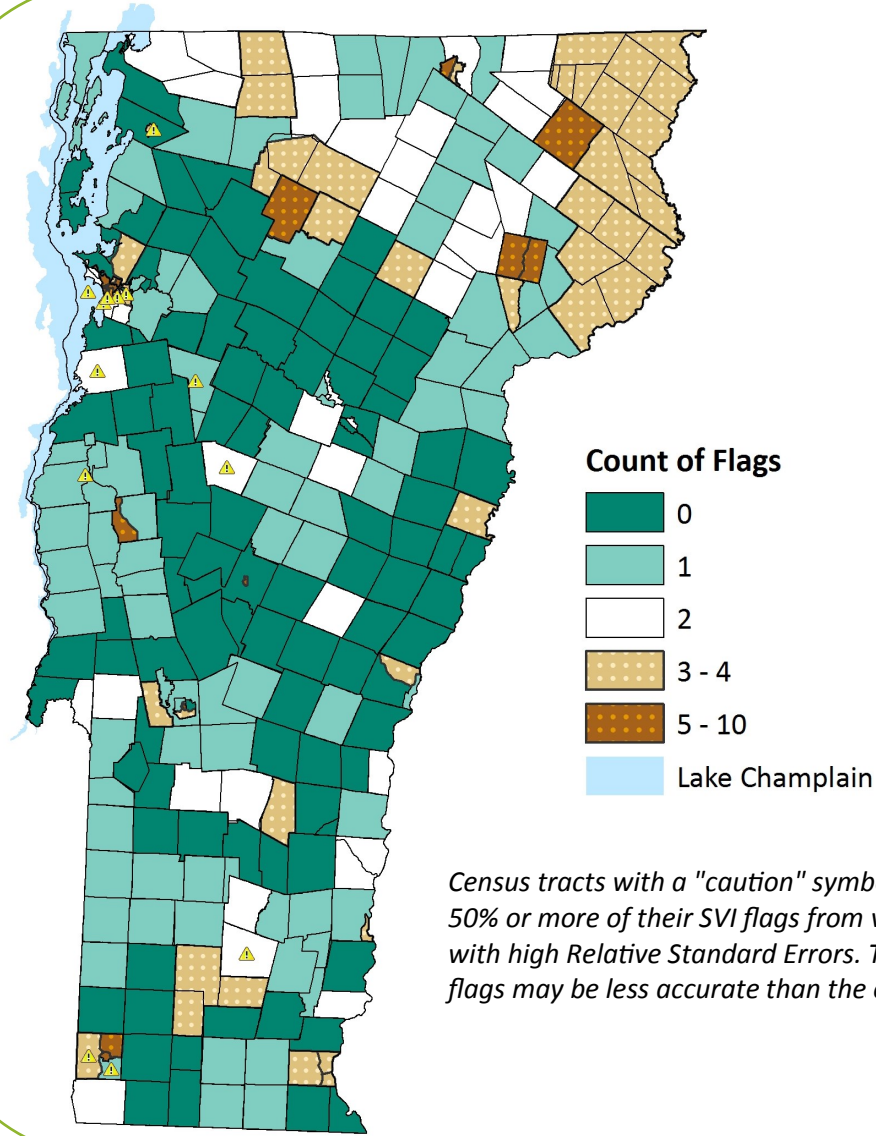


## Vermont Social Vulnerability Index



**Data Source:**

American Community Survey, United States Census Bureau (2013, 5-year estimates)

### What is the Social Vulnerability Index?

Social vulnerability refers to the resilience of communities when responding to or recovering from threats to public health. The Vermont Social Vulnerability Index (SVI) is a planning tool to evaluate the relative social vulnerability across the state. It can be used if there is a disease outbreak or in the event of an emergency—either natural or human-caused—to identify populations that may need more help.

The SVI draws together 16 different measures of vulnerability in three different themes: socioeconomic, demographic, and housing/transportation, which are defined on Page 2. For every measure, census tracts above the 90<sup>th</sup> percentile, or the most vulnerable 10%, are assigned a flag. The vulnerability index is created by counting the total number of flags in each census tract. The higher the count, the more vulnerable the population.

