Urban heat – identifying & addressing the health risks

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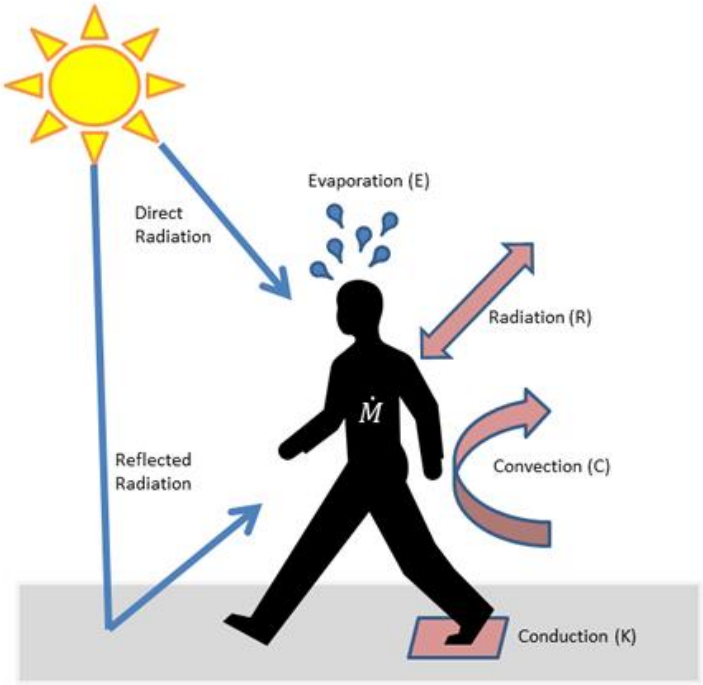
VERMONT
DEPARTMENT OF HEALTH

Why do heat illnesses occur?

When hot, our bodies have several ways to cool down:

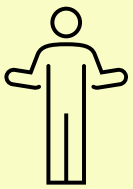
Method	Example
Radiation	Heat released from increased blood flow to skin
Evaporation	Sweating
Convection	Fan blowing cooler air across skin
Conduction	Cold water bath



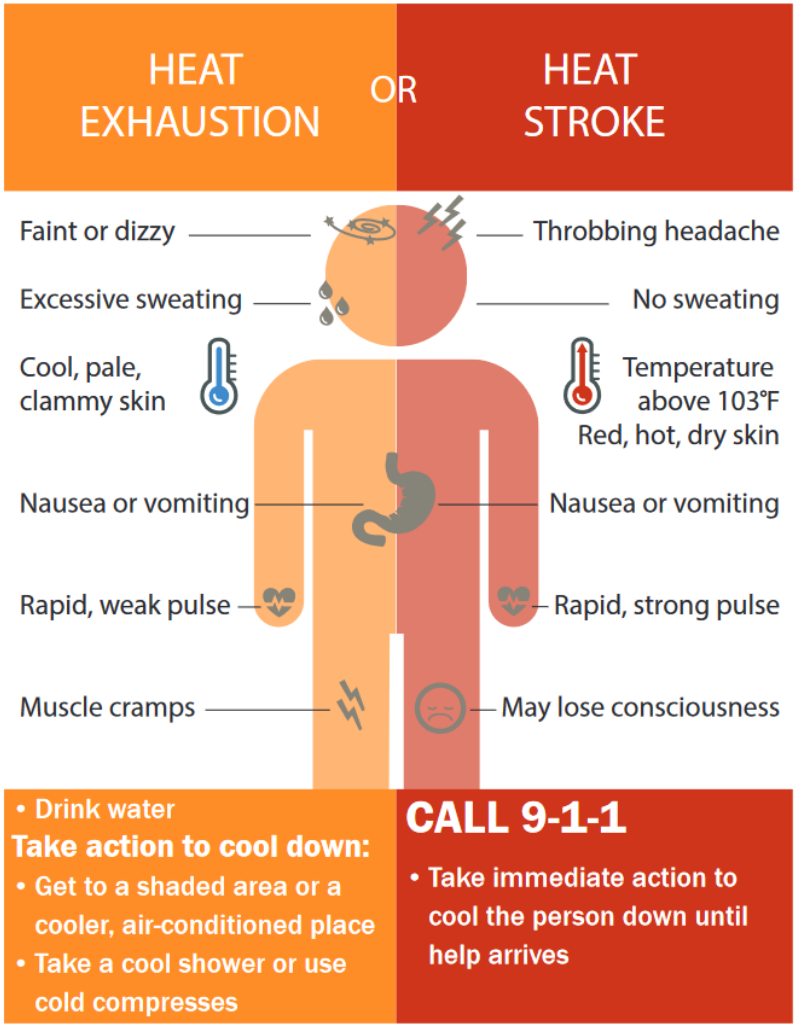
Source: US Army Research Institute of Environmental Medicine

