

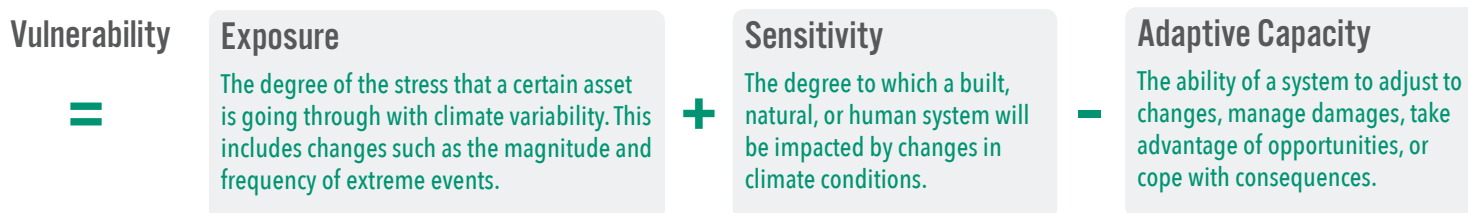
# Climate Change Vulnerability Index (CCVI)



## Information for a More Resilient Connecticut

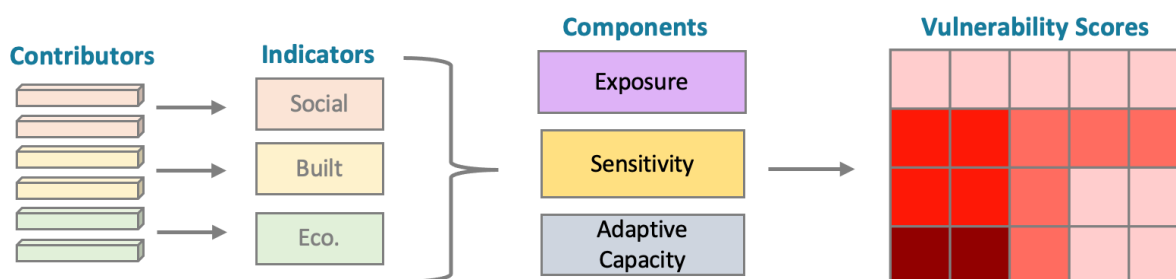
### What is the CCVI?

An index-based spatial model that identifies community vulnerability to flood, wind, and heat-related impacts of climate change. The CCVI characterizes areas based on an equation using sensitivity plus exposure, minus adaptive capacity. The equation can be defined as:



### How Does it Work?

The CCVI process is based on combinations of exposure, sensitivity, and adaptive capacity applied to thousands of grid cells. For example, the sensitivity component includes many different contributors that fall under three different indicators – social, built, and ecological. Each indicator has its own final “score” based on the average of the contributors. The average of the 3 indicators represents a score of sensitivity for one grid cell. This sensitivity score, along with final exposure and adaptive capacity scores, is used to calculate the vulnerability score, leading to many different gridded scores throughout a community. A list of flood and heat contributors can be found on the back.



### What might this tool mean for municipalities?

In addition to other resilience data and planning tools, municipal staff, consultants, and the general public can access new vulnerability map viewers to assist with their community’s resilience planning, to make educated decisions about future development and infrastructure investments, and to use as information for grant applications. A new CCVI Story Map guides users through the steps needed to use flood and heat vulnerability viewers in Fairfield and New Haven Counties. Visit the CCVI website to access these viewers and to give CIRCA feedback on the approach and products: [resilientconnecticut.uconn.edu/ccvi](https://resilientconnecticut.uconn.edu/ccvi).

# Flood Contributors

| Sensitivity   |  |  |   |   |
|---|--|--|---|---|
| <b>Social</b><br>Median Income<br>Older than 5 with a Disability<br>Percent below Poverty Level<br>Average no. Per Household<br>Lack of Vehicle<br>Percent Population over 65<br>Percent Population under 5<br>Speaks English less than well/not at all<br>Population Density<br>Race and Ethnicity<br>Percent Population Unemployed<br>Percent Population over 25 without a HS Diploma |  | <b>Built</b><br>Building Density<br>Median Structure Age<br>Critical Facilities<br>Railways in SFHA<br>Streets in SFHA<br>Private Wells<br>Historic Resources<br>Brownfields<br>Septic Areas<br>Bus Terminals<br>Railroad Stations |   | <b>Eco.</b><br>Critical Habitat<br>Land Cover<br>Natural Diversity Data Base (NDDB) |
| Exposure  |  | Adaptive Capacity  |   |   |
| <b>Climate</b><br>FEMA Flood Zones<br>Sea Level Rise<br>Tidal Range<br>Storm Surge  | <b>Physical</b><br>Elevation (Pooling areas)<br>Erosion Susceptibility<br>Impervious Surfaces<br>Shoreline Change Rate<br>Soil Drainage Properties<br>North Atlantic Aquatic Connectivity Collaborative (NAACC) Stream Crossings | <b>Social</b><br>High Owner-Occupied Housing<br>Disposable Income<br>NFIPs in Force<br>Compared to # of Structures in SFHA   | <b>Built</b><br>Distance to Hospitals<br>Distance to Shelters<br>Coastal Structures and Flood Protection<br>Riverine Flood Protection Systems<br>Water and Sewer Service Areas<br>Open Space in SFHA<br>Proximity to Highway Access<br>Regulatory Standards | <b>Eco.</b><br>Marsh Migration<br>Resilient Landscapes (Eco Regions)                |

# Heat Contributors

| Sensitivity  |  |  |   |  |
|--|--|--|---|--|
| <b>Social</b><br>Asthma Related Emergency Visits<br>Median Income<br>Older than 5 with a Disability<br>Percent below Poverty Level<br>Average no. Per Household<br>Lack of Vehicle<br>Percent Population over 65<br>Percent Population under 5<br>Speaks English less than well/not at all<br>Percent Population |  | <b>Built</b><br>Building Density<br>Median Structure Age<br>Private Wells<br>Unemployed<br>Population Density<br>Race and Ethnicity<br>Percent Population over 25 without a HS Diploma |   |  |
| Exposure   |  | Adaptive Capacity  |   |  |
| <b>Climate</b><br>Air Quality (PM 2.5)<br>Maximum Surface Temperatures   | <b>Physical</b><br>Impervious Surfaces<br>Emissivity | <b>Social</b><br>Percent population with Health Insurance<br>High Owner-Occupied Housing   | <b>Built</b><br>Distance to Hospitals<br>Distance to Shelters | <b>Eco.</b><br>Normalized Difference Vegetation Index (NDVI)<br>Percent Mixed Forest Cover<br>Albedo |



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