



Mapping Social Vulnerabilities to Enhance Resilience in Richmond

Differences in social vulnerability across Richmond meant that the city's resilience plan didn't work equally well for all neighborhoods. To enhance their plan, the city worked with partners to develop a novel tool—the Climate Equity Index—to document neighborhood vulnerability to climate impacts.

Coming to grips with inequity

Located in the rolling hills of the Virginia Piedmont along the James River, Richmond—the state capital—is an historic and diverse city that encompasses a number of unique neighborhoods. Throughout the city's history, discriminatory policies have shaped these neighborhoods, establishing and entrenching inequities among its residents. The legacy of policies that favor one group over another is now a major hurdle that must be cleared in order to build the city's resilience.

Richmond is not alone in this problem. Social vulnerability to climate change is a growing concern that communities across the United States must face. Factors such as poverty, lack of access to transportation, and crowded housing can weaken a community's ability to respond to disaster; the same factors are associated with an increased risk of human suffering and economic loss.

Creating the Climate Equity Index

To build resilience for a whole city, efforts must acknowledge and account for the varying level of social vulnerability in neighborhoods across the community.

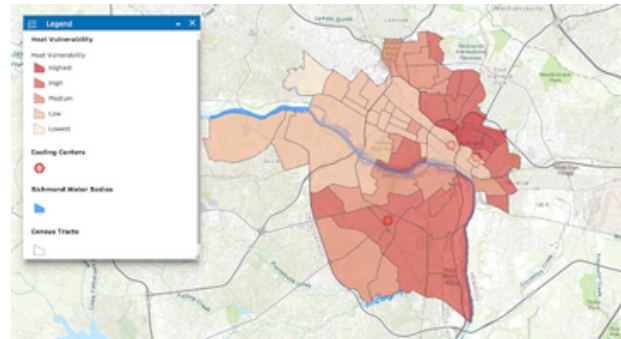
Alicia Zatcoff, Richmond's Sustainability Manager, came to this realization during the pre-planning phase of RVAgreen 2050, the city's equity-centered climate action and community resilience planning initiative. As Zatcoff and her team used the Steps to Resilience to develop a Climate Vulnerability and Risk Assessment for RVAgreen 2050, they quickly recognized the need for a social vulnerability analysis to inform the overall process. The team didn't need to start from scratch to develop their analysis. They started by researching examples and checking best practice documents from other cities. Through this review, they identified factors they could use to determine the relative vulnerability of each census tract to climate impacts such as rising temperatures, changing precipitation patterns (including flooding), and sea level rise. Based on their research, the team selected 39 data sets comprising demographic, health, and housing information for their analysis.

After a year of research and development, the Climate Equity Index (CEI) launched in 2020. This novel interactive tool shows vulnerability to climate impacts across Richmond neighborhoods. The tool can also narrow in on factors that can help decision makers develop policies and strategies to better plan for citywide resilience. The CEI tool also has the ability to evolve as new situations arise. One example is the recent addition of a layer showing vulnerability to COVID-19. And best of all, the tool is available and accessible to everyone.

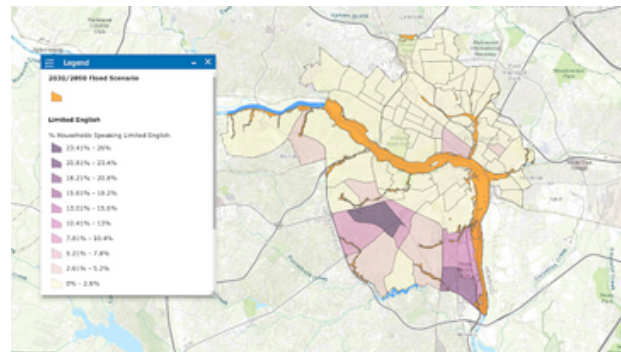
The Climate Equity Index in use

With the ability to overlay maps, the CEI tool provides valuable data-based visuals for community resilience policies and strategies. For example:

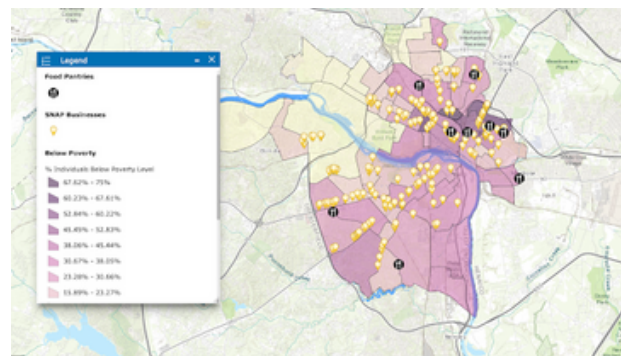
Overlaying a map of heat-sensitive residents with the locations of cooling stations can help users determine if vulnerable populations have the ability to get to cooling centers during a heat wave.



Overlaying maps of flood scenarios with households speaking limited English can help users determine where evacuation notices would need to be sent out in multiple languages.



Overlaying maps of low-income households with SNAP and food pantry locations can help show areas where people don't have access to proper nutrition.



Creating a more resilient Richmond

With the Climate Equity Index live and available for public use, Zatcoff and her team are now looking for additional input on the RVAgreen 2050 equitable climate action and resilience plan. Citizens can see their neighborhood in the mapping tool, provide feedback on their community's assets and potential vulnerabilities, and provide input to indicate if they feel the map offers an accurate reflection of their community. Using community feedback, the City of Richmond aims to have the city-wide RVAgreen 2050 climate action and resilience plan in place by Earth Day 2022.

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