Heat illnesses occur when prolonged heat exposure exceeds cooling ability

Factors that affect heat illness risk

 **Exposure** to heat	Homeless Outdoor workers & hobbyists **Urban areas**
 Pre-existing **health vulnerabilities**	Older adults / young children Chronic health conditions Taking certain prescription medications Lack of acclimatization
 Limited **adaptation resources**	No air conditioning or can't afford to use it Living alone No transportation

Signs and symptoms of heat illness



Adapted from the National Weather Service

2018 heat wave impacts

In Burlington: (National Weather Service station data)

6 straight days of 93 - 97 °F

High humidity, resulting in heat index as high as 105 °F

High nighttime lows, as high as 80 °F

Statewide impacts:

4 deaths

Over 100 ED visits

Over 140 EMS calls

Vt. heat wave: Essex Junction woman died in home where temperature reached 115 degrees

Elizabeth Murray and Will DiGravio, Burlington Free Press Published 4:16 p.m. ET July 6, 2018 | Updated 5:32 p.m. ET July 10, 2018

(Photo: Free Press)

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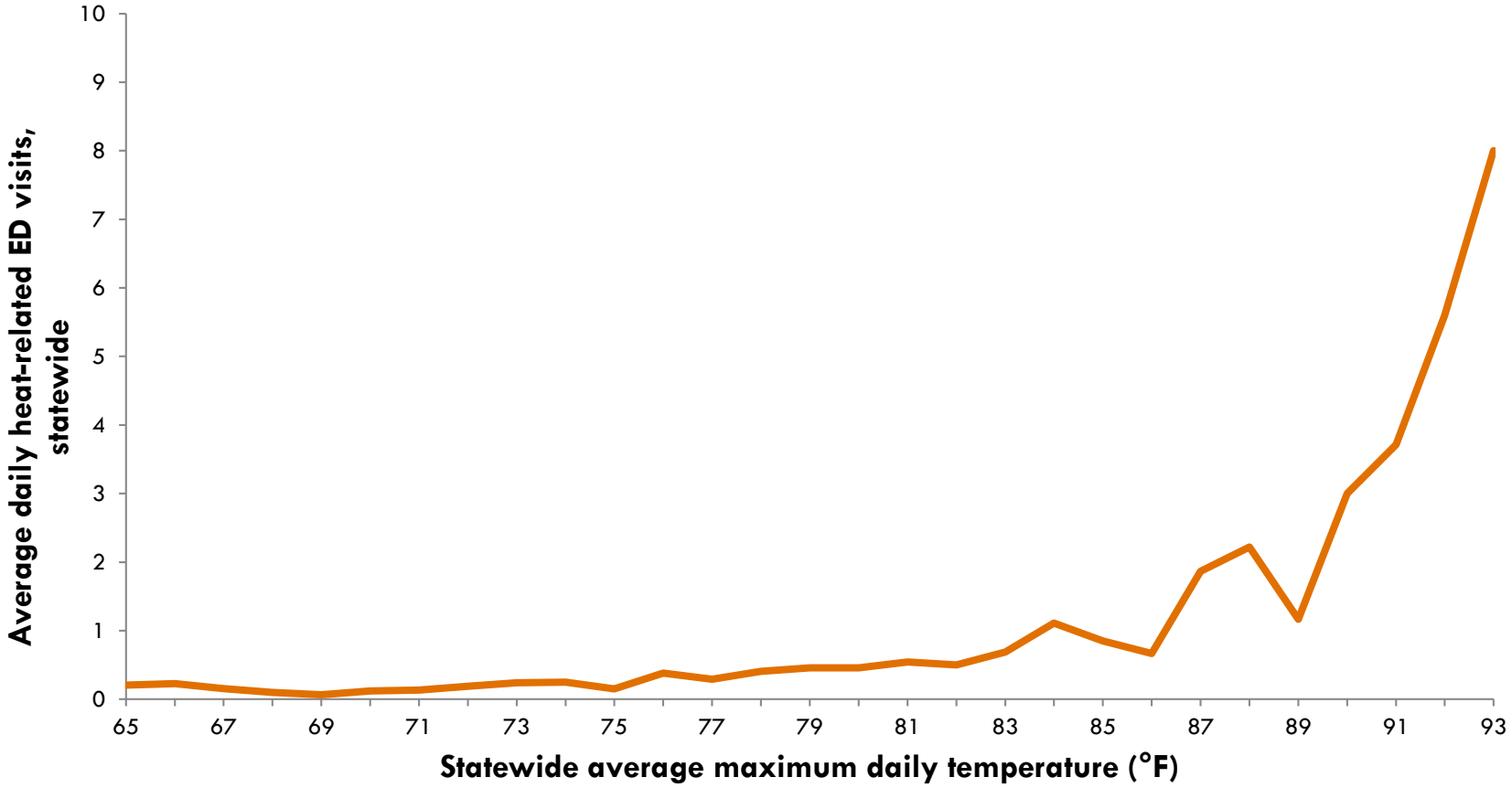
Vermont's death toll from last week's extreme heat wave has risen to four, state Department of Health Spokesman Ben Truman said Monday.

