A Changing Ramsey County

Climate Change and Strategic Planning

September 3, 2014

RAMSEY COUNTY
Saint Paul – Ramsey County
Public Health

Overview

- Climate change “crash course”
- Climate change and public health
- Adaptation and mitigation
- Extreme heat response
- Vulnerability Assessment
- What’s next

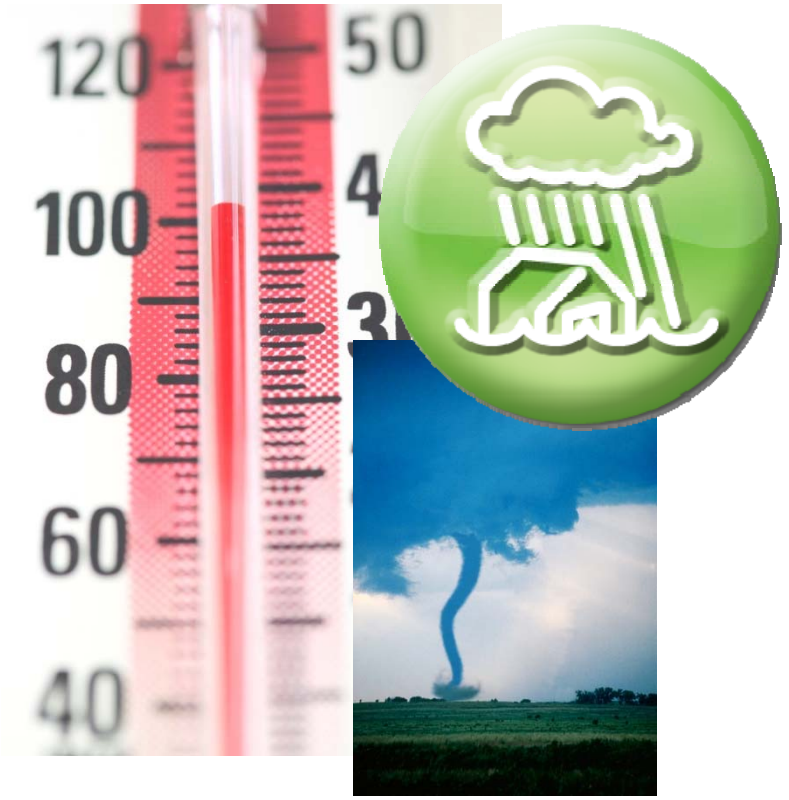
Weather vs. Climate

- **Weather** – conditions of the atmosphere over a short period of time

- **Climate** – conditions of the atmosphere over long periods (about 30 years) of time

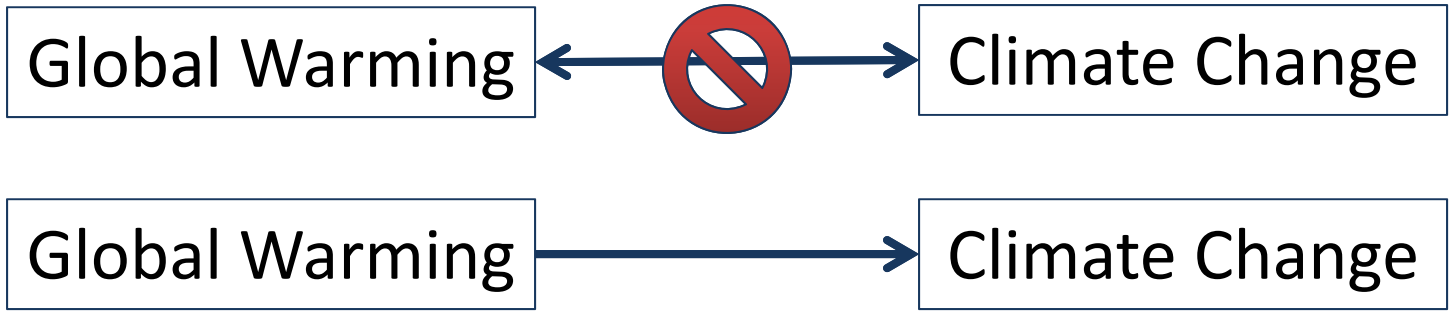
What is Climate Change?

