



January 20, 2016 EQB Meeting Agenda

520 Lafayette Road
St. Paul, MN 55155-4194

MINNESOTA ENVIRONMENTAL QUALITY BOARD

Phone: 651-757-2873
Fax: 651-297-2343
www.eqb.state.mn.us

January 20, 2016

**Meeting Location: MPCA Board Room
St. Paul, Minnesota
1:00 p.m. – 4:00 p.m.**

General

This month's meeting will take place in the MPCA Board Room at 520 Lafayette Road in St. Paul. The EQB board meeting will be available via live stream on January 20 from 1:00 p.m. to 4:00 p.m. You will be able to access the webcast on our website: www.eqb.state.mn.us

The Jupiter Parking Lot is for all day visitors and is located across from the Law Enforcement Center on Grove Street. The Blue Parking Lot is also available for all day visitors and is located off of University and Olive Streets.

- I. *Adoption of Consent Agenda**
Proposed Agenda for January 20, 2016 Board Meeting
December Meeting Minutes
- II. Introductions**
- III. Chair's Report**
- IV. Executive Director's Report**
- V. Multi-Agency Efforts to Protect and Enhance Pollinator Habitat**
- VI. Interagency Climate Adaptation Team: Update and Next Steps**
- VII. Adjourn**

Note: Items on the agenda are preliminary until the agenda is approved by the board.

This agenda and schedule may be made available in other formats, such as Braille, large type or audiotape, upon request. People with disabilities should contact Elizabeth Tegdesch, Board Administrator, as soon as possible to request an accommodation (e.g., sign language interpreter) to participate in these meetings.



520 Lafayette Road
St. Paul, MN 55155-4194

MINNESOTA ENVIRONMENTAL QUALITY BOARD

Phone: 651-757-2873
Fax: 651-297-2343
www.eqb.state.mn.us

January 20, 2016

**Meeting Location: MPCA Board Room
St. Paul, Minnesota
1:00 p.m. – 4:00 p.m.**

ANNOTATED AGENDA

General

This month's meeting will take place in the MPCA Board Room at 520 Lafayette Road in St. Paul. The EQB board meeting will be available via live stream on January 20 from 1:00 p.m. to 4:00 p.m. You will be able to access the webcast on our website: www.eqb.state.mn.us

The Jupiter Parking Lot is for all day visitors and is located across from the Law Enforcement Center on Grove Street. The Blue Parking Lot is also available for all day visitors and is located off of University and Olive Streets.

I. *Adoption of Consent Agenda

Proposed Agenda for January 20, 2016 Board Meeting
December Meeting Minutes

II. Introductions

III. Chair's Report

IV. Executive Director's Report

V. Title: Multi-Agency Efforts to Protect and Enhance Pollinator Habitat

Presenter: Tina Markeson, Minnesota Department of Transportations (MnDOT), Office of Environmental Stewardship, 651-366-3619

Materials enclosed: None

Background: One out of three bites of food (fruits, vegetables, coffee, etc.) relies on insect pollination. The declining health of the nation's pollinators has been in the news frequently in recent years. Honey bees and Monarch butterflies are indicator species that highlight the plight of pollinators. Many things impact pollinator health and one area where state agencies can directly support pollinators is through habitat protection and enhancement.

* Items requiring discussion may be removed from the Consent Agenda

MnDOT is working with the Minnesota Department of Natural Resources (MNDNR) and the Minnesota Department of Agriculture (MDA) to create Best Management Practices and participate as a stakeholder in MDA's Pollinator Task Force. We have also worked internally to establish programs that protect and enhance roadside habitat. Nationally, MnDOT has met with other states to protect and enhance areas around the I-35 corridor from Texas to Duluth, MN, which the White House has nicknamed the "Monarch Highway." MnDOT also attended a White House summit of state DOTs to identify pollinator challenges and share best practices to support pollinators.

The goal of today's presentation is to provide the MnDOT perspective of the challenge, share ongoing and future efforts, and discuss options for additional coordination between state agencies to promote pollinator health.

Discussion Questions:

- Is what we are currently doing working?
- What else can/should state agencies do to support pollinator habitat?
- How else can state agencies work together to protect our pollinators?
- Does MN need a formal statewide multi-agency approach (e.g., Pollinator Plan)?
- How should MN coordinate regionally/nationally to encourage pollinator habitat?
- How do we best share information with the public and among agencies?

VI. Title: Interagency Climate Adaptation Team: Update and Next Steps

Presenters:

Paul Moss, Minnesota Pollution Control Agency (651) 757-2586
 Anna Henderson, Environmental Quality Board (651) 757-2456
 Anna Dirkswager, Minnesota Department of Natural Resources (651) 259-5253
 Laura Millberg, Minnesota Pollution Control Agency (651) 757-2568
 Lisa Barajas, Metropolitan Council (651) 602-1895
 Megan Lennon, Minnesota Board of Water and Soil Resources (651) 296-1285

Materials enclosed:

- Opportunities for Interagency and Collaborative Action in Climate Adaptation (from Adapting to Climate Change in Minnesota: 2013 Report of the Interagency Climate Adaptation Team)
- Under 2 MOU signed by Governor Dayton and Lt. Governor Smith
- Minnesota "States at Risk" report (Climate Central and ICF, 2015: <http://statesatrisk.org/>)
- Minnesota GreenStep Cities factsheet on climate resilience best practices
- The Minnesota CREP Proposal Discussion Guide

Background: Since 2009, Minnesota state agencies have been collaborating on climate adaptation efforts through the Interagency Climate Adaptation Team (ICAT). ICAT has previously presented to the EQB in November 2013. This agenda item provides an update on climate adaptation and related activities in Minnesota state government. Several staff

will present on specific climate adaptation-related initiatives led by their agencies (DNR, MPCA, Metropolitan Council, and BSWR). A set of five statewide climate adaptation indicators developed by ICAT through the Results-Based Accountability process will be presented. Active participation and dialogue with EQB members is encouraged, including about next steps.

Discussion Questions:

- Do we need more state planning for climate change adaptation?
- Do we need a broader examination and analysis of statewide vulnerabilities?
- Should ICAT develop a state climate change adaptation plan?
- How could the agencies better assist local governments with adaptation planning?

VII. Adjourn

**MINNESOTA ENVIRONMENTAL QUALITY BOARD
MEETING MINUTES**

**Wednesday, December 16, 2015
MPCA Room Board Room, 520 Lafayette Road N, St. Paul**

EQB Members Present: Brian Napstad, Julie Goehring, Kristin Eide-Tollefson, Mike Rothman, Kate Knuth, John Saxhaug, John Linc Stine, Dr. Ed Ehlinger, Tom Landwehr, Erik Tomlinson, Matt Massman, Leah Hedman, General Counsel - Attorney General's Office

EQB Members Absent: Dave Frederickson, Charlie Zelle, Katie Clark-Sieben, Adam Duininck

Staff Present: Will Seuffert, Courtney Ahlers-Nelson, Denise Wilson, Erik Dahl, Mark Riegel

Vice Chair Brian Napstad chaired the meeting in Chair Frederickson's absence.

