



# Preparing for Heat: MN Climate & Health Program Activities

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Communicating the Connection between Climate Change and Heat Health Webinar

July 22, 2015

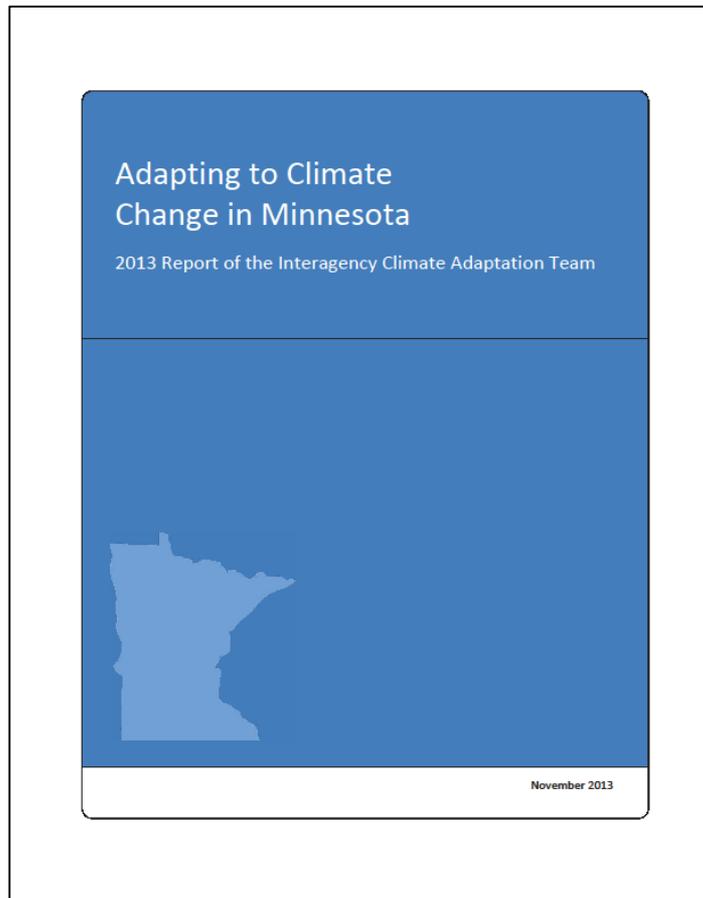


MN Climate & Health Program  
Environmental Impacts Analysis Unit  
625 Robert Street North  
Saint Paul, Minnesota 55164



# Outline

- MN Climate & Health Program
- Why address heat?
- Minnesota Extreme Heat Toolkit
- Extreme Heat Training Module
- Profile & Assessment Reports
- Lessons Learned



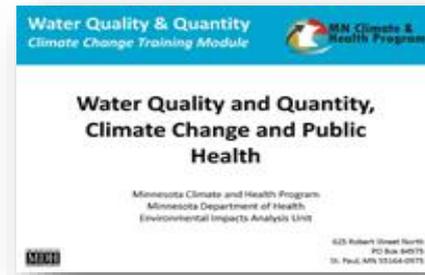
<http://www.pca.state.mn.us/index.php/view-document.html?gid=15414>

# CDC's Climate-Ready States & Cities Initiative Grantees

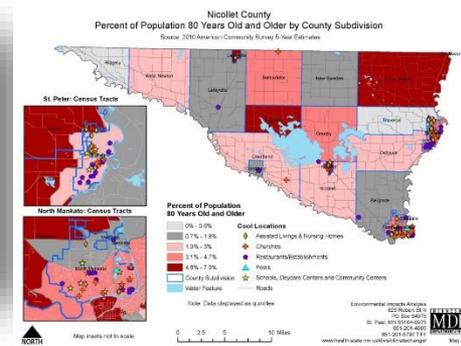


# MN Climate & Health Program

- Education
- Developing tools & products
- Researching impacts of climate change on health
- Analyzing policies
- Providing assistance



<http://www.health.state.mn.us/divs/climatechange/communication.html>



<http://www.health.state.mn.us/divs/climatechange/climatevideo.html>

# Advancing Health Equity in Minnesota: MDH's Call

- Climate change disproportionately impacts people who are economically disadvantaged, people who have been systematically discriminated against, and people who have other health issues

## Foreword from Commissioner Ed Ehlinger

On November 15, 1953, my father took me to my first Green Bay Packer football game. The game was played at the old City Stadium, which the Packers shared with the city's high schools. The Packers lost to the Detroit Lions 14-7 but that was far from the most memorable thing that happened that day.



In those days, kids accompanied by a parent got in free but had to sit by themselves on the field in the space behind the end zone. They were also free to roam around the stadium if they got bored. Because professional football in 1953 wasn't the overwhelming presence that it is today, I had not yet developed much interest in the game. I was more interested in wandering and witnessing the spectacle of the afternoon than in watching the actual football game so I spent more time behind the benches than on the end zone grass. It was during that wandering time that I saw Bobby Mann, an offensive end wearing number 87. He was the first African-American that I had ever seen.

On our walk home from the game, I peppered my dad with lots of questions about what I had seen. I was most curious about the football player who didn't look like any of the rest of the players. I particularly wondered why there weren't others like him on the team or in our city and why I didn't see him around town like many of the other players. I remember specifically what my dad said. "He's a Negro and he comes from Detroit. He's allowed to live in Green Bay only during the football season. Then he has to leave. While he's here, he has to live in a cabin behind Kroll's (a restaurant near the edge of town)."

To me, that did not seem fair. My dad agreed but said, "That's the way things are right now. Let's hope that they change in the future. Maybe your generation can do that."

Ten years later, I was a senior in high school playing football in hand-me-down Packer equipment thanks to the connections of our coach Ted Fritch, a member of the Packer Hall of Fame. At that point, nearly half of the Packers were African-American. After football practice on the day after Martin Luther King, Jr. gave his "I have a dream" speech, I shared my 1953 experience with Coach Fritch. His response was similar to that of my father ten years earlier: "We've made a lot of progress (in integrating our society) since then but too many people are still denied the opportunities that they deserve. A whole lot more needs to be done. I'm hoping that your generation will be able to do that."