- "Significant changes in the measures of climate lasting for an extended period of time"
  - Changes in:
    - Temperature
    - Precipitation
    - Wind patterns
    - Extreme weather events



Climate Change vs. Global Warming

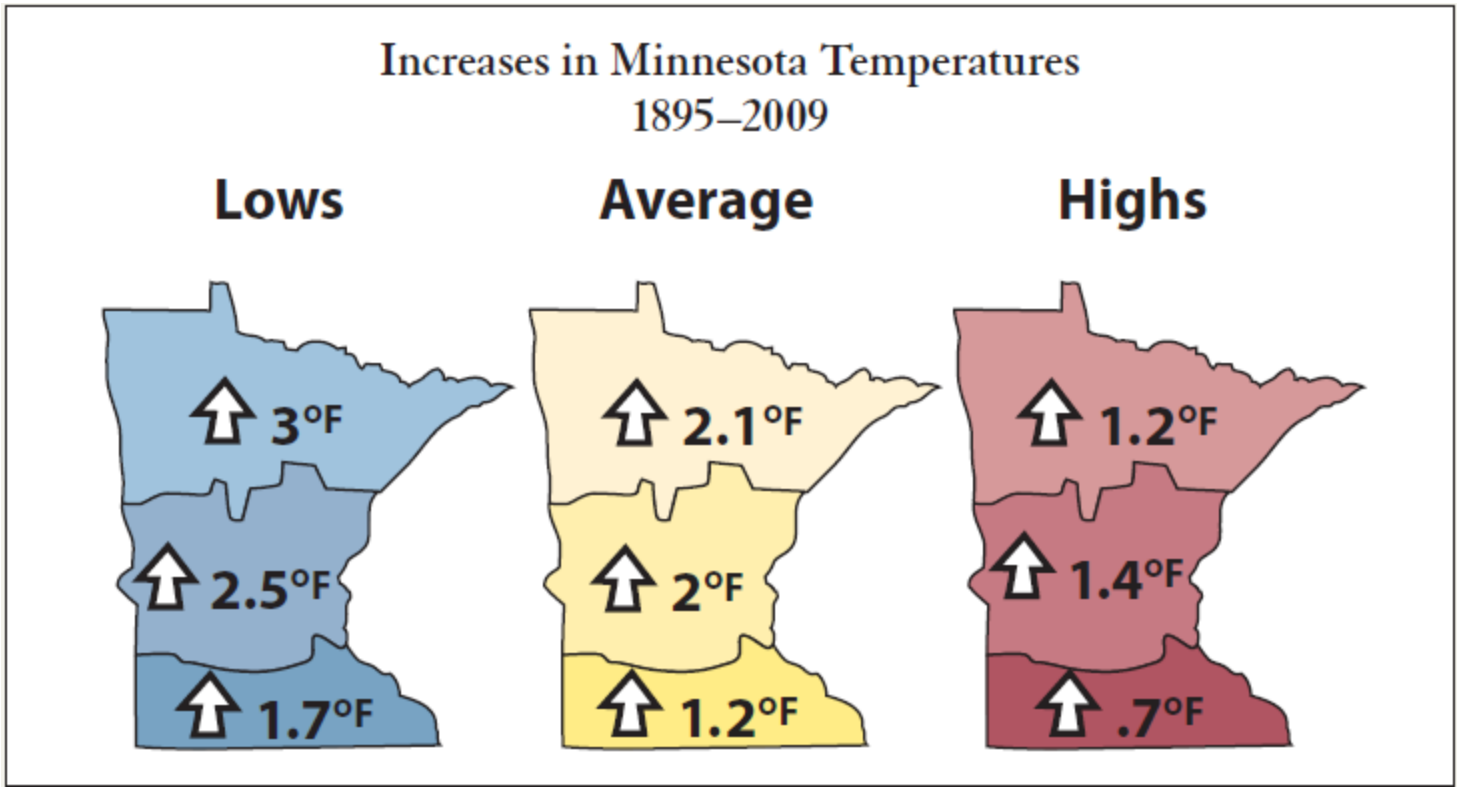
- **Global Warming** – the recent increase in global average temperature near the Earth's surface
  - Caused by the accumulation of greenhouse gases (GHG) in the atmosphere
    - Gasses trap heat from the sun ('Greenhouse Effect')
    - GHG = water vapor, carbon dioxide, methane, nitrous oxide
  - Causes climate patterns to change



