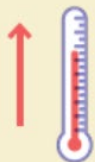




Building Resilient Communities with a Focus on Health Equity

May 25
EPA

Key Climate Challenges



Rhode Island's average temperature has increased about three degrees since 1900. The rest of the continental United States has had an average temperature increase of about 1.5 degrees.



Rhode Island has seen a 76% increase in the number of heavy downpours since 1950 and has had the nation's largest increase of extreme precipitation events since the 1950s.



Spring is arriving earlier and bringing more precipitation, and summers are hotter and drier.



Heavy rainstorms are more frequent. Severe storms cause more floods that damage homes, businesses, and utilities.



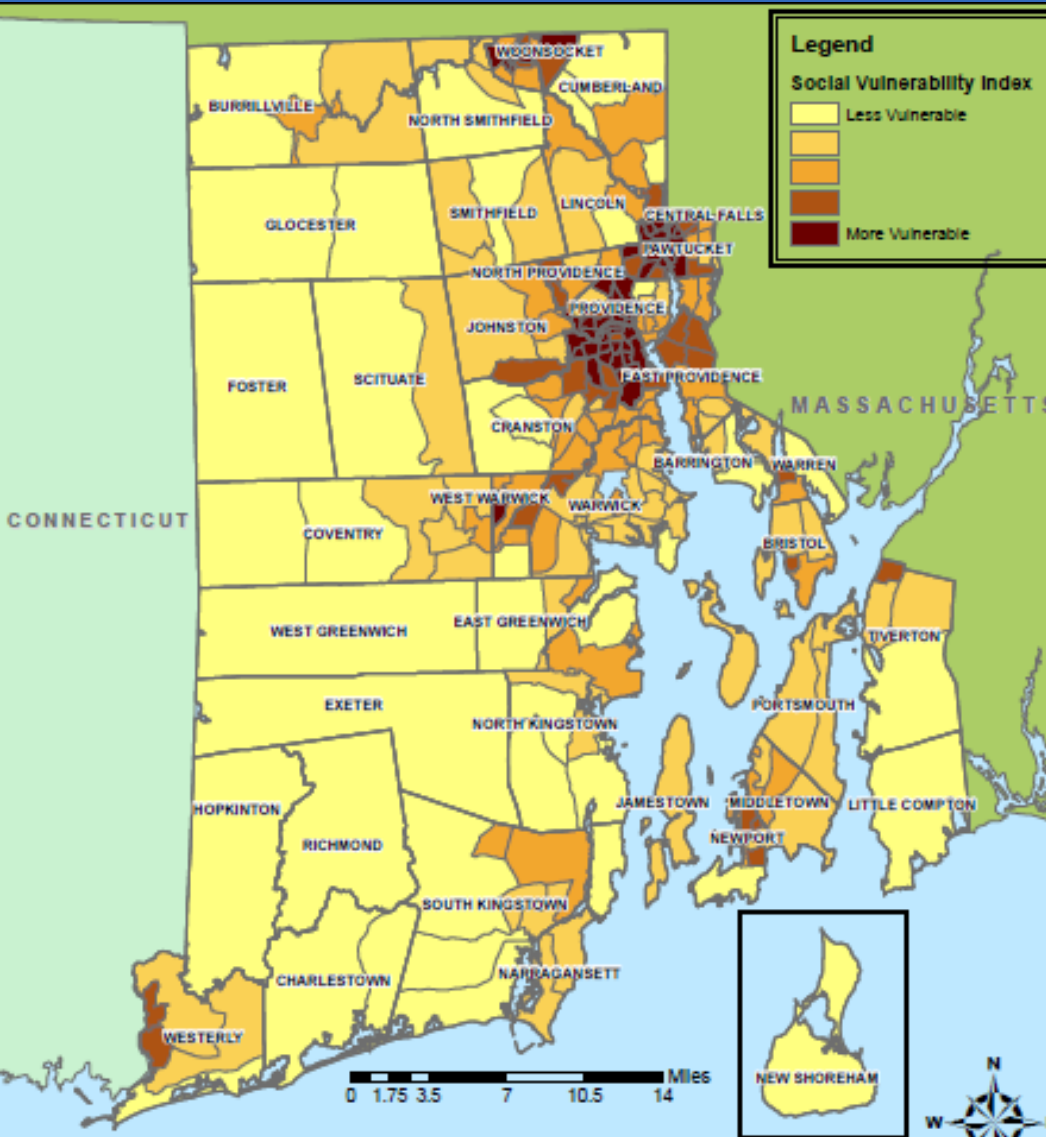
Warmer weather could increase the risk of insect-borne diseases.



