

February 2024 Environmental Quality Board meeting

Wednesday, February 21 from 1 – 4:15 p.m.

Join online via Teams

- For the meeting link and more information, visit the [board meeting webpage](#)
-

Participating in board meetings

Attending virtually

Members of the public may join the meeting virtually using the Teams link at the board meeting webpage link above. Please review the [Guide to Teams Participation](#) for additional information.

Joining the virtual meeting at the Minnesota Pollution Control Agency office

Participate in the meeting virtually with support from Environmental Quality Board (EQB) staff at the Minnesota Pollution Control Agency's St. Paul office (520 Lafayette Rd, St. Paul, MN 55155) lower level conference rooms. All visitors must sign in at the front desk.

Transportation options:

- Bicycle: Visit the [Saint Paul Bike Map](#) webpage for route information. Outdoor bicycle parking is available to the left of the front doors near the loading dock.
- Transit: Use [Metro Transit's Trip Planner](#) to determine the best routes and times.
- Car: You may park in a Visitor Parking space in the parking lot just outside the front door, or park in one of the visitor lots. The visitor lots are the Blue Lot (Olive St. and University Ave.) and the Jupiter Lot (on Grove St. across from the Ramsey County Law Enforcement Center); please see the [parking map](#). Parking in these lots is free of charge. You must register your vehicle at the front desk upon arrival.

Accessibility

Please contact Environmental Quality Board (EQB) staff at least one week prior to the event at info.EQB@state.mn.us to arrange an accommodation. Meeting materials can be provided in different forms, such as large print, braille, or on a recording.

Public engagement opportunities at EQB meetings

EQB encourages public input and appreciates the opportunity to build shared understanding with members of the public. The opportunities for public engagement for this meeting are below.

Oral public comment

In this meeting, the board will accept oral public comment as the final agenda item.

Procedure and guidelines for giving oral public comment:

- If you wish to speak:
 - Virtual: when prompted, use the “raise hand” feature in Teams, located at the top of your screen.
 - In person: sign up at the welcome table before the meeting starts.
- Your remarks will be limited to two (2) minutes. When necessary, the chairperson may limit commenters’ time for remarks to ensure there is equal opportunity for the public to comment.
- When the chairperson calls on you to speak:
 - Introduce yourself before beginning your comment.
 - Please keep your remarks to those facts which are relevant and specific, as determined by the chairperson, to the agenda item at hand.
 - Please be respectful of board members, staff, and other meeting participants. Avoid questioning motives. The chair, vice-chair, or other presiding officer will not tolerate personal attacks.
 - Please note that the chair will use their discretion for directing public comment to ensure the board’s ability to effectively conduct business.

Written public comment

You may submit written comment to EQB by emailing your letter to info.EQB@state.mn.us or mailing to: Environmental Quality Board, 520 Lafayette Road, Saint Paul, MN 55155. Comments must be received by EQB staff **by noon the day before the meeting**.

Staff will compile letters, make them available to members and the public online, and attach them to the public record. Any written comments received after this deadline will be included in the next meeting packet.

All comments will be made available to the public. Please only submit information that you wish to make available publicly. EQB does not edit or delete submissions that include personal information. We reserve the right to not publish any comments we deem offensive, intimidating, belligerent, harassing, bullying, or that contain any other inappropriate or aggressive behavior.

Agenda

Note that all listed times are estimates and are advisory only.

1. Welcome and roll call (1:00 pm)

Nancy Daubengerger – Chair, EQB; Commissioner, Department of Transportation

2. Approval of consent agenda (1:10 pm)

- Meeting minutes from the January 17, 2024, Environmental Quality Board meeting on packet page 5
- Preliminary agenda for the February 21, 2024, Environmental Quality Board meeting

3. Executive Director's report (1:15 pm)

Catherine Neuschler – Executive Director, EQB

4. Election of Vice Chair (1:20 pm)

Type of item: Decision

Summary: Under the Board's operating rules, a vice chairperson is to be elected at the first meeting in February each year. The vice chair presides at Board meetings and can fulfill the duties of the Chair when the chair is absent or not available.

Outcome: The Board elects a vice chair to serve until February 2025.

5. Updated ERIS resolution (1:30 pm)

Type of item: Decision

Summary: The Board authorized the creation of the Environmental Review Implementation Subcommittee in September 2019. The records of that authorization are unclear, especially related to the size of the subcommittee. The resolution on packet page 9 updates and clarifies the charge, membership, and appointment procedures for the ERIS.

This resolution: establishes the size of the subcommittee as eight (maintaining it as less than a quorum of the Board); clarifies whether the Board of Water and Soil Resources can serve on ERIS and in which position; sets a minimum of two ERIS meetings per year; clarifies that the Board chair appoints non-agency members to ERIS; and establishes procedures for choosing the ERIS chair. If available, the Chair will also confirm the appointment of non-agency members.

Outcome: The Board reauthorizes ERIS with clarity on membership and appointment procedures. Non-agency members are specified.

Presenter: Catherine Neuschler – Executive Director, EQB

6. Environment and Energy Report Card resolution (1:40 pm)

Type of item: Decision

Summary: In January, the Board heard a presentation on the 2024 Environment and Energy Report Card. Today, various updates and changes will be presented that were based on recommendations from the Board. The revised report is on packet page 13 followed by the metric criteria document with information on how state agencies determine status and trends.

Outcome: The Board approves distribution of the 2024 Environment and Energy Report Card.

Presenter: Priscilla Villa-Watt – Communications and Engagement Coordinator, EQB

7. Strategic plan: Facilitated Strategies Session (2:00 pm)

Type of item: Informational

Summary: The Board will participate in a facilitated discussion and in support of the EQB's efforts to refresh and update the organization's strategic plan for the next five years. Today the discussion will consider the strategies that are needed to implement the organizational outcomes. Information on this item is on packet page 38.

Outcome: The Board will provide input that will be used in drafting an update to EQB's strategic plan.

Facilitators: Kim Behrens and Kari Cantarero, Management Analysts at Minnesota Pollution Control Agency, Organizational Improvement Unit

8. Public comment (4:00 pm)

The board welcomes oral public comment. Please see guidance and procedures on packet page 2.

After the deadline for public comments for the January meeting, the Board received a comment on the Environment and Energy report card. The comment is included on packet page 45.

9. Closing and adjournment (4:15 pm)

January 2024 Environmental Quality Board meeting

Wednesday, January 17, 2024 | 1:00-4:00 p.m. | virtual via Teams

Minutes

1. Welcome and roll call

Chair Nancy Daubenberger called to order the regular meeting of the Environmental Quality Board.

Members present: Grace Arnold, Joseph Bauerkemper, Nancy Daubenberger, Kenneth Foster, Tamar Gronvall, Rylee Hince, Todd Holman, Daniel Katzenberger, Katrina Kessler, Nicholas Martin, Paul Nelson, Sarah Strommen

Members excused: Peter Bakken, Brooke Cunningham, Matt Varilek, Charles Zelle

Proxies present: Myra Kunas (for Cunningham), Peter Kjeseth (for Petersen), Kevin McKinnon (for Varilek), Sue Vento (for Zelle)

EQB staff present: Catherine Neuschler, Rebeca Gutierrez-Moreno, Colleen Hetzel, Hazel Houle, Jesse Krzenski, Priscilla Villa-Watt, Kayla Walsh

Approval of consent agenda

- Meeting minutes from November 15, 2023, Environmental Quality Board meeting
- Proposed agenda for January 17, 2024, Environmental Quality Board meeting

Motion: Board Member Kessler moved the consent agenda; Board Member Katzenberger seconded. Motion carries with a unanimous vote.

2. Executive Director's report

Catherine Neuschler – Executive Director, EQB

- Statements of economic interest
 - Required of public officials. Due to Minnesota Campaign Finance Board by January 29.
- February meeting will have some annual process steps
 - Election of vice-chair; if anyone is interested or willing to serve, reach out to Chair Daubenberger and Executive Director Neuschler.

- Re-authorize the Environmental Review Implementation Subcommittee; there is some confusion in the records about how many members should be on that committee (8 or 10), so clarity is needed to ensure that it is properly less than a quorum (EQB is usually 9). Public members Bauerkemper, Hince, and Nelson currently serve on that committee, at least one more public member is needed. The Board can reach out the Chair Daubenberger and Executive Director Neuschler to confirm their willingness to continue or express interest in being on the committee.
- Appointments
 - Still waiting for a new CD5 member; Nicholas Martin will continue as CD4 member until he is reappointed, or a new member is appointed. Appointments are likely in February.
- EQB has a new website that will re-launch the evening of January 17 with a new look and on a new platform.

3. Workplan update

Presenter: Catherine Neuschler – Executive Director, EQB

Type of item: Informational

Summary: The Board heard an update on the progress of key FY24 workplan items.

4. Environment & Energy Report Card

Presenter: Catherine Neuschler – Executive Director, EQB; Priscilla Villa-Watt, Communications and Engagement Coordinator, EQB

Type of item: Decision

Summary: Throughout its history, the EQB has issued reports on the condition of Minnesota’s environment. The current series of Minnesota Environment and Energy Report cards began in 2012, with updates in 2017 and 2019. The role of these report cards has been to provide an easy-to-understand assessment of Minnesota’s environmental quality, giving key information to the public and environmental policy makers.

The proposed 2024 Environment and Energy Report continues the series, with updated information. Key changes were made to align with the state’s new climate and energy goals. In addition, the report has a new layout that more clearly differentiates measures that tell us about the condition of the environment from measures of the progress we are making on our programs and efforts to protect and enhance environmental quality.

Discussion:

Board members raised questions about some of the metrics and the criteria by which they are measured and determined. Given that there were several suggestions for clarifications and updates to charts and images, the board decided to postpone approval of the publication of the report to allow EQB staff to make the appropriate changes.

Public Comment:

Valeria Peralta: Concerned that the report isn't really highlighting the root issues of air pollution and the severity, especially with the labeling of the condition as "fair".

Brock Lawhead: How can the E&E Report Card highlight individual conservation effort, yet draw that stark contrast with the excessive groundwater use in agriculture, particularly in potato production, which undermines overall conservation gain?

Outcome: EQB staff will revise the E&E Report and present the revised version at the February Board meeting.

5. Strategic Plan: Draft Mission and Outcomes

Presenter: Catherine Neuschler– Executive Director, EQB

Type of item: Informational

Summary: In November 2023, the Board provided input to shape the revision of the EQB's strategic plan, specifically covering the mission statement and priority results or outcomes. There was also discussion on how to shape the strategic plan to ensure it includes and places appropriate weight on critical elements such as equity, engagement, trust, and collaboration. The Board was presented with two options of draft language for this portion of the strategic plan; one option includes these elements as important values for the EQB, while the second option includes these elements as key outcomes.

Discussion:

- The Board discussed the wording of the draft mission statement - "... to support Minnesotans in making informed decisions ..." – focused on the broad nature of the word "Minnesotans" and the need to ensure the mission sets appropriate expectations.
- The Board discussed the need to be intentional about doing more to support the draft mission and outcomes.
- The Board discussed the values and the importance of articulating values, but also how to best ensure that work is being done and prioritized to meet those values .

Outcome: The Board provided feedback on the preliminary draft mission and outcomes for the strategic plan, to be moved forward for the February discussion.

6. Public comment

Ashley Holmes: In regards to equity, suggested that the EQB meetings be conducted at a different time of day, as many working people cannot attend meetings during the work day. Wondered why the line 3 pipeline was omitted from the E&E Report Card since it has so many negative environmental impacts. Additionally, wanted to know why the same agreement and process for pipeline 93 has not also been done to phase out line 3.

7. Closing and adjournment

Board Member Foster motioned to adjourn. Board Member Arnold seconded. All in favor; meeting adjourned.

DRAFT

RESOLUTION OF THE MINNESOTA ENVIRONMENTAL QUALITY BOARD

Updating the Environmental Review Implementation Subcommittee

The Environmental Quality Board (EQB or Board) has the authority to convene a subcommittee under Minnesota Statutes § 116C.04 and Minnesota Rules, chapter 4405. The Board also has the authority and responsibility to promulgate rules that establish procedures for the environmental review program (Minn. Stat. 116D.04, subd. 5a) and monitor the effectiveness of those rules (Minn. R. 4410.0400)

As specified in Minn. R. 4405.0800, the Board shall specify the charge, duration, size, membership, meeting notice requirements, and other procedures to be followed for any task force, subcommittee, or similar group.