Among the deceased is Mary Myott, 79, of Essex Junction, who died in a home where the temperature had risen to 115 degrees.

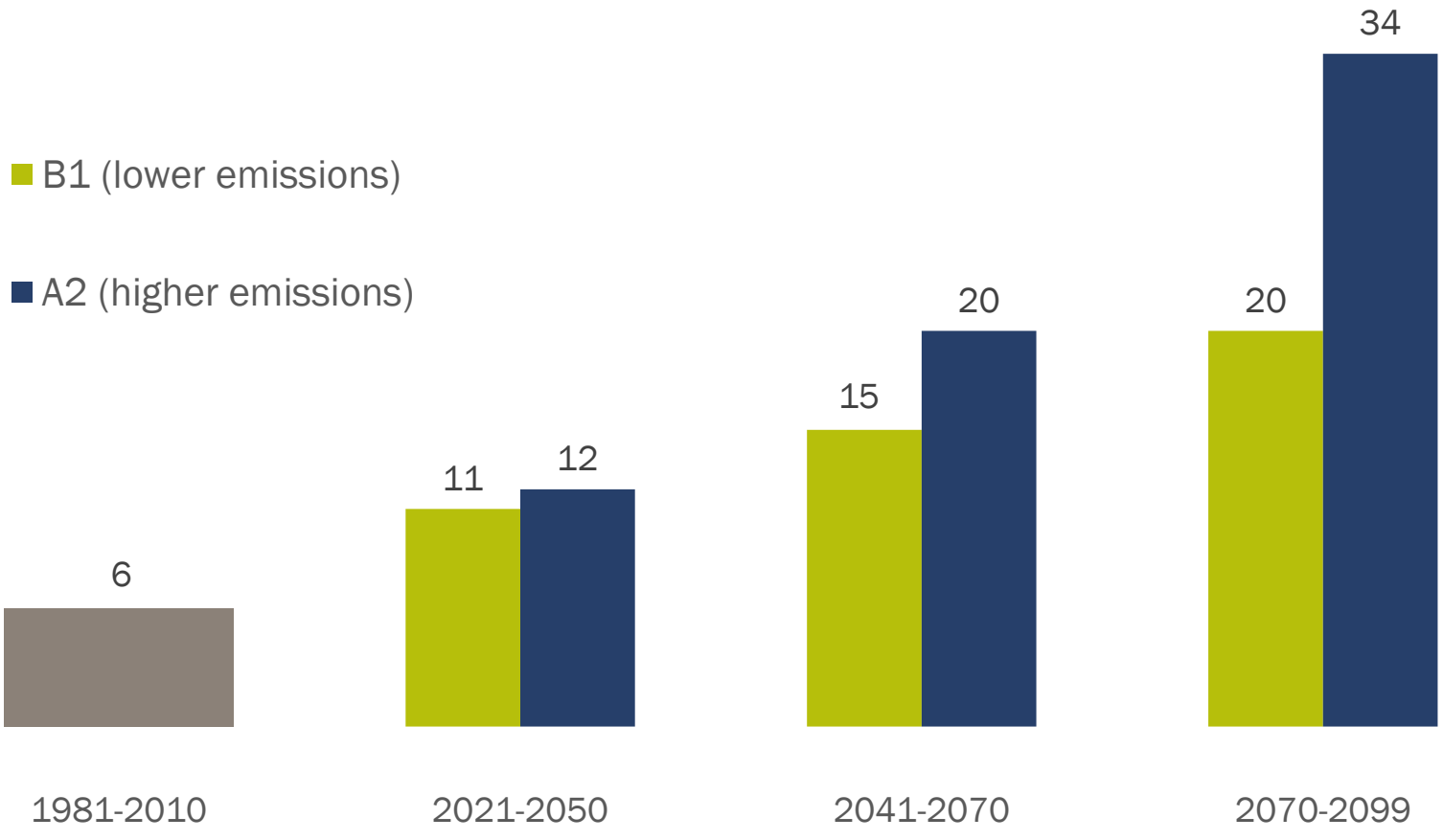
The death certificate released Monday attributed the cause of death to hyperthermia caused by an extremely hot home. She died Tuesday, July 