I thought of those two events again last year as I watched Sonia Sotomayor, a Supreme Court Justice with a Hispanic background, swear in Vice President Biden and listened to President Obama give his second inaugural address. It was evident that we had made tremendous progress; probably more than my father or Coach Fritch could have imagined.

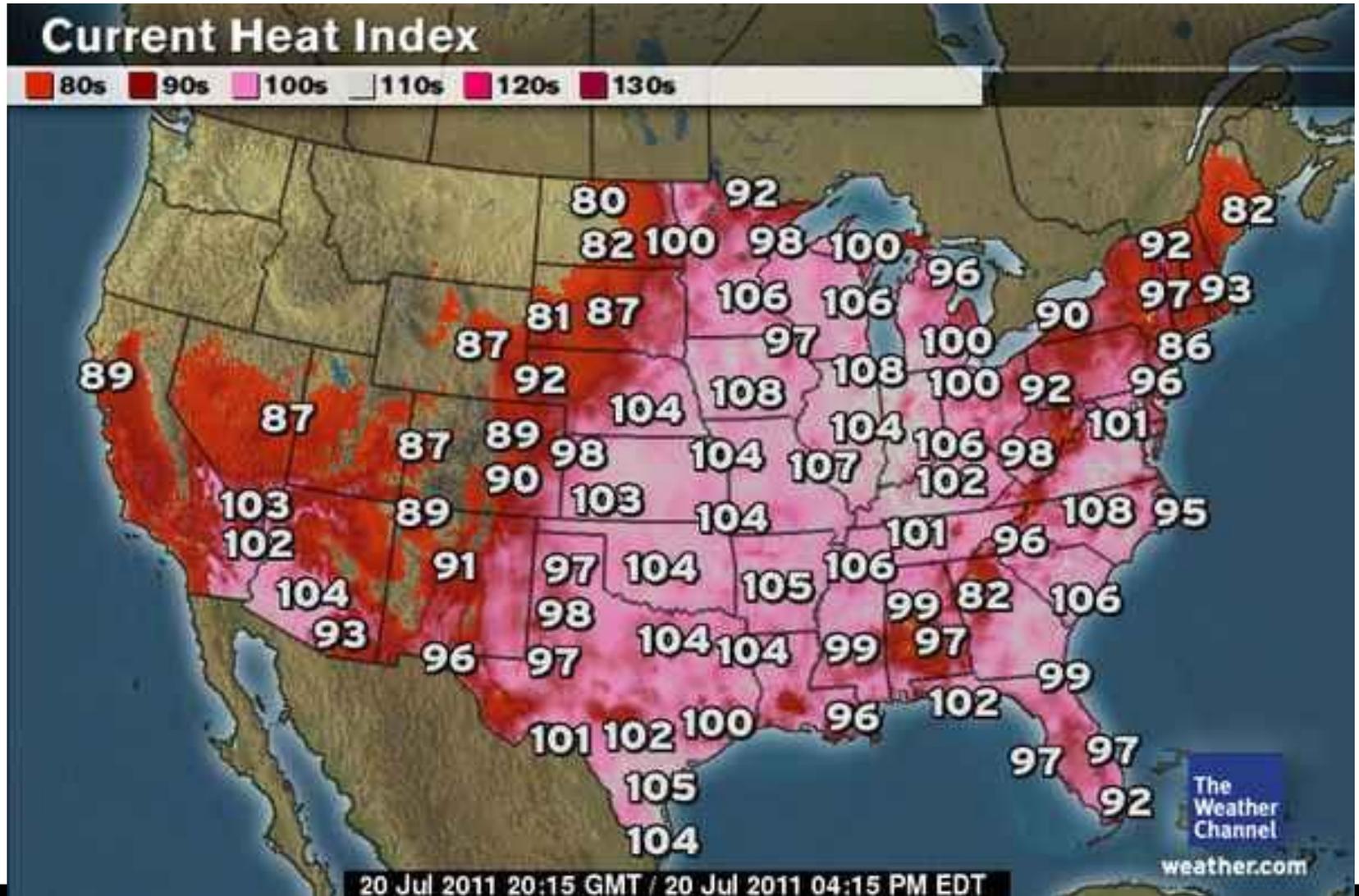
I also thought of all those events as we began to prepare this Advancing Health Equity report. Although we have laws prohibiting the kind of treatment Bobby Mann experienced in 1953, today's statistics tell us that we are still far from the equality envisioned by our country's founders or dreamed about by Dr. King or even my dad or Coach Fritch. Those shortcomings are starkly evident in Minnesota where, on average, people are among the healthiest in the country, while a significant number of Minnesotans,

[http://www.health.state.mn.us/divs/chs/healthequity/ahe\\_leg\\_report\\_020414.pdf](http://www.health.state.mn.us/divs/chs/healthequity/ahe_leg_report_020414.pdf)

# Minnesota looks like this!



# Not this!



# Not this!



The skyline rises through haze as one boy pumps water for another to drink from an old-fashioned water pump along Lake Harriet Friday, July 6, 2012 in Minneapolis where temperatures reached into the upper 90's for another day during the heat wave. (AP Photo/Jim Mone)

[http://www.twincities.com/localnews/ci\\_21024593/twice-one-week-temps-hit-100-degrees-again?source=pkg](http://www.twincities.com/localnews/ci_21024593/twice-one-week-temps-hit-100-degrees-again?source=pkg)



Dead carp float near the shore of the La Crosse Marsh on July 10, 2012. This summer's heat wave is taking its toll on fish in the Upper Midwest, where high water temperatures and low oxygen levels have combined to kill thousands of fish in Minnesota, the Dakotas and Wisconsin. (La Crosse Tribune via AP, Erik Daily)