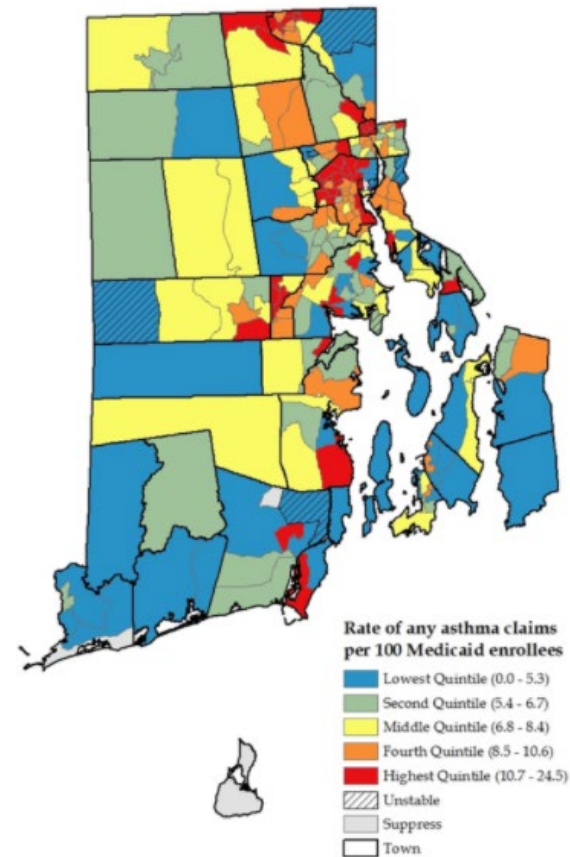
Ticks that transmit Lyme disease and other diseases are active when temperatures are higher than 45 degrees.

According to a 2014 survey, 6 in 10 Americans have given little or no thought to the issue of how climate change might affect people's health.