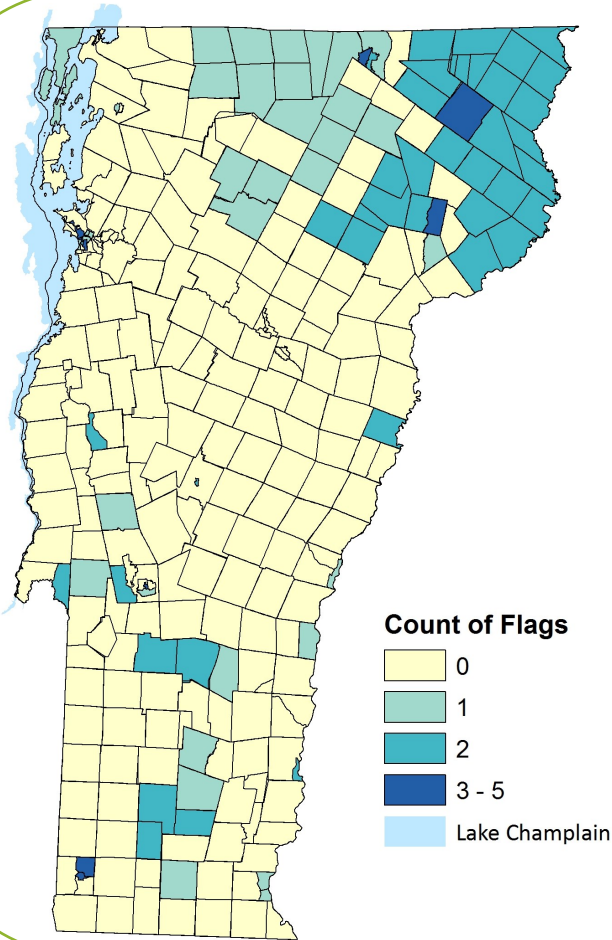
### Limitations

It is important to remember that this Social Vulnerability Index is just a first step in screening for populations that may be more or less vulnerable. Depending on the situation, different measures could be more or less important and should be looked at more closely. Local information might be more accurate than these estimates and should always be considered if it is available.

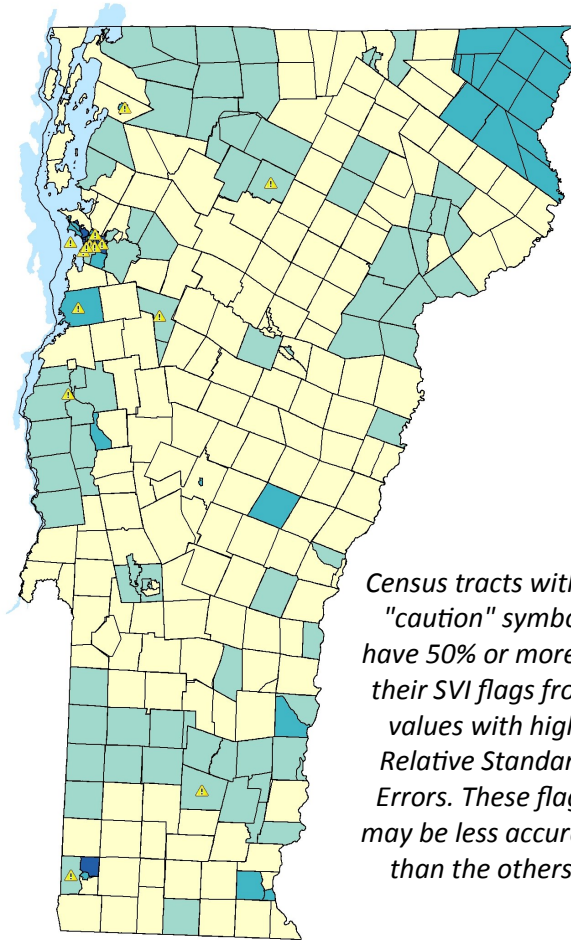
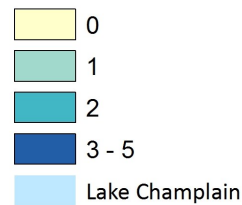
Questions about the Social Vulnerability Index?

