

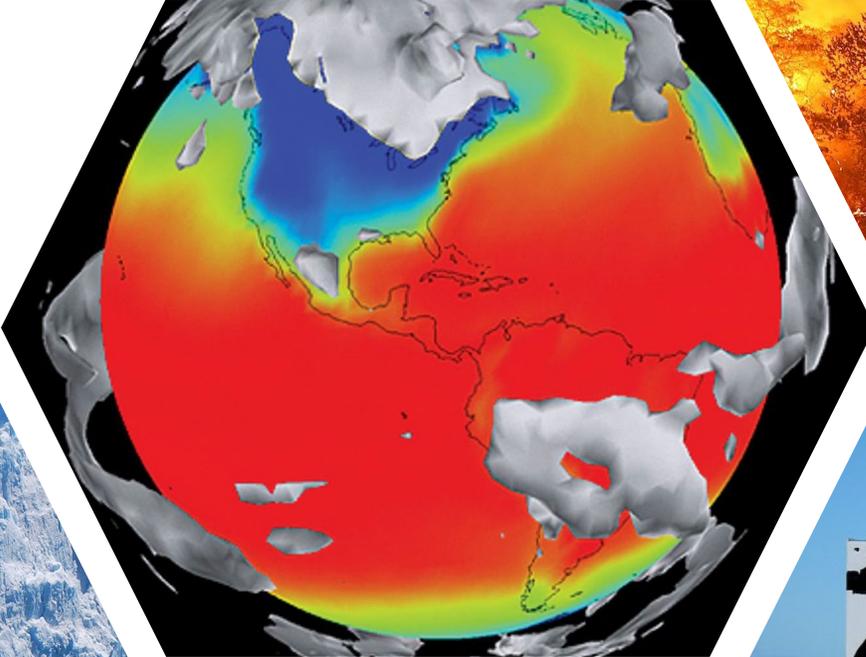
# Climate Resilience: At Home, In Your Yard, and Beyond



# Outline:

- What is Climate Change, and What Causes It?
- Greenhouse Effect 101
- Carbon and Climate Change
- Local Changes
- Effects on Natural Resources
- Reducing our Impact: Every Action Counts
- Q & A

# Climate Change



Global  
Warming

vs.

Climate  
Change



Your results are back. It's climate change. Just how many greenhouse gases have you been consuming?

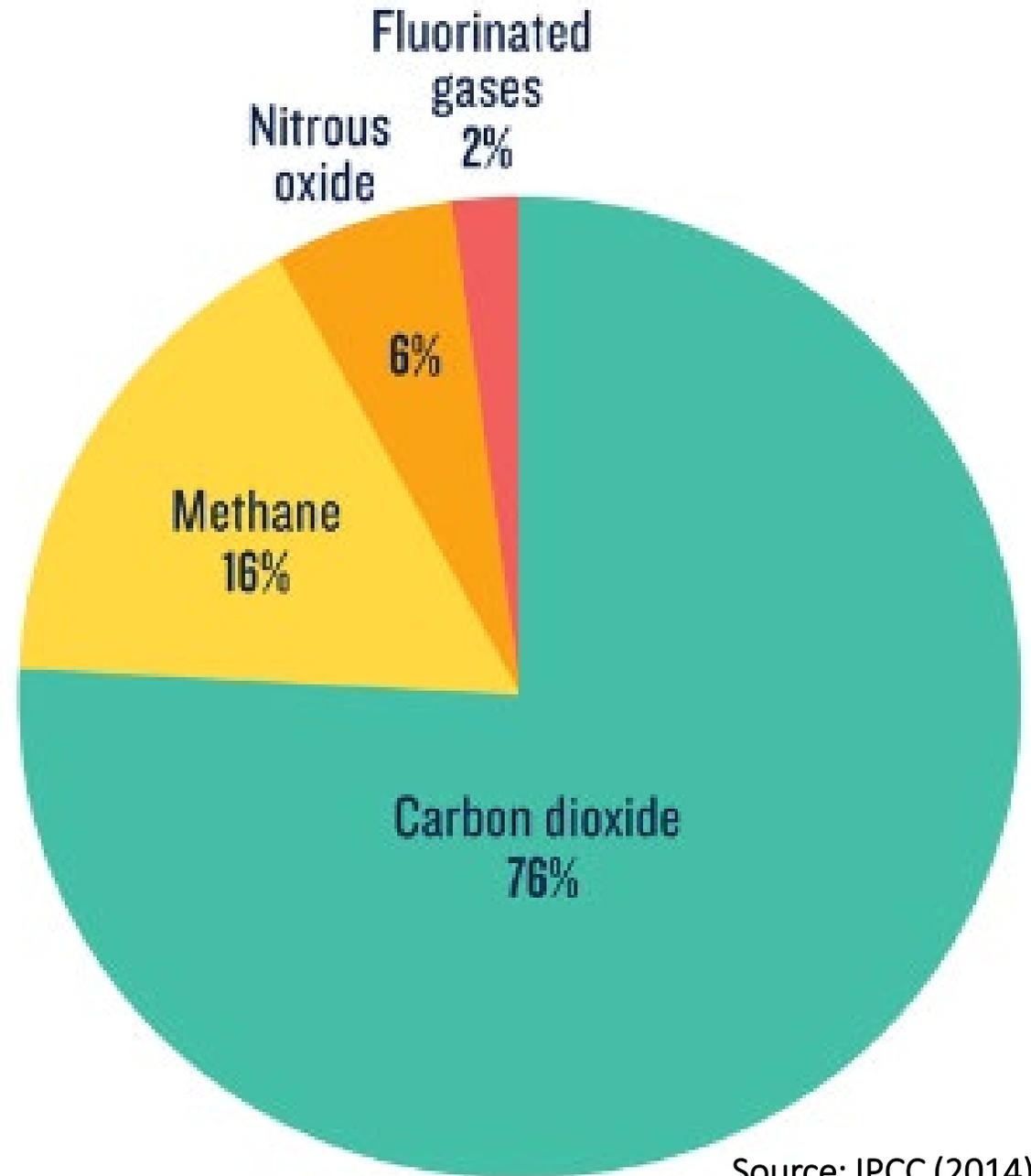
# Major Causes:



