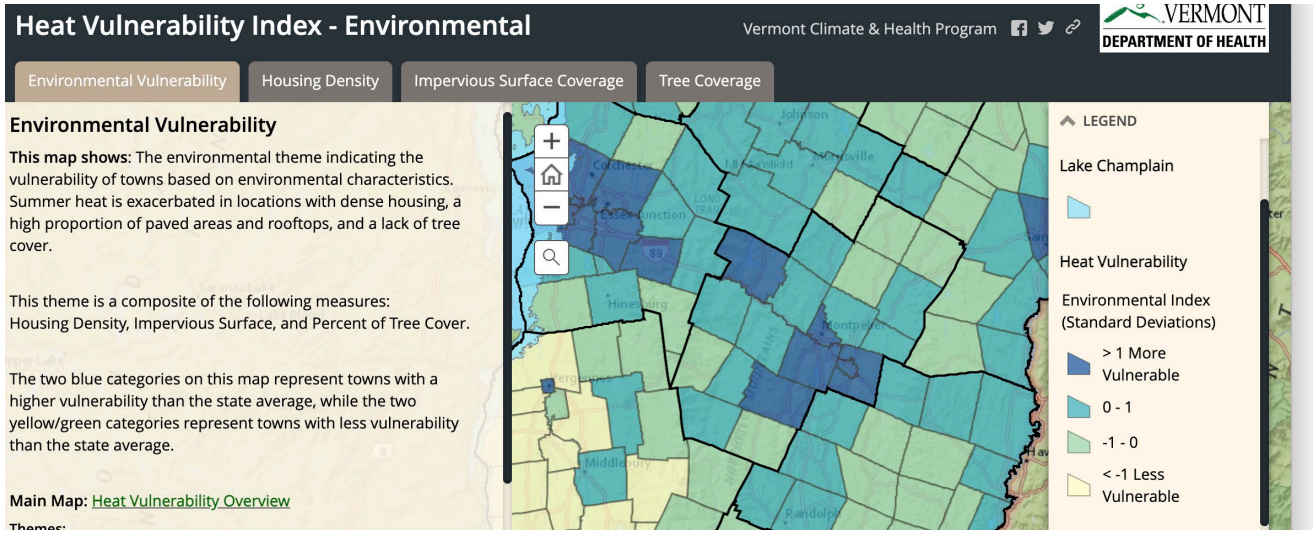
VERMONT AGENCY OF NATURAL RESOURCES

CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION



Heat Vulnerability… from data to action (and people!)





VERMONT AGENCY OF NATURAL RESOURCES

CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION

Tips!

- Pay Attention to Data Resolution (Scale)
- Pay attention to Source (and follow links)
- Change the transparency of layers so you can understand how they interact
- Start by toggling everything on and off!
- Supplement with local data, how can you track and build datasets that fill gaps?
- Pull up and navigate in your planning discussions, during community conversations, etc!
- Reach out to your RPC or the Climate Action office for support!

VERMONT AGENCY OF NATURAL RESOURCES

CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION

Thank you!

Sam Lash
Climate & Energy Planner
Central Vermont Regional Planning Commission
lash@cvregion.com

Marian Wolz
Resilience & Adaptation Coordinator
ANR Climate Action Office
marian.wolz@vermont.gov

VERMONT AGENCY OF NATURAL RESOURCES
CVRPC CENTRAL VERMONT REGIONAL PLANNING COMMISSION