Climate Change is a *Risk Amplifier*

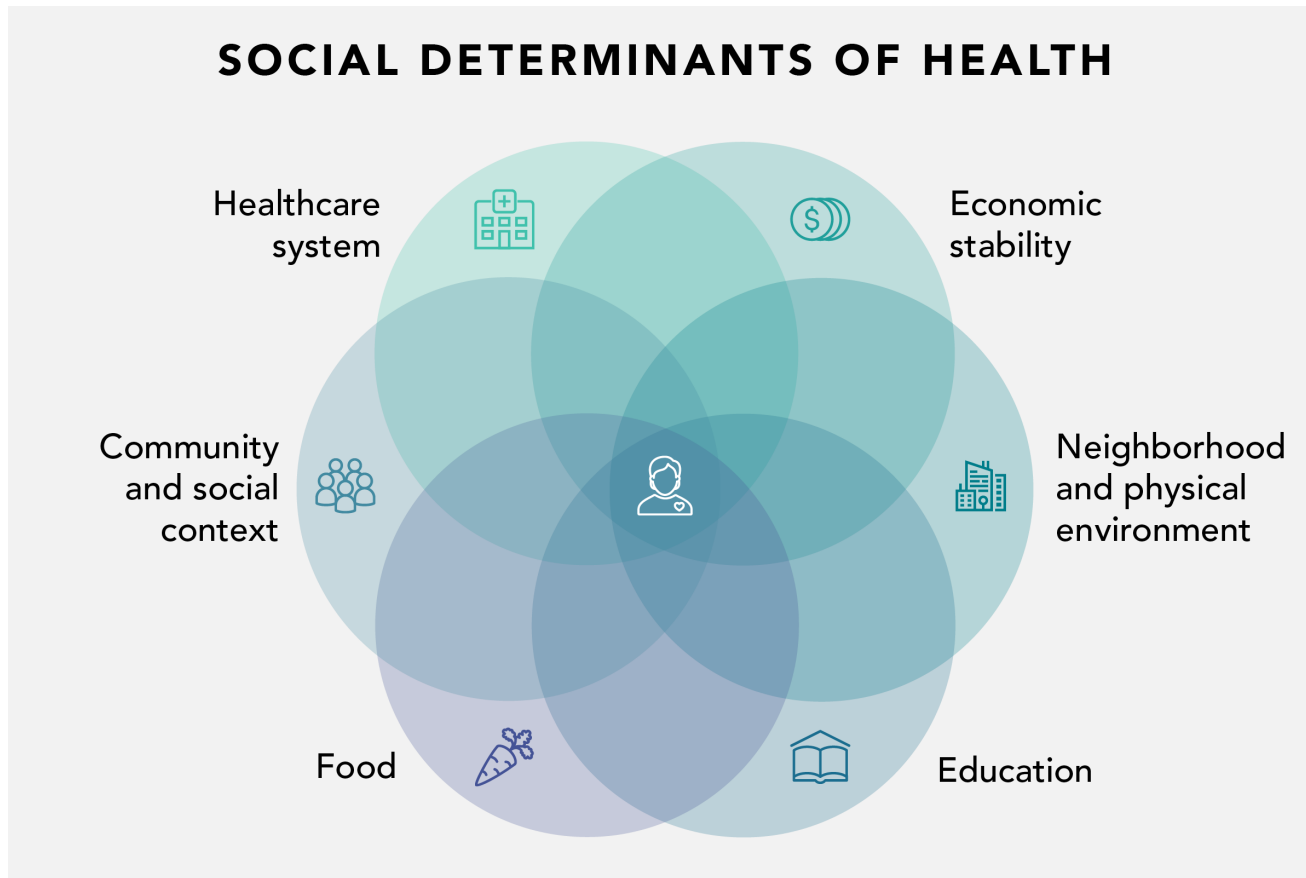


Asthma Claims Among Children on Medicaid, 2013-2017 (asthma prevalence)



* Additive Index of percentile ranks across 8 dimensions of social vulnerability: elderly, children, poverty, income, vehicle access, educational attainment, immigrant populations, and linguistic isolation.

Social Determinants of Health



If you want to learn about the health of a population, look at the air they breathe, the water they drink, and the places where they live.

-Hippocrates, in the 5th century B.C.

Rhode Island Health Equity Measures



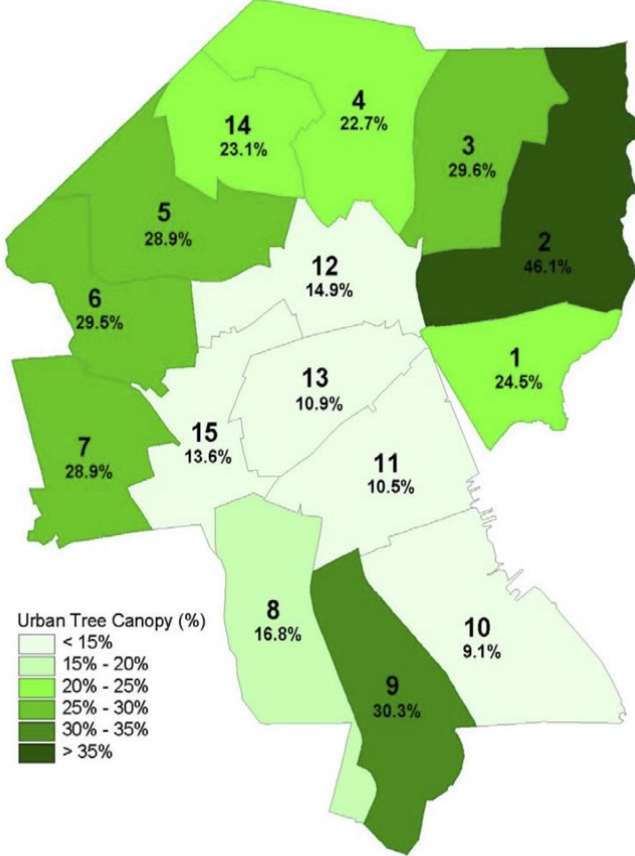
Health happens inside our homes, schools, jobs, and communities