# Greenhouse Effect 101:



Human-caused  
greenhouse gas  
contributions  
to total global  
emissions:



Source: IPCC (2014)

# Carbon: What is it?

- Natural element
- Present in all life
- Gets cycled & stored
- Stores in organisms, rocks, soils, ocean, atmosphere
- CO<sub>2</sub> traps sun's heat
- Essential for life



# Carbon's role in climate change



More heat stored

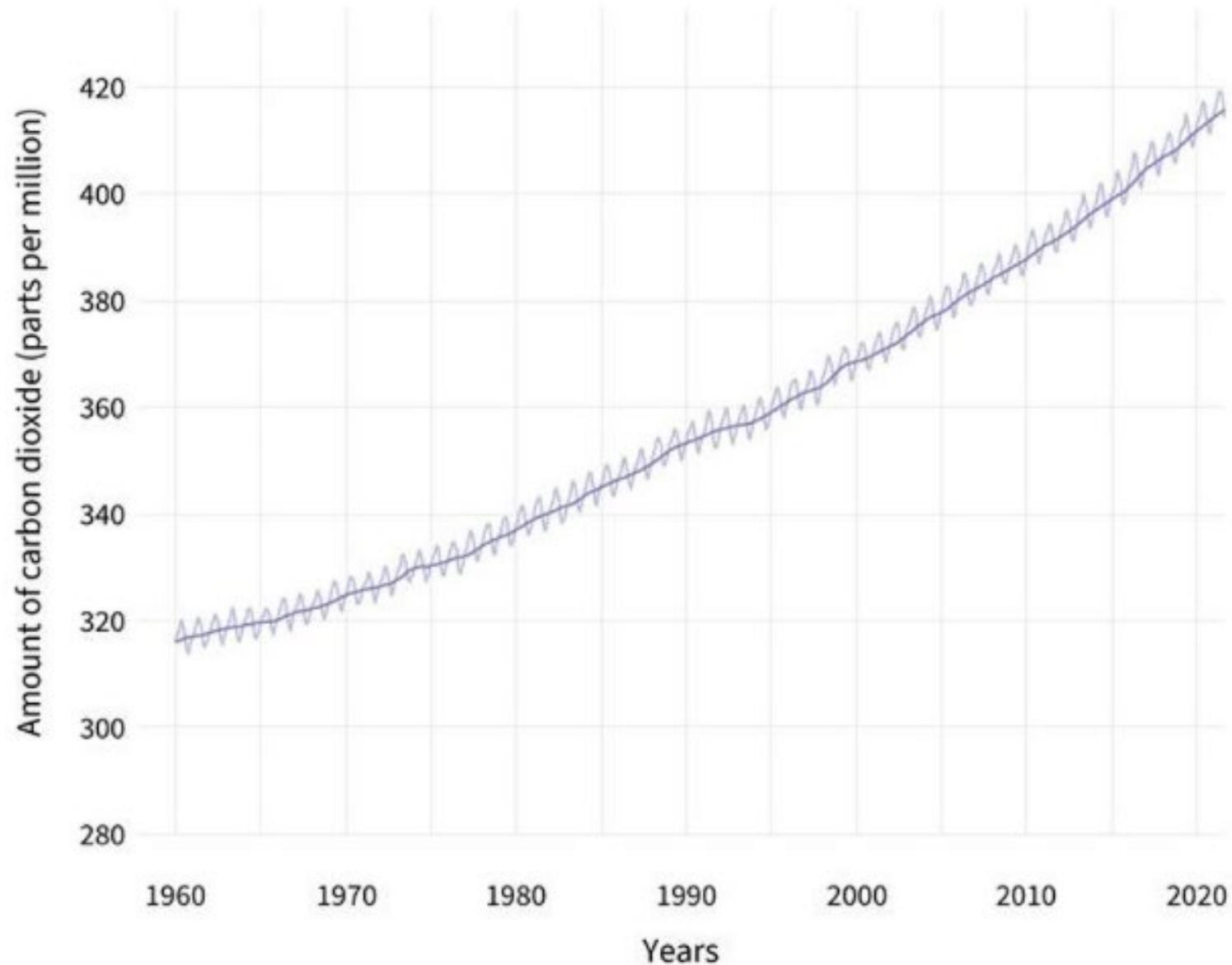
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More CO<sub>2</sub> in air