A subcommittee of the Board known as the Environmental Review Implementation Subcommittee (ERIS) was established on September 18, 2019, for the purpose of providing a forum for transparent deliberation and public input on important issues related to the state's environmental review program and making recommendations for improving effectiveness.

This resolution updates and clarifies the charge, membership, and appointment procedures for the ERIS.

ERIS Charge

The role of ERIS is to support the Board and the Chair in implementing their responsibilities under the statutes and rules related to Minnesota's environmental review program.

The ERIS charge includes, but is not limited to:

- Advising the Board and Chair on items related to environmental review;
- Assessing the effectiveness of the environmental review program and recommending appropriate measure to improve that effectiveness;
- Recommending environmental review program improvement initiatives;
- Advising the Board on environmental review-related issues brought forward by the public; and
- Providing a forum for responsible government units (RGUs), the public, project proposers, and others to address issues of concern related to the environmental review program.

ERIS Membership and Procedures

ERIS membership shall consist of no more than eight (8) members of the Board, including:

- Commissioners, or their delegates, of the following four agency members of the Board:
 - Department of Commerce
 - Pollution Control Agency
 - Department of Natural Resources
 - Department of Transportation
- Four (4) other members of the Board, drawn from EQB's public members and the Board of Water and Soil Resources chair, as long as said chair is not a state agency staff person.

Non-agency members shall be appointed by the Chair. All members should have an understanding of Environmental Review Program procedures.

The ERIS will meet at least two times per year; and may meet additionally as determined necessary or directed by the Board.

All meetings of ERIS are open to the public. Notice of the time, place, and matters to be considered will be posted as required in Minn. R., part 4405.0600, subpart 2, and as specified in subpart 1.

Recommendations from ERIS shall be submitted in writing to the Board or the Chair, as required by Minn. Rules 4405.0600, Subd. 6.

ERIS shall elect a subcommittee chair from amongst its members at its first meeting of each calendar year.

The board resolves to adopt the above revisions related to the Environmental Review Implementation Subcommittee.

The board further resolves that the ERIS remain in effect until rescinded by the Environmental Quality Board or other proper authority.

The board approved and adopted this resolution on February 21, 2024.

Nancy Daubenberger, Chair
Minnesota Environmental Quality Board

Date: _____



RESOLUTION OF THE MINNESOTA ENVIRONMENTAL QUALITY BOARD

Approval of the 2024 Environment and Energy Report Card

Since 2012, the Environmental Quality Board (EQB or Board) has regularly prepared a Minnesota Environment and Energy Report card. This report card was originally required by Executive Order 11-32, which stated: *“The EQB shall prepare an environmental and energy report card that identifies metrics which the State of Minnesota can use to measure its performance and progress protecting Minnesota’s valuable air, water, and land resources.”*

EQB prepares this report to inform the public, legislature, and Governor on important environmental issues across Minnesota. Following the original report card, the EQB has produced additional report cards in 2017, 2019, and today, ensuring that they are updated with the latest information about the condition of Minnesota’s environment and renewed priorities, initiatives, and goals.

The board resolves to approve the distribution of the attached 2024 Environment and Energy Report Card.

The board approved and adopted this resolution on February 21, 2024.

Date: _____

Nancy Daubenberger, Chair
Minnesota Environmental Quality Board

Attachments: 2024 Environment and Energy Report Card

This page is intentionally left blank

Minnesota Environment and Energy Report Card

m MINNESOTA

ENVIRONMENTAL QUALITY BOARD

2024

Introduction

The EQB’s mission is to enhance Minnesota’s environmental quality for current and future generations by leading interagency work to advance meaningful public engagement and facilitate informed decision-making on critical environmental issues. Compiled with the help of staff from several state agencies, the 2024 Minnesota Environment and Energy Report Card provides valuable information for the public and policymakers on the condition of Minnesota’s environment, how it is being impacted by environmental threats, and what is being done in response.

The report focuses on key areas of Minnesota’s environment: air and climate, and land and water. Each section presents metrics and information that help assess the condition of Minnesota’s environment, along with actions being taken to promote and improve environmental quality and respond to changes by promoting equity and resiliency. In alignment with the Climate Action Framework, many of these environmental issue areas highlight the work currently being done to address climate change. Metrics either have a red, yellow, or green score depending on the changes in environmental condition and whether state goals for progress are being met, and show a projected trend. Many of these metrics have been used since 2017, allowing a look at changes over time. Some, especially those related to state actions, have been updated to reflect changing state goals.

Highlights

The current report card shows mixed results.

Key environmental condition indicators show the continued impact of climate change – in higher temperatures, more extreme precipitation and drought, and in insect damage to our forests. The outcome is better for air pollution and water due to the many statewide efforts to address the root causes of concern.

Action indicators – those metrics that are looking at what we’re doing to enhance environmental quality – are also mixed. Our key energy actions that contribute to reducing climate change are making progress. Carbon-free electricity and household energy use are both metrics that have improved due to investments in more energy efficient heating systems and the capacity for more renewable energy generation – with 24% of our energy coming from wind.

Since the publication of the 2019 report card, we faced a global pandemic that impacted every aspect of life across the state. The environmental impacts of that pandemic are highlighted throughout the report from lower fuel use and greenhouse gas emissions to shifting trends in recycling. These effects make it harder to project future trends in these areas, and metrics will have to be watched carefully moving forward.

Working together

Minnesota enjoys abundant natural resources and high quality of life, but not all groups and communities share these benefits equally. Some Minnesotans are disproportionately affected by air and water pollution, climate change, and other environmental challenges. In all our work, we seek to end disparities based on race, income, gender, health, and geography. This is critical for making progress on our statewide environmental goals.

The Environment and Energy Report Card is a living document. We hope that it will inspire new dialogue and forms of action. Tackling the complex issues in this report will require innovative approaches and cross-sector collaboration. The EQB invites you to attend our monthly meetings to learn more and join us in creating solutions. Together we can ensure a clean, healthy environment for all Minnesotans.

Contents		
	Air pollution	3
	Asthma	4
	Heat and rainfall	5
	Climate change and forests	6
	Reducing climate pollution	7
	Fuel and transportation	8
	Carbon-free electricity	10
	Household heating	11
	Sustainable materials management	12
	Lakes and rivers	13
	Nitrate pollution	14
	Land conversion	17
	Water sustainability	18
	Public land protection and management	19

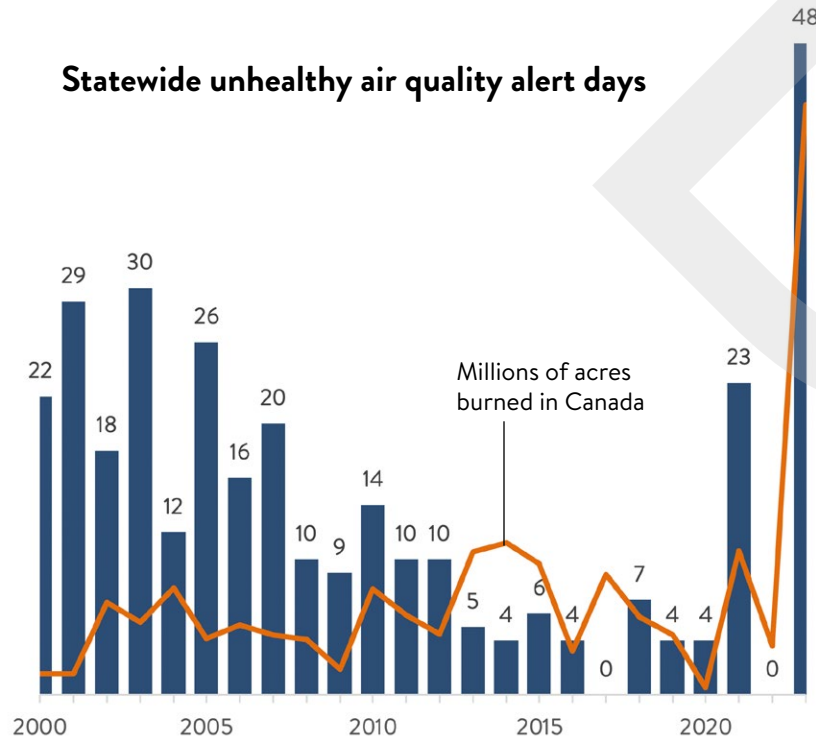
Air pollution

Voluntary efforts and regulation have improved air quality over recent decades, but not for everyone and not enough to ensure that air pollution is not affecting human health. Our air quality meets current federal standards, but environmental standards and conditions are changing, and disparities remain.

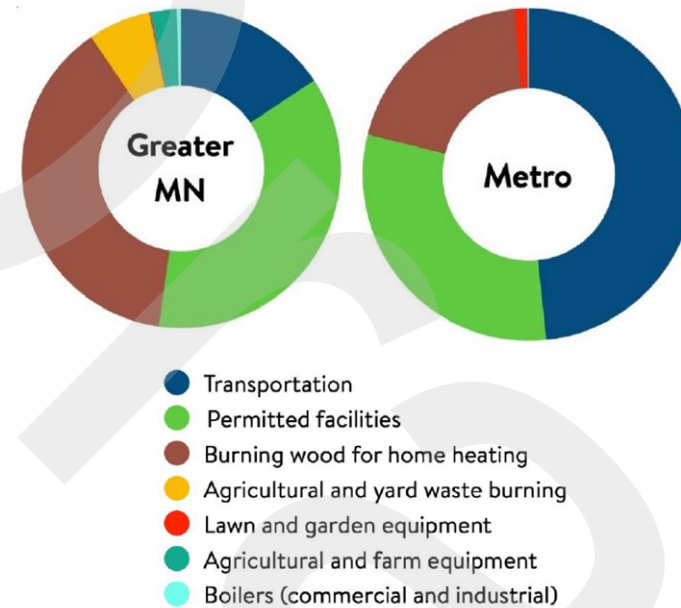
Status **FAIR**

Trend ↻ ↷ ↘

Statewide unhealthy air quality alert days



Air pollution health risk sources in Minnesota



Air pollution and your body

Fine particles pollution can cause:

- Shortness of breath
- Wheezing, coughing
- Chest pain
- Fatigue

Fine particles can make these conditions **worse**:

- Cardiovascular and heart disease
- Asthma and COPD

Ground-level ozone pollution can cause:

- Difficulty breathing deeply
- Shortness of breath
- Sore throat
- Wheezing, coughing
- Fatigue

Ozone can make these conditions **worse**:

- Asthma and COPD
- Emphysema

Source: MPCA

What's causing air pollution

Minnesota's air quality can differ across the state and fluctuate often, sometimes quite quickly. Wildfire smoke, ground-level ozone on hot summer days, and temperature inversions that trap pollution on calm winter days can create areas of unhealthy air quality and trigger regional air quality alerts. These events are likely to become more common as the climate continues to change. Local air pollution sources are more concentrated in cities, so people who live in cities are exposed to more air pollution and the resulting potential health effects. For example, transportation is the primary source of air pollution-driven health risks in the Twin Cities metro, particularly impacting those who live near large roadways, while wood burning, and industrial processes are the main sources of air pollution-driven health risks in greater Minnesota.

Health and equity

Air pollution contributed to 10% of deaths in the Twin Cities metro area and 9% of deaths in Greater Minnesota in 2015. Fine particle pollution contains a harmful mix of chemicals. The particles are so small they can be breathed deep into lungs and enter the bloodstream. Wood burning for heat or pleasure, wildfires, and diesel exhaust are common ways we are exposed to fine particles.

While all Minnesotans are susceptible to health impacts from air pollution, low-income residents, residents of color, uninsured residents, or residents living with a disability are disproportionately impacted. Some people are more likely to be impacted by smaller amounts of air pollution, including children, older adults, those who have existing heart or lung conditions or diabetes, are pregnant, or work, exercise, play, or live outdoors.