3, when the mercury reached 93 degrees in Burlington following high temperatures the three previous days of 93, 96 and 97.

Heat-related health impacts increase dramatically at 87°F and hotter



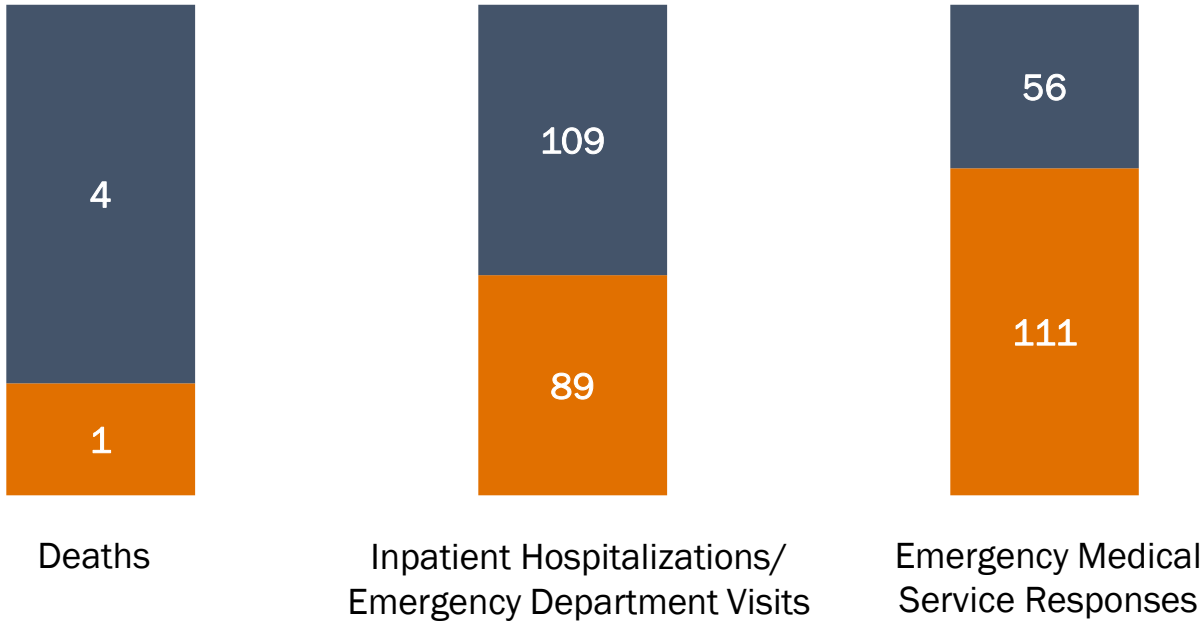
Source: Vermont Early Aberration Reporting System (2004-2013)