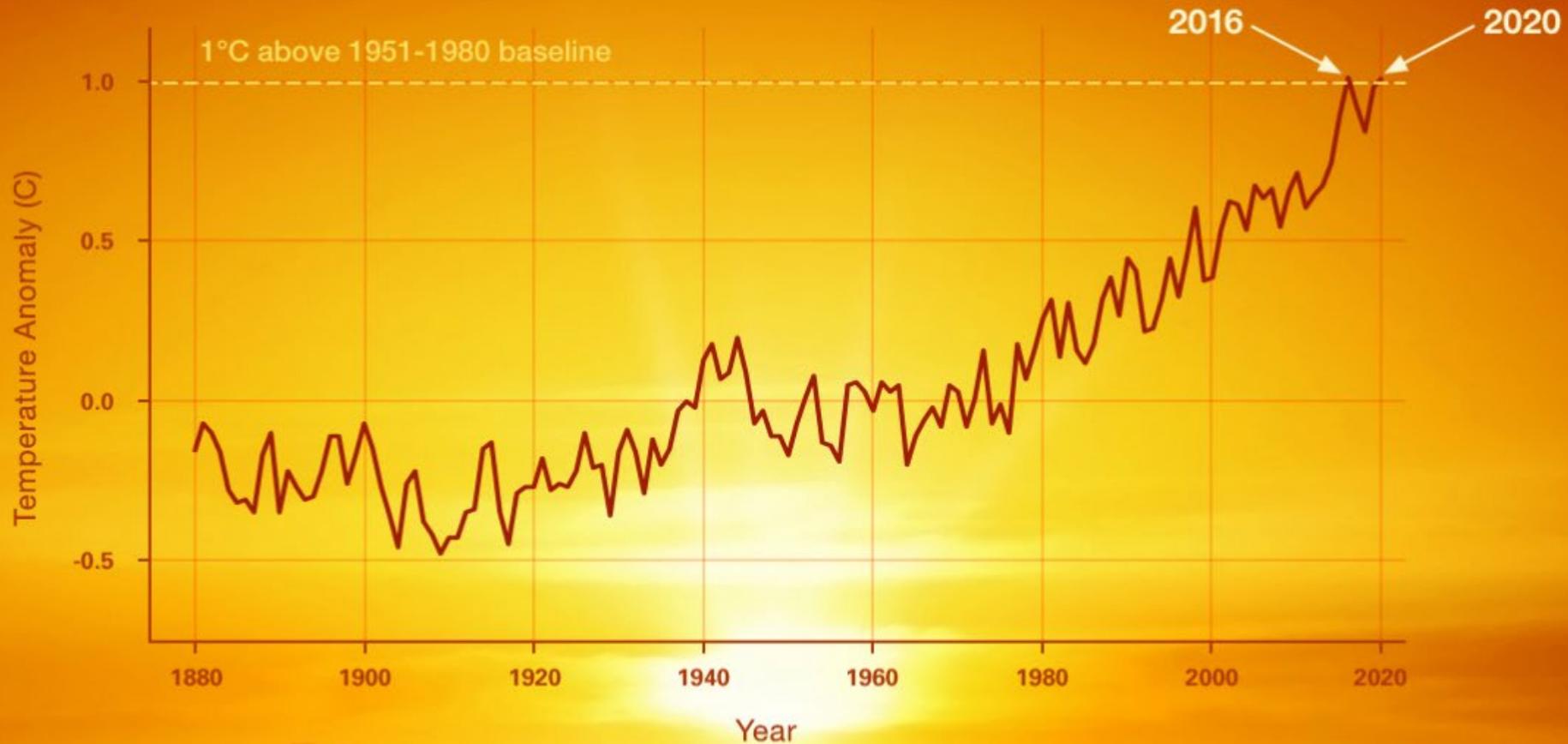
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Large, rapid changes to  
all planetary systems  
that support life

## ATMOSPHERIC CARBON DIOXIDE (1960-2021)



# Change in GLOBAL surface temperature:



# Local changes:

**Warmer  
Temperatures**



**More  
Unpredictable  
Precipitation**



# Question:

What recent, local natural disaster killed more people than the Vanport Flood (15) and Mt. St. Helens (57)?