RIDOH Health Equity Measures include fifteen measures that look at determinants of health in five domains

Community Resiliency	Civic Engagement	Percentage of registered voters participating in the most recent presidential election	Rhode Island Board of Elections
	Social Vulnerability	Index score that reflects the social vulnerability of communities	Centers for Disease Control and Prevention (CDC) Social Vulnerability Index, Agency for Toxic Substances and Disease Registry (ATSDR)
	Equity in Policy	Ratio: Number of low to moderate-income housing units to number of low to moderate-income households	HousingWorks RI, Comprehensive Housing Affordability Strategy
Physical Environment	Natural Environment	Percentage of overall landmass with tree canopy cover	US Department of Agriculture (USDA) Forest Service i-Tree Tools
	Transportation	Index score that reflects the affordability of transportation for renters	US Department of Housing and Urban Development (HUD) Low-Cost Transportation Index
	Environmental Hazards	Number and percentage of children with blood lead levels higher than 5 micrograms per deciliter	RIDOH Environmental Lead Program

Providence, Rhode Island

2007 Tree Canopy



Historic Redlining Map

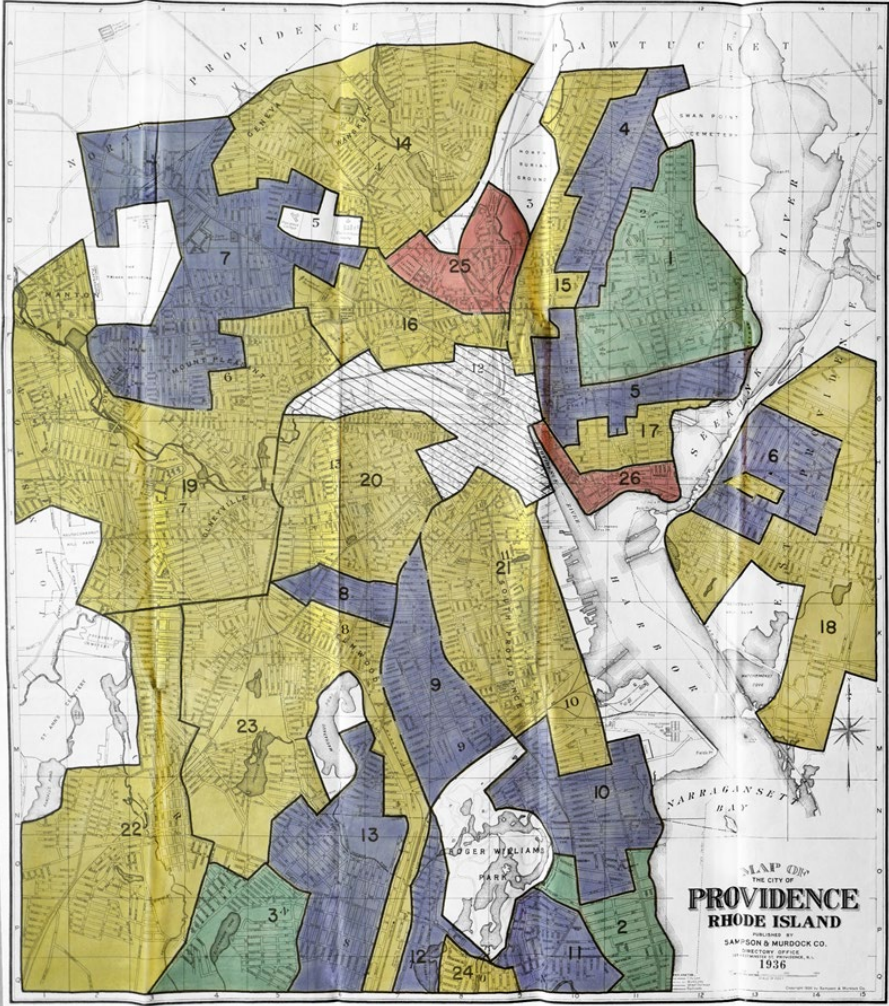
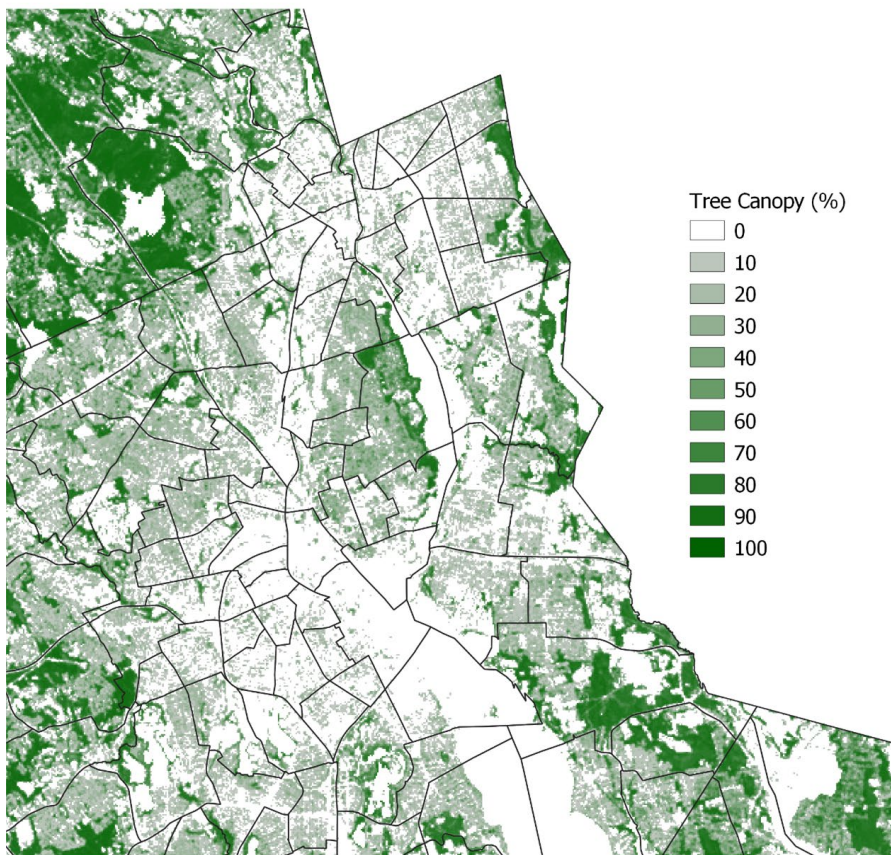