Efforts to improve air quality

We make decisions every day that can affect air quality, such as the fuel we use in our vehicles and appliances or to heat our homes and buildings. Making progress on air pollution calls for many of the same strategies as the climate and energy goals highlighted in this report card and in the Climate Action Framework. Efforts to reduce greenhouse gas emissions, use less energy, shift to renewable energy, and rely less on burning fossil fuels for everyday needs will help reduce overall air pollution. Due to the enduring legacy of past racist and classist decisions, air pollution exposures are even higher in areas with more residents of color and lower-income residents. Focusing on local impacts and prioritizing pollution reduction efforts in these areas is critical to addressing disparities.

Asthma

While rates for asthma-related emergency room visits still meet national objectives, we saw an increase in 2021, following a steep drop during the pandemic in 2020. Asthma inequities persist and we continue to work to increase access to healthcare and provide asthma management education and resources to remedy those inequities.

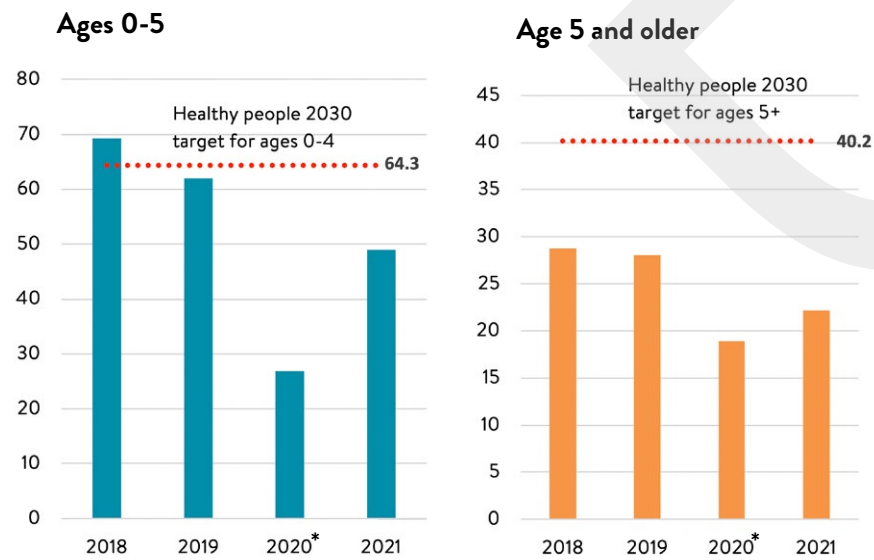
Status

GOOD

Trend



Asthma emergency room visit rates (per 10,000 people)



* The 2020 drop is consistent across the country and is attributed to factors related to the COVID-19 pandemic, rather than changing factors in asthma etiology or exacerbation triggers.

What asthma can tell us about our environmental quality

Asthma is a chronic condition that affects the lungs and is characterized by coughing, wheezing, and shortness of breath. Minnesota's most recent data indicate that approximately 1 in 17 children and 1 in 10 adults have asthma. Asthma often starts during childhood but can start at any age. Factors that contribute to developing asthma include genetics, allergies, a severe respiratory infection during childhood, and environmental exposures. Pollution from traffic and industry, along with climate impacts including a longer pollen season, changes in vegetation as species spread north, and an increase in wildfires all contribute

to health impacts from outdoor environmental exposures. These exposures create or worsen not just asthma, but other health conditions such as chronic bronchitis, emphysema, chronic obstructive pulmonary disease, and cardiovascular disease and can even lead to death.

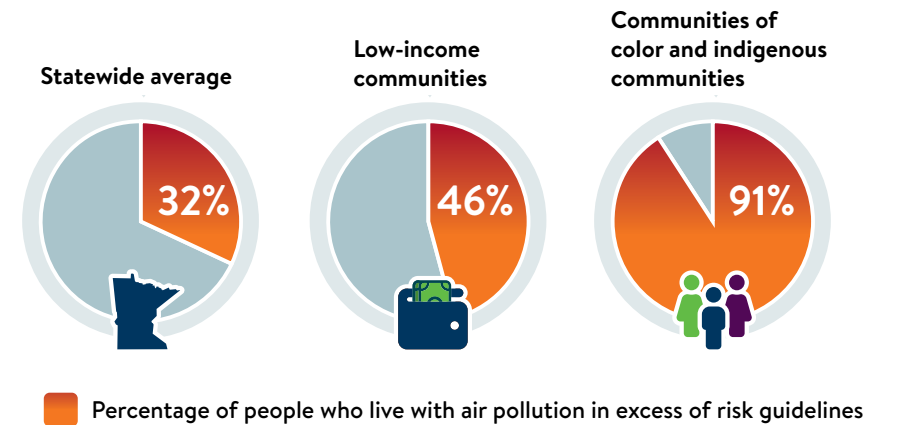
Reporting asthma emergency room visits is just one way in which Minnesota tracks data on asthma. This statewide data for asthma, along with other data relevant to health and the environment, can be found on the [Minnesota Public Health Data Access Portal](#). We can also compare our Minnesota rates to the Healthy People 2030 national goals for improving respiratory disease outcomes for a broader view (which is what the status/trend above are comparing against).

- In 2021, Minnesotans made 13,654 emergency room visits and experienced 1,305 hospitalizations for asthma.
- In 2014, asthma cost an estimated \$669 million, including \$615 million in direct medical expenses and \$54 million in lost workdays. More recent data on cost are not available.
- In 2015, 7.4% of Minnesota adults reported that they had current asthma; in 2022, 10% of adults report that they have current asthma. The percentage of adults reporting that they have ever been told by a health care provider that they have current asthma has increased from 11.1% to 14.3%.

Improving our environment to boost our health and well-being

Minnesota needs to continue to reduce ER visits caused by poor air quality. Improving air quality can provide significant public health benefits. If we reduce fine particles and ground-level ozone by 10% from 2008 levels, we can reduce the annual number of deaths, hospitalizations, and emergency room visits due to heart and lung conditions.

Some communities are more likely to be near higher levels of air pollution



Equity

Breathing polluted air is not good for anyone, but health impacts from pollution are not shared equally. Children in the Twin Cities metro area go to the ER for asthma at a rate nearly twice that of children in Greater Minnesota. In some Minneapolis zip codes, asthma hospitalization rates for children are four times higher than the rest of the state.

Due to structural inequities, people living near high-traffic roads and heavy industry bear a heavier burden. The highest estimated rates of air pollution-related death and disease in the Twin Cities occur in neighborhoods with the largest percentage of residents who are Black, Indigenous and People of Color (BIPOC), low-income and uninsured, and who live with a disability. Across Minnesota, Latino, American Indian, and Black adults are 20 to 30% more likely than white adults to have asthma. Further, zip codes with the largest percentage of BIPOC residents had more than five times the rate of asthma emergency room visits related to air pollution compared to areas with more white residents.

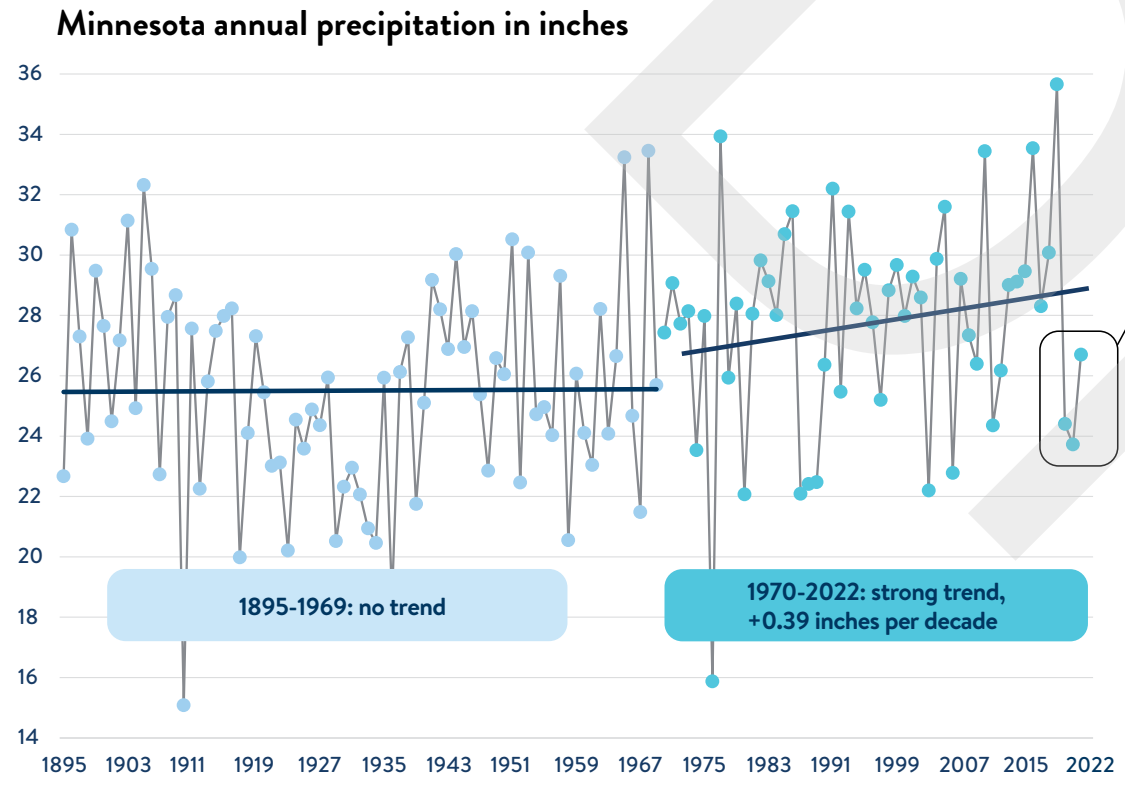
Condition: Air and climate

Heat and rainfall

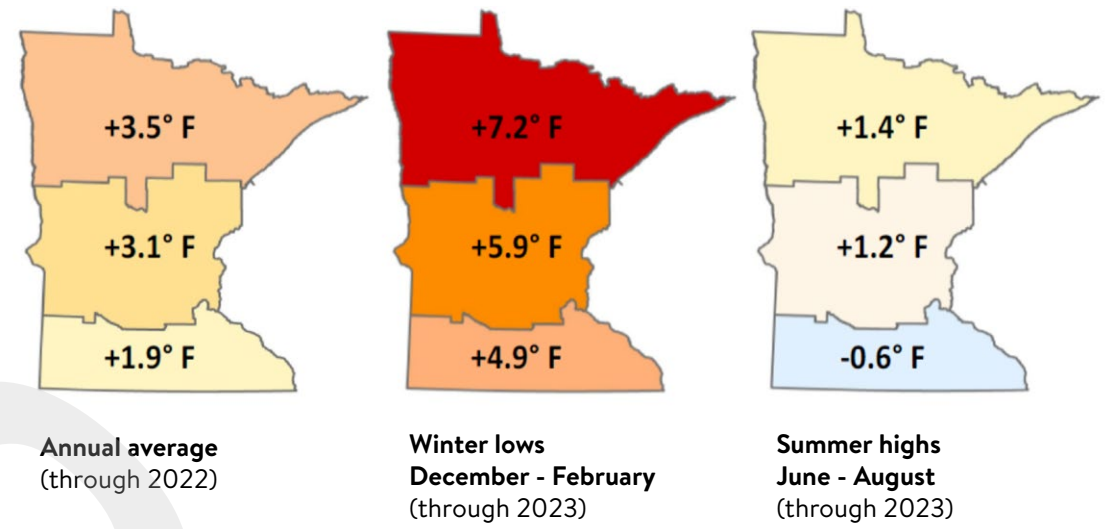
Minnesota has become both warmer and wetter on average as global temperatures have risen.

Status **POOR**

Trend



Total temperature change since 1895



Minnesota is nearly 3°F warmer than it was 100 years ago.

More damaging precipitation

Heavy, wet snows during the 2022-23 winter damaged millions of Minnesota's trees.

Frequency of mega rains of 3+ inches have increased 60% over last 100 years.

15.1 inch daily rainfall record set in Hokah, Minnesota, in 2007. It was 39% higher than the previous record.