The number of days per year reaching 87°F in Vermont will increase in the future



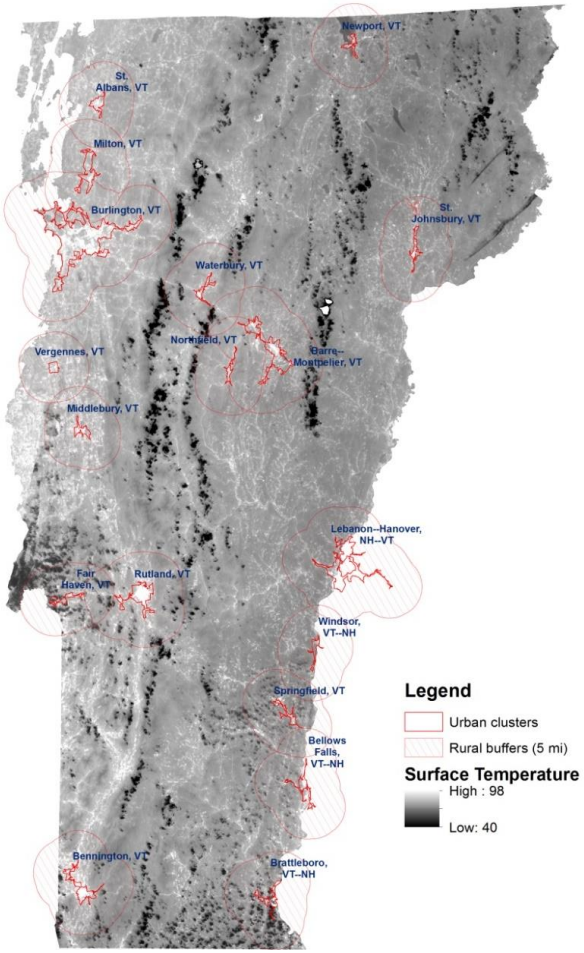
Source: University of Vermont / Office of the State Climatologist, produced for the Vermont Department of Health

Yearly impact of hot and cold weather in Vermont



Data Sources: Deaths: Vermont Vital Statistics, 2009-2018; data from 2018 are preliminary and subject to change. Inpatient/ED visits: Vermont Uniform Hospital Discharge Dataset, 2012-2016. EMS responses: Statewide Incident Reporting Network, 2017-2018.

Urban/rural differences in heat-health

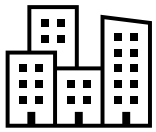


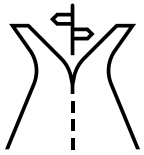
Comparing urbanized areas to surrounding 5-mile buffers