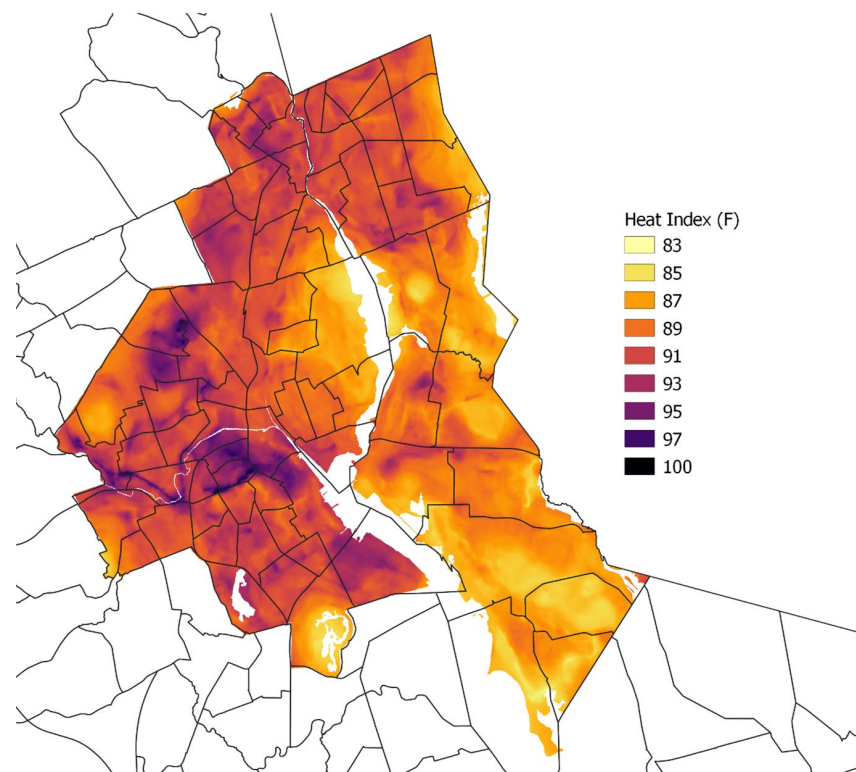
Figure 16. UTC by Ward (provided by Provstat, City of Providence)