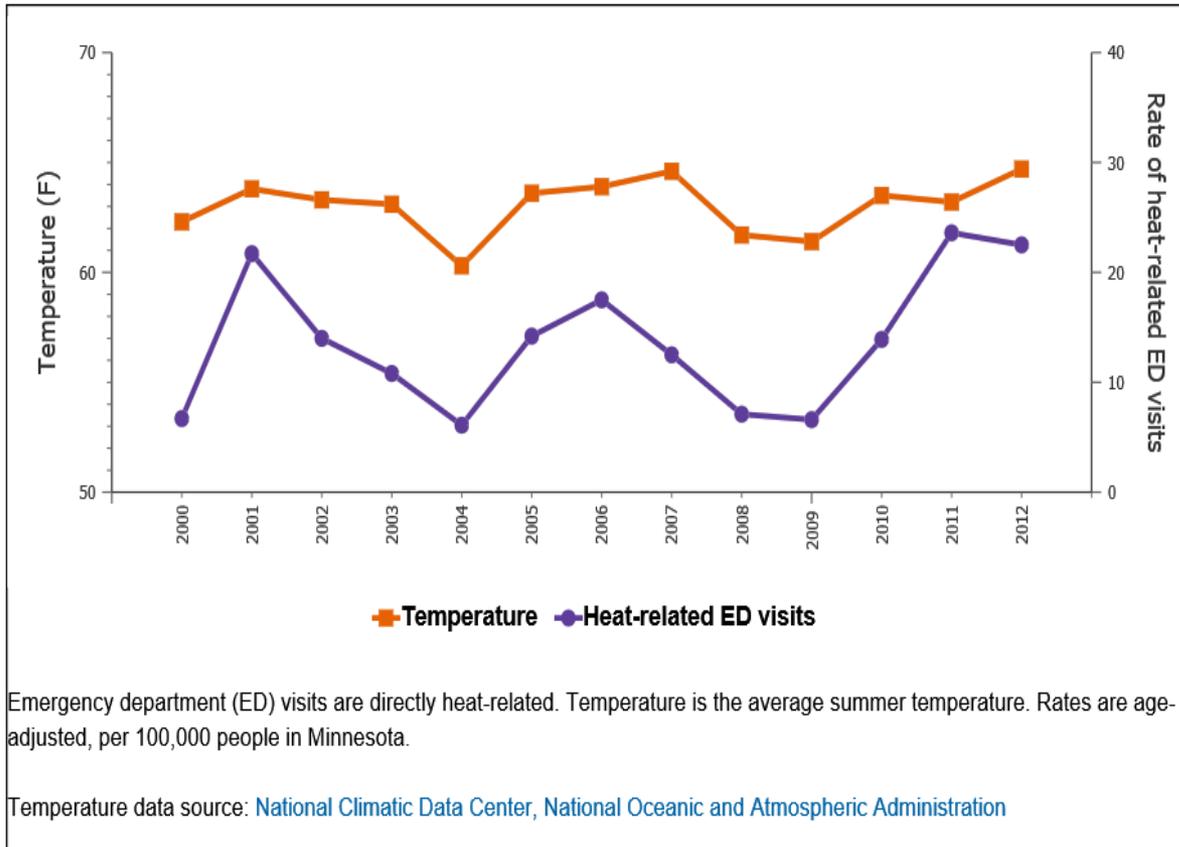
[http://www.twincities.com/localnews/ci\\_21062734/heat-wave-takes-toll-minnesotas-fish](http://www.twincities.com/localnews/ci_21062734/heat-wave-takes-toll-minnesotas-fish)

"I was buying an air conditioner in March -- and they were sold out," Pete Boulay, Assistant State Climatologist

<http://www.startribune.com/local/158771045.html?refer=y>

# Heat and health in MN

## Heat-related illness ED visits and temperature



[https://apps.health.state.mn.us/mndata/heat\\_ed](https://apps.health.state.mn.us/mndata/heat_ed)



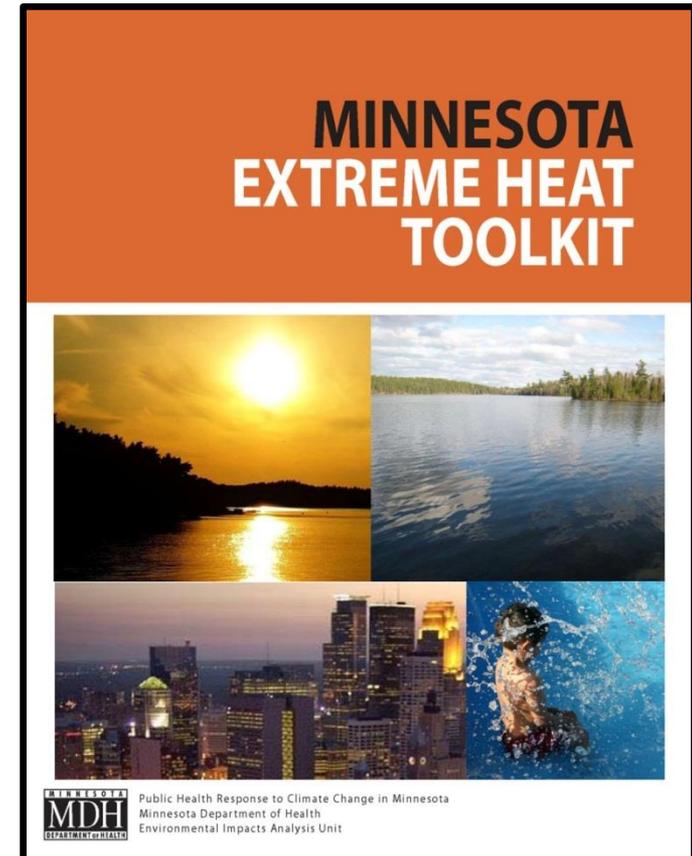
Minnesota  
Environmental  
Public Health  
Tracking



# Minnesota Extreme Heat Toolkit

## Extreme Heat Toolkit :

- **Introduction to extreme heat events**
  - Why care about extreme heat events
  - Minnesota is warming
  - Defining extreme heat events
- **Extreme heat events and public health**
  - Health issues caused by extreme heat
  - Characteristics that increase the risk of heat-related illnesses
- **Preparing Minnesota for extreme heat events**
  - Key steps for planning for and responding to extreme heat events
  - Developing a heat response plan
  - Additional strategies to prevent heat-related illnesses
  - Mitigation/adaptation to extreme heat
  - Training and resources for extreme heat
- **Appendices:**
  - Draft language for extreme heat response plans
  - A tip sheet for individuals to prevent heat-related illnesses
  - Data sources for mapping risk factors
  - Sample media release