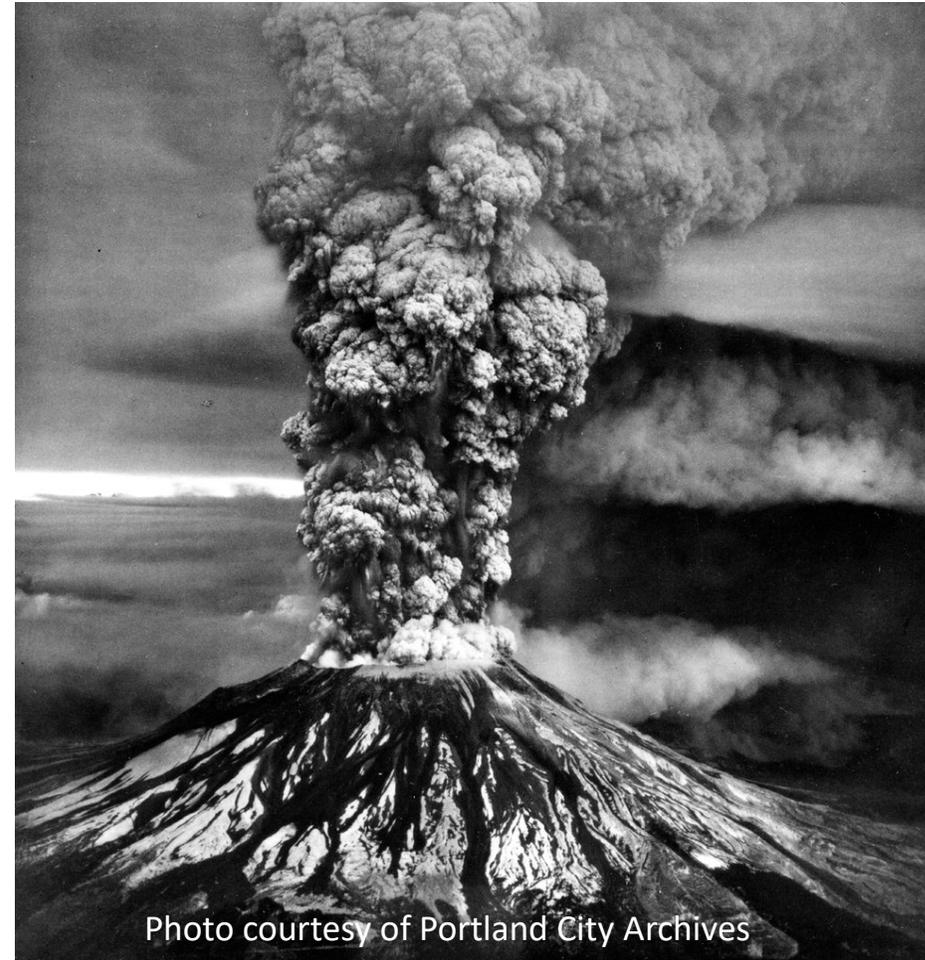
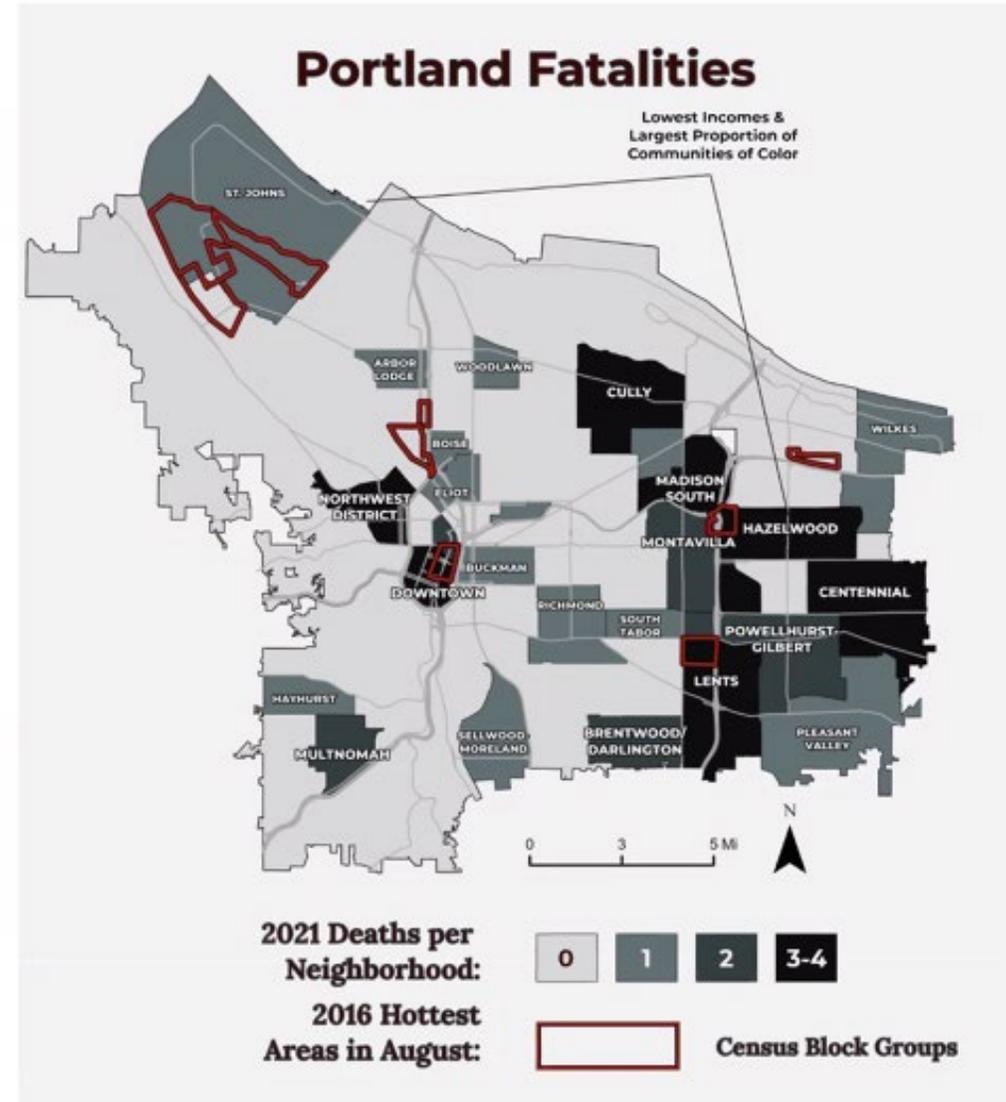
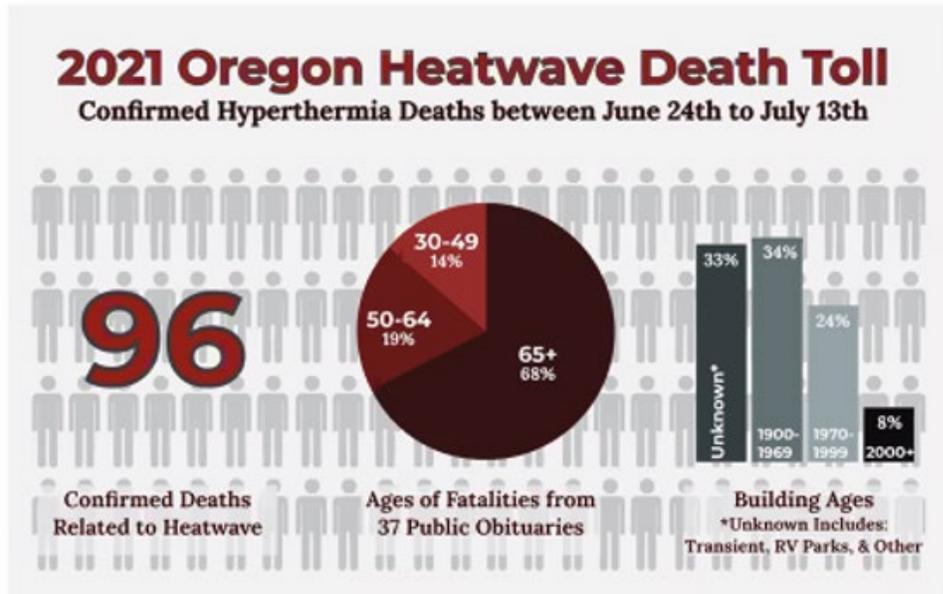