I. Adoption of Consent Agenda and Minutes

II. Introductions

III. Chair's Report

No report.

IV. Executive Director's Report

There are two events planned on January 12th: the Climate Change Subcommittee is convening a debrief session with the COP21 Paris attendees; and an EQB Work Planning Retreat to focus on Board priorities for the upcoming year(s). The January Board meeting will include a presentation from the Interagency Climate Adaptation Team as well as a presentation on pollinators. Please also note that the University of Minnesota Water Resources Center is hosting their annual Climate Adaptation Conference on January 28th.

EQB staff submitted a proposed rule change under the Good Cause Exemption. The proposed rule related to recreational trails was not approved by the Administrative Law Judge. The ALJ raises questions; staff is exploring some further language revisions to see if the rule can be re-submitted with the Good Cause Exemption, otherwise we will move forward with full rulemaking process and keep you updated on this matter as it progresses.

Also provided additional background and context for the agenda items being discussed.

V. Interagency Report on Oil Pipelines

Presenter: Courtney Ahlers-Nelson, Environmental Quality Board

The Interagency Pipeline Coordination Team prepared an Interagency Report on Oil Pipelines. Ms. Ahlers-Nelson presented a summary of each of the four areas and the changes made to the Report since the conclusion of the public comment period.

1. economics of oil transportation
2. environmental and human health impacts
3. spill prevention, preparedness, emergency response
4. safety and pipeline approvals

VI. Current Proposed Pipeline projects in Minnesota

Presenters: Bill Grant, Deputy Commissioner, Minnesota Department of Commerce

Mr. Grant provided information on the permitting and environmental review process for at least two of the proposed pipelines considered by the Public Utilities Commission.

The following people provided oral testimony:

- Willis Mattison, Osage, MN
- Kathy Hollander, Mpls., MN
- Richard Smith, Park Rapids, MN Friends of the Headwaters
- Tom Watson, Pine River, MN Whitefish Area Property Owners Assn.
- Eileen Shore, Mpls., MN
- Andy Pearson, Mpls., MN
- John Swanson, Duluth, MN Enbridge
- Craig Sterle, Barnum, MN
- Betty Tisel, Mpls., MN
- Frank Bibeau, Deer River, MN Honor the Earth

The following people provided written testimony:

- Mahyar Sorou, St. Paul, MN Minnesota Public Interest Research Group (MPIRG)
- Stan Sattinger, Mpls., MN
- Kathy Koch, Mpls., MN

VII. Adjourn

The audio recording of the meeting is the official record and can be found at this link:

ftp://files.pca.state.mn.us/pub/EQB_Board/

Webcast is also available on the EQB website: <https://www.eqb.state.mn.us/>

From *Adapting to Climate Change in Minnesota: 2013 Report of the Interagency Climate Adaptation Team*, pages 34 – 38 <https://www.pca.state.mn.us/sites/default/files/p-gen4-07.pdf>

Opportunities for Interagency and Collaborative Action in Climate Adaptation

ICAT's vision is of a resilient, economically thriving, and healthy Minnesota that is prepared for both short- and long-term climate changes and weather extremes. ICAT's goal is to encourage state agencies to identify and implement measures to assist the state and its communities in adapting to climate change. The team recognizes that building a resilient Minnesota in the face of a changing climate is a complex challenge.

While Minnesota state agencies are carrying out a wide range of activities related to adaptation (as described in this report), additional opportunities also exist for agencies to increase their work together on this issue. Agencies will continue to seek avenues of collaboration in the following seven priority areas (these are not ranked in terms of importance):

1. Building resilience to extreme precipitation
2. Implementing best practices that achieve multiple benefits
3. Protecting human health
4. Strengthening existing ecosystems by addressing ongoing challenges and risks
5. Building partnerships with local governments
6. Quantifying climate impacts
7. Conducting public and community outreach, education, and training

1. Building resilience to extreme precipitation

Data from observed climate trends as well as from future projections point clearly to increases in the incidence of extreme precipitation events in Minnesota. The state has experienced numerous storms and floods recently, which have resulted in significant environmental damage and costly recovery efforts. New NOAA Atlas 14 precipitation frequency estimates for Minnesota are providing valuable information for engineers and others who design infrastructure (http://www.dnr.state.mn.us/climate/noaa_atlas_14.html). Therefore, actions that can be taken to prepare Minnesota communities and ecosystems for extreme precipitation events are of particularly high priority.

Actions addressing extreme precipitation may include the following:

- Promoting low impact development/green infrastructure as consistent with stormwater best management practices.
- Collaborating on flood plain management, modeling, and regulation to design better protection strategies, stormwater management/storm sewer design, bridge sizing, risk communication, flood modeling, and hazard mitigation.
- Encouraging complete streets design that incorporates trees and vegetation.
- Restoring wetlands.
- Strengthening urban forests.
- Comprehensive urban planning.

- Supporting agency partnerships to promote the implementation of traditional and new conservation practices, including conservation drainage and drainage water management practices.
- Identifying additional opportunities to utilize NOAA Atlas 14 precipitation frequency estimates.

There is also opportunity to increase collaboration on emergency response to heavy precipitation events, including:

- Increasing participation in coordinated response with communities after extreme weather events, such as the Minnesota Recovers Task Force.
- Increasing communication and awareness around the safety hazards present during floods (water safety, injury, wells, roads, and infrastructure).
- Planning and exercising plans for municipal water supply system emergencies.
- Collaborating on emergency response efforts and hazard mitigation efforts, utilizing an all-hazards approach.

2. Implementing best practices that achieve multiple benefits

Given continued uncertainty in assessing future climate trends, agencies see benefits in identifying and promoting adaptation responses which will build resilience and simultaneously help the state to meet a variety of existing environmental, economic and health related goals. Greater recognition, description, and prioritization of adaptation responses with co-benefits will strengthen climate adaptation efforts in the state.

For example, water conservation efforts aimed specifically at reducing drought impacts are also associated with the benefits of reducing utility costs to households and ensuring an adequate supply of this essential resource for industry and recreation, as well as Minnesota farmers. One opportunity for conserving water concerns the potential reuse of treated wastewater, involving the Department of Natural Resources (water appropriation), the Department of Health (eliminating/minimizing human health impacts) and the Department of Labor and Industry (proper handling based on the requirements of the plumbing code).