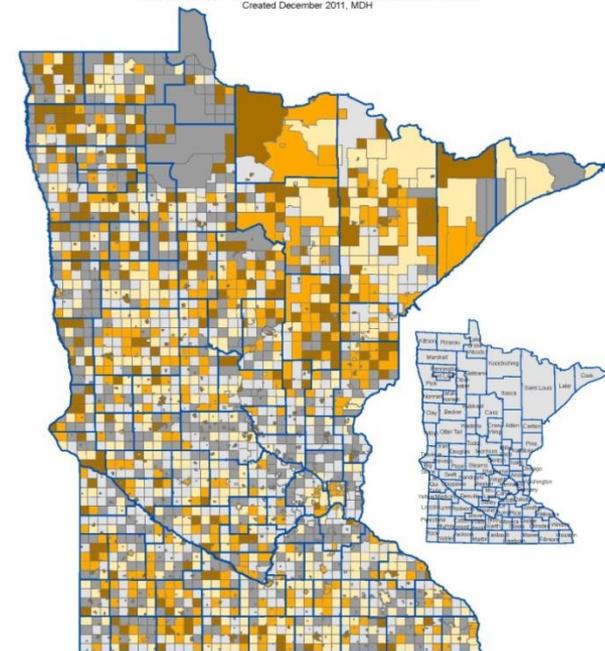


# Strategies for preventing morbidity and mortality

- Promote pre-summer awareness education & ongoing communication with the public
- Identify vulnerable populations
- Activate a heat line
- Designate community ‘cooling centers’
- Suspend utility shutoffs
- And more!

Percent of Elderly Living Alone  
by County Subdivision in Minnesota

Source: 2010 American Community Survey 5-Year Estimates  
Elderly Living Alone = Households with persons 65 Years-Old or Older living alone  
Created December 2011, MDH

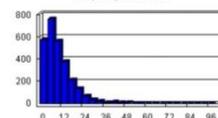


#### Statistics

Percent of Elderly  
Living Alone  
by County Subdivision

Count of County Subdivisions: 2,757  
Minimum: 0.0%  
Maximum: 100.0%  
Average/Mean: 9.9%  
Standard Deviation: 7.6%

#### Frequency Distribution



#### Percent of Elderly Living Alone by County Subdivision

0% - 3.9%  
4% - 6.9%  
7% - 10.1%  
10.2% - 15.1%  
15.2% - 100%

County Boundary



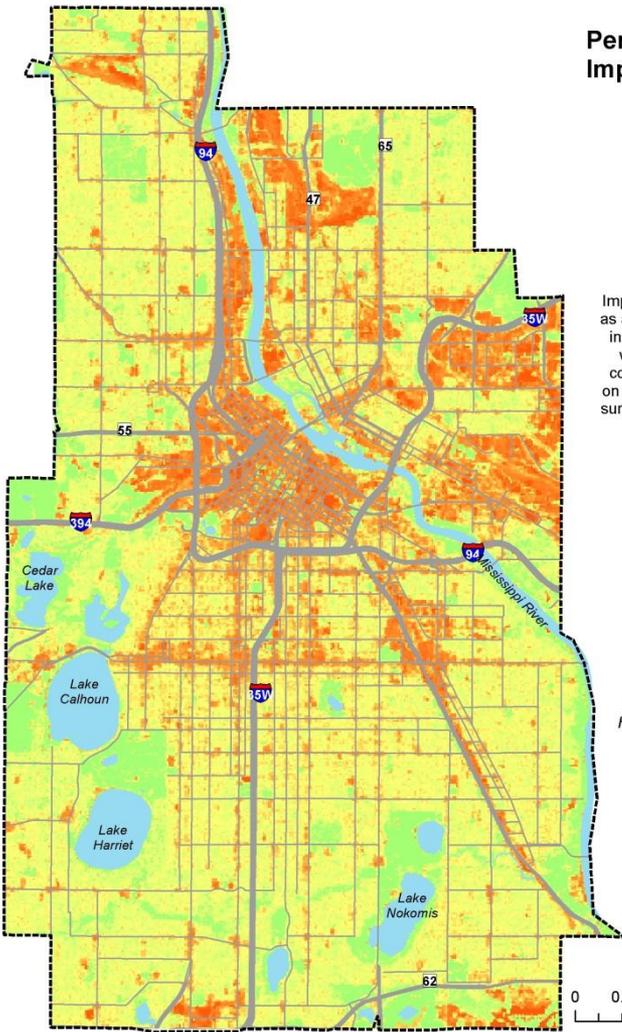
**Table 4: Checklist of response plan elements and strategies implemented by Olmsted County and the City of Minneapolis**

| Strategies   | Olmsted County | City of Minneapolis |
|--|----------------|---------------------|
| <b>Response Plan Elements<sup>1</sup></b>  |                |                     |
| Lead agency responsible for the response plan  | ✓              | ✓                   |
| Criteria for activating and deactivating the plan  | ✓              | ✓                   |
| Assigned roles and activities of agencies and organization involved with the plan  | ✓              | ✓                   |
| Communications plan for communicating heat-related information to partners and the public before and during an extreme heat event  |                | ✓                   |
| Identification of vulnerable persons   | ✓              | ✓                   |
| Strategies for preventing morbidity and mortality from extreme heat (see below)  | ✓              | ✓                   |
| Evaluation of the response plan  | ✓              | ✓                   |
| <b>Response Plan Strategies</b>  |                |                     |
| <b>Prediction</b>  |                |                     |
| Establish partnership with local National Weather Service (NWS) station to ensure access to weather forecasts capable of predicting extreme heat conditions a few days in advance of an event                              | ✓              | ✓                   |
| Ensure timely transfer of weather forecasts to lead agency   | ✓              | ✓                   |
| <b>Assessment, Activation and Notification</b>   |                |                     |
| Review activation criteria based on predicted meteorological characteristics and health impacts and determine activation of the response plan  | ✓              | ✓                   |
| Coordinate distribution of information about the anticipated timing, severity, and duration of extreme heat event; heat exposure symptoms; and tips on how to stay cool during an extreme heat event for public broadcasts | ✓              | ✓                   |
| <b>Implementation</b>  |                |                     |
| Disseminate information related to preventing heat-related illnesses to community organizations and facilities with concentrations of high-risk individuals  | ✓              | ✓                   |
| Activate a heat line   |                | ✓                   |
| Identify and designate buildings with air conditioning as public cooling centers and extend hours of operation   | ✓              | ✓                   |
| Work with the public and private sector to allow public gathering at buildings with air conditioning and extend hours of operation   |                | ✓                   |
| Outreach to vulnerable populations   | ✓              | ✓                   |
| Arrange for extra staffing of emergency support services   |                | ✓                   |