Warmer

Global temperatures are rising because humans have increased greenhouse gas emissions by burning coal, oil, and gas. Winter has become the fastest warming season globally, at all scales, and is a major driver of annual warming rates. In Minnesota, trends towards warmer years are strongly influenced by winter, which is warming several times faster than summer. Winter nights are warming fastest, as shown by increases in average daily low temperatures between December and February. Extremes of cold are less frequent and less severe than they used to be. Rapid increases in Minnesota's low temperatures during the winter represent a direct impact of our changing climate due to rising greenhouse gas emissions.

Wetter

Despite drought conditions during the early 2020s, Minnesota is still getting wetter over the long-term, and has had damaging rain and snow events each year of the decade through 2023.

Coordination is key

Addressing climate change is a matter of policy, and requires global coordination to stop burning coal, oil, and gas. Many of the goals and initiatives mentioned in this report are key in helping reduce Minnesota's contribution to climate change.

Condition: Air and climate

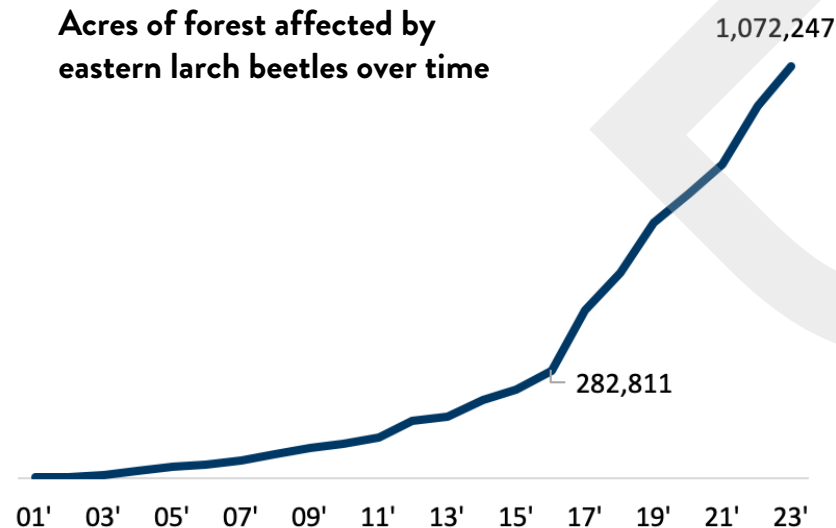
Climate change and forests

Minnesota's forests provide a wide range of important benefits, but they are susceptible to stressors that reduce these benefits and the health of forests. Climate change increases the potential for negative impacts on forest health in the future.

Status **FAIR**

Trend ↗ → ↘

Acres of forest affected by eastern larch beetles over time



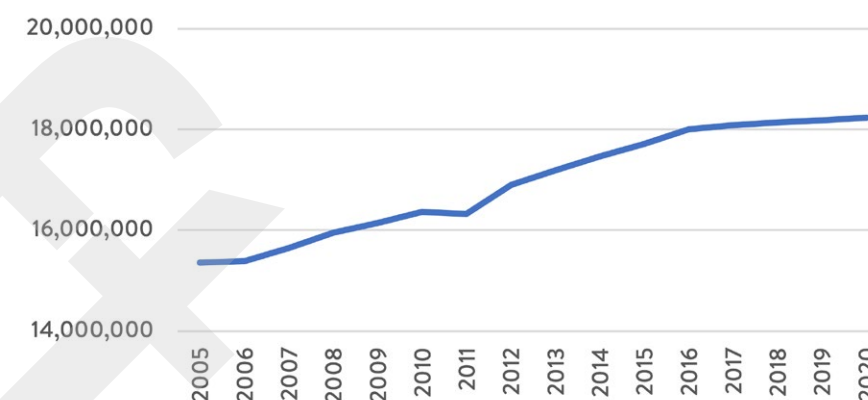
Eastern larch beetles have killed vast swaths of tamarack forests by feeding under the tree's bark.



Healthy forests help mitigate climate change

Healthy forests are more resilient to stressors that harm trees and impair forest growth. When forests grow they absorb and store heat-trapping gases that are making our winters warmer and precipitation more variable. Currently, Minnesota's nearly 18 million acres of forest actively reduce the concentration of carbon dioxide in the atmosphere, helping to slow climate change. In 2020, Minnesota's forests absorbed over 18 million tons of carbon dioxide, which is about the same amount released by four million passenger vehicles driven for one year.

CO2-equivalent tons removed from the atmosphere by Minnesota's forests



Climate change and forest health

Healthy forests generate a wide range of benefits including diverse wildlife habitat, clean air and water, and carbon sequestration and storage. They also support a robust forest products industry and recreational opportunities. Forest health stressors such as insects, diseases, and invasive plants endanger these benefits by suppressing growth and killing trees across wide areas of the state. In 2023, over one million acres of forest were negatively impacted by at least one of these stressors. Climate, including temperature and precipitation, influences the extent and severity of impacts. Climate change is one of several influential factors driving an unprecedented two-decade outbreak of eastern larch beetle (ELB) in Minnesota's tamarack forests. From 2001 to 2023, ELB affected nearly one million acres, equivalent to 75 percent of all tamarack in the state. Longer and warmer growing seasons have helped extend this outbreak. Climate predictions suggest even longer and warmer growing seasons by mid-century in Minnesota. Other forest health stressors that are partially contained by Minnesota's cold weather, such as emerald ash borer and spongy moth, will also increase in population as winters become warmer.

Reducing climate pollution

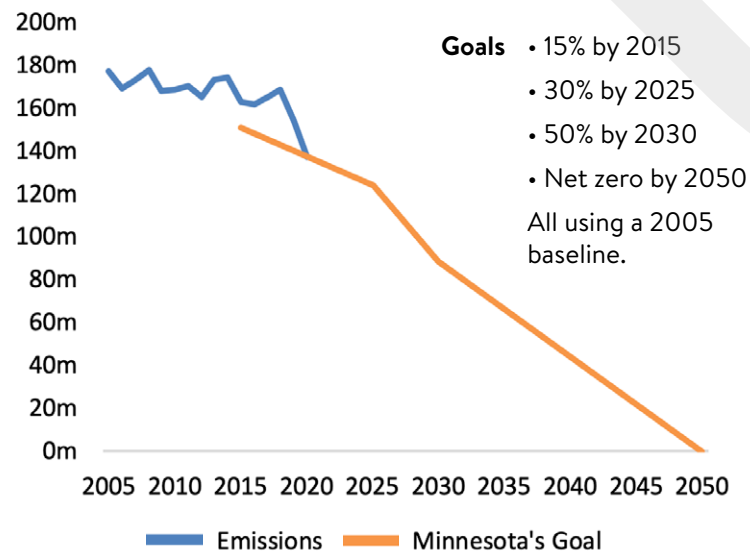
Emissions in 2020 were 23% below 2005 levels. Significant emissions reductions have been made in electricity generation and in transportation. However, because of the unusual impacts of the COVID-19 pandemic, future trends are uncertain.

Status **FAIR**

Trend ↗ → ↘

Not enough information to determine a statewide trend.

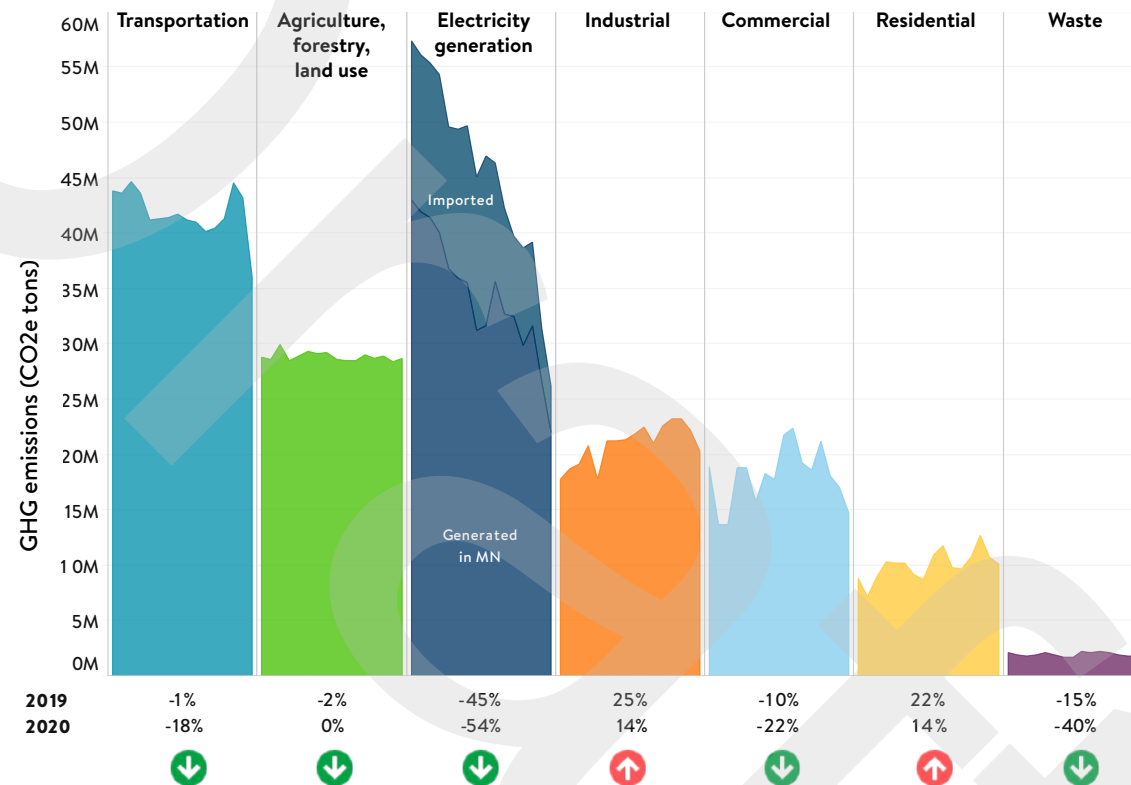
Minnesota greenhouse gas emissions 2005-2020 and goals from Next Generation Climate Act



COVID-19 and greenhouse gas emissions

From 2005-2020, Minnesota achieved a 23% reduction in greenhouse gas emissions, putting the state on track to meet its goals for the first time, all while seeing economic and population growth. The unusual circumstances of the COVID-19 pandemic resulted in more emission reductions than expected, so future years might show an increase in greenhouse gas emissions, particularly in the transportation sector. Although 2020 data shows Minnesota meeting our goals, a rebound in transportation emissions to pre-pandemic levels would result in emissions above targets.

Climate pollution by economic sector in Minnesota, 2005-2020



Major sources of climate pollution include burning fossil fuels for electricity, transportation, and other industrial, residential, and commercial uses. The release of greenhouse gases such as methane from agriculture and landfills is another contributor.

decarbonizing buildings and industry. Minnesota needs to pursue energy efficiency through better codes and retrofitting existing buildings. Electrifying fossil-fuel-based heating sources will also get carbon out of buildings and industry.

- Minnesota's natural and working lands can be part of the solution through practices that promote carbon storage.
- In the transportation sector, Minnesota is pursuing vehicle electrification, cleaner fuels, and investments that make it easier to get around without a car.



Minnesota's Climate Action Framework provides a path forward

Major investments from the state and federal governments are accelerating progress in reducing climate pollution. Individuals and communities across Minnesota need to put these tools to work meet Minnesota's greenhouse gas emissions reductions commitments.

- Minnesota has made big progress in the electricity sector, and passage of a new law committing Minnesota to 100% clean energy by 2040 will ramp up progress.

A key area of opportunity is decarbonizing buildings and industry. Minnesota needs to pursue energy efficiency through better codes and retrofitting existing buildings. Electrifying fossil-fuel-based heating sources will also get carbon out of buildings and industry.