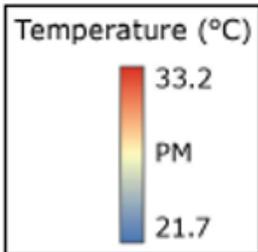
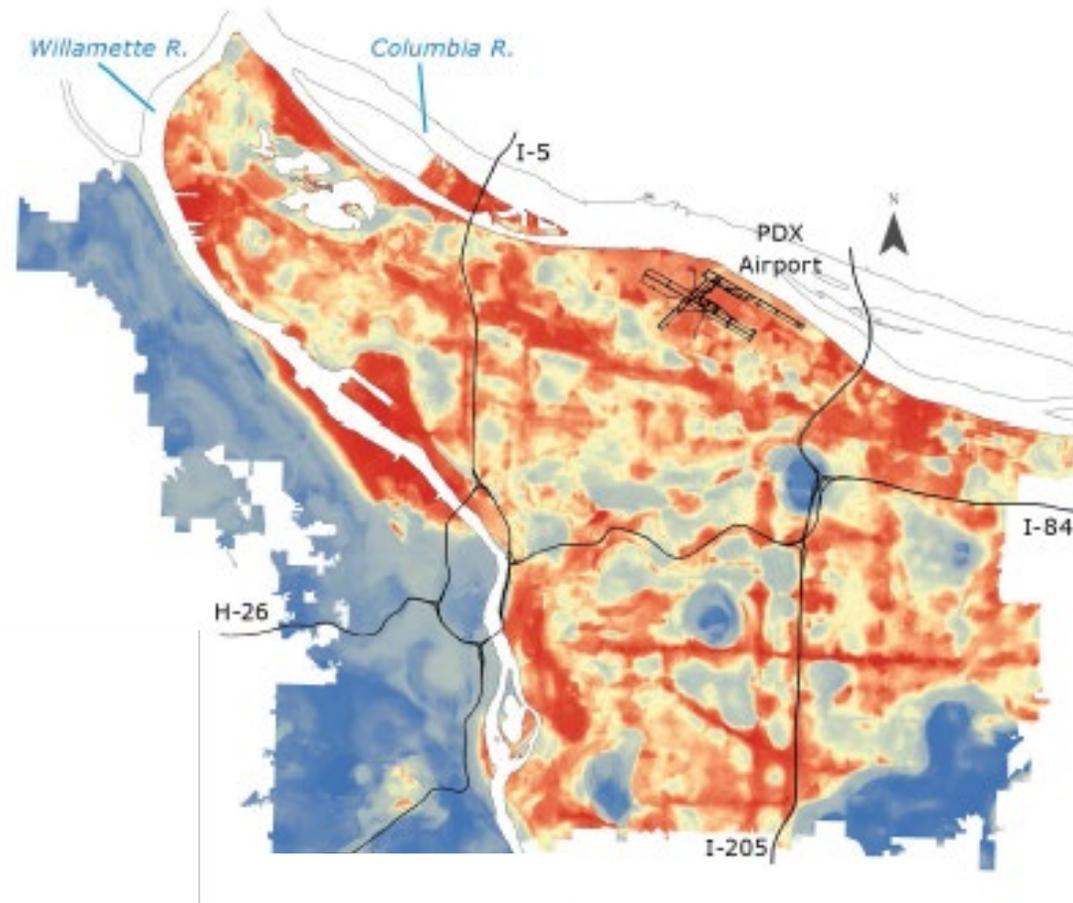
Photo courtesy of Portland City Archives

