

Equitable climate action for a  
healthy and resilient Richmond



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# Climate Resilience



# Climate Change is Already Impacting Richmond

April 19, 2017

**Breaking**  
allergy season in Richmond  
**This year brought Richmond fourth-highest tree pollen count in 30 years**

By JOHN BOYER Richmond Times-Dispatch Apr 19, 2017

February 13, 2017

**The warm weather is gone for now, but Sunday left a mark on Richmond's records**

By JOHN BOYER Richmond Times-Dispatch Feb 13, 2017

May 10, 2017

**Science shows Richmond's pollen season more intense than in the past**

POSTED 1:22 PM, MAY 10, 2017, BY TOM PATTON, UPDATED AT 2:31 PM, MAY 10, 2017

FACEBOOK TWITTER EMAIL PINTEREST

This is an archived article and the information in the article may be outdated. Please look up the information when it was last updated.

May 26, 2017

**Two water rescues for James, which is under warning much of the week**

By HAIYU FAN Richmond Times-Dispatch May 26, 2017

September 17, 2018

**Remnants of Hurricane Michael gave the Richmond area a deadly tornado in 2018**

By JOHN BOYER Richmond Times-Dispatch Sep 17, 2018

October 19, 2018

**Michael, Florence and Harvey: deadliest hurricane season in decades**

By JOHN BOYER Richmond Times-Dispatch Oct 19, 2018



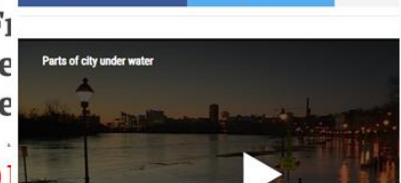
An enhanced satellite image from NOAA shows Hurricane Florence over the Atlantic Ocean. THE ASSOCIATED PRESS

February 25, 2019

**James River hits highest level in 100 years**

POSTED 4:08 PM, FEBRUARY 25, 2019, BY WEB STAFF AND BRENDAN KING, UPDATED AT 10:45 AM, FEB 25, 2019

FACEBOOK TWITTER EMAIL



Parts of city under water

July 20, 2019

**Excessive Heat Warning: in some parts of Central Virginia**

POSTED 11:01 AM, JULY 20, 2019, BY MIKE STONE, UPDATED AT 03:39 PM, JULY 20, 2019

FACEBOOK TWITTER EMAIL



The river level is the time the river

August 5, 2019

**'We haven't really seen anything like this in 100 years'**  
**Richmond couple comes across flood during walk**

Facebook Twitter WhatsApp Messenger Email Print



by: Nick Conigliaro

Posted: Aug 5, 2019 / 10:22 PM EDT / Updated: Aug 5, 2019 / 11:09 PM EDT

September 27, 2019

**Richmond's September weather is going to rank high for heat and low for rain**

By JOHN BOYER Richmond Times-Dispatch Sep 27, 2019



October 2, 2019

**Wednesday was the hottest October day recorded in Richmond — and it's not over**

From staff reports Oct 2, 2019

October 10, 2019

**Drought expands across Virginia**

POSTED 1:17 PM, OCTOBER 10, 2019, BY MIKE STONE, UPDATED AT 01:58 PM, OCTOBER 10, 2019

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COASTAL FLOODING

WATER LEVELS 1 FOOT TO 2.5 FEET ABOVE NORMAL

Richmond, Va. -- The latest update from the U.S. Virginia in a moderate drought. This is an increase

from staff reports Oct 2, 2019

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November 12, 2019

**4 PM UPDATE: Dry and frosty after Richmond's snowies**  
**30 years**

By JOHN BOYER Richmond Times-Dispatch 19 hrs ago



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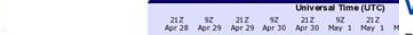
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May 24, 2020

**Summer weather outlook: extra warmth and rainfall favored across Va.**

John Boyer May 24, 2020 2 min to read



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**January 2020 was Earth's hottest January on record**