Action: Air and climate

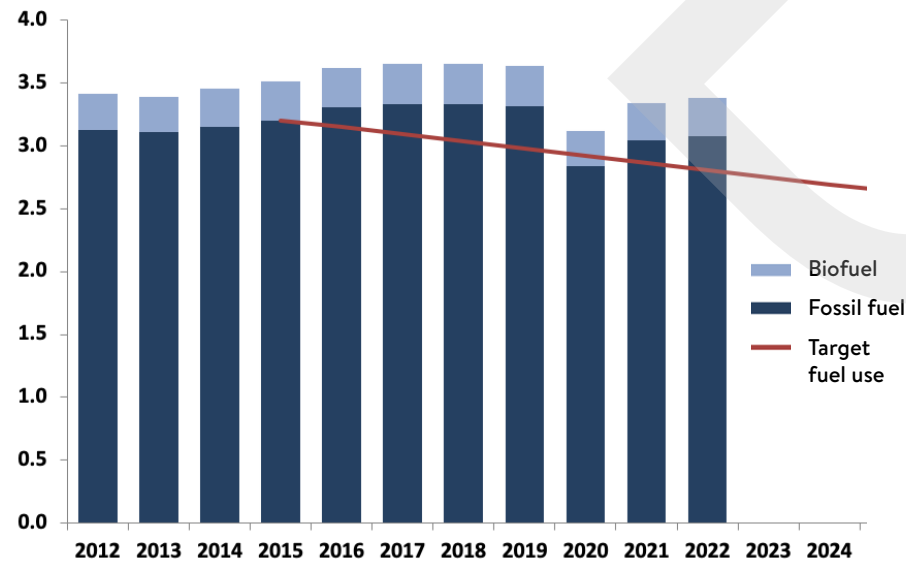
Fuel and transportation

Fuel use gradually increased between 2011 and 2018, nearly returning to peak 2004 level. The COVID-19 pandemic dramatically impacted travel in the state, reducing total fuel usage in 2020 to the lowest point in the 20-year reporting period. Since 2020, fuel usage has continued to increase.

Status **POOR**

Trend

Fuel use in billions of gallons



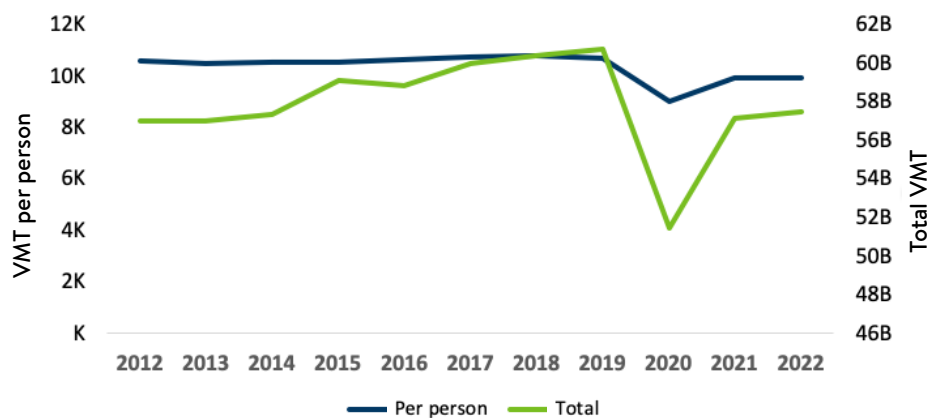
Freeway congestion is likely to remain at low levels in the near future. Recent evidence from traffic volume data in the Twin Cities suggests that while daily volumes are rebounding to near pre-pandemic levels, the distribution of trips throughout the day has differed significantly. Volumes during the traditional AM peak period are lower, consistent with many workers continuing to work remotely, while trips during the PM peak period are returning to higher levels.

According to MnDOT's 2021 Congestion Report, highway volume decreased by as much as 50% in some corridors. In 2020, 0.9% of the freeway system was congested, which was nearly a 25-percentage point decrease from 2019. While freeway congestion increased to 5.8% in 2021, it was still well below pre- COVID-19 trends. Freeway congestion in 2022 increased to 13.7%, which suggests that travel patterns are shifting as more people return to in-person work part-time or full-time.

Travel and fuel use

Transportation is the largest contributor to greenhouse gas emissions in the state. While greenhouse gas emissions from the transportation sector have been declining since 2005, Minnesota did not meet the statewide 2015 emissions target. Although continued declines are projected, emissions from transportation fuel use are still projected to be 10 to 15% higher than the 2030 target. While mass transit is currently available at some level across the state, it is not sufficiently developed to accommodate a wide range of daily trips. With limited multimodal options in many parts of Minnesota, people must rely on single-occupancy vehicles to move around.

Vehicle miles traveled



The lasting impacts of COVID-19 on travel

Over the last 20 years, total vehicle miles traveled in Minnesota steadily increased until 2020 when they decreased by 15% due to the impact of the COVID-19 pandemic on travel patterns. In 2021, mileage increased by 10% and is now similar to levels last seen in the early 2000s. Higher numbers of miles driven per person suggests that people in Minnesota do not have effective transportation options to get places they need to go and that those places are likely farther away than they used to be.

Working towards cleaner, more equitable, and sustainable travel

The first goal in the Climate Action Framework highlights making Minnesota's transportation system sustainable, resilient to a changing climate, and supporting equitable transportation options for all people traveling in Minnesota. By doing this, we reduce air pollution, especially in communities most affected by it. Additionally, we continue to work on travel options that are accessible, safe, and plentiful so people can enjoy walking, biking, rolling, and other modes of transit. To achieve our goals:

- **Improve transportation systems to reduce single-person travel.** A transportation system balanced with thoughtful land use patterns can reduce greenhouse gas emissions by reducing per-person trip lengths. Shifting more trips away from single-occupancy vehicles to high-occupancy vehicles can be encouraged through improvements to transit services and frequency. We must also create more reliable and convenient transit networks, prioritize services in communities where transit is essential, and residents are disproportionately affected by air pollution.

- **Increase awareness to shift behaviors.** Changing the ways people move around requires new and connected infrastructure, changes in land use, and cultural changes that require long-term planning. Public education and advocacy are also needed to increase awareness of the problems associated with fossil-fuel emissions and the impact of individual travel choices.
- **Increase the use of electric, hybrid, or biofuel powered vehicles to reduce fossil fuel use and greenhouse gas emissions.** Reducing the number of vehicles that burn fossil fuel and shifting to new technologies to power cars (such as electric powered batteries, advanced biofuels, and hybrid vehicles) offer ways to reduce fossil fuel consumption. Electrifying and increasing the use of light duty electric vehicles (EVs) are important strategies to meet the state’s climate goals. Reducing the initial costs of EVs to consumers and increasing access to fast chargers will enable more people to purchase those vehicles.



Celebrating progress

Electric vehicles The 2023 Minnesota Legislature approved a new EV rebate up to \$2,500 (in addition to the existing \$7,500 in federal tax credits). The 2023 Minnesota Legislature also created an Electric Assisted Bicycle (“eBike”) rebate program.

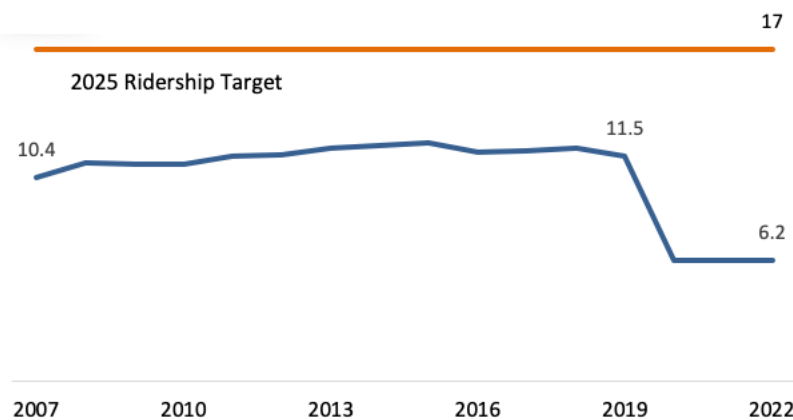
Charging infrastructure The 2023 Minnesota Legislature approved \$13.6 million in one-time funding for electric vehicle infrastructure to support the National Electric Vehicle (NEVI) program.

Federal funds to reduce climate pollution Through the federal Infrastructure Investment and Jobs Act (IIJA), the Carbon Reduction Program (CRP) was created to reduce CO2 emissions from on-road highway sources. Annually Minnesota receives approximately \$20.9 million, with a 1.9% increase each year.

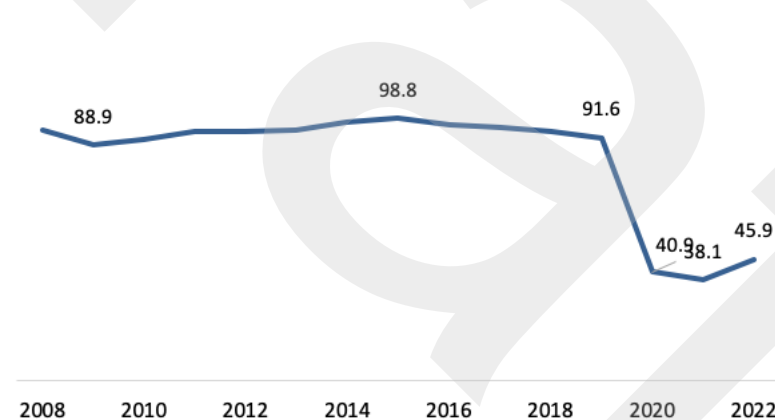
Align transport and climate goals At the direction of the 2023 Minnesota Legislature, MnDOT established a Transportation Greenhouse Gas Emissions Impact Mitigation Working Group to prepare recommendations for implementing transportation greenhouse gas emissions impact assessments for capacity expansion projects on state highways. The goal of an assessment is to align project decision-making with the state’s greenhouse gas emissions reductions targets under Minn. Stat., Section 174.01, Subd. 3.

Coordination of clean transportation efforts The 2023 legislature established the Clean Transportation Standard Work Group to prepare recommendations for implementing a Clean Transportation Standard (CTS). The work group will be jointly convened by the Commissioners of Agriculture, Commerce, Transportation, and the Pollution Control Agency. The goal of a CTS is to significantly reduce transportation emissions, create new jobs, attract new investments, and reduce air and water pollution in Minnesota.

Greater Minnesota transit ridership in millions



Twin Cities transit ridership in millions



More electric vehicles

As of July 2023, there were about 7.3 EVs per 1,000 people.

Since 2022, the Active Transportation Program:

1. Provided 13 communities with active transportation planning services.
2. Selected 20 projects for infrastructure funding.
3. Provided five communities with quick build/demonstration project planning support.



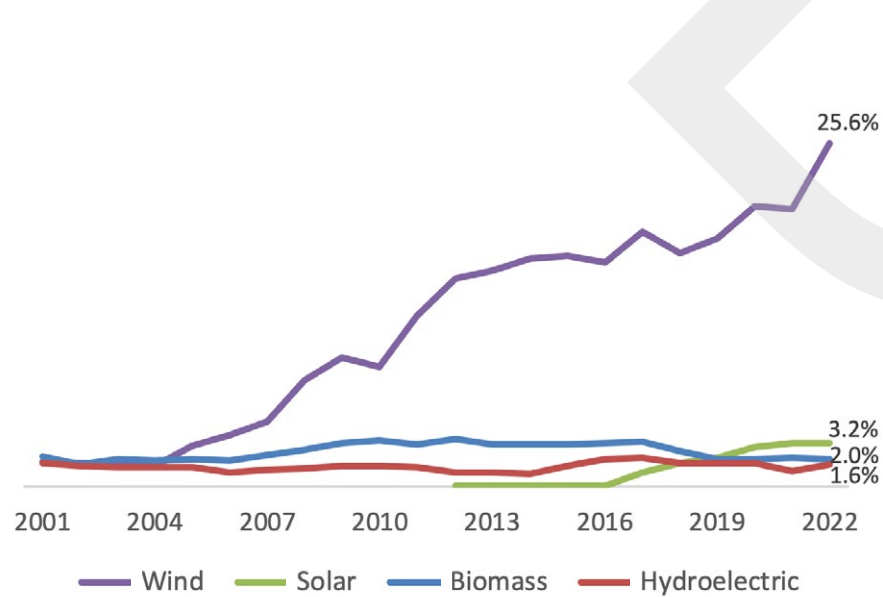
Carbon-free electricity

The trend currently shows carbon-free electricity generation steadily increasing year over year. Due to renewable energy generation, this trend is expected to accelerate in the coming years.