# Historic Heat Wave: Initial Assessment



# Urban Heat Island: August 25, 2014

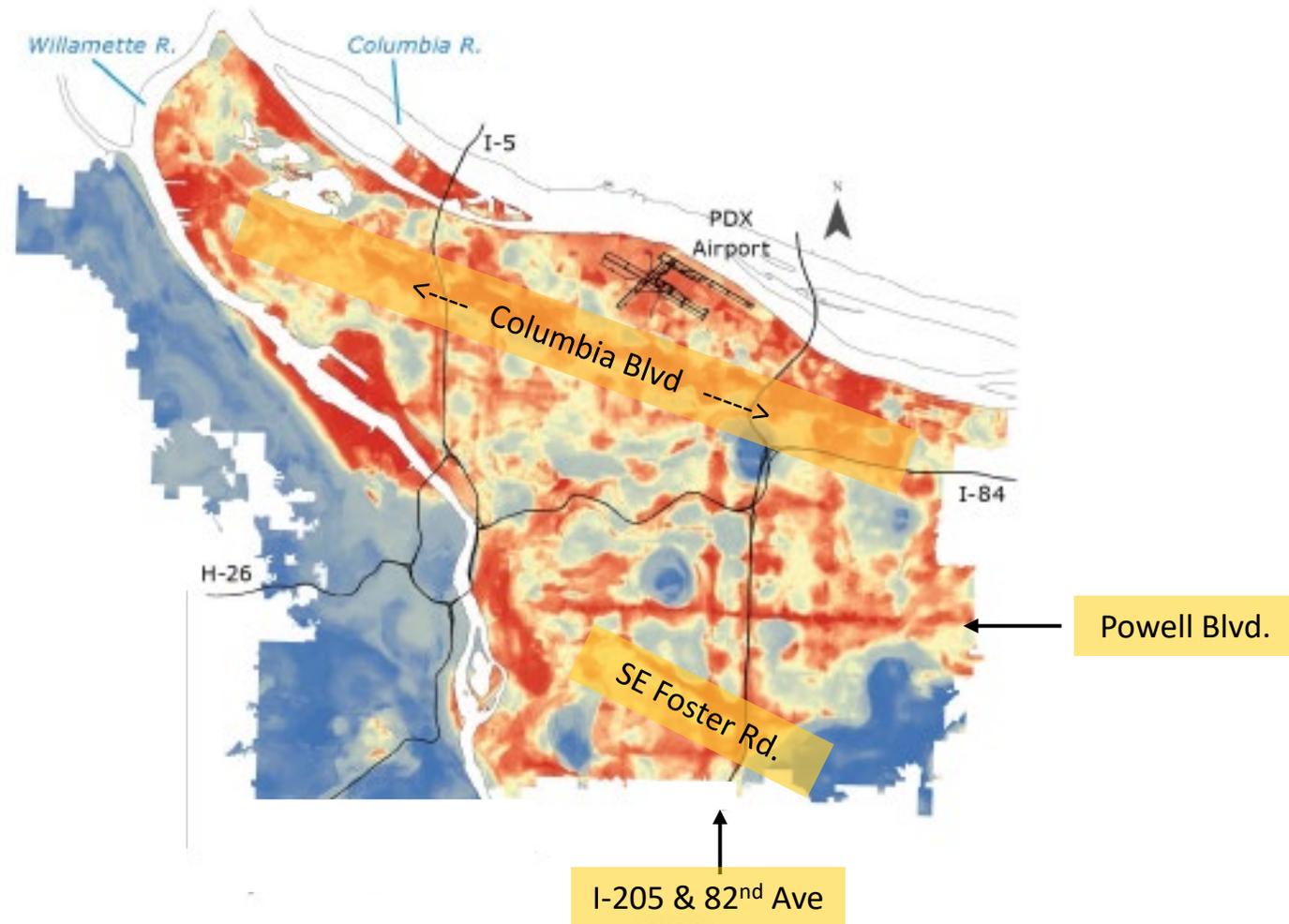
7:00pm temperature recording = 71 - 92° F



Data Source: Sustaining Urban Places Research (SUPR) Lab, Portland State University, 2015

Voelkel J, Shandas V, Haggerty B. Developing High-Resolution Descriptions of Urban Heat Islands: A Public Health Imperative. *Prev Chronic Dis* 2016;13:160099.