+4°F average surface temperature difference

+50% heat-related EMS incidents per capita

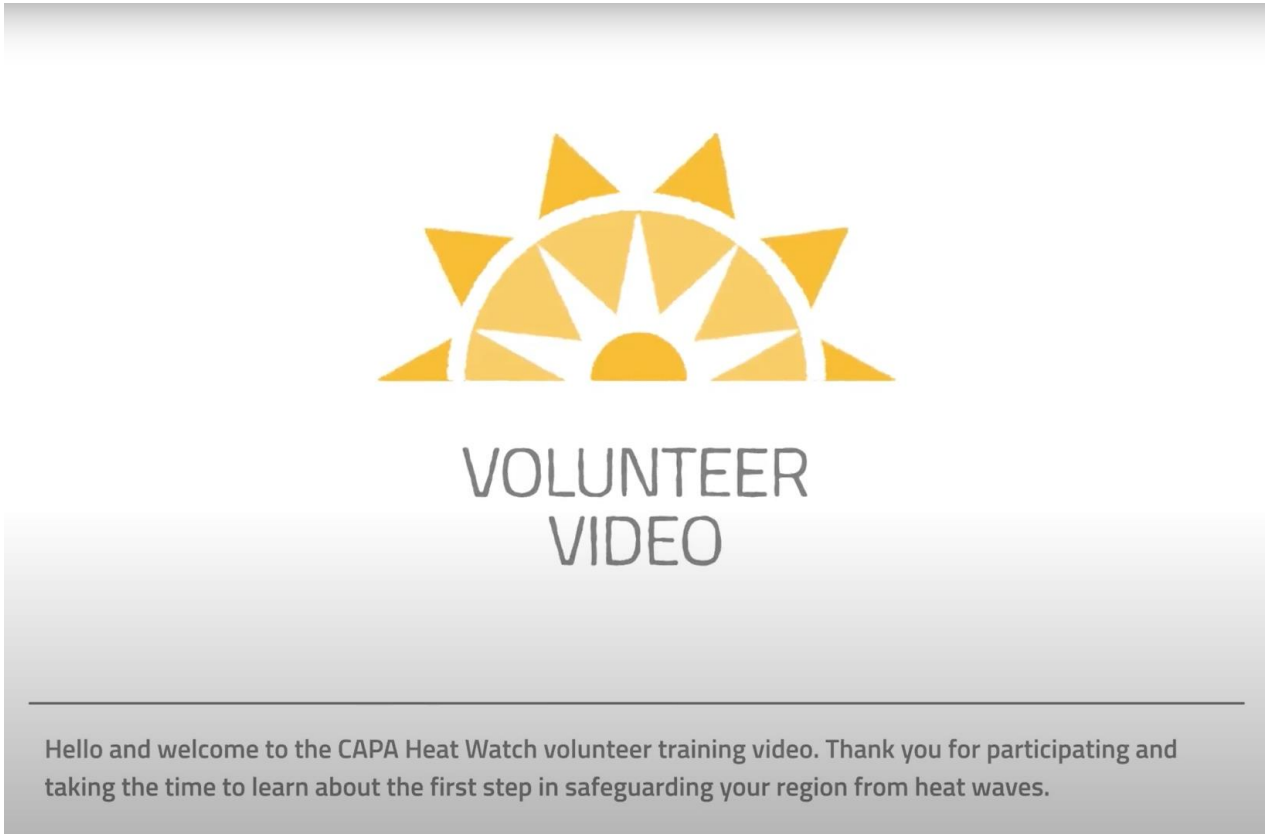
Higher temperatures predicted by


buildings


roads


(lack of) trees

Heat Watch volunteer training video (18 minutes)



How will we use the findings?

Raise awareness of heat risks, especially in urban areas

Support adaptation strategies where most needed

- Community cooling centers
- Transportation assistance
- Home cooling assistance
- Safety checks