Another example of an adaptation practice with co-benefits is cool roofs. “Cool roofs” or “white roofs” are lighter colored and more reflective than typical black roofs, and are a climate adaptation measure that can help with addressing hotter summer temperatures. Co-benefits of using cool roofs can include reducing peak energy demand on hot days therefore improving air quality and reducing greenhouse gas emissions, increasing building energy efficiency, and helping to mitigate the urban heat island effect which in turn lowers risks to vulnerable populations from extreme heat.

In addition to promoting a wide range of available adaptation practices, when appropriate, agencies can also integrate adaptation into regulatory programs thereby further encouraging best practices and promoting co-benefits. An example is to explore the role that building codes play in encouraging or limiting innovation to address climate change, adaptation, and resiliency.

3. Protecting human health

Given critical gaps remaining in Minnesota’s public health system to address the consequences of climate change on public health, this is an important area for state agency cooperation.

Specific interagency collaboration actions that can be taken include the following:

- Identifying vulnerable populations and targeting climate change assistance efforts to these populations.
- Developing tools and/or models to identify exposure thresholds for climate-sensitive health outcomes, such as heat stress.
- Monitoring and evaluating current climate change preparedness measures, including costs and benefits of interventions.
- Assisting the emergency management community with identifying and selecting effective response strategies and planning for long-term recovery.
- Identifying and developing strategies to cope with new or emerging climate impacts on health, such as food security.

4. Strengthening existing ecosystems by addressing ongoing challenges and risks

Ecosystems facing challenges of pollution, habitat loss, invasive species and other threats are less resilient to climate impacts. In order to strengthen ecosystems across Minnesota, the following actions can be taken:

- Strengthening interagency partnerships that promote soil and ecological health as well as agricultural resiliency.
- Working across all agencies with water-related responsibilities to fully integrate climate change and its impacts into assessment, monitoring, planning, and management actions. This would include work implemented by state and federal agencies as well as guidance that agencies provide to local units of government, such as:
 - Integrating climate change and adaptation strategies into comprehensive local water management planning and other clean water activities.
 - Considering climate trends and projections in assessments of groundwater recharge and flux values used to set potential water withdrawal thresholds.
 - Working across agencies to better understand the relationships between climate change, aquatic invasive species, and water quality.
- Fostering climate smart, cooperative management of wetland complexes, forests, and other natural communities across agency and jurisdictional boundaries.
- Development of stress-tolerant plant and animal varieties.

5. Building partnerships with local governments

Building community partnerships to support adaptation actions is critical, given local governments' key role in maintaining Minnesota's environment, infrastructure, public health, and economy. State agencies can support local governments by:

- Providing funding to support local adaptation measures.
- Increasing interagency collaboration on the financial and technical assistance provided to communities.
- Helping local communities to understand the impacts of climate change and what assistance is available to address these impacts.
- Supporting development of comprehensive land use and other plans, including those coordinated by the Metropolitan Council.
- Providing assistance or support for local level adaptation plans.

6. Quantifying climate impacts

A major challenge faced by all agencies is the lack of data needed to inform agency responses to climate change. To help address this problem, the following actions can be taken:

- Supporting interagency climate-related research projects.
- Assessing environmental costs of climate impacts.
- “Adding up” the total effects of climate change, e.g., Does climate change affect certain populations disproportionately? What are the cumulative effects of climate change in Minnesota? What are the economic impacts?
- Filling data gaps about vulnerability of and damage to various populations and communities related to climate impacts.
- Gathering more concrete data about climate change (temperature, precipitation, drought), including ongoing monitoring.

7. Conducting public and community outreach, education, and training

Another key gap relates to outreach and education to the public and local stakeholders. A wide variety of actions can be taken to better address this opportunity:

- Conducting outreach, education, and research to develop risk management tools and knowledge.
- Developing consistent core messages for local governments and private interests to inform them of potential risks and consequences of a changing climate that enables informed decision making.
- Developing case studies (e.g., the 2012 Northeast Minnesota floods), planning tools and outreach materials to promote effective climate adaptation strategies.
- Fostering interagency partnerships between MDH, MPCA, and others to help ensure timely, consistent, and accurate health information on air quality alert days.
- Conducting a coordinated campaign across agencies to communicate the impacts of climate change to the general public - from health to food prices to changes in animal communities (e.g., Climate Wisconsin: Stories from a State of Change <http://climatewisconsin.org/>).
- Developing an interagency public website on climate change adaptation to provide information on climate trends and projections, current and potential impacts, and also as a resource for local units of government, businesses, organizations, and individuals. The website could include campaigns and highlight examples of what is being done to adapt to climate change.
- Co-hosting training and adaptation strategy development workshops for state agency professionals and local officials.
- Collaborating between agencies to offer joint training events for state agency staff.
- Developing a broader range of authoritative educational and informational tools targeted at both state and local partners as well as local community members on the topic of climate adaptation.
- Utilizing a united approach on public outreach and education, including emergency preparedness and safety during extreme weather events.
- Creating a tool kit based on lessons learned from previous events that may be used as guidance for communities, cities and counties to adapt and prepare for the impacts of the changing climate.
- Building public and community awareness of the connections between agency activities and climate change.

**GLOBAL CLIMATE LEADERSHIP
MEMORANDUM OF UNDERSTANDING (MOU)**

I. Statement of Purpose

- A. Climate change presents worldwide challenges and risks to environment and economies, impacting human health, increasing extreme weather events, threatening natural resources and triggering forced migration of populations. Impacts from climate change are already inevitable due to the greenhouse gas emissions (GHG) already resident in the atmosphere. At the same time, climate change responses and solutions create economic opportunities and benefits through sustainable energy and development. International efforts are necessary to ensure protection of humankind and our planet, and to limit the increase in global average temperature to below 2°C. To achieve this will require substantial emissions reductions over the next few decades and near zero emissions of CO₂ and other long-lived GHGs by the end of the century.

[(Intergovernmental Panel on Climate Change – Fifth assessment report (AR5))]

- B. Governments at all levels need act **now** to reduce GHG emissions in order to achieve long-term climate balance. Entities need to harness new technologies, policies, financing mechanisms, and economic incentives to reduce emissions while developing common metrics to measure their progress. Governments must also increase the resilience of infrastructure and natural systems to growing climate impacts.
- C. While the signatories to this MOU (hereinafter referred to as “the Parties”) acknowledge and affirm support of international activities and declarations to respond to climate change (including the Rio Declaration on Environment and Development (1992), the Montreal Declaration (2009), the Cancun Statement (2011), and the Lyon Declaration (2011)), international efforts on climate change to date have been inadequate to address the scale of the challenge we face. Despite limited progress in cooperation among nations, sub-national jurisdictions—including provinces, states, and cities—have led the world in setting ambitious climate targets and taking actions to reduce GHG emissions and protect against climate impacts.
- D. By working together and building on agreements such as the Declaration of Rio de Janeiro 2012 (Federated States and Regional Governments Committed to a New Paradigm for Sustainable Development and Poverty Eradication), subnational governments, together with interested nations, can help to accelerate the world’s response to climate change and provide a model for broader international cooperation among nations.