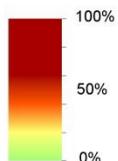
<sup>1</sup> Table and strategies adapted from U.S. Environmental Protection Agency. 2006. Excessive heat events guidebook. [www.epa.gov/heatisland/about/heatguidebook.html](http://www.epa.gov/heatisland/about/heatguidebook.html).

# Identification of high-risk and vulnerable persons

Minneapolis Land Cover  
Impervious Surfaces



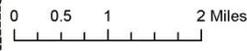
Percentage of  
Impervious Surface



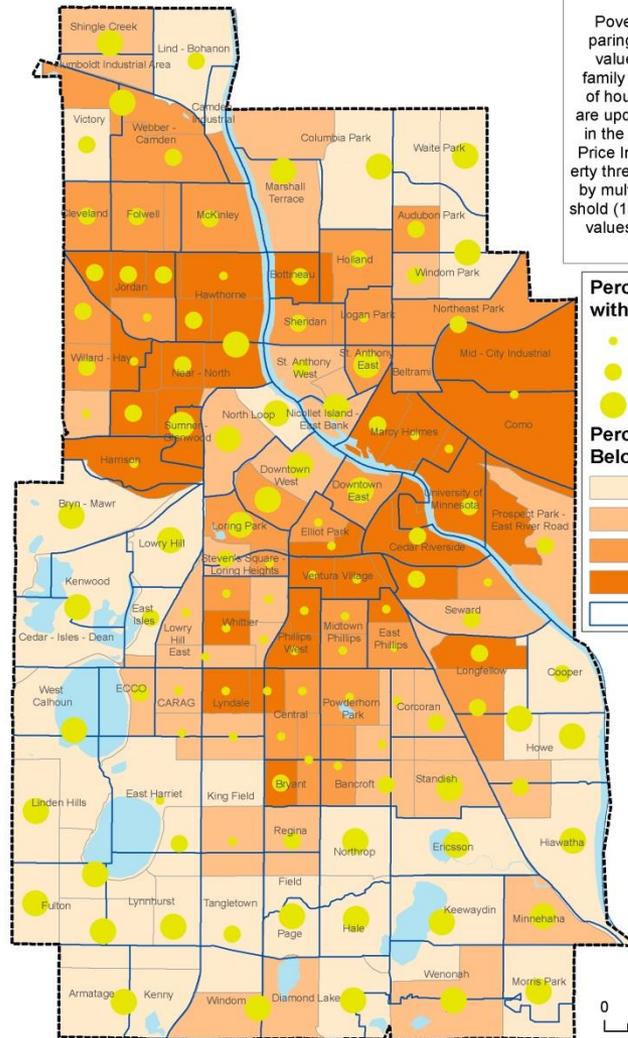
Impervious surfaces are defined as areas impenetrable by water—including roads, rooftops, sidewalks and parking lots. The coverage provides information on the percentage of impervious surface on a 30-m pixel basis for all urban areas.

Source: MnGeo Data Clearing-house "Impervious Surface Area Classification of Twin Cities Metropolitan Area, 2000", University of Minnesota

Map created July 2011



Air Conditioned Residential Buildings &  
Percent of People Who Live Below the Poverty Line



Poverty Threshold by Census Tract:

Poverty status is determined by comparing annual income to a set of dollar values called thresholds that vary by family size, number of children, and age of householder. The poverty thresholds are updated annually to allow for changes in the cost of living using the Consumer Price Index (CPI-U). The appropriate poverty threshold for each family is determined by multiplying the base-year poverty threshold (1982) by the average of monthly CPI values for the 12 months preceding the survey month.

Percent of Residential Buildings with Air Conditioning (AC)

- 5.9% - 26%
- 26.1% - 48.6%
- 48.7% - 98.5%

Percent of People Who Live Below the Poverty Line (% BPL)

- 0.8% - 8.6%
- 8.7% - 22.9%
- 23% - 32.8%
- 32.9% - 68.7%

□ Neighborhood Boundary

Sources: % BPL from 2009 American Community Survey 5-Year Estimates; Residential AC data from Minneapolis Assessors Office, 2011

Map created September 2011



# Minnesota Extreme Heat Toolkit

- 9,812 views of website
- 4,664 views the toolkit
- Most popular resources:
  - Data sources for characteristics that increase risk of heat-related illness
  - Extreme heat tip sheet for individuals

**Data sources for characteristics that increase the risk of heat-related illnesses**

This document provides a list of data sources for identifying a community's vulnerable populations and risk factors associated with extreme heat events. The vulnerability and risk characteristics have been selected from a thorough literature review and categorized into three areas: 1) demographic characteristics, 2) social/behavioral factors and 3) geographic/location factors.

Each characteristic has two sets of data sources: 1) data that has already been summarized at the county level and 2) data that is still raw or not compiled by meaningful geography, but potentially provided as smaller geographies for making GIS maps or creating unique summaries. The data sources for the characteristics are based on best practices and are current as of the time of this writing, April 2012. Local communities may have their own local knowledge or data sources that are not included in this review. This list provides initial guidance on where to find data from large, standard data sources and is not comprehensive of all data sources that may be available to a particular jurisdiction.