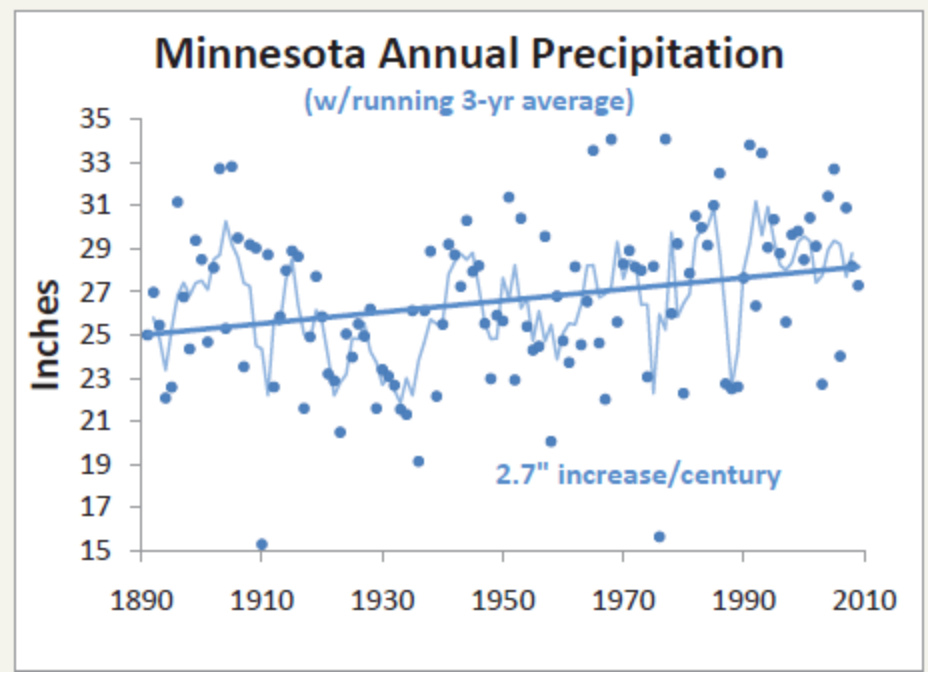
Climate Change in Minnesota

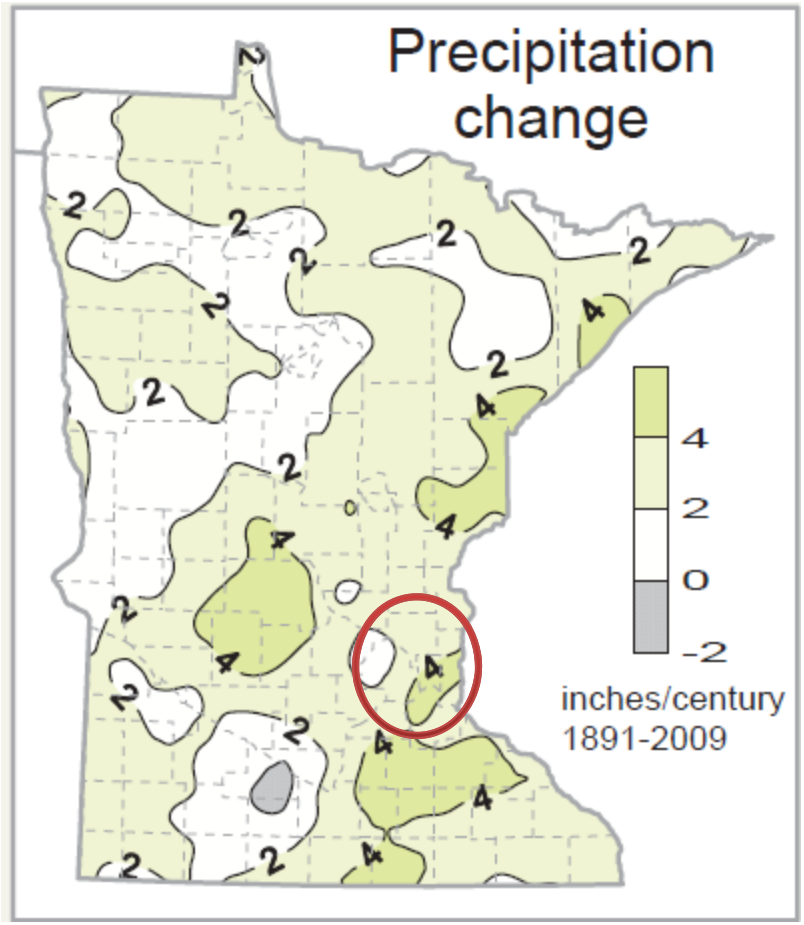
- Main points specific to Minnesota
  - Increase in average annual temperature
    - Accelerating warming rates
  - Increase in annual precipitation
  - Increase in extreme weather events
  - Magnitude of climate change is projected to increase