**Contact: [AHS.VDHGIS@Vermont.gov](mailto:AHS.VDHGIS@Vermont.gov)**

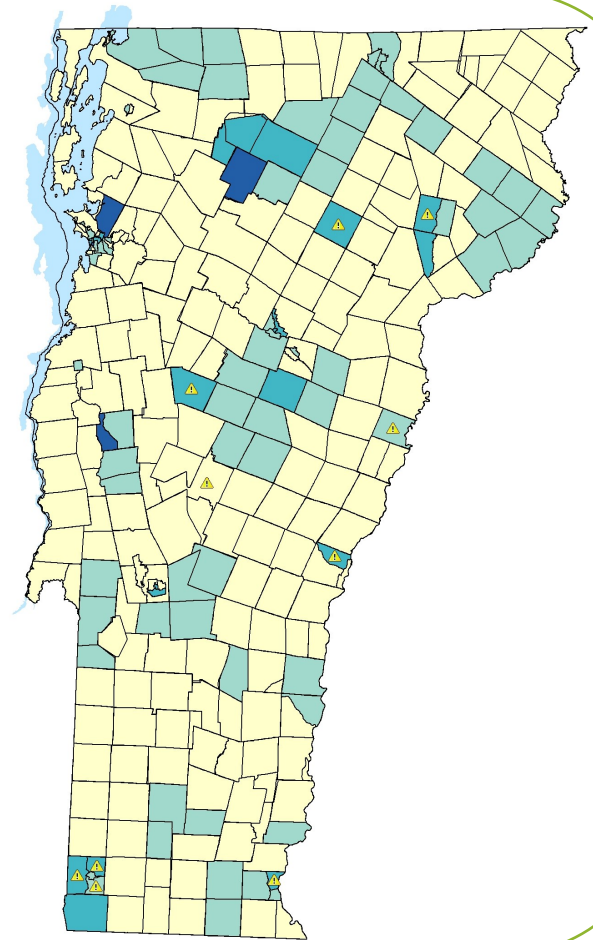
# Social Vulnerability Themes



## Count of Flags



*Census tracts with a "caution" symbol have 50% or more of their SVI flags from values with high Relative Standard Errors. These flags may be less accurate than the others.*



## Socioeconomic Vulnerability Measures:

1. **Poverty** - population living below Federal poverty level
2. **Unemployment** - age 16 and over seeking work
3. **Per capita income** - (2013 inflation-adjusted \$)
4. **Education** - age 25+ without a high school diploma
5. **Health insurance** - age less than 65 without insurance

## Population Vulnerability Measures:

6. **Children** - population age less than 18
7. **Elderly** - population age 65 and over
8. **Disability** - age 5 or more with a disability
9. **Single parent** - percent of households with children
10. **Minority** - Hispanic or non-white race
11. **Limited English** - age 5 and over who speak English less than "Well"

## Housing/Transportation Vulnerability Measures:

12. **Large apt. bldgs.** - 10 or more housing units per building
13. **Mobile homes** - percent of housing units
14. **Crowding** - housing units with more than one person per room
15. **No vehicle** - households with no vehicle available
16. **Group quarters** - population living in group quarters