For questions about identifying vulnerable populations in your area, contact the Minnesota Department of Health Climate & Health team at [health.climatechange@state.mn.us](mailto:health.climatechange@state.mn.us).

| Characteristic  | County-Summarized Data   | Raw/Non-summarized Data   |
|---|--|---|
| Demographic characteristics   |  |   |
| <b>Elderly:</b> persons 65 years old and older  | 1. <a href="#">Minnesota County Health Tables</a><br>Demographic Table 3, Selected Minnesota Population Statistics, Population 65+ years<br>2. <a href="#">Minnesota Census</a> , Population age 65+ by county; <a href="#">census data on 2008 population</a> | Date is available through the U.S. Census Bureau's <a href="#">American Factfinder</a><br>1. 2000 Census SFI, Age Groups and Sex: 2007 ID-Q1-P1 |
| <b>Children:</b> persons less than 5 years old  | <a href="#">Minnesota County Demographic Population Estimates</a>  |   |
| <b>Economically constrained:</b> persons living at or below poverty level, and persons living at or below 200% of poverty | 1. Poverty: <a href="#">US 2010 Census</a><br>Poverty<br>2. 200% of Poverty: <a href="#">Minnesota Census</a><br>Selected Minnesota Population Statistics by population at poverty   |   |

\* Population below the poverty level. Poverty data is geographically broken down by county. The income threshold is compiled nationwide by the U.S. Census Bureau.

**Extreme Heat Tip Sheet for Individuals**

Tips for staying cool and hydrated on hot days

During periods of extreme heat, people can take certain precautions to prevent heat-related illnesses. The most important thing people can do to prevent illnesses from extreme heat is to stay cool and hydrated. The following are basic safety tips people can use during hot days to stay cool and hydrated.

**Stay hydrated!**

- Drink plenty of fluids, especially water
- Do not wait until you are thirsty before you drink fluids (except if advised to reduce fluid intake by your doctor)
- Avoid drinking alcohol
- Avoid drinks that are high in sugar
- Avoid very cold drinks—they can cause stomach cramps

**Stay cool!**

- Stay indoors, in an air-conditioned place
- Visit air-conditioned places (e.g., malls, libraries) if your home is hot
- Electric fans will not prevent heat-related illnesses when the temperature reaches the high 90s and above
- Wear lightweight, light-colored, loose fitting clothing
- Take a cool shower or bath

**If you must be outside in the heat:**

- Limit outdoor activity to morning and evening hours
- Avoid strenuous exercise
- If you must exercise, pace yourself
- Drink plenty of fluids
- Rest often in the shade or in an air-conditioned building

**Check on persons at more risk to extreme heat:**

- Do not leave children or pets in cars
- Check on the elderly and other vulnerable persons frequently and monitor them for signs or symptoms of heat illness
- Encourage friends and relatives to check on vulnerable persons in their family and/or in their neighborhood

**Stay informed!**

- Listen daily to the local news for the weather forecast
- Get health and safety information from your local public health department
- Learn about the symptoms of heat-related illnesses, watch out for the symptoms and carry out preventive measures and first aid

For more information, visit the MDH Extreme Heat website at <http://www.health.state.mn.us/divs/climatechange/extremeheat.html>

Prepared by the Minnesota Department of Health with information from CDC's Tips for Preventing Heat-Related Illness: <http://emergency.cdc.gov/diseases/prevention/heat/heattips.asp>

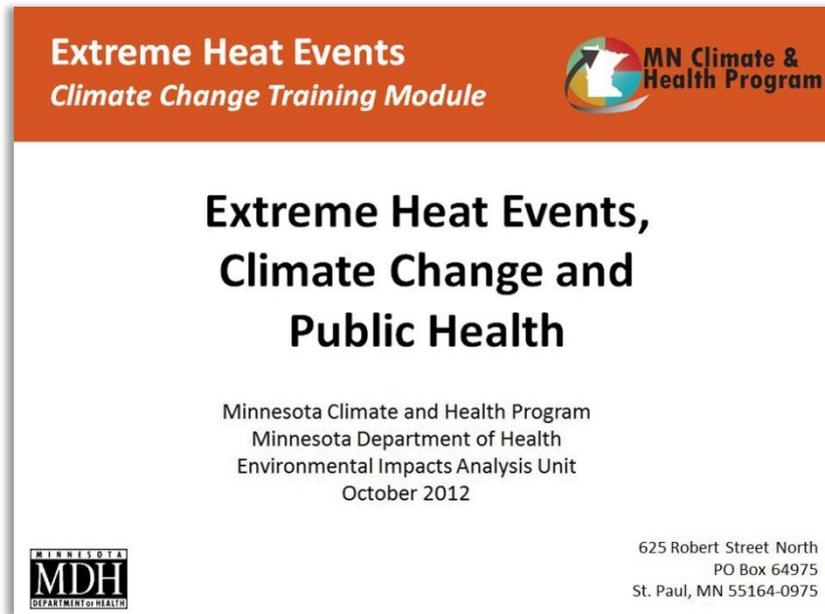




<http://www.health.state.mn.us/divs/climatechange/extremeheat.html>



# Extreme Heat Training Module

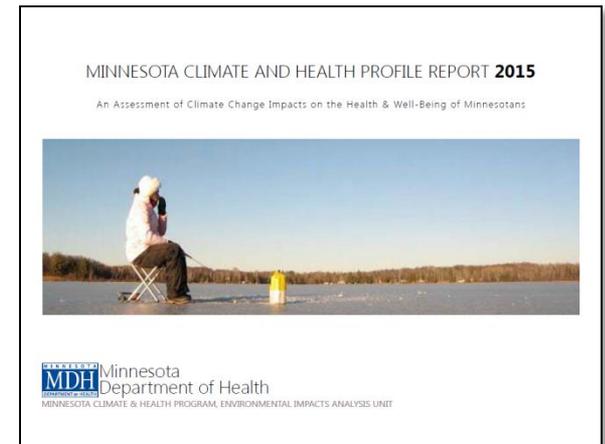


<http://www.health.state.mn.us/divs/climatechange/extremeheat.html>

- Overview of extreme heat events and the public health impacts of heat
- Strategies for individuals to stay cool
- Strategies for local health departments to protect their communities during heat events