Tree canopy and the heat index

Percent Tree Canopy



Average Afternoon Heat Index



Health Equity Zones

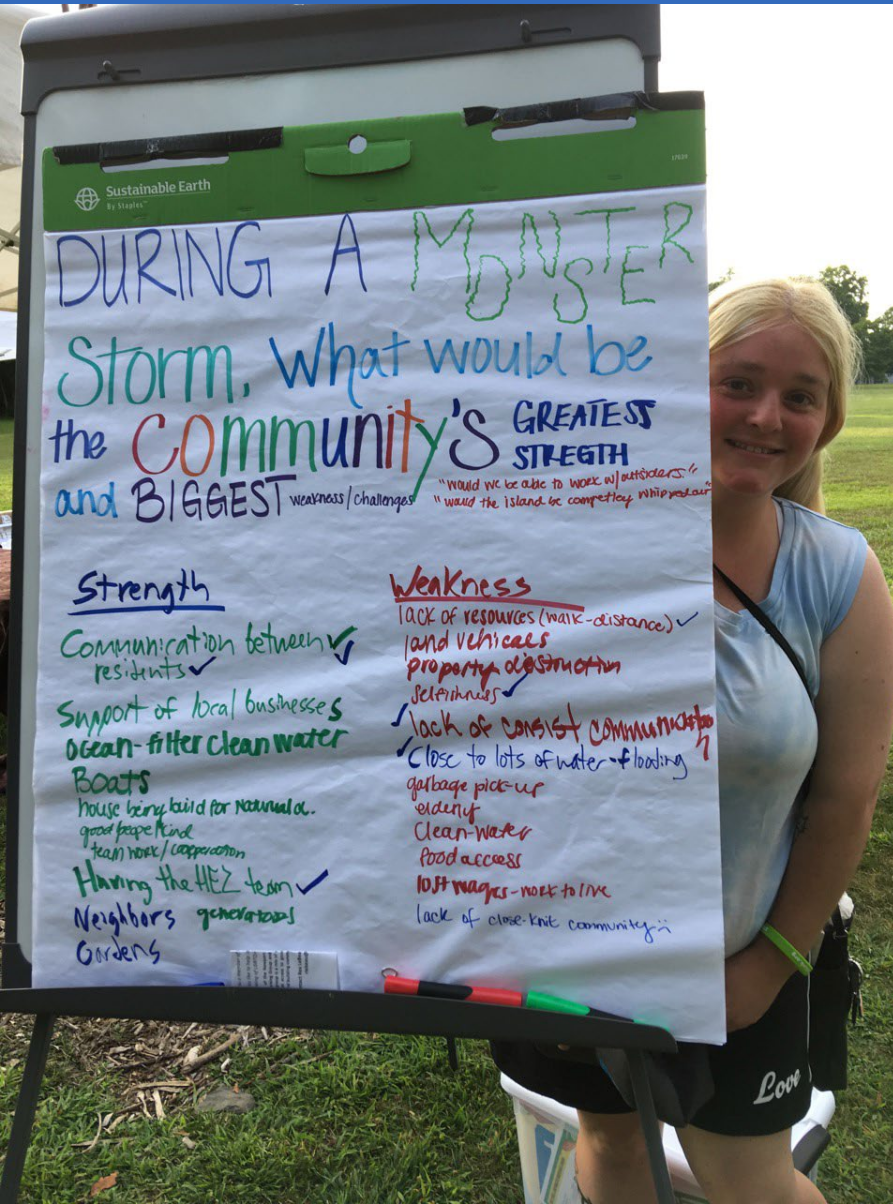


Rhode Island's Health Equity Zones

A Model for Building
Healthy, Resilient
Communities



Health Equity Zone Community Resiliency



Health Equity Zone Community Resiliency



Health Equity Zone Community Resiliency



RHODE ISLAND CLIMATE AND HEALTH SPECIES LIST

A tree species vulnerability assessment was created for urban forests in Rhode Island to consider how climate change would affect tree species used in urban forestry projects, as well as outline the benefits of various tree species on human health and carbon mitigation.



Climate Vulnerability

Trees can be vulnerable to a variety of climate-related stressors such as intense heat, drought, flooding, and changing pest and disease patterns. Some species are more susceptible to climate impacts, while others have a greater capacity to adapt.



Carbon