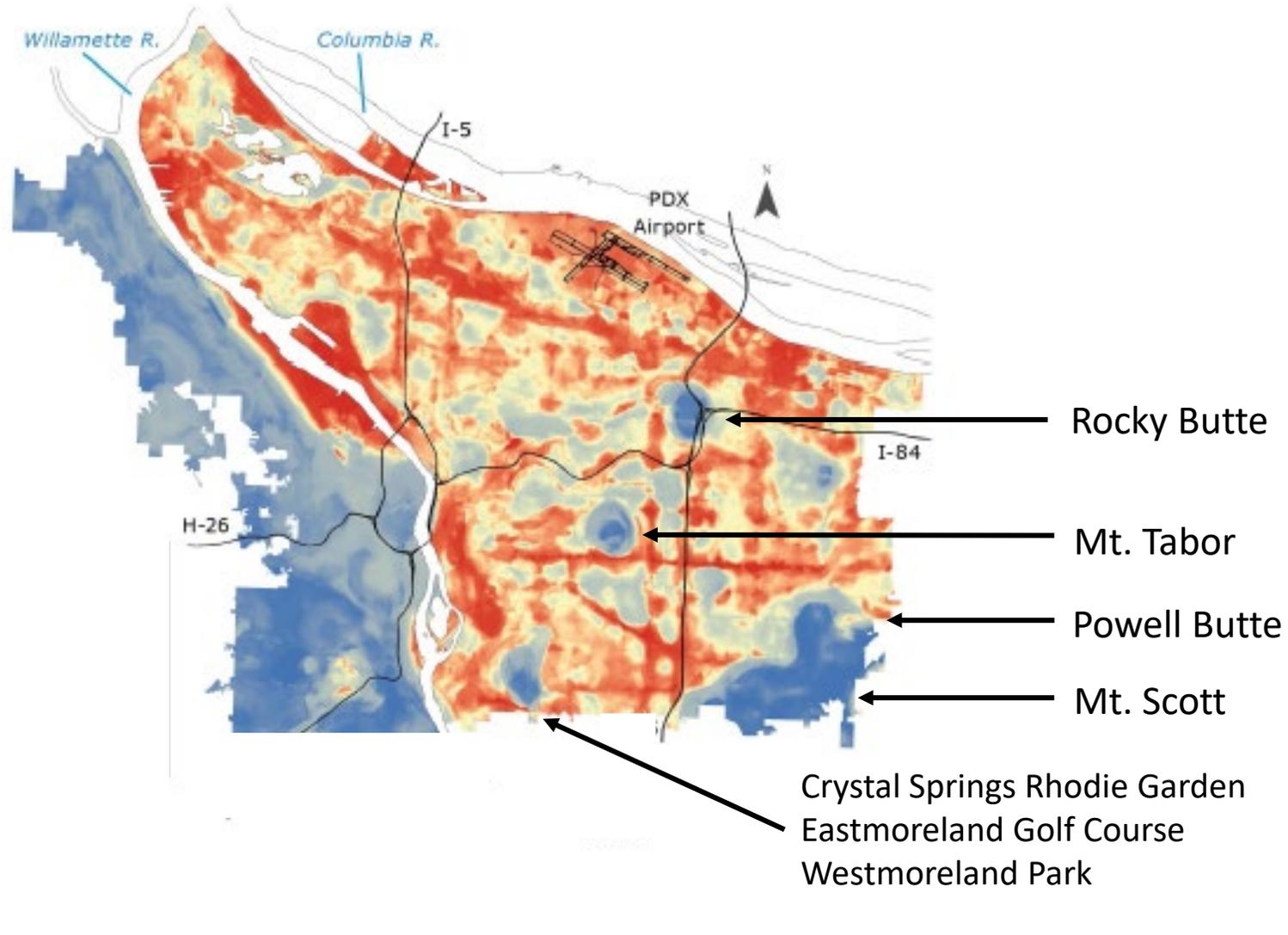
# Urban Heat Island: Hot Spots



Data Source: Sustaining Urban Places Research (SUPR) Lab, Portland State University, 2015

Voelkel J, Shandas V, Haggerty B. Developing High-Resolution Descriptions of Urban Heat Islands: A Public Health Imperative. *Prev Chronic Dis* 2016;13:160099.

# Urban Heat Island: Cool Spots

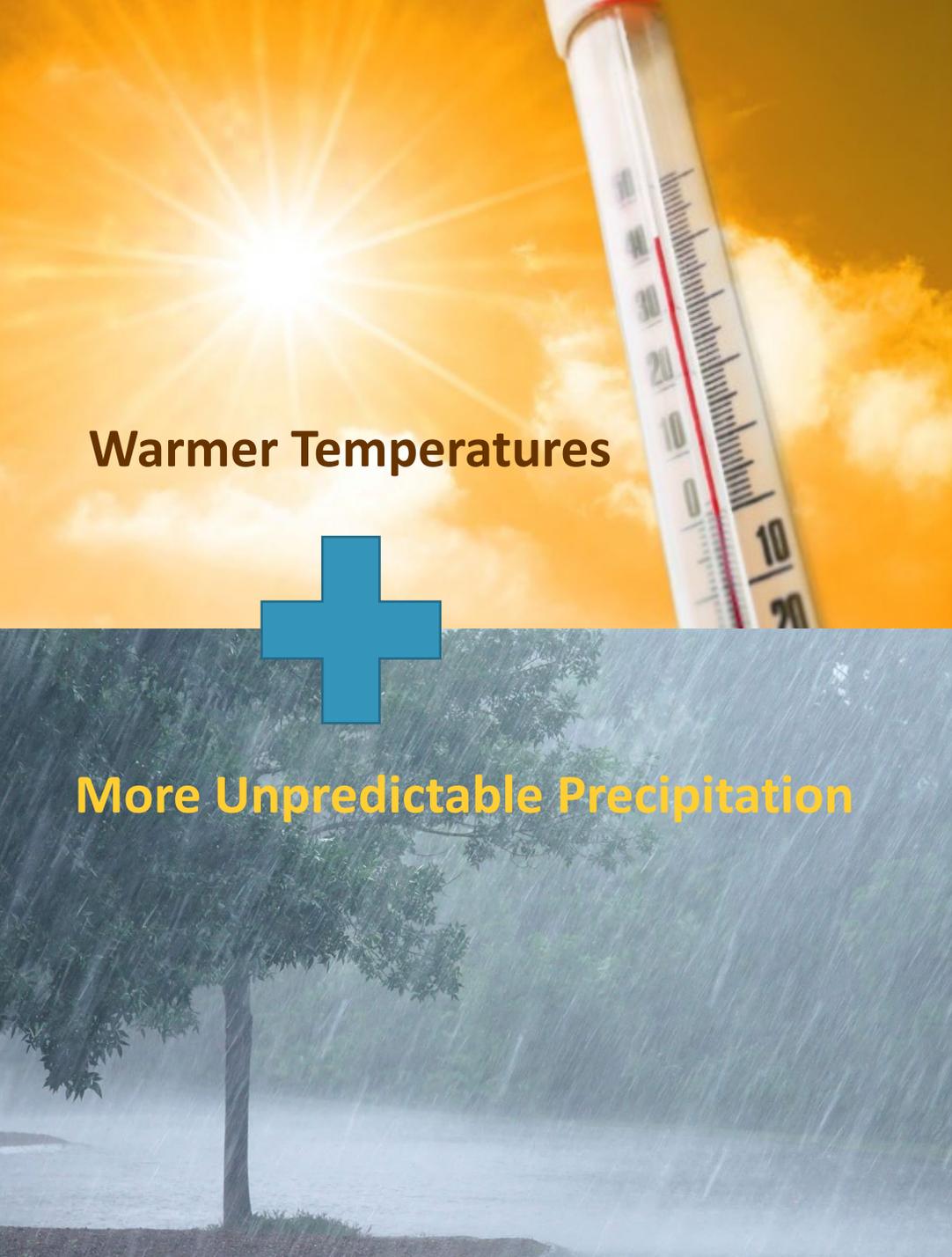


Data Source: Sustaining Urban Places Research (SUPR) Lab, Portland State University, 2015

Voelkel J, Shandas V, Haggerty B. Developing High-Resolution Descriptions of Urban Heat Islands: A Public Health Imperative. *Prev Chronic Dis* 2016;13:160099.