II. Reducing greenhouse gas emissions

- A. The guiding principle for reduction of GHG emissions by 2050 must be to limit global warming to less than 2°C. For Parties to this MOU this means pursuing emission reductions consistent with a trajectory of 80 to 95 percent below 1990 levels

by 2050 and/or achieving a per capita annual emission goal of less than 2 metric tons by 2050.

- B. In order to achieve this ambitious 2050 target, measurable progress must be made in the near-term to establish the trajectory of reductions needed. Midterm targets, including commitments for 2030 or earlier are critical. Recognizing that each party has unique challenges and opportunities, this agreement does not prescribe a specific path for 2030. Rather, Parties agree to undertake their own unique set of actions and plans in Appendix A to reach 2030 reduction goals and related targets.
- C. Parties aim at broadly increasing energy efficiency and a comprehensive development of renewable energy to achieve the GHG emission goals. Parties set forth their 2030 goals and targets for these and other critical areas in Appendix A.
- D. Specific areas of action, coordination, and cooperation:

The Parties agree that for actions related to this MOU, coordination and cooperation will be beneficial and will strengthen the efforts of participating states. The Parties agree to work together on solutions that provide near- and long-term environmental and economic co-benefits, including joint efforts where possible. The Parties may expand the list of specific areas of action set forth in this sub-section from time to time. The following is a non-exhaustive list of issues of interest for cooperation and coordination among the Parties:

1. Energy:

The Parties agree to share information and experience on redesign of the power supply and grid, technical solutions and advances in promoting large-scale switch to renewable energy and the integration of renewable energy sources, actions needed to ensure security of supply, and strategies to promote energy efficiency.

2. Traffic and Transport:

The Parties agree to take steps to reduce greenhouse gas emissions from passenger and freight vehicles, with the goal of broad adoption of "zero emission vehicles" and development of related zero emission infrastructure. The Parties agree to encourage land use planning and development that supports alternate modes of transit, especially public transit, biking, and walking.

3. Natural Resource Protection and Waste Reduction:

The Parties agree to collaborate on methods to reduce emissions from the natural resources and waste sectors, which exist at the nexus of climate mitigation and adaptation activity. Parties will share information about management techniques to sequester carbon and protect natural infrastructure. Parties will share technologies to reduce waste or convert waste to secondary raw materials or to energy.

4. Science and Technology:

The Parties agree to collaborate and coordinate on scientific assessment efforts, and share information and experience in technology development and deployment. Parties seek to help others learn from experience to maximize success of technological transitions and avoid potential obstacles.

5. Communication and Public Participation:

The Parties agree to collaborate and coordinate on messaging, transparency, public outreach around climate change, mitigation of GHG emissions, adaptation, and the subject matter of this MOU.

6. Short-lived Climate Pollutants:

The Parties agree to collaborate on the reduction of short-lived climate pollutants such as black carbon and methane, which will provide near-term air quality benefits, while also reducing potent climate forcing pollutants.

7. Inventory, Monitoring, Accounting, Transparency:

The Parties agree to work towards consistent monitoring, reporting, and verification across jurisdictions, and will work through mechanisms such as the Compact of States and Regions and the Compact of Mayors to that end.

III. Adaptation and Resilience

- A. The Parties agree to collaborate on actions to promote adaptation and resilience, with an eye toward maximizing benefits for both GHG emission reduction and climate adaptation.
- B. Parties will share best practices in modeling and assessment to understand projected climate impacts, especially at the regional and local scale. Entities will share best practices in integrating these findings into planning and investment.
- C. Parties will work together to build metrics and indicators that can help to track progress in reducing the risk of climate change to people, natural systems, and infrastructure.
- D. In working to reduce climate risk, Parties will look to natural or “green” infrastructure solutions that maximize ecological benefits while providing protection. Parties will share best practices in designing and deploying these solutions.
- E. Parties to this MOU will work to share innovative models for financing and supporting climate adaptation, including public-private partnerships, resilience funds, and competitive approaches.

IV. Means of Implementation

The Parties each have their own strategies to implement and achieve their goals and targets. While some strategies will be unique to particular Parties, others can be shared and/or modified by other Parties.

- Parties agree to collaborate and coordinate to advance respective interim targets consistent with 2050 goals and climate actions at the annual Conference of Parties and other international climate events.
- Parties agree to share and promote effective financing mechanisms domestically and internationally to the extent feasible.

- Parties agree to share technology to the extent feasible, such as through open source information.
- Parties agree to help build capacity for action and technology adaptation through technology transfer and expertise to the extent feasible.

This MOU is neither a contract nor a treaty.

This Memorandum of Understanding on Subnational Global Climate Leadership signed as of the 16th day of October 2015.

THE STATE OF MINNESOTA

By: 

Mark Dayton

Governor

This Memorandum of Understanding on Subnational Global Climate Leadership
witnessed as of the 16th day of October 2015.

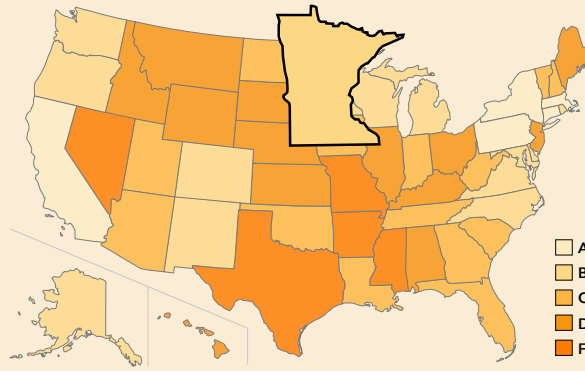
THE STATE OF MINNESOTA

By: 

Tina Smith

Lieutenant Governor

**OVERALL
GRADE:
B-**



OVERALL: B-

EXTREME HEAT: B-

DROUGHT: B-

WILDFIRE: -

INLAND FLOODING: -

COASTAL FLOODING: -

Minnesota faces considerable and significantly increasing threat levels from extreme heat and drought between now and 2050. Minnesota scores an overall grade of B- on the Report Card, with a grade of a B- for both threats. The grades are relative to other states, and relative to the magnitude of the climate threats themselves. Like most states, Minnesota has taken strong action to address its current climate risks. However, it has taken only limited action to prepare for its future climate risks. While the state has climate vulnerability assessment and communication initiatives such as the Climate and Health program, the state has taken no action to implement programs that address its future climate risks.