The long-term trend of above-average temperatures in January

April 30, 2020

**After Richmond's wettest months, the James River is at another minor flood**

By JOHN BOYER Richmond Times-Dispatch Apr 30, 2020



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July 29, 2020

**Richmond hasn't seen 20 straight days of high humidity in the 90s since 'Waterworld' was in theaters**

John Boyer Jul 29, 2020 3 min to read



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# Climate Change Risks

## Climate Impacts



Extreme Heat  
Extreme Precipitation  
Rising Sea Level

## Climate Shocks



Floods  
Storms

## Climate Change Risks

### Residents

Safety  
Health  
Economic Burden  
Food Insecurity

### Community

Public Safety  
Public Health  
Physical Damage  
Displacement

### Government

Core Services  
Public Safety  
Financial/Credit Risk

### Government

Education  
Poverty Mitigation

Injury/death  
Illness/chronic conditions  
Property damage/loss  
Displacement  
High energy bills  
Higher food prices/food unavailable

Loss of life  
Critical emergency provisions  
jeopardized (medical, water, food,  
shelter, etc.)  
Population displacement  
Population loss

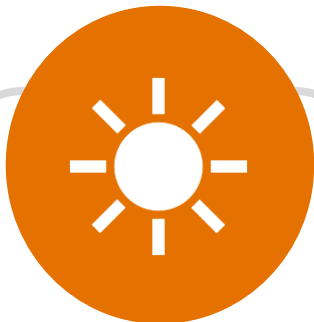
Service delivery delay/disruption  
Transportation/infrastructure assets  
damaged/destroyed  
Communication networks impaired  
Strain on financial resources