# MN Climate and Health Profile Report

- Comprehensive assessment of climate change impacts and associated health outcomes
- Examines both direct and indirect health outcomes
- Uses historic/current data and future projections



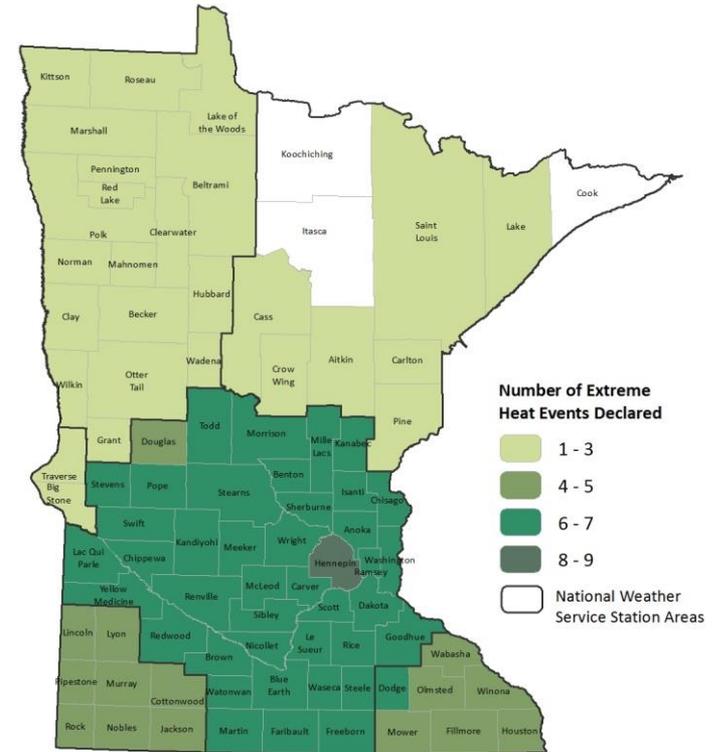
<http://www.health.state.mn.us/divs/climatechange/docs/mnprofile2015.pdf>

# Profile Release: Feb 9, 2015

- Working with the Media
  - Radio: MPR has 127,150 members and more than one million listeners each week, largest audience of any regional public radio network (<http://www.mprnews.org/story/2015/02/02/climate-change-links>)
  - Newspapers: Star Tribune, most read newspaper with a readership of 1.4 million people; APHA
  - TV: 2012, KARE 11 was the most watched news station in the key demographic of Adults 25-54
  - Online journals
- MDH Newsletter (1200 people)
- PDF on MDH Website: 14,700 views

# MN Climate Change Vulnerability Assessment

Number of Extreme Heat Events by County 1995 - 2012



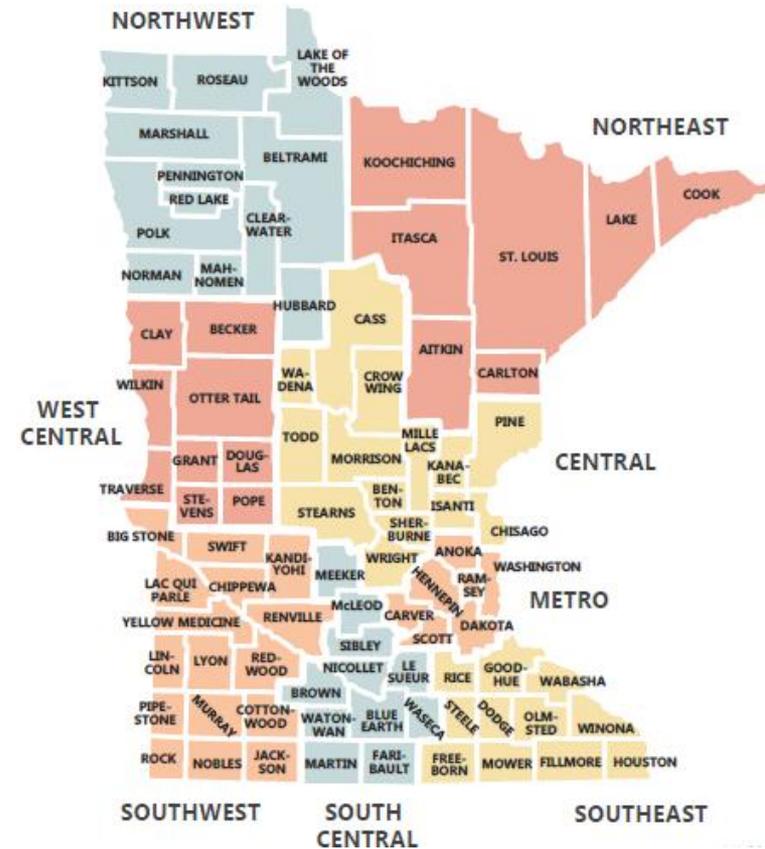
<http://www.health.state.mn.us/divs/climatechange/docs/mnclimvulnreport.pdf>

- Retrospective hazards exposure, vulnerabilities and composite risk maps (52 maps)
- Historical data used, no projections
- Baseline information to prompt discussion and focus local investigations

# Taking the Show on the Road

## Preliminary results from Listening Sessions

- In your opinion, is climate change *a threat to human health and well-being*? 92% yes, n=67
- If you answered yes above, do you think that your organization should begin or continue to prioritize efforts to address climate change impacts on health and well-being? 82% yes, n=62