Increase in Daily Lows, Highs, and Average Temperatures

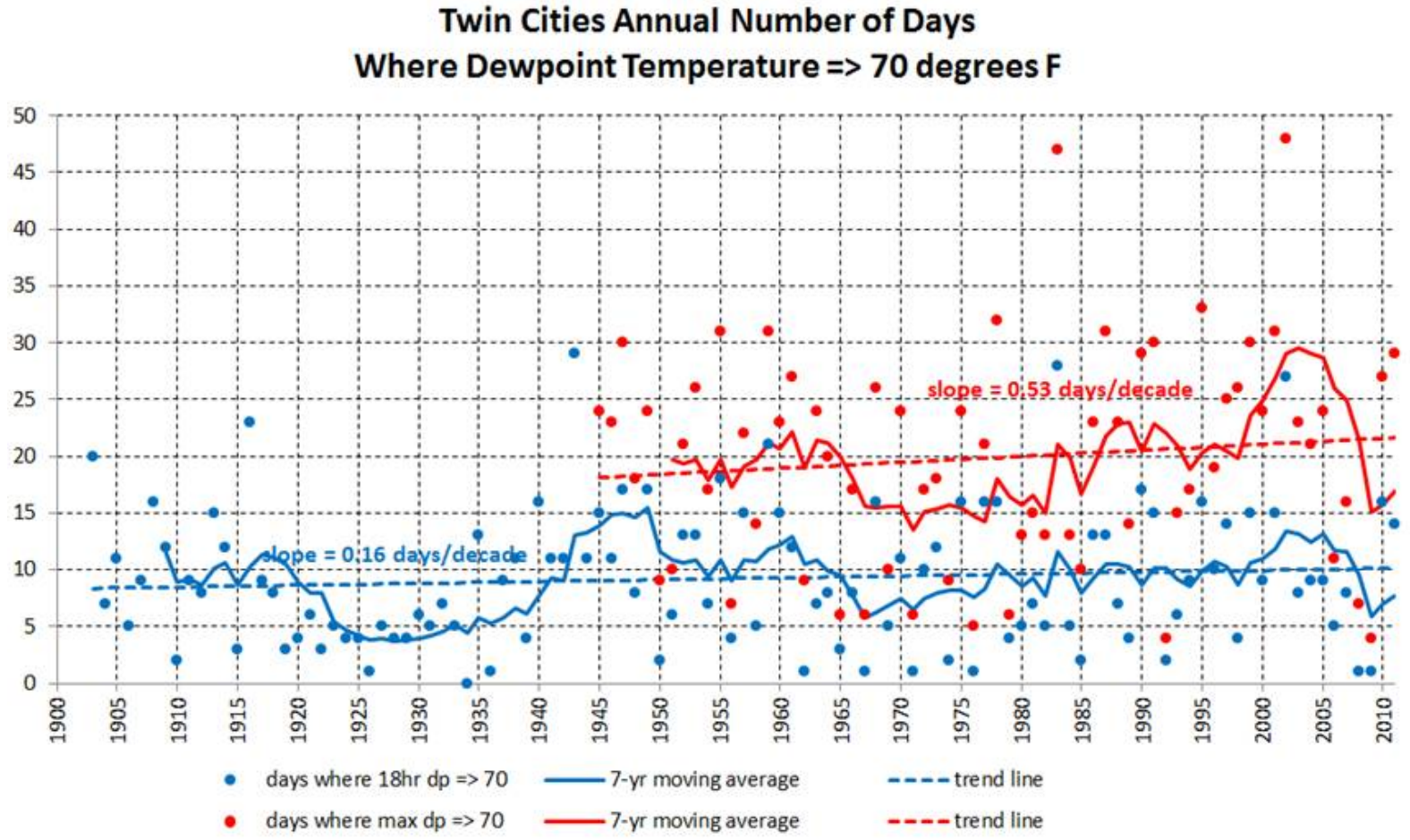


Changes in Precipitation





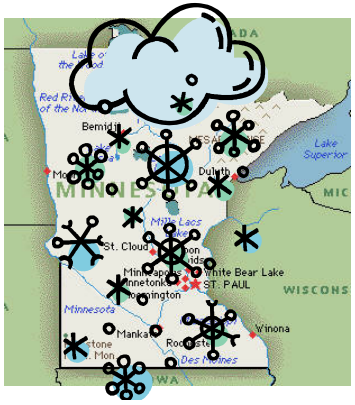
Changes in Dew Points