Schools closed/disrupted  
Job disruption/loss  
Property damage/loss

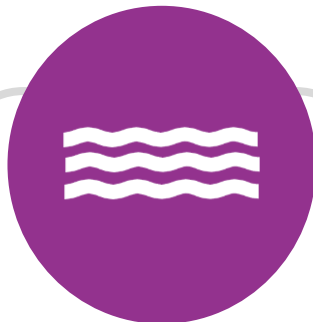
# Richmond's Future Weather



Daily Temperature  
Maximum



Hot Days



Extended Heat  
Waves



Days with Over  
1" Rainfall

2041-2060  
Tomorrow

75°F

45

Above 95°F

20

3-Day Periods

8.8

Per year

1987-2017  
Today

70°F

11

Above 95°F

3

3-Day Periods

8.3

Per year

1950-1980  
Yesterday

69°F

7

Above 95°F

1

3-Day Periods

7.7

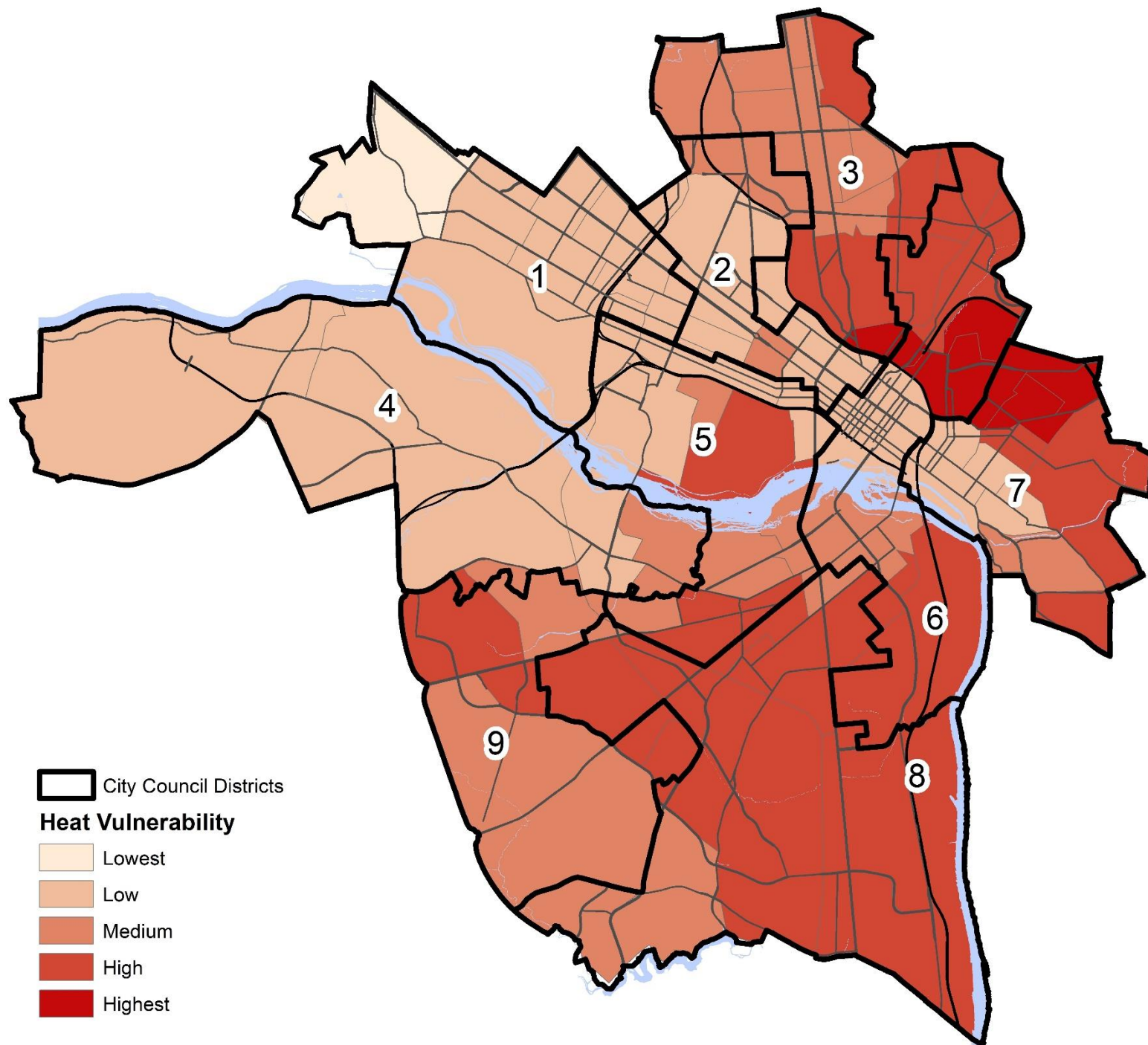
Per year



# Who is at risk?

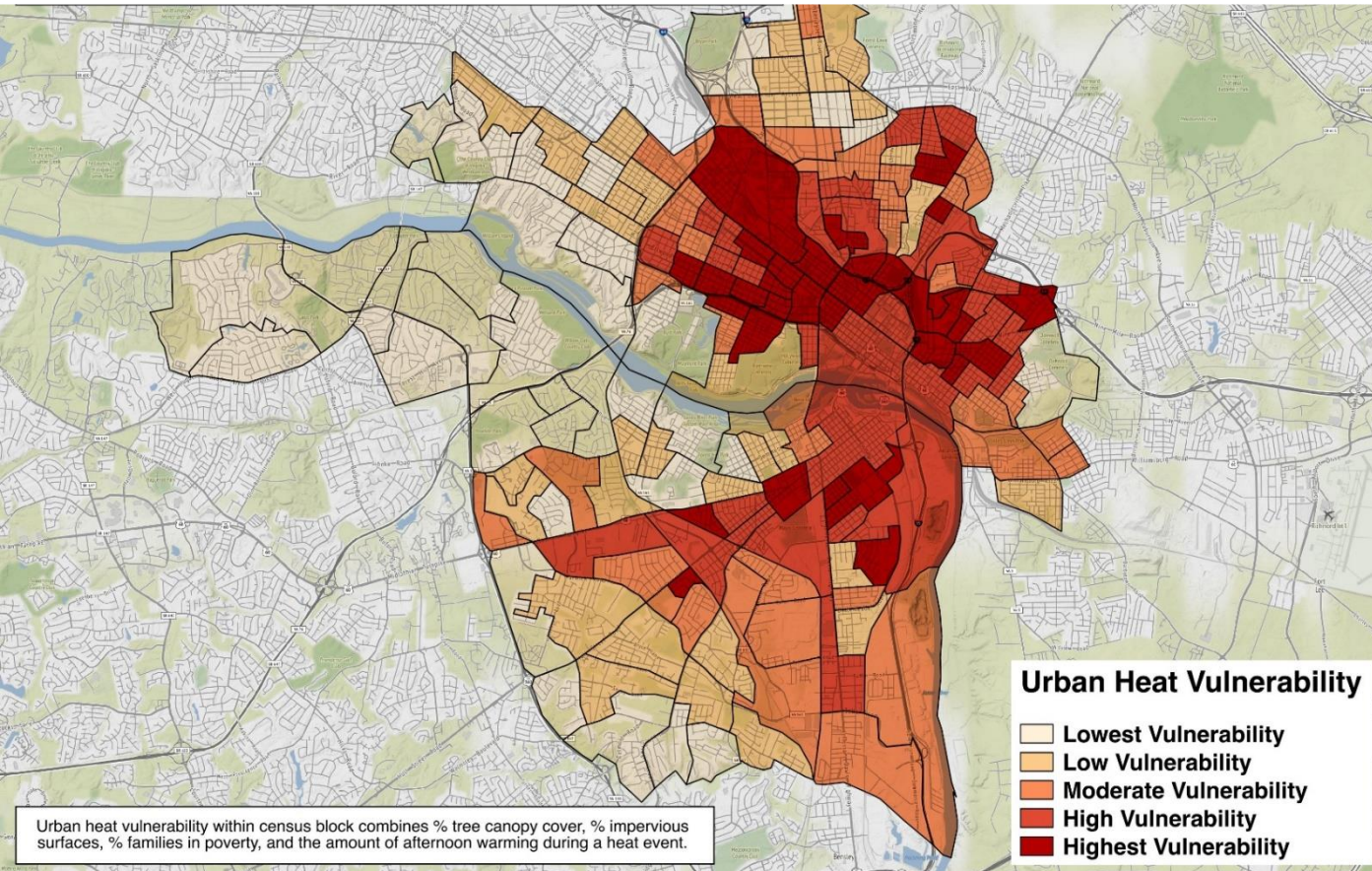
People who:

- Are over 65, especially those living alone
- Have health conditions such as asthma, diabetes, and heart disease
- Are impacted by poverty
- Work outdoors
- Do not have access to air conditioning
- Do not have access to a vehicle
- Live in emergency and transitional shelters
- Are housing cost-burdened
- Live in “urban heat islands” (less green space, more pavement)

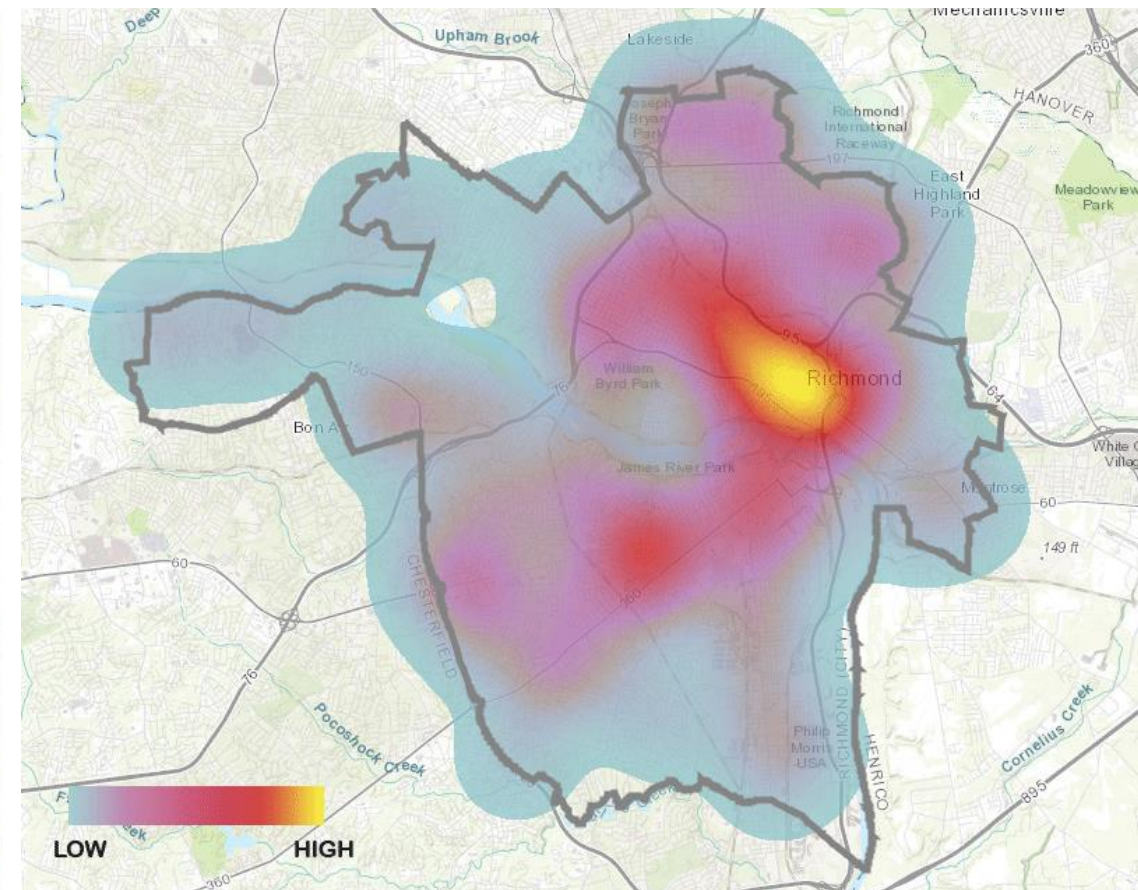




## Vulnerability

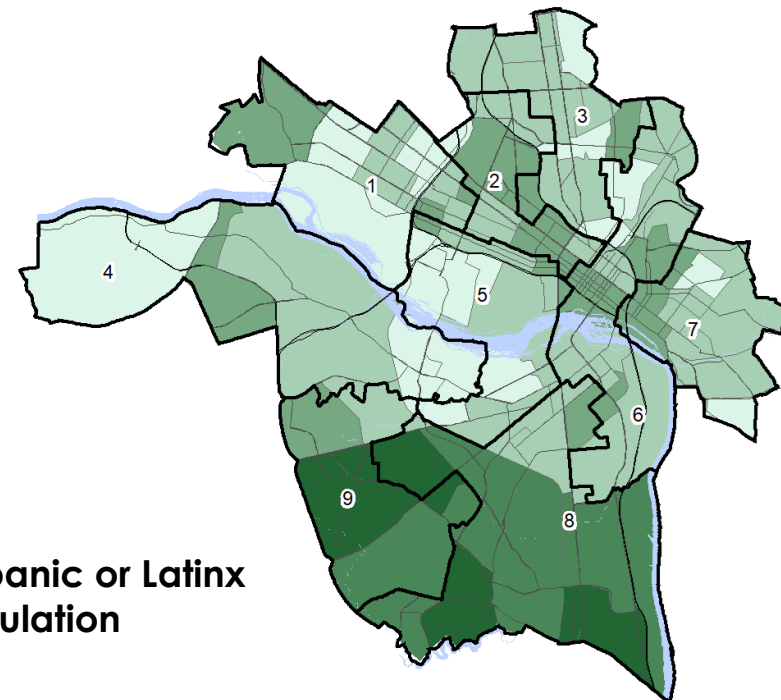
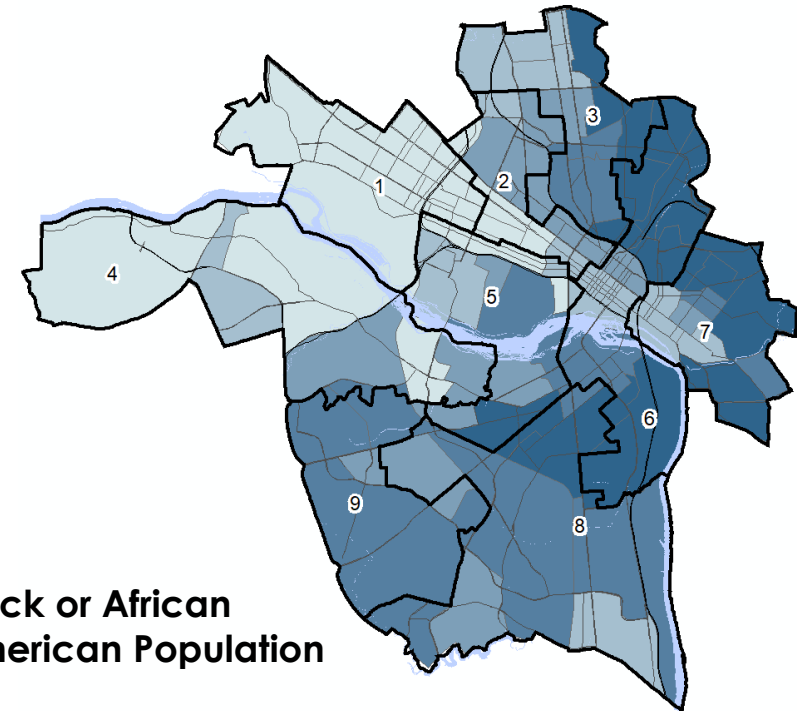
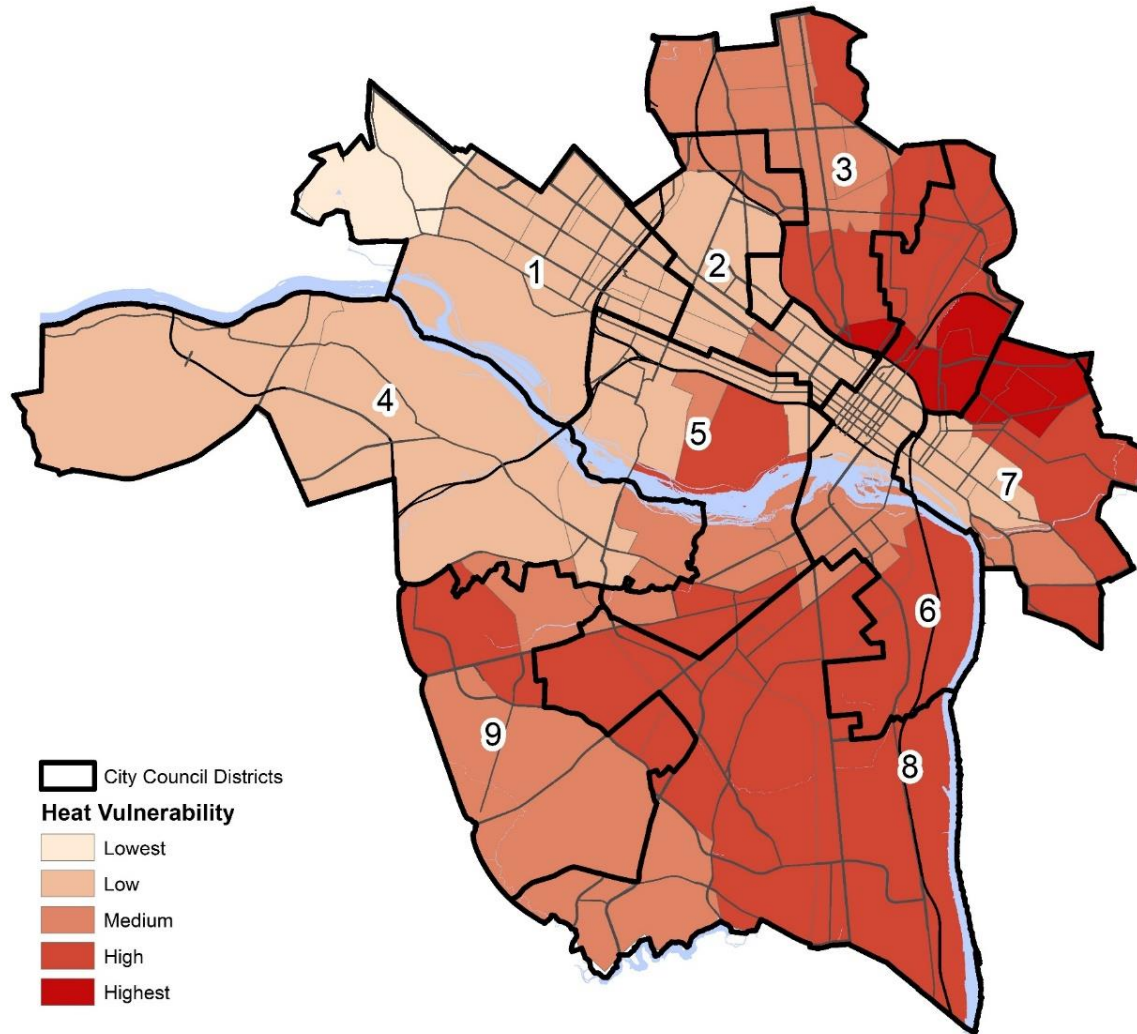