# More Unpredictable Rainfall & Extreme Weather Events





Warmer Temperatures



More Unpredictable Precipitation



Effects on  
Natural  
Resources



Warmer Temperatures



More Unpredictable Precipitation



Soil



Water



Plants



Air



# SOIL

## WHAT HAPPENS

- Warms faster
- Dries out sooner
- Stays dry longer
- Erosion
- More landslides

## WHAT YOU CAN DO

- Improve soil health:
  - Decrease chemical use
  - Mulch bare soil
  - Fertilize with compost
  - Reduce lawn
- Add native plants/shrubs:
  - Drought-tolerant
  - Varied root depths hold soil and reduce erosion



# WATER

(Quantity)

## WHAT HAPPENS

Longer, drier summers



Reduced summer flow

Warmer, rainier winters



More flooding

## WHAT YOU CAN DO

Reduce water use:

- Install water efficient devices
- Plant drought-tolerant species
- Water wisely, if at all

Soak up the rain:

- Replace lawn with native trees and shrubs
- Install rain gardens
- Create pervious surfaces

## WHAT HAPPENS

Hotter summers &  
rainier winters



Erosion & landslides



Dirty water



Warmer temperatures



Less dissolved oxygen

## WHAT YOU CAN DO

Prevent erosion:

- Cover bare soil with mulch or vegetation
- Plant mix of trees, shrubs, groundcovers
- Plant deep-rooted species on slopes

Soak it in & clean it up:

- Rain gardens
- Grassy swales
- Pervious pavers
- Green roofs



**WATER**  
(Quality)

## WHAT HAPPENS

Higher Temperatures =

- Faster evaporation
- Drought
- Water stress
- Pest damage & disease
- Survival struggle

Increased CO<sub>2</sub> =

- Faster growth

## WHAT YOU CAN DO

- Choose NATIVE species:
  - Drought tolerant
  - Local to Willamette Valley
- Water wisely
  - Weekly watering number
  - Water deeply, infrequently
  - Drip lines / soaker hoses
  - Tree bags
  - Skip irrigation if possible
  - Cisterns\*



# PLANTS



# AIR

## WHAT HAPPENS

Higher Temperatures =

- More air pollution
- Higher pollen counts
- Longer allergy season
- Increased wildfire
- Poor air quality

## WHAT YOU CAN DO

- Go electric! (Tools, vehicles)
- Go manual! (Rakes, brooms, mowers, bikes)
- Follow burn bans
- Plant native trees & shrubs
- Use public transit
- Drive less, walk/bike more
- Replace hardscapes with greenscapes



**Warmer Temperatures**



**More Unpredictable Precipitation**



**Soil**



**Water**



**Plants**



**Air**

# Reducing Our Impact: Every Action Counts!



At Home



Going Places

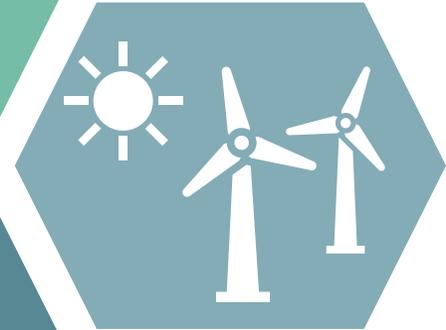
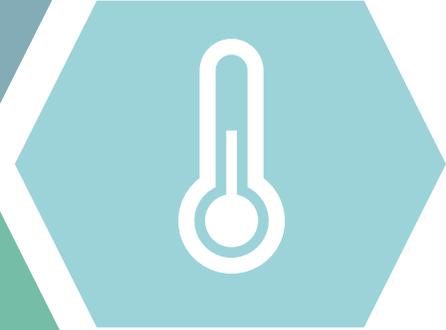


Eating



# At Home (Inside)

- Turn off lights
- Use compact florescent bulbs
- Tankless or solar water heater
- Thermostat adjustments
- Rechargeable batteries
- Purchase green electricity
- Low-flow faucets, toilets
- Line dry clothing





# At Home (Outside)

- Plant trees
- Choose native, drought-tolerant species
- Water-efficient landscaping
- Weekly watering number
- Replace gas powered tools
- Use electric/manual tools
- Leave the leaves
- Remove invasive species



**Weekly Watering Number** 1.5

Oct 13-19, 2022

Enter your zip code to get your number: 1

0.5

Sign up at [regionalH2O.org](http://regionalH2O.org)





# Going Places

- Public transit
- Hybrid/electric vehicles
- Bike
- Carpool
- Reduce air travel
- Travel locally
- Camping/glamping
- Telecommute





# Food Choices

- Cut down on meat and dairy
- Eat more vegetables
- Eat locally and seasonally
- Reducing packaging
- Reduce food waste
- Buy organic



Come back  
for more!



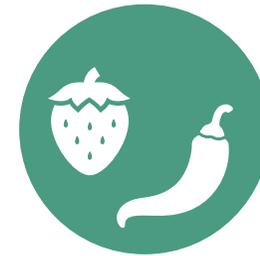
BENEFITS OF  
NATIVE PLANTS



LANDSCAPE FOR  
WILDLIFE



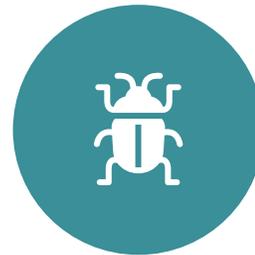
INTRO TO  
STORMWATER



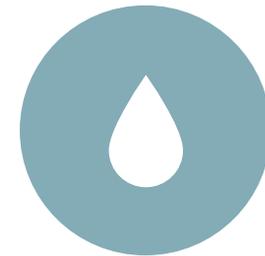
INCORPORATE  
EDIBLES



INTRO TO  
NATURESCAPING



MANAGE WEEDS  
& PESTS



OUTDOOR WATER  
CONSERVATION