ACTION TAKEN:

Extensive				
Strong				
Fair				
Limited				
None				
	Addressing Current Risks	Conducting Vulnerability Assessments	Planning for Adaptation	Implementing Resilience Actions

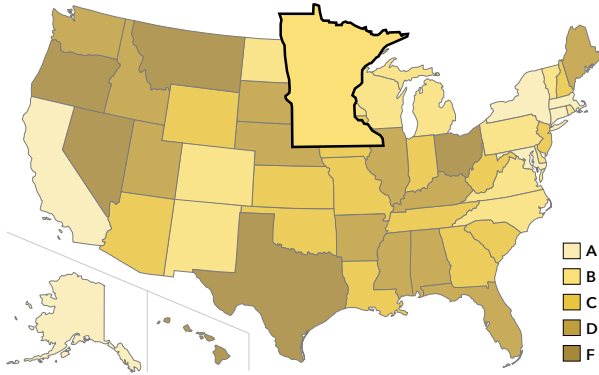
SOME ACTIONS ALREADY TAKEN

- Minnesota's Enhanced Hazard Mitigation Plan, emergency operations plan, and emergency communications materials are helping the state to prepare for its current climate risks.
- Most sectors have published general information on the implications of increased extreme heat days, while the health department has gone even further and developed a statewide quantitative vulnerability assessment.
- The Department of Public Health is tracking trends in heat related illnesses, including emergency room visits, hospitalizations, and deaths. It has also developed a draft Strategic Plan to Adapt to Climate Change, which is to be updated and finalized in 2015.
- Adapting to Climate Change in Minnesota provides an overview of the projected changes in future frequency of drought and the impacts of these changes on the state.

WEAKNESSES

- No evidence of a detailed statewide vulnerability assessment or statewide adaptation plan covering extreme heat except in the health sector.
- No evidence of a detailed statewide vulnerability assessment or adaptation plan for drought across all sectors examined.
- No evidence of funding, policies, or guidelines to improve resilience against climate change-related extreme heat or drought.
- No evidence of action to incorporate climate change projections associated with extreme heat or drought into state-level programs, investments, and activities.
- No evidence of a detailed statewide drought vulnerability assessment that covers all sectors, of action to track drought impacts, or of a detailed statewide adaptation plan covering drought.

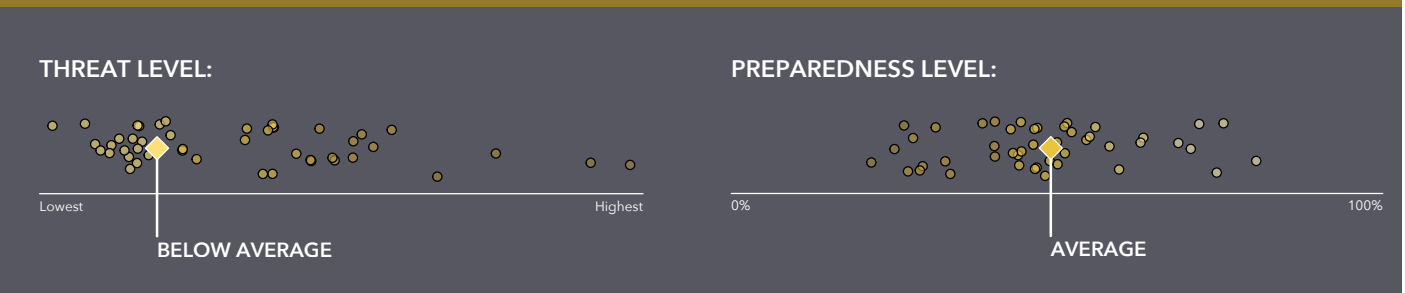
EXTREME HEAT: B-



OVERALL:	B-
EXTREME HEAT:	B-
DROUGHT:	B-
WILDFIRE:	—
INLAND FLOODING:	—
COASTAL FLOODING:	—

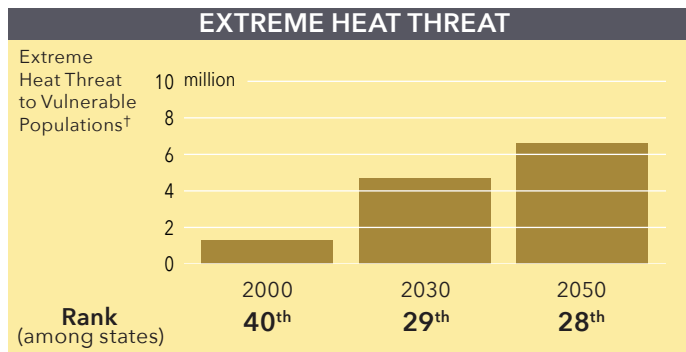
Minnesota earns a B- for its average level of preparedness in the face of a below average overall extreme heat threat. Like the majority of states, Minnesota has taken strong action to address its current heat risks through its State Hazard Mitigation Plan and the State Emergency Operations Plan. By 2050, Minnesota's heat threat is projected to see the third greatest percent increase in the lower 48 states, and the state has taken strong action to understand these future heat risks. The state has a Climate and Health Program that focuses on understanding and tracking impacts from extreme heat as well as creating Climate Trainings for professionals to better prepare for future heat events. However, Minnesota has taken almost no action to plan for and implement adaptation measures, such as developing a statewide climate change adaptation plan.

MINNESOTA COMPARED TO OTHER STATES:



The preparedness grade represents how well a state is preparing for its threat level, relative to all states evaluated for that threat. It compares a state's position in the distribution of threat levels to its position in the distribution of preparedness scores. Thus two states with the same absolute preparedness score might receive different grades, depending on their levels of threat—a state with a higher threat level would receive a lower grade. For details, see the methodology.

KEY FINDINGS:



† Average number of heat wave days per year times total vulnerable population. A score of 1 represents 1 vulnerable person exposed to 1 heat wave day.

► **Average annual number of heat wave days:** Average number of days each year on which the maximum temperature exceeds the 95th percentile of daily maximum temperature in the baseline period (1991-2010) for at least three consecutive days.

DID YOU KNOW?

- Currently, Minnesota rarely experiences days classified as dangerous or extremely dangerous according to the NWS Heat Index. By 2050, the state is projected to have more than 15 such days a year.
- By 2050, the typical number of heat waves days in Minnesota is projected to increase more than five-fold from 10 to more than 55 days a year.
- Minnesota has more than 110,000 people 65 and older, or under 5 years old, living below the poverty line; these groups are considered to be especially vulnerable to extreme heat.