## RAA Ambulance Responses

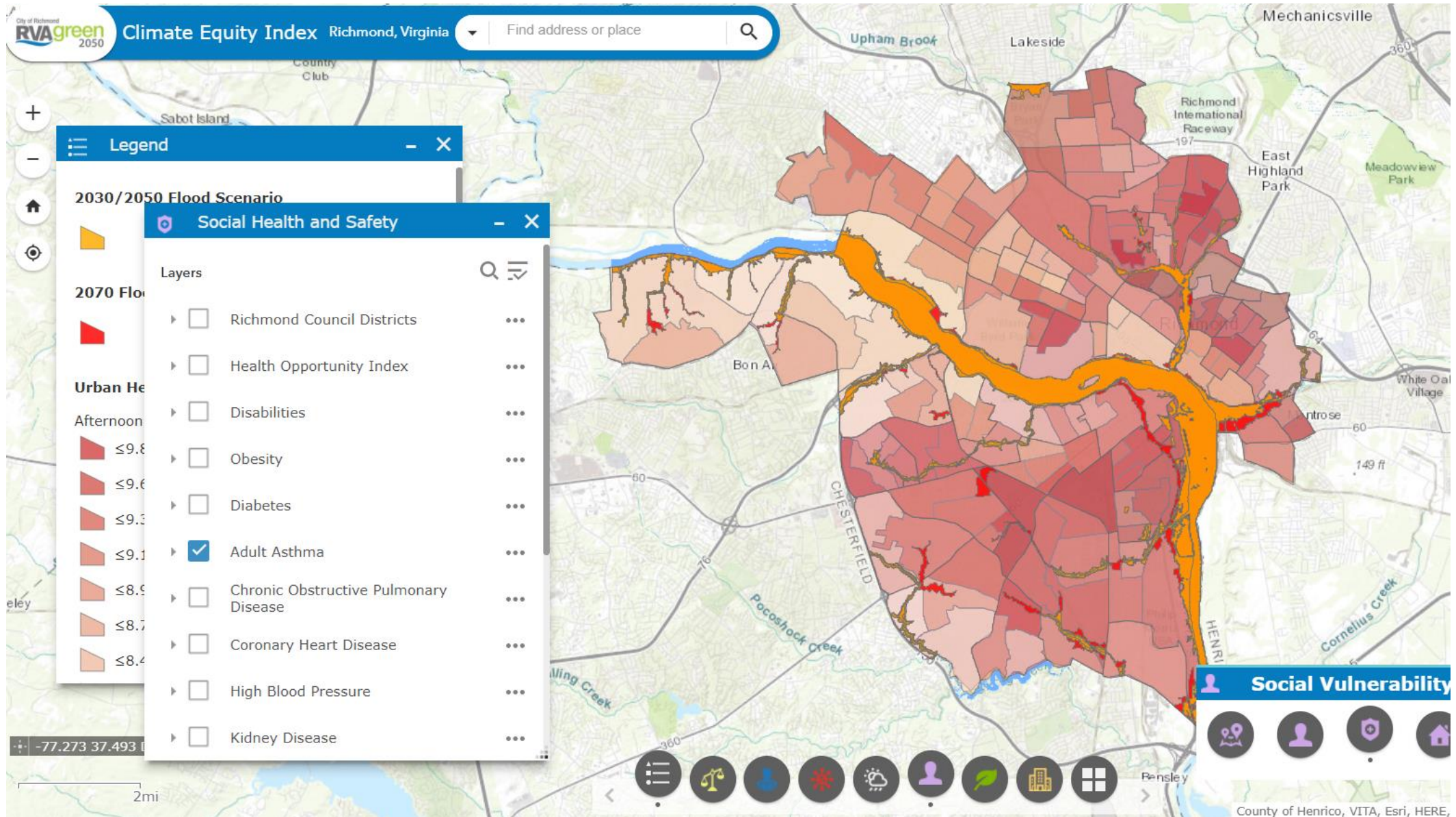




# People of color face disproportionate impacts



# Climate Equity Index





# What can we do to increase resilience?