Support urban heat mitigation strategies

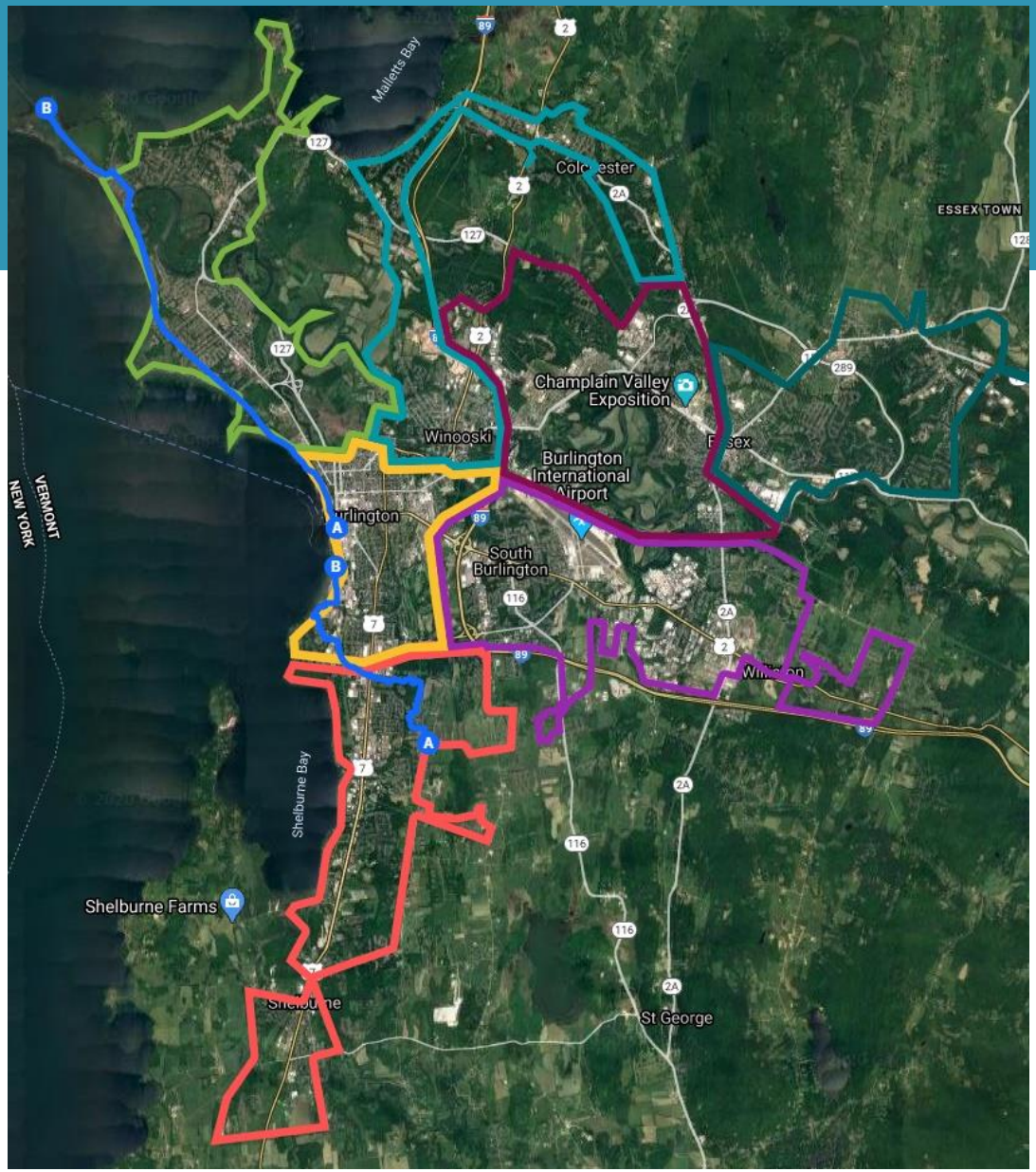
- Urban tree maintenance and new plantings
- Green design standards for buildings, lots, and streets

Source: Vermont Green Streets Guide

Campaign routes

Driving polygons

Bike routes



Key next steps

Soon

Complete Knowledge Check & sign waiver

Watch out for email asking you for your availability

- Looking for forecast day of 90°F+ and mostly clear
- Routes will be assigned based on your availability
- We'll arrange for you to pickup equipment

Following the campaign

Share findings when available (about 2 months)

Additional analyses using health and vulnerability data

Prompt community & partner conversations about how to respond

Questions?

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Thank you!

Let's stay in touch.

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