Indicator Title	Social Vulnerability Index (SVI)
Indicator Key Words	Social Vulnerability, SVI, Social Determinants, Public Health
Measure	SVI is the count of unusually vulnerable SVI variables
Purpose	To summarize community level social determinants of health measures
Medical Specialty	Behavioral Health; Public Health
Abstract	Community level socioeconomic measures and demographics are associated with health and emergency response outcomes. Identifying communities with unusually vulnerable measures can improve public health planning, collaboration, and engaging individuals that need services.
Detailed Documentation	<p>The Vermont SVI is adapted from the New Hampshire SVI Model: <a href="http://nhdphs.maps.arcgis.com/home/">http://nhdphs.maps.arcgis.com/home/</a></p> <p>The NH SVI was created from the SVI model developed by CDC/ATSDR as documented in: Flanagan, B.E., Gregory, E.W., Hallisey, E.J., Heitgerd, J.L., and Lewis, B. (2011). A social vulnerability index for disaster management. Journal of Homeland Security and Emergency Management: Vol. 8: Iss. 1, Article 3. Available at: <a href="http://gis.cdc.gov/grasp/svi/A_Social_Vulnerability_Index_for_Disaster_Management.pdf">http://gis.cdc.gov/grasp/svi/A_Social_Vulnerability_Index_for_Disaster_Management.pdf</a></p> <p>CDC SVI interactive map at: <a href="http://svi.cdc.gov/">http://svi.cdc.gov/</a></p> <p>The NH implementation added a measure of health insurance coverage making a total of 16 measures. VT uses measures from the ACS 5-year estimates (2009 - 2013) in place of the 2000 census used in the original CDC/ATSDR paper.</p>
Source Data Description	U.S. Census Bureau, American Community Survey (ACS) 5 year estimates, 2009-2013
Process Description	<p>Using the following 16 measures from the American Community Survey 5 year estimates for VT census tracts.</p> <ol style="list-style-type: none"> <li>1 Poverty, percent of population living below Federal poverty level</li> <li>2 Unemployed, percent of age 16 and over unemployed and seeking work</li> <li>3 Per capita income (in 2013 inflation-adjusted \$)</li> <li>4 Education, percent of age 25+ without a high school diploma</li> <li>5 Health Insurance, percent of age less than 65 without insurance</li> <li>6 Children, percent of population age less than 18</li> <li>7 Elderly, percent of population age 65 and over</li> <li>8 Disability, percent of age 5 or more with a disability</li> <li>9 Single parent, percent of households with children that have single parent</li> <li>10 Minority, percent of population that are Hispanic or non-white race</li> <li>11 Limited English, percent of age 5 and over who speak English less than "Well"</li> </ol> <p>Housing / Transportation:</p>

	<p>12 Large apt. bldgs, percent of housing units in buildings with 10 or more units  13 Mobile homes, percent of housing units  14 Crowding, percent of housing units with more than one person per room  15 No vehicle, percent of households with no vehicle available  16 Group Quarters, percent of population living in group quarters</p> <p>Rank order each measure. Flag the 10% most vulnerable census tracts for each measure. The SVI is a count of the flagged measures in each census tract.</p>
Data visualization	<p>Each SVI measure map is displayed with 6 classes of data. These 6 classes are broken in to quantiles, meaning each class has the same number of census tracts. In this way, the three lower classes are below the state median and the three higher classes are above the state median.</p> <p>The SVI theme composite maps are broken in to 5 or 6 categories corresponding to their maximum possible number of flags, and each class is defined by a single integer value.</p> <p>The final SVI index is broken in to 6 classes by quantile. However, since there are only 11 possible integer values between 0 and 10, some classes have more tracts than others.</p>
Margin of Error Caution	<p>Census Tracts with a Relative Standard Error of 30% or higher were marked with a caution symbol. Due to high uncertainty, these values should be considered with caution.</p> <p>Relative Standard Error: <math>( \text{Standard Error} / \text{Estimate} ) * 100</math>  Standard Error: <math>\text{Margin of Error} / Z</math>, where <math>Z = 1.645</math> at the 90% confidence level</p>
Uses	<p>This Vermont SVI analysis compliments important environmental health information available through the Vermont Environmental Public Health Tracking program (<a href="http://healthvermont.gov/tracking/index.aspx">http://healthvermont.gov/tracking/index.aspx</a> ). In addition, this Vermont SVI analysis is well-suited to support other public health activities, including emergency preparedness/response and efforts to improve a wide variety of health outcomes.</p>
Limitations	<ul style="list-style-type: none"> <li>- The link between community measures and health outcomes is hard to measure and has limited research literature.</li> <li>- The SVI is based on survey responses and subject to sampling error and response biases.</li> <li>- The SVI singles out the most vulnerable communities and therefore overlooks the needs of many communities.</li> <li>- The weighting of measures should differ depending on the public health issue.</li> <li>- The SVI is intended as a planning tool to start discussion and focus attention. The SVI and its measures are not a substitute for qualitative experts familiar with the area and populations.</li> </ul>
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