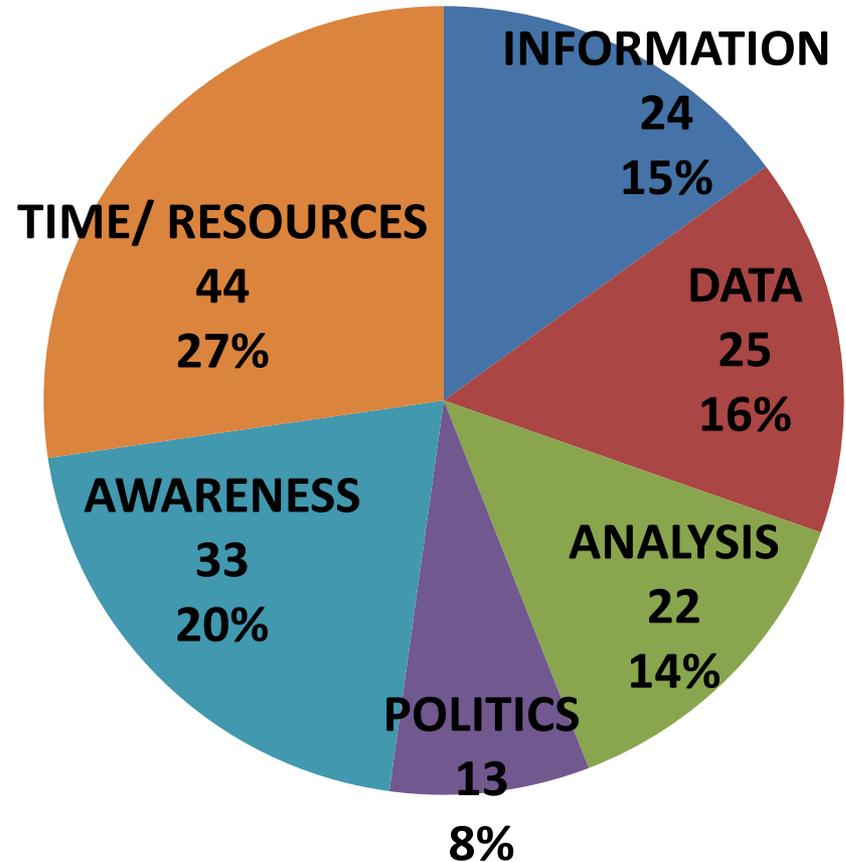
Is your organization/agency/company already planning for climate change? (44% yes, 55% no, n=65)

Of those that responded yes (n=29)...

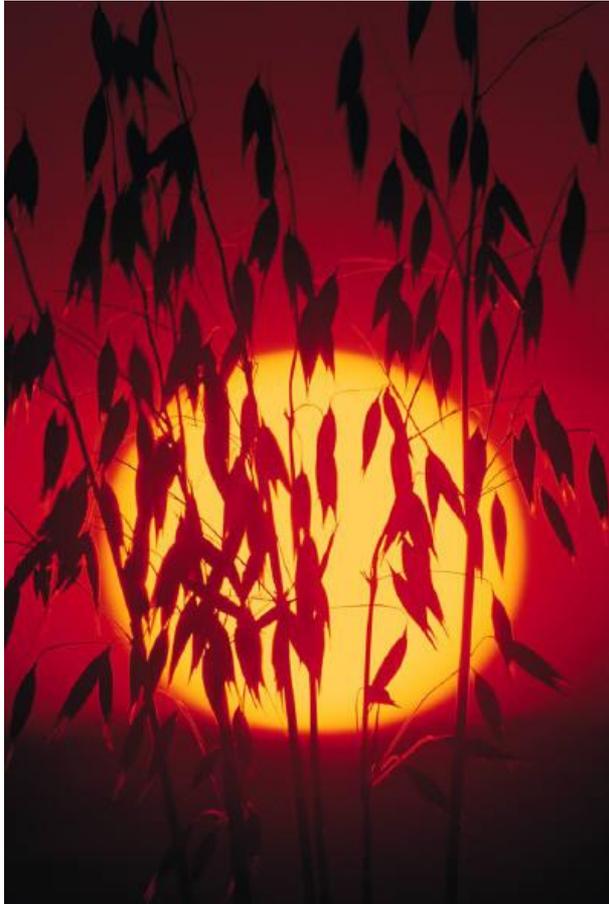
- Hazard Mitigation Plans (65%) (19)
- Emergency Preparedness Plan (58%) (17)
- Local vulnerability assessment or risk analysis (27%) (8)
- Comprehensive plans (17%) (5)
- Other: heat/cold, mass sheltering (2)

# What barriers do you face planning for climate change? n=60

- Other-actions on what individuals, families, community groups can do. People may feel they have no control over it and do nothing.
- Our plans are dated and need updating prior to incidents rather than as happening



# Lessons Learned



- Importance of working with partners
- Importance of knowing your audience
- Don't recreate the wheel!

# Thank You! Questions?

## MN Climate & Health Program Team:

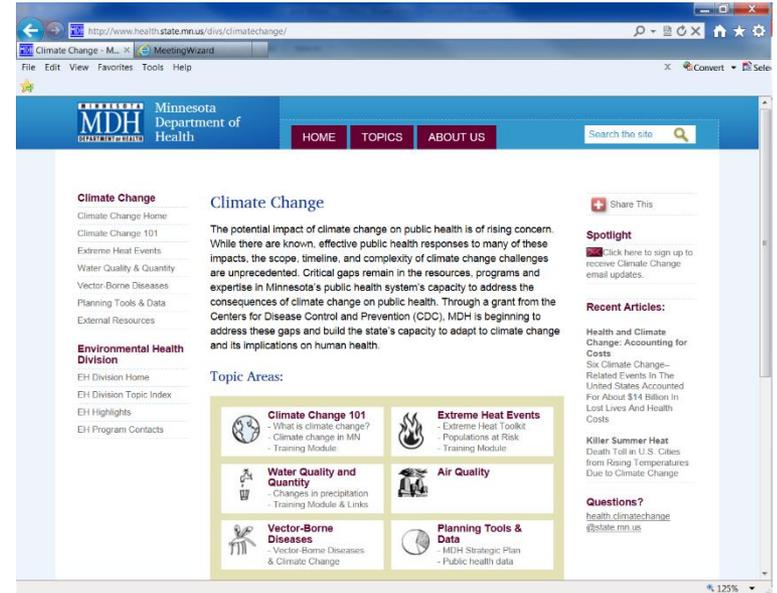
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## Acknowledgements

This work was supported by cooperative agreement from the Centers for Disease Control and Prevention (CDC)



<http://www.health.state.mn.us/divs/climatechange/>