EXTREME HEAT: **B-**

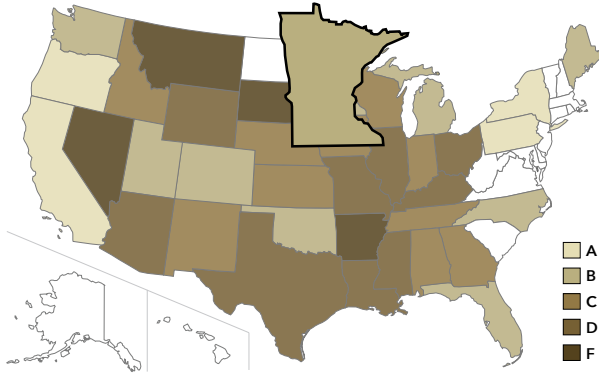
EXAMPLE CRITERIA

A subset of the criteria used to develop Minnesota's extreme heat preparedness grade.

	<i>Transportation</i>	<i>Energy</i>	<i>Water</i>	<i>Health</i>	<i>Communities</i>
ADDRESSING CURRENT RISKS					
Does the State Hazard Mitigation Plan cover extreme heat?	n/a	✓	✓	✓	n/a
Does the state have an extreme heat emergency response plan that is updated routinely?	✓	✓	✓	✓	n/a
Does the state provide extreme heat emergency communication materials for citizens?	✓	✓	✓	✓	n/a
CONDUCTING VULNERABILITY ASSESSMENTS					
Has the state published information on how the frequency or severity of extreme heat events may change in the future?	✓	✓	✓	✓	n/a
Has the state conducted extreme heat vulnerability assessments for each sector?	NO	NO	NO	✓	n/a
Is the state tracking extreme heat impacts?	NO	n/a	NO	✓	n/a
PLANNING FOR ADAPTATION					
Is there a statewide climate change adaptation plan covering extreme heat?	NO	NO	NO	NO	n/a
Is there a statewide implementation plan for climate change adaptation?	NO	NO	NO	NO	n/a
Does the state have sector-specific extreme heat adaptation plans?	NO	NO	✓	✓	n/a
IMPLEMENTING RESILIENCE ACTIONS					
Are there optional state guidelines for resilient activities (e.g., construction)?	NO	NO	NO	NO	n/a
Are there state requirements for resilient activities (e.g., construction)?	NO	NO	NO	NO	n/a
Is there evidence that the state is implementing extreme heat adaptation policy/guidelines?	NO	NO	NO	NO	n/a

"n/a" indicates that the sector is either insensitive to the threat or the state does not have a significant role.

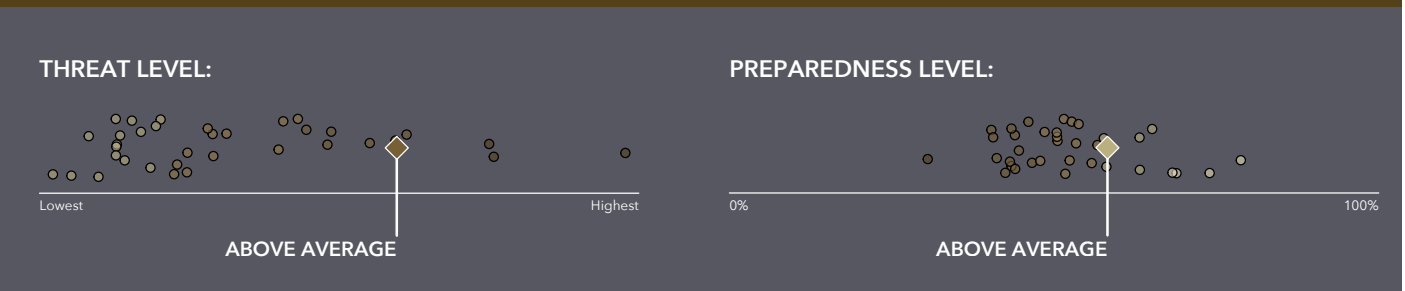
DROUGHT: B-



OVERALL:	B-
EXTREME HEAT:	B-
DROUGHT:	B-
WILDFIRE:	—
INLAND FLOODING:	—
COASTAL FLOODING:	—

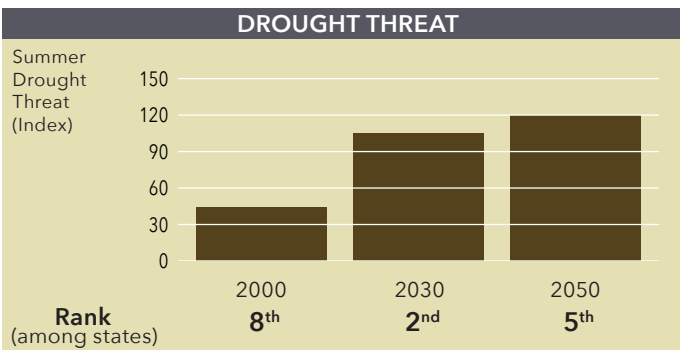
Minnesota earns a B- for its above average preparedness in the face of an above average overall widespread summer drought threat. Currently, the state faces an average threat among the 36 states assessed for drought, and Minnesota has taken strong action to prepare for its current drought risks with its detailed Statewide Drought Plan. By 2050, Minnesota is projected to face an above average widespread summer drought threat, and unlike most states, it has taken strong action to understand its future summer drought threat. Minnesota could improve preparedness for its future drought risks by integrating sector-specific drought related climate change adaptation actions into its existing plan.

MINNESOTA COMPARED TO OTHER STATES:



The preparedness grade represents how well a state is preparing for its threat level, relative to all states evaluated for that threat. It compares a state's position in the distribution of threat levels to its position in the distribution of preparedness scores. Thus two states with the same absolute preparedness score might receive different grades, depending on their levels of threat—a state with a higher threat level would receive a lower grade. For details, see the methodology.

KEY FINDINGS:



DID YOU KNOW?

- Currently, Minnesota's severity of widespread summer drought is average among the 36 states assessed for drought threats.
- By 2050, the severity of widespread summer drought is projected to nearly triple. With the fourth greatest increase, Minnesota is projected to be in the top five worst drought-affected states with an above average threat level.

► Severity of widespread summer drought: Sum of soil moisture deficit (standard score) in the summer months for model grid cells where the standard score is less than -1, when at least 30% of grid cells in a state meet this criterion.

DROUGHT: **B-**

EXAMPLE CRITERIA

A subset of the criteria used to develop Minnesota's drought preparedness grade.