Trees can reduce greenhouse gases in the atmosphere by directly storing carbon in their leaves, wood, and roots. Further, tree cover can moderate temperatures and help reduce the energy needed to heat or cool buildings.



Human Health

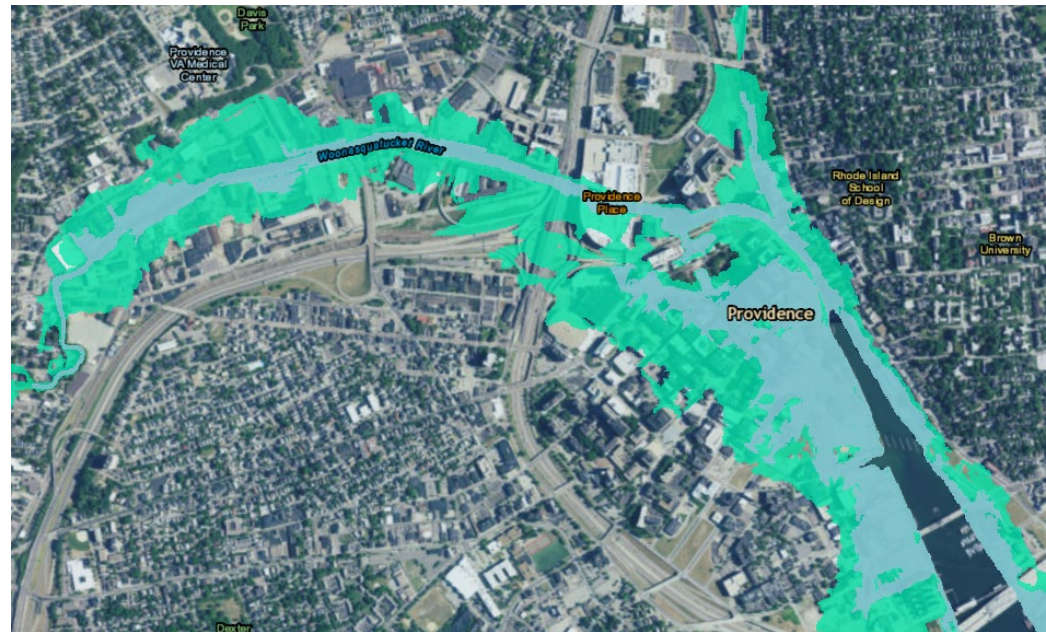
Trees can help reduce human health risks that may be faced under a changing climate, such as heat stress and reduced air quality, by providing shade, cooling through transpiration, and absorption of pollutants. However some trees can negatively impact human health, such as by producing allergenic pollen.

Sea Level Rise



Health Impacts

- Storm- related injuries
- Water quantity & quality issues
- Food system impacts
- Ecosystem & economic disruption
- Losing a sense of place
- Mental health stresses



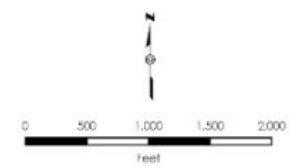
STORMTOOLS: <http://www.beachsamp.org/stormtools>

Sea Level Rise



Market to Metacom Redevelopment Project

Existing Conditions



Data Sources: Town of Warren, RIGIS, RDEM, CRMC



Shaded areas
sea level rise