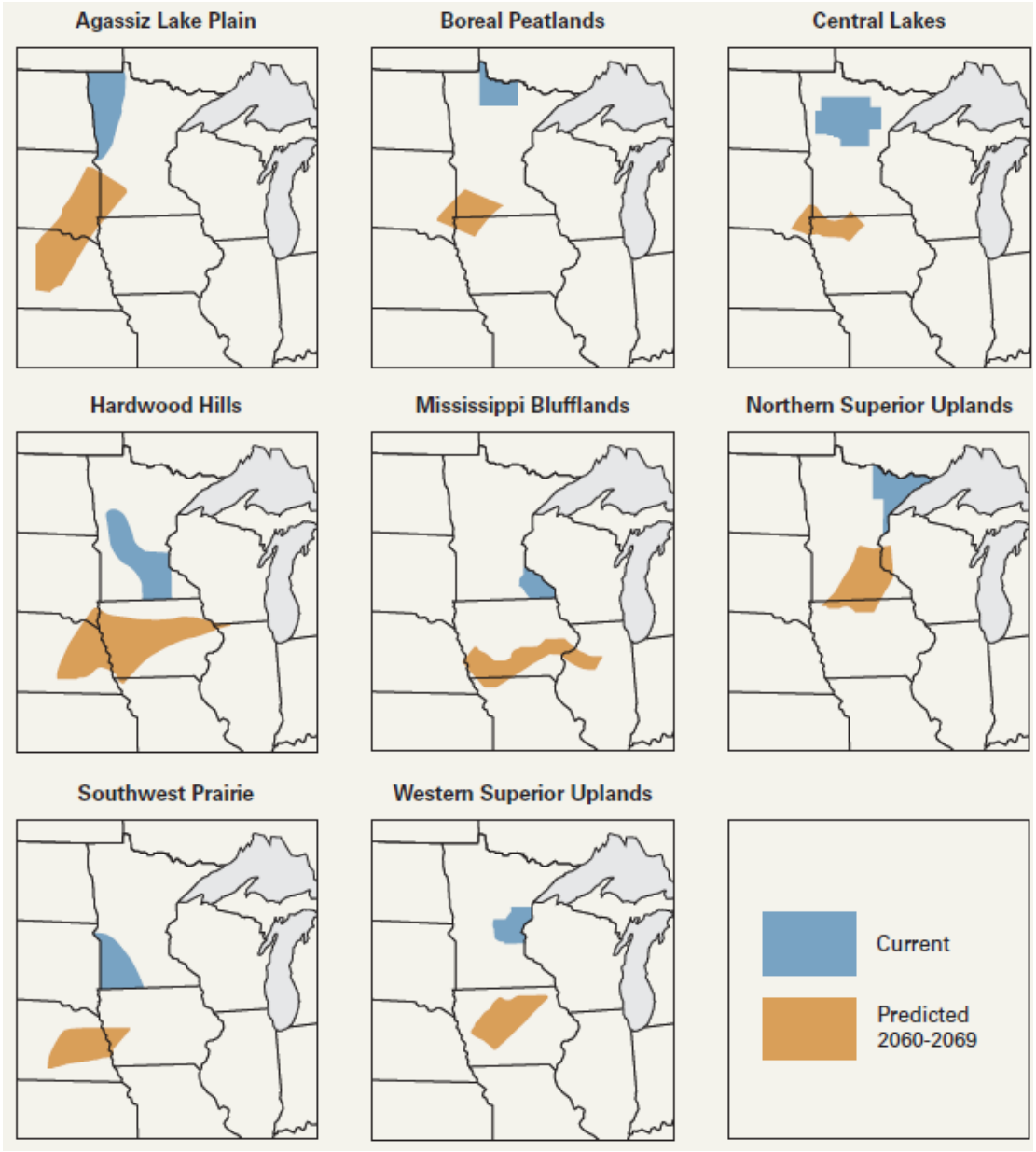
Minnesota Climate Projections

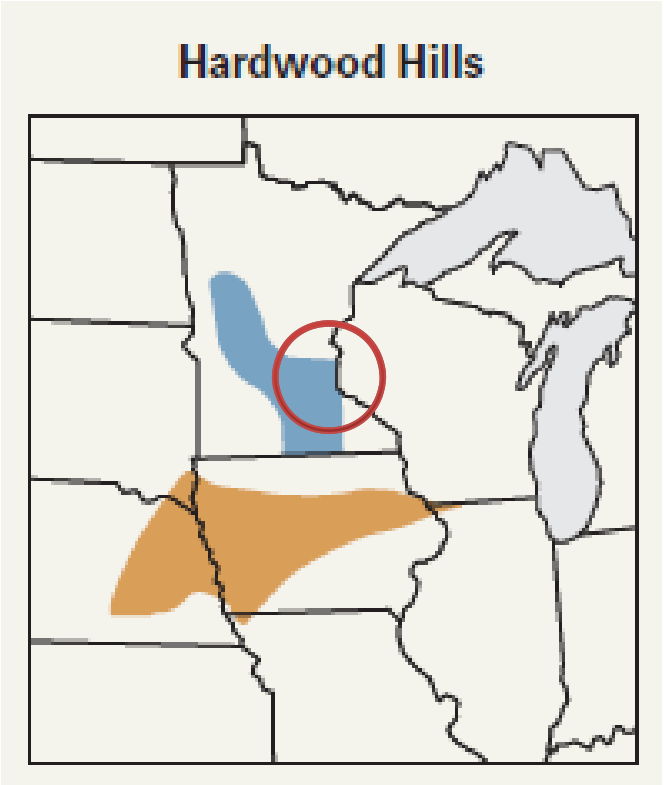
- By the 2080s:
  - More extreme weather events (especially droughts and floods)
  - Annual average temperatures will increase by 5.3-8.5°F
  - Average annual precipitation will increase by 6.8-11.5%
    - Average precipitation during the summer months will not change significantly

What does this mean?