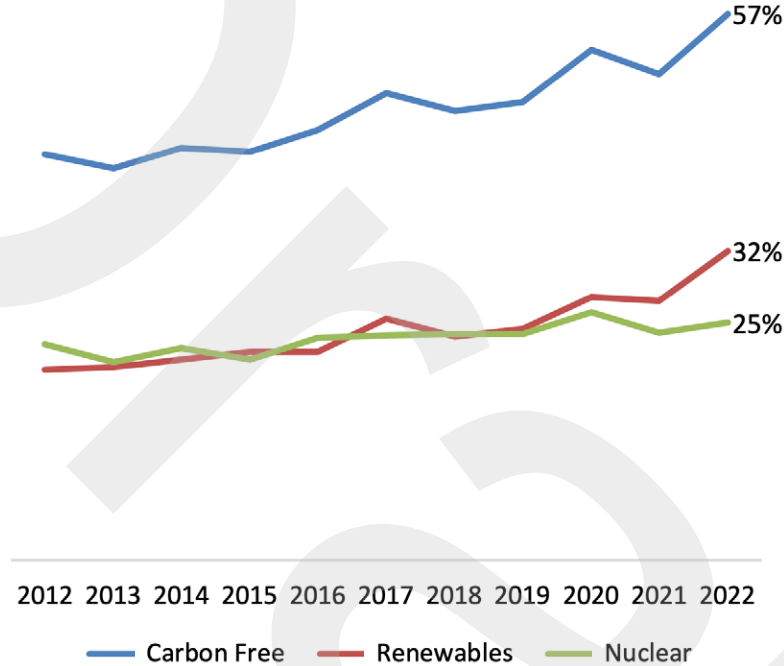
Status **GOOD**

Trend   

Renewable electricity generation



Carbon-free electricity generation



A shift towards more renewable energy

Electricity generation in Minnesota has rapidly decarbonized over the last 20 years. In the early 2000s, generation was primarily provided by coal power plants; today, carbon-free sources of electricity make up most of the generation. Most of the increase in carbon-free electricity generation has come from the increased generation capacity of renewable sources of electricity, with wind being the primary driver. Solar generation has increased in recent years and the trend is expected to accelerate, although solar currently lags well behind wind generation as a source of renewable electricity.

Making sure Minnesota stays on track

Utilities will need to aggressively expand renewable generation capacity to meet the 2040 carbon-free electricity standard. Minnesota will need to see a steady increase in the amount of electricity generated by carbon free sources each year. The share of electricity from carbon-free sources needs to increase by at least 2.6 percentage points each year for Minnesota to reach that goal.

Solar rising: Renewable generation in Minnesota has nearly doubled since 2011. Solar generation in Minnesota has increased by over 300% since 2017.

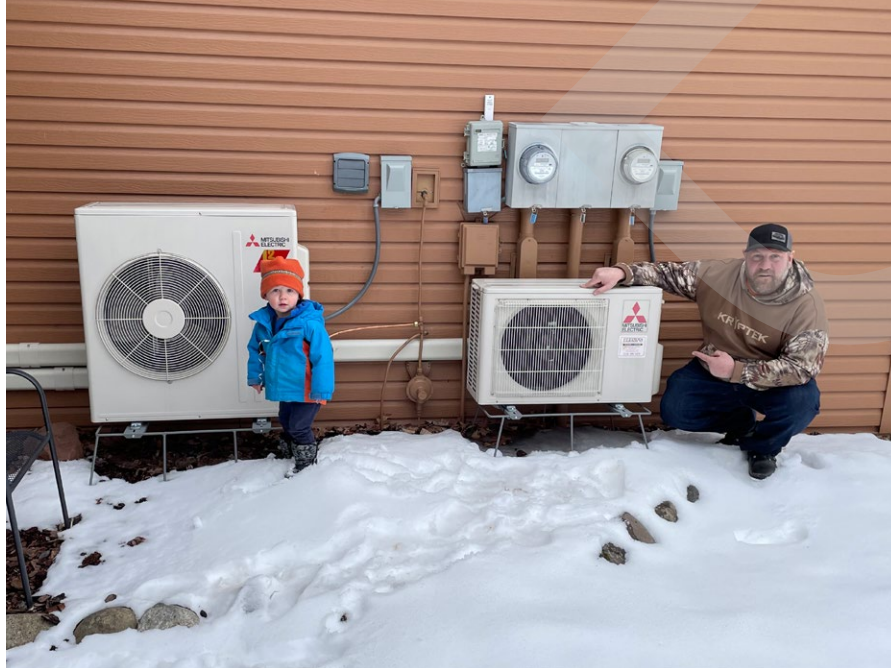
Minnesota is above average in renewable energy production. Nationwide, renewable energy makes up only about 21% of electricity generation. Minnesota gets 26% of its electricity generation from wind alone.

Household heating

From 2020 to 2021, Minnesota saw only a slight increase in the share of households that reported using electricity to heat their homes. Although the current rate of change is relatively slow, the long-term trend is encouraging due to incentives.

Status **FAIR**

Trend

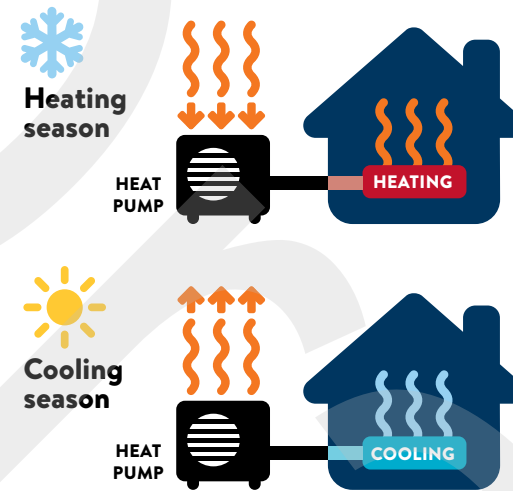


Air-source heat pumps, which use electricity, will likely become a major mode of residential heating in Minnesota.

Staying warm

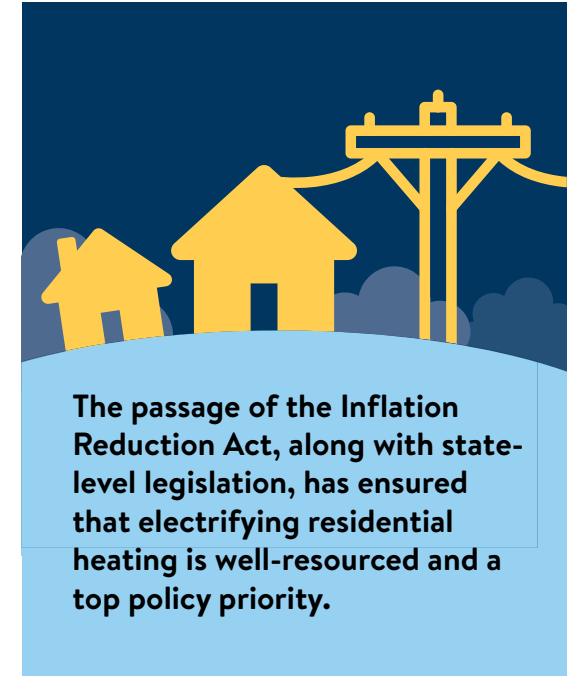
Residential heating using energy sources such as natural gas and propane release carbon into the air and are prone to price fluctuations that hurt consumers. Household heating is one of Minnesota’s biggest residential energy demands, and with the passage of the Inflation Reduction Act, analysts are expecting a shift away from heating homes with natural gas and towards using electricity to heat homes, specifically with the use of heat pumps. We are tracking heating with electricity to gauge heat pump adoption. The assumption is that people are choosing efficient heat pumps over inefficient electric heating technology.

Air-source heat pumps use electricity to heat and cool.



- They work like air conditioners to cool, and work in reverse to move warmth from outside air into your home to heat.
- They heat homes up to three times more efficiently than forced air and electric resistance heating systems.
- Works for homes with and without ductwork.
- Set it and forget it. Air-source heat pumps operate most efficiently without thermostat setbacks.
- They are a good option when adding or upgrading air conditioning.

Heat pumps **move** heat and that takes far less energy than conventional heating systems which **create** heat. You can even extract heat from really cold air!



The passage of the Inflation Reduction Act, along with state-level legislation, has ensured that electrifying residential heating is well-resourced and a top policy priority.

More efficient heating (and cooling)

Heat pumps are energy efficient alternatives to furnaces and air conditioners. According to the U.S. Department of Energy, they can provide one and a half to three times more heat energy to a home than the electrical energy it consumes. They provide both heating and cooling and make an ideal option for Minnesotans since they’re able to perform in colder climates. They work by using electricity to transfer energy between indoor and outdoor air. Because they move heat rather than generate heat, these systems typically consume less electricity than electric-resistance heating systems. In cooling mode, heat pumps function like an air conditioner, moving heat from inside to outside the home. In heating mode, the refrigerant flow is reversed to extract low-temperature heat from outdoors and deliver concentrated high-temperature heat to the home.

Opportunities ahead

With electricity generation relying more on renewable sources, electrification presents an opportunity for residential heating to be less carbon intensive. Minnesota’s Climate Action Framework calls for the development of incentives to encourage adoption of electric heating technologies, such as heat pumps. Implementing the Inflation Reduction Act and the Minnesota Residential Heat Pump Rebate Program will help residents with the upfront costs associated to the changes of their home heating equipment.

Action: Air and climate

Sustainable materials management

Status **FAIR**

Trend

Minnesota is prioritizing a shift to more sustainable materials management. Although the recycling rate has slightly decreased in the last few years, efforts have been made to increase waste reduction and reuse since they offer more greenhouse gas emissions saving than recycling.

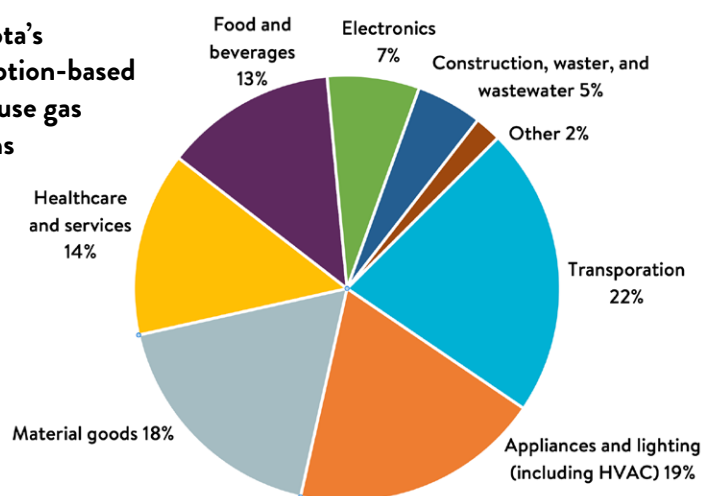
Sustainable materials management (SMM) is a systematic approach to minimizing the total environmental and human health impacts of products and materials over their entire life cycles. SMM includes traditional solid waste management, but prioritizes actions aimed at more sustainable consumption, waste reduction, and material reuse. This broader focus ensures policies and actions account for more than diversion and responsible disposal, such as conserving natural resources and reducing toxicity and climate pollution generated throughout a material's life cycle.”

Increasing recycling and reuse are important but are only one part of improving materials management. The consumption-based emissions inventory (CBEI) is a method used to estimate greenhouse gas emissions associated with the everyday goods and services people buy. This approach accounts for emissions through a product or service's entire life cycle, regardless of whether those emissions were originally generated in Minnesota, including production/manufacturing, distribution, use, and disposal. Minnesota's CBEI identifies that most climate impacts are from the production and use of goods and materials, not the disposal.

More efforts are needed to reuse and repair

Minnesota is one of the leaders in the country on managing waste, but the CBEI points out the importance of focusing on efforts to reduce and reuse materials. In addition to focusing on reducing climate pollution from industry and electricity generation sectors, everyday Minnesotans can mitigate climate change through individual actions. For example, increasing repair and reuse to double the useful life of Minnesotans' clothing and household furnishings and supplies would be equivalent to increasing statewide vehicle efficiency by 15%.

Minnesota's consumption-based greenhouse gas emissions



Minnesota's 2030 recycling goals

Individuals and organizations play a big role in reaching our goals. We need to prevent waste, increase reuse, target large commercial waste generators, recover more organics and recyclables, and focus on creating markets for large quantities of material that is currently disposed.