	<i>Transportation</i>	<i>Energy</i>	<i>Water</i>	<i>Health</i>	<i>Communities</i>
ADDRESSING CURRENT RISKS					
Does the State Hazard Mitigation Plan cover drought?	n/a	✓	✓	✓	n/a
Does the state have a drought emergency response plan that is updated routinely?	n/a	✓	✓	✓	n/a
Does the state provide drought emergency communication materials for citizens?	n/a	✓	✓	✓	n/a
CONDUCTING VULNERABILITY ASSESSMENTS					
Has the state published information on how the frequency or severity of drought may change in the future?	n/a	✓	✓	✓	n/a
Has the state conducted drought vulnerability assessments for each sector?	n/a	NO	NO	✓	n/a
Is the state tracking drought impacts?	n/a	n/a	NO	NO	n/a
PLANNING FOR ADAPTATION					
Is there a statewide climate change adaptation plan covering drought?	n/a	NO	NO	NO	n/a
Is there a statewide implementation plan for climate change adaptation?	n/a	NO	NO	NO	n/a
Does the state have sector-specific drought adaptation plans?	n/a	NO	NO	NO	n/a
IMPLEMENTING RESILIENCE ACTIONS					
Are there optional state guidelines for resilient activities (e.g., construction)?	n/a	NO	NO	NO	n/a
Are there state requirements for resilient activities (e.g., construction)?	n/a	NO	NO	NO	n/a
Is there evidence that the state is implementing drought adaptation policy/guidelines?	n/a	NO	NO	NO	n/a

"n/a" indicates that the sector is either insensitive to the threat or the state does not have a significant role.



Minnesota GreenStep Cities

www.mnGreenStep.org

Minnesota GreenStep Cities is an award-winning voluntary challenge, assistance, and recognition program that supports cities' efforts for substantive action to achieve their sustainability goals through the implementation of best practices.

- 91 participating cities (and one tribe) located in all regions of the state (December 2015)
- GreenStep Cities represent more than 35% of Minnesota's population
- 2,331 best practice actions have been completed and reported since 2010 (June 2015)

Addressing Resilience for Climate Change

In early 2016 the program will release the first new best practice since its inception. Best Practice 29 will focus on actions cities can take to increase their resilience in acknowledgement of a changing climate.



GreenStep Cities at event with meteorologist Paul Douglas

Sustainability and Resilience: Different Lenses with Overlapping Benefits.

Many best practices support both sustainability and resilience, providing co-benefits to reduce risk, enhance public amenities, decrease greenhouse gas emissions, strengthen air and water quality, and more.

- Sustainable Communities strive to achieve economic stability, environmental health, and social well-being for all without compromising opportunities for future generations to enjoy the same.
- Resilient Communities understand that the impact of climate change is occurring now. Resilient communities prepare for, adapt to, and thrive in the face of abrupt and unforeseen weather, social, and economic changes, while increasing the use of clean energy sources and enhancing local grid infrastructure to limit risk and accelerate recovery from disaster, now and into the future.



Minnesota GreenStep Cities

www.mnGreenStep.org

Best Practice 29: Climate Adaptation and Community Resilience

Overview: Plan and prepare for extreme weather, adapt to changing climatic conditions, and foster stronger community connectedness and social and economic vitality.

Leadership & Strategy: Integrate climate resilience into planning and budgetary processes.

- Hazard mitigation planning
- Comprehensive planning and safe growth
- Capital budget planning

Health & Wellbeing: Prepare to maintain public health and safety, while also taking a preventive approach.

- Identify vulnerable populations
- Designate community safe shelter
- Provide outreach and incentives to reduce risk on private properties

Economy & Society: Help vulnerable residents improve their prosperity. Build social connectedness.

- Training and job placement services
- Affordable shared community spaces
- Engagement and culturally-specific services/mentoring

Infrastructure & Environment: Harden facilities and infrastructure. Reduce urban heat island effect.

- Protect buildings/infrastructure from flash flooding
- Incentivize extreme weather damage prevention
- Install green/cool roofs, pavements and vegetation

Sustainable Best Practices:

Make long-term investments using sustainable best practice actions.

- Energy savings, air quality, active living
- Green and gray infrastructure, water conservation
- Green building and complete streets

Learn more and get started:

www.MnGreenStep.org



Mayor Andrea Lauer of Royalton, MN—a GreenStep City—stands with their solar PV array

Proposed Funding

A CREP initiative for 100,000 acres is estimated to require approximately \$795 million over the next five years, with a potential 80:20 federal to state match expectation.

Federal Funding	State Funding	Total
\$634,000,000	\$161,000,000	\$795,000,000

State Support

State funding is planned to be secured through:

- Capital Investment (Bonding)
- The Clean Water, Land and Legacy Constitutional Amendment
- Environment and Natural Resources Trust Fund

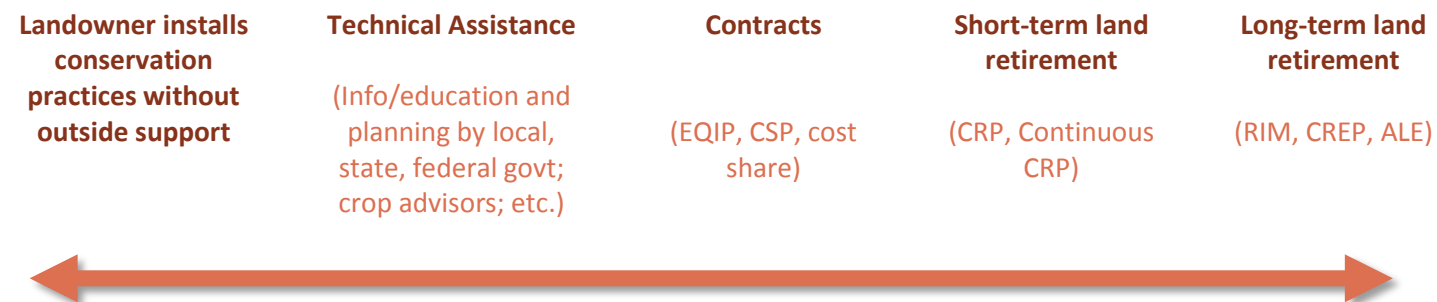


Payment to Landowners

The payment to the landowner will include both CRP and RIM. CRP annual rental payments, conservation practice cost-share, and incentives will be provided to landowners during the contract period.

Conservation Continuum: Landowner Choice

Minnesota is ready to implement a CREP as one option available to landowners, part of the conservation continuum, that will directly address resource problems with strategic, voluntary, long term solutions:



The Minnesota CREP

Proposal Discussion Guide



Fall 2015

Scope

- 100,000 acres
- 5-year program
- Prioritize and target water quality and habitat
- Approximately \$795 million in project costs, at a requested 4:1 federal to state ratio

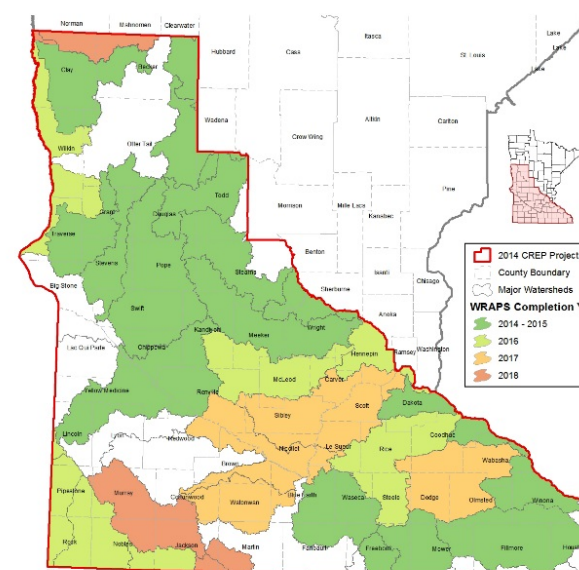
Voluntary approach using the nationally-recognized state Reinvest in Minnesota (RIM) easement program and the USDA Farm Service Agency (FSA) Conservation Reserve Program (CRP)

Key Factors and Existing Conditions

Science-based targeting

Critical review and targeting of expiring CRP acres

Watershed Restoration & Protection Strategies (WRAPS)
Major Watersheds: Planned Completion Year



Minnesota CRP Status	
Acres expiring over next 5 years	- 598,000
Expected acres retained based on recent average	+ 299,000
Minnesota CREP	+ 100,000
Projected net loss of acres*	- 199,000

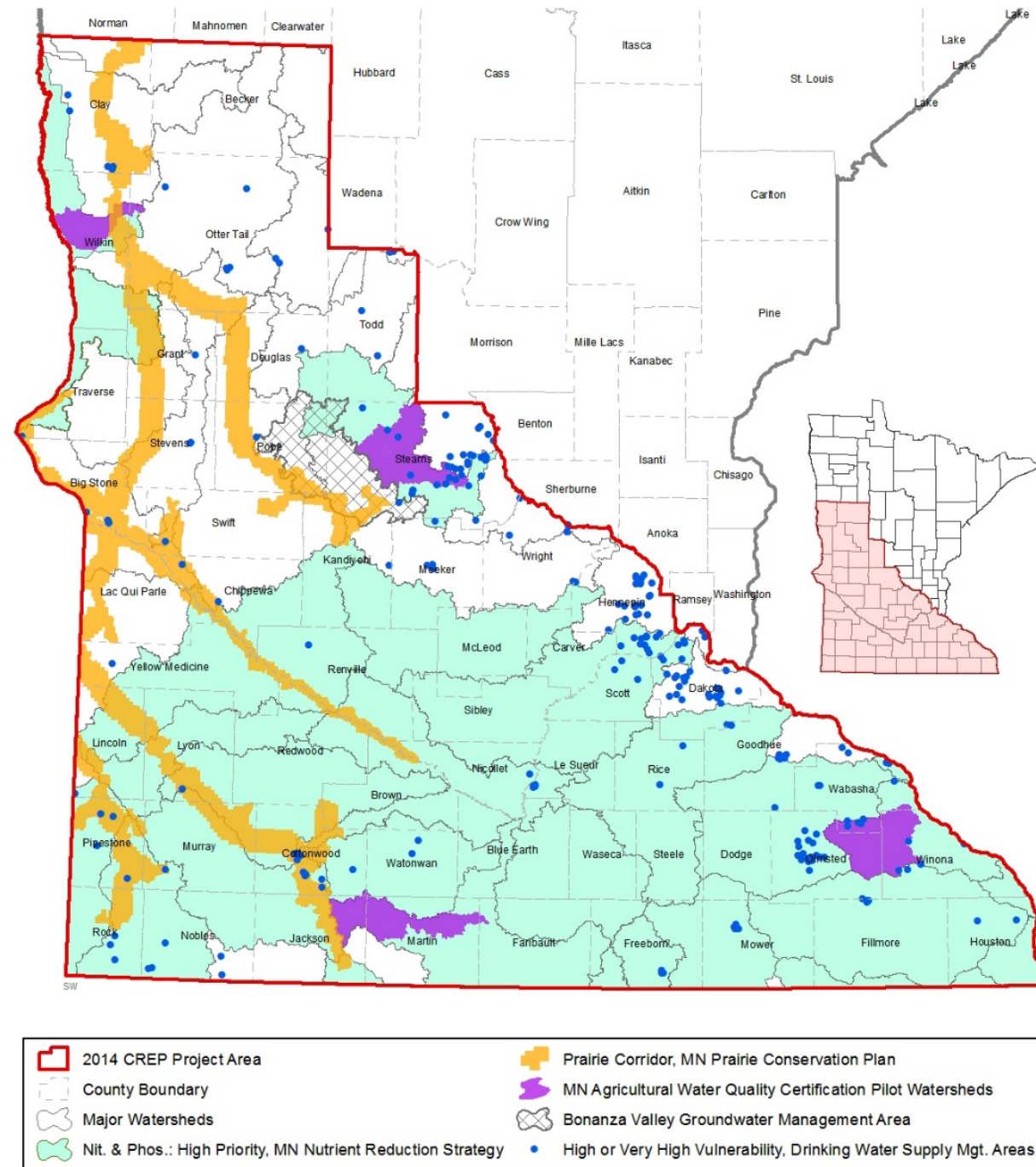
* 2015 - 2019

The Minnesota CREP

Geographic Focus

Targeting 100,000 acres within 54 counties covering 24.4 million acres.

MN CREP Proposed Project Area



Project Objectives

- Target riparian areas and marginal ag land
- Restore hydrology, increase infiltration, provide habitat, and provide flood mitigation
- Reduce nitrate loading in drinking supplies in Drinking Water Supply Management Areas



CRP Practices

Federal Conservation Reserve Program Conservation Practices (CP) focus on four main areas.

- | | |
|--|--|
| <p>1. Riparian Lands - Grass Filter strips (CP 21)
* Acreage Goal: <u>50,000 acres</u></p> <p>2. Wetland Restoration - non floodplain (CP 23a)
* Acreage Goal: <u>30,000 acres</u></p> | <p>3. Wetland Restoration – Floodplain (CP 23)
* Acreage goal: <u>15,000 acres</u></p> <p>4. Wellhead Protection Areas (CP 2)
* Acreage Goal: <u>5,000 acres</u></p> |
|--|--|



Projected Water Quality Outcomes

Load reductions include:

- 32,000 pounds of total phosphorus per year
- 2,400,000 pounds of total nitrogen per year
- 205,000 tons of sediment per year

Additional benefits include restored hydrology, increased filtration, and enhanced habitat for resident and migratory wildlife.