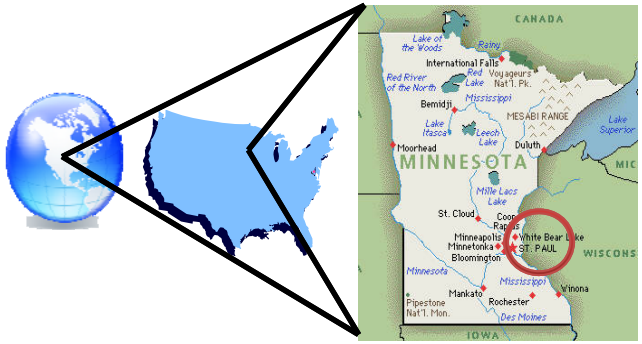


Future Climate Analogs





Environmental Implications of Climate Change

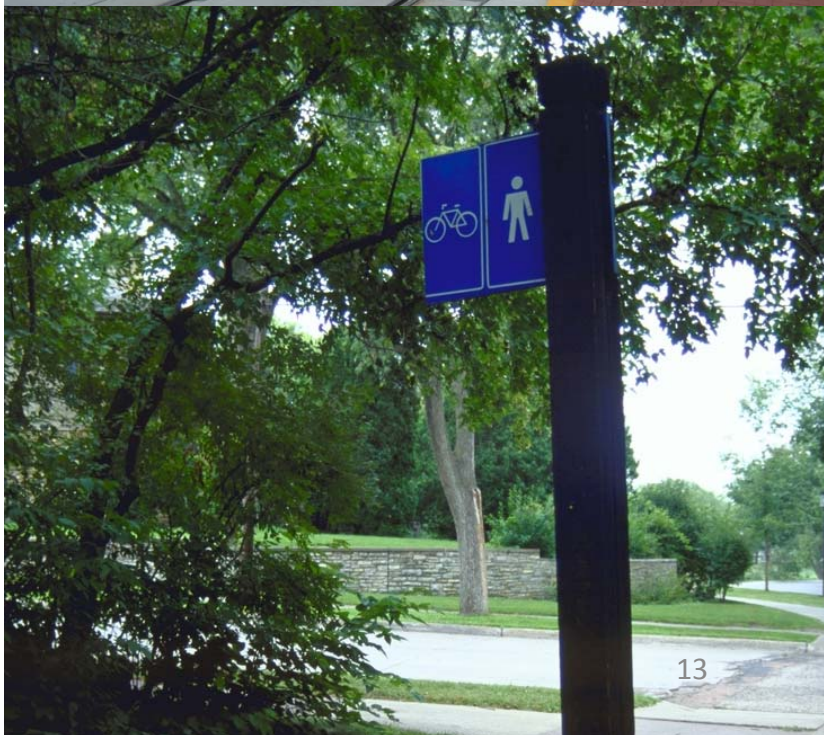


- Extreme heat events
- Violent storms
- Longer summer, spring, and fall seasons
- Increased ground-level ozone production
- Increased production of small particulate matter
- Changing ecologies
- Decreased water quality & variation in water availability
- Increased frequency of crop failure
- Rising sea levels & coastal flooding

Public Health Strategies

Mitigation

- Promote activities that reduce harmful emissions
  - Active communities that make biking, walking, and/or public transportation safe and convenient
  - Telecommuting or other work schedule alternatives that do not require employees to drive daily
- Reduce the production of harmful air pollutants by:
  - Improving energy efficiency
  - Reduce energy consumption
  - Use alternatives to fossil fuels
  - Reduce combustion of fossil fuels



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Public Health Strategies

Adaptation

- Monitoring conditions and providing useful information to the public
  - Extreme heat events
  - Air Quality Index
  - Disasters
- Community and infrastructure planning
  - Retention ponds and wetlands increase water storage
  - Pervious surfaces and rain gardens increase infiltration, reducing run-off
  - Increasing capacity of stormwater systems
  - Reduce the urban heat island effect by maintaining green space in urban areas
- Emergency Preparedness
  - Robust all-hazards plans that include annexes for severe storms, extreme heat, power loss
  - Identification and understanding of high-risk and vulnerable populations

Climate Change and Public Health