Minnesota has had county-based recycling goals since 1989. Each Greater Minnesota county (outside of the seven-county Metro Area) must recycle a minimum of 35% (by weight) of their total solid waste generation. Goals for the Twin Cities metropolitan area are higher; by December 2030, counties in this area are expected to recycle 75% of the solid waste they generate. Greater Minnesota is currently exceeding its recycling goal with 40.2%. For this measure, recycling includes the reuse of materials.

While Minnesota's statewide recycling rate declined in 2021, the greenhouse gas emissions from materials management also went down. Reusing materials may reduce the recycling rate when there are fewer materials to recycle, but – since greenhouse gas emissions are produced throughout a product's life cycle and are typically higher in the production/manufacturing stage – even with less recycling, increased reuse (and better reuse reporting) results in emissions reductions. Reusing materials means you can avoid the emissions associated with the production of a new material. Recycling offers greenhouse gas emission savings, but reuse offers more; less consumption would save even more greenhouse gases.

Materials management and climate

The way we manage materials – from production to waste management – impacts key environmental metrics like climate pollution. In 2022, 4.4 million metric tons CO₂-equivalent was saved because of Minnesota's materials management decisions. Tracking environmental impacts, like greenhouse emissions, in addition to weight-based metrics, like recycling rates, highlights opportunities for more sustainable materials and consumption choices.

Statewide, materials management decisions reduced climate pollution equivalent to removing 900,000 passenger vehicles from Minnesota roads.

45.2% statewide recycling rate
 49.1% Twin Cities Metro Area
 40.2% Greater Minnesota



54.1% is not recycled
 Waste-to-energy 18%
 Landfill 36.1%



2021 SCORE data

Success stories

Reuse in Minnesota is estimated to create between \$3.1 and \$4.7 billion in revenue per year, creating between 36,000 and 54,000 jobs per year.

Recycling contributes over 27,000 direct jobs at Minnesota companies using recycled materials in manufacturing and generating almost \$8 billion in wages.

Source: Reuse Minnesota

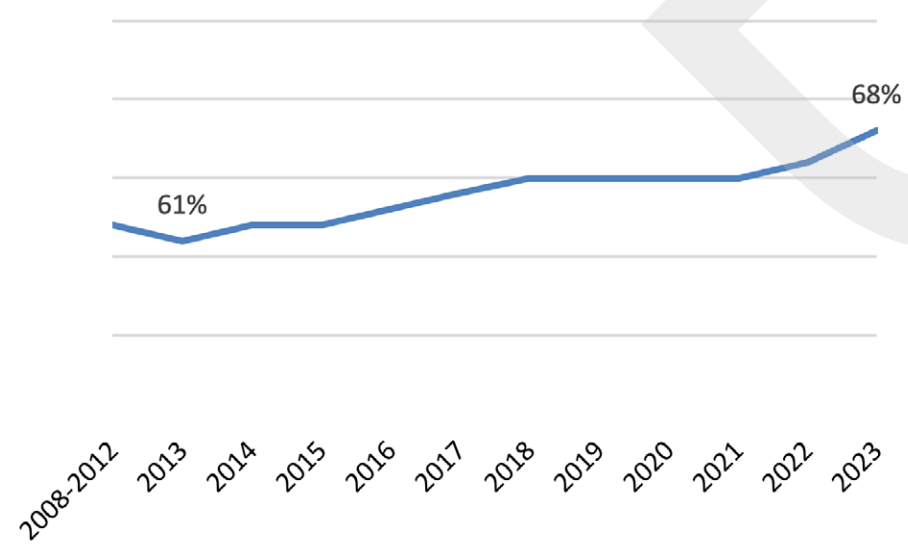
Condition: Water and land Lakes and rivers

Minnesota's lake and streams are showing improvements. While still not attaining our goals, lakes and streams are showing improving trends in water quality over the last 10-year period.

Status **FAIR**

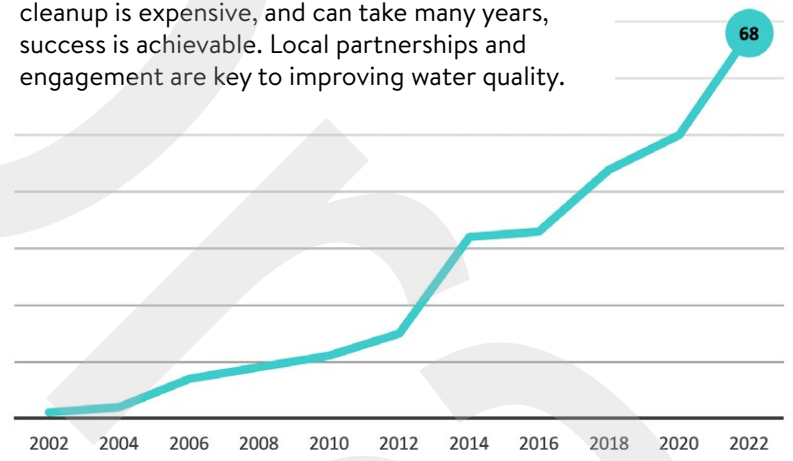
Trend ↗ → ↻

Percentage of lakes meeting water quality standards for recreation (10-year average)

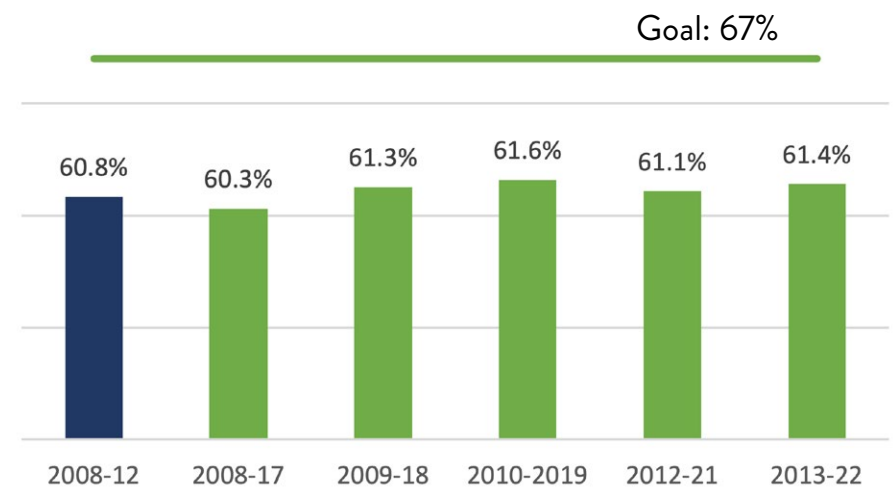


Total lakes and streams restored

Since 2002, 68 waters have been restored. While cleanup is expensive, and can take many years, success is achievable. Local partnerships and engagement are key to improving water quality.



Percentage of healthy streams based on fish population



What's affecting our lakes and streams?

Lakes are evaluated based on water quality factors that influence whether they are enjoyable for recreation such as swimming – the water clarity and amount of nutrients and algae. Excess nutrients (often tied to excess sediment) harm recreational use in lakes by leading to excess algal growth. Higher levels of phosphorus can lead to algae production, which can cause nuisance scum conditions, and the potential for toxic blooms that can sicken humans and sicken or kill pets that drink the water. High levels of nutrients can also lead to large swings in oxygen levels, which stress the fish and insect communities. The health of streams is evaluated based on whether they support a healthy fish and bug community. Excess sediment and nutrients, toxic chemicals (chloride, pesticides), degraded habitat, altered flow, and loss of stream connectivity can all contribute to losses of healthy aquatic communities.

Plans to protect our waters

Water is central to Minnesota's economy and way of life. Supported by the Clean Water Fund, Minnesota has a strong program to monitor our waters and assess how our goals are being met. As of 2022, each of Minnesota's 80 watersheds have been monitored and assessed, giving us a baseline picture of water quality statewide.

The Clean Water Fund Roadmap lays out a path towards achieving water quality goals. **For the 25-year life of the Clean Water Land and Legacy Amendment, an improvement of 8% in swimability of lakes and 7% in fishability of streams is projected.** We need to continue to protect our waters that are meeting key goals and to restore those waters that are not. Restoring impaired waters can be an expensive and time-consuming process, and so efforts to maintain and protect aquatic resources before they are degraded are preferred. All Minnesotans can do their part in protecting and restoring waters.

Some key next steps

- Reduce sediments and nutrients for lakes and streams including continued adoption of stormwater and wastewater management technologies and increased adoption of best management practices on developed land (urban, agricultural, etc.). This includes planting buffer strips along agricultural land and along private residences with shorefront.
- Agricultural lands should be managed to reduce nutrient and sediment runoff into nearby waters. In rural areas, proper upkeep of septic systems is important to prevent leaching of nutrients into surface and groundwater.
- Continued work to strengthen local shoreland ordinances and statewide buffer initiatives will benefit the waters of the state.
- Engage local communities (neighbors, upstream watershed residents) to make sure that everybody understands how their actions contribute to the downstream problem.

Condition: Water and land

Nitrate pollution

Minnesota has abundant water resources, but there are threats to our ability to ensure safe and sufficient drinking water in some parts of the state. In some areas, particularly where there is a strong connection between the land surface and the groundwater, nitrate pollution can be a significant concern.

Status **FAIR**

Trend ↗ → ↘

Not enough information to currently determine a statewide trend.

What is nitrate?

Nitrate is a naturally occurring compound made up of nitrogen and oxygen. It moves easily in water. Nitrate occurs naturally from decomposing organic materials like plants, and animal or human wastes. It can also come from synthetic nitrogen fertilizer. Minnesota routinely monitors for nitrate in drinking water because of the potential for adverse health effects, particularly to infants, from drinking water high in nitrate.

Where is nitrate pollution mostly found?

There are naturally occurring levels of nitrate in groundwater; however, the levels resulting from natural processes are usually quite low (<3 mg/L). Nitrate becomes a concern as levels get closer to 10 mg/L, the level set as the maximum contaminant level for public water systems under the Safe Drinking Water Act and the health risk limit for Minnesota's groundwater.

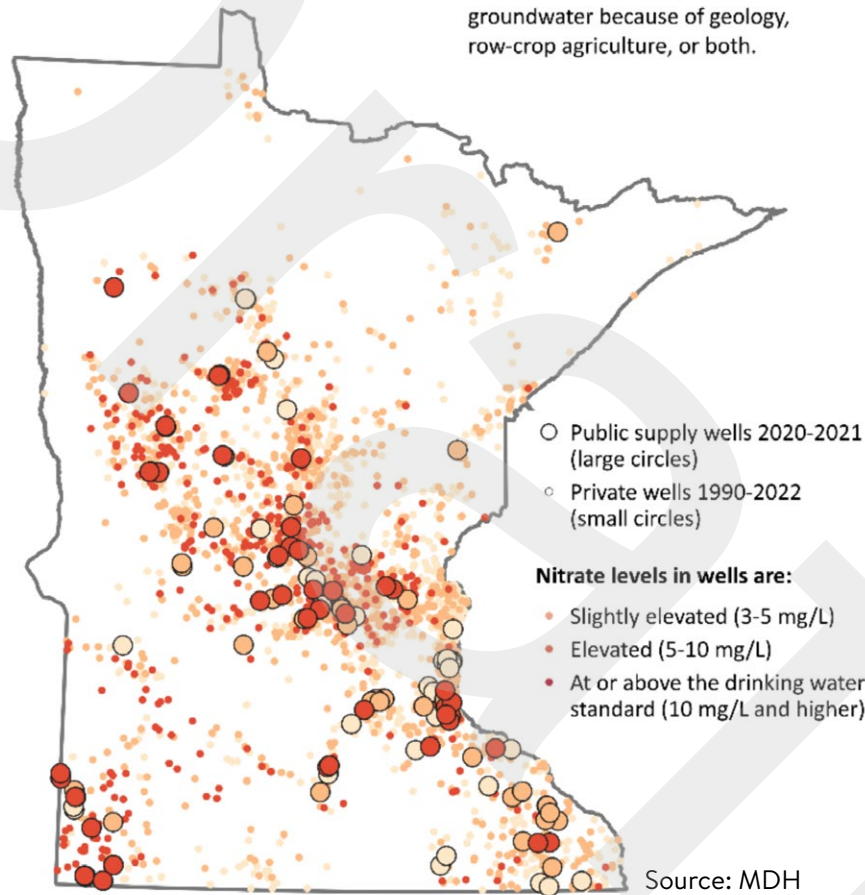
Nitrate pollution reaching levels above 10 mg/L is more commonly found in aquifers that are vulnerable to contamination from the land surface, this is often related to geology and soil type – such as shallow sandy and bedrock aquifers – and with land uses or sources that contribute nitrate pollution to the ecosystem. Septic systems, fertilizers, manure, and sanitary landfills are examples of sources of nitrate pollution.

Drinking water wells in areas with heavy row crop agriculture and vulnerable groundwater, as well as very shallow wells and wells that do not comply with the Minnesota Well Construction Code, have an increased risk of higher nitrate levels.

Nitrate detected in drinking water wells

(Prior to treatment)

Elevated nitrate levels are a concern across the state, and some areas - the areas with many dots - are more vulnerable to nitrate contamination in groundwater because of geology, row-crop agriculture, or both.



- Nitrate is one of the groundwater contaminants that most often exceeds the drinking water standard set to protect human health.
- Aquifers in certain areas of the state are more vulnerable to high nitrate levels in both public water supply and private wells.

Concerns

- Elevated levels of nitrate are an acute concern for babies fed water or formula made with tap water high in nitrate. Consuming too much nitrate can affect how blood carries oxygen and can cause methemoglobinemia (known as blue baby syndrome).
- A growing body of literature indicates potential associations between nitrate/nitrite exposure and other health effects such as increased heart rate, nausea, headaches, and abdominal cramps. Some studies also suggest an increased risk of cancer, especially gastric cancer, associated with dietary nitrate/nitrite exposure, but there is not yet scientific consensus on this question.



Monitoring

Most of Minnesota gets their drinking water from groundwater. Public water supply wells and private wells have different protections and are monitored differently.

Private wells

The Minnesota Department of Agriculture’s (MDA) manages private well monitoring networks in southeast and central Minnesota to determine nitrate concentrations and trends in these two vulnerable areas. MDA also designed a Township Testing Program in areas more vulnerable to nitrate in groundwater to determine nitrate conditions in private wells. From 2013-2019, MDA conducted a significant sampling effort that resulted in nearly 33,000 private wells voluntarily being tested for nitrate in 344 townships. Those results indicated:

In areas where groundwater is vulnerable to high nitrate levels:

- 41% of townships tested (143) had 10% or more of private wells with levels exceeding the nitrate Health Risk Limit of 10 mg/L.
- Statewide, 9.1% of private wells (2,925) overall have levels exceeding the nitrate Health Risk Limit. These initial results reflect nitrate concentrations in private well drinking water regardless of nitrogen sources, or well construction.
- These values are highly variable by individual townships.
- Statewide, 77% of private wells tested have low levels of nitrate (< 3 mg/L).

Public wells

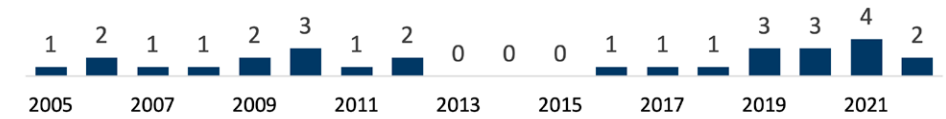
Minnesota Department of Health (MDH) works with public water systems to test for nitrate in drinking water at least annually. Public water systems are subject to the Safe Drinking Water Act. The U.S. Environmental Protection Agency sets performance goals for Safe Drinking Water Act compliance, including a goal that 95% of public water systems meet health-based standards. Minnesota consistently exceeds this performance goal and aims to have a decreasing trend of nitrate exceedances over time.

The bar graphs shows the number of community and noncommunity public water systems that have exceeded the maximum contaminant level for nitrate. There are approximately 1,000 community water systems and 6,000 noncommunity water systems in Minnesota. In 2022, the nitrate standard was met by 99.8% of community water systems (962 out of 964) and 99.8% of noncommunity water systems (5,674 out of 5,685).

Department of Agriculture staff sampling a private well.

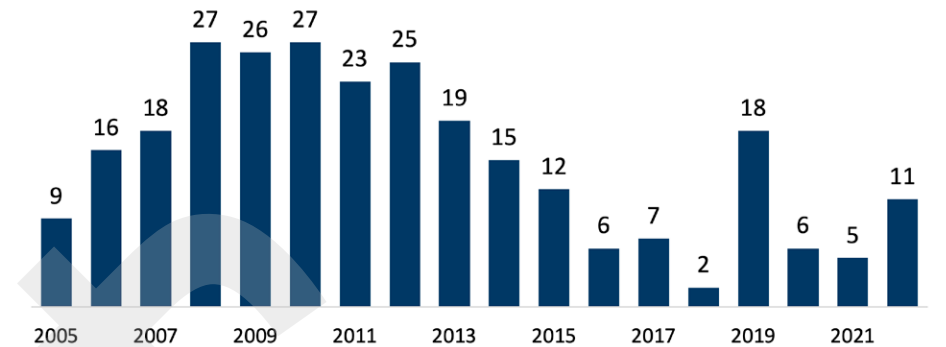


Nitrate violations, community water systems



Community water systems provide water to the public in their primary living space —where people live and sleep.

Nitrate violations, non-community water systems



Non-community water systems provide water to the public in places other than their homes, where people work, gather and play.

Test your water.
The Minnesota Department of Health recommends that water from a private well be tested for:

			
Coliform bacteria every year.	Nitrate every couple years.	Arsenic and lead at least once.	Manganese before a baby drinks it.

Managing nitrate

Public health goals: Our public health goal is for everyone, everywhere in Minnesota to have equitable access to safe and sufficient drinking water, by having zero nitrate exceedances in community and noncommunity water systems and working to ensure private wells are tested and actions are taken to address nitrate. However, nitrate levels in source water can be affected by factors outside of public water systems' and private well users' control, so it is beneficial to have achievable performance benchmarks to mark progress and trends over time.

Key actions: Minnesota has – and needs to continue to – take big steps to reduce nitrate getting into groundwater and impacting both public water supply and private drinking water wells. Key actions include those to increase fertilizer efficiency and decrease potential losses to the environment and leaching of nitrate into groundwater. Also key, are the implementation of nitrogen fertilizer best management practices (BMPs), nutrient & manure management, and implementation of practices protective of groundwater like continuous cover, low nitrogen input crops, or alternative cropping systems in targeted high-risk areas.

Implementing the Minnesota Nitrogen Fertilizer Management Plan (NFMP) and Groundwater Protection Rule

The NFMP and first in the nation Groundwater Protection Rule provide voluntary and regulatory actions to minimize the impact of nitrogen fertilizer on groundwater. These actions will help protect both private and public water supply wells. The plan relies on local teams to advise on appropriate response activities for the area and to support implementation of best practices. These teams play a key role in developing and implementing locally viable solutions to address elevated nitrate in the public water supply well(s) or local area's private wells.

- **Private wells**

Testing results from the township testing program have identified townships for implementation of voluntary actions in the NFMP, potentially including monitoring and a locally appropriate set of nitrogen fertilizer BMPS.

- **Community Water Systems**

These systems are addressed under the Groundwater Protection Rule. When community water systems have nitrate concentrations at or above 5.4 mg/L, nitrogen fertilizer best management practices are promoted, and these practices can be required if not adopted voluntarily.

- **Noncommunity water systems**

MDH monitors trends in nitrate levels over time. When nitrate testing results for noncommunity water systems begin to show increasing trends over time, but are still below the federal standard, MDH staff discuss corrective steps and potential proactive actions with the system operators.

Source water and well protection

Public Source water protection

Some public water systems have surrounding surface and subsurface areas (known as the Drinking Water Supply Management Areas) that are geologically vulnerable with agricultural land uses, which can make their drinking water supply wells susceptible to nitrate contamination. MDH supports these systems through source water protection planning. MDH helps systems develop and implement plans with site-specific, collaborative activities to address drinking water threats, including sources of nitrate pollution. MDH has also established financial and technical assistance programs with partners that public water systems can leverage to address nitrate contamination, such as Source Water Protection Grants.

Special focus on small and noncommunity systems

- Many noncommunity water systems are small businesses or organizations that may be limited in their technical and financial capacities to take on water supply projects.
- Source Water Protection Grants, made possible through the Clean Water Fund, have helped noncommunity water systems resolve nitrate issues by constructing new wells, installing treatment systems, and addressing potential sources of contamination.
- Source Water Protection Grants allow them to take actions that otherwise may not easily or quickly happen, resulting in improved water quality and protection for consumers. Since their inception (2010), grants have addressed numerous critical water issues including nitrate contamination, and resolved instances where the drinking water standards for nitrate were not met.

Private well information and protection

- Private wells must be tested for nitrate when they are first constructed; after construction, testing is largely voluntary.
- Actions need to be taken to prevent contamination in private wells, including ensuring that wells are properly located to prevent contamination from a point source and that they meet well code.

The Minnesota Agricultural Water Quality Certification Program

This voluntary program is an opportunity for farmers and agricultural landowners to take the lead in implementing conservation practices that protect groundwater and reduce nutrient and sediment runoff into nearby waters. Since 2014, the program has worked with over 1,415 farmers to implement conservation practices and commit to sustainability. The program has enrolled over a million acres, saved 282 million lbs. of soil per year, and reduced nitrogen losses on farms up to 49%. Certified farms have also been verified to have consistently higher net income compared to non-certified farms. Executive Order 19-12 mandates that BWSR, DNR, MDA and MPCA are to incorporate and promote this program through other watershed approaches and programs.



Condition: Water and land

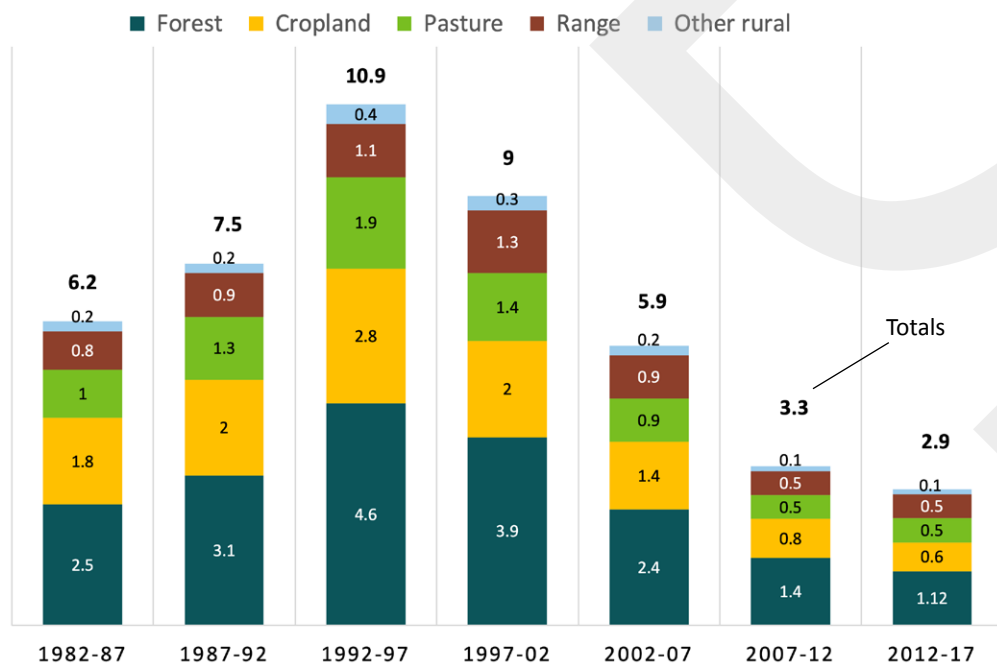
Land conversion

As our population and economy grows, we need room for housing, businesses, recreation, shopping, transportation, government services, and more. Since 2002, the rate at which farmland, forest, wetlands, and wildlife habitat is converted to urban and suburban development has decreased.

Status **FAIR**

Trend

Rural sources of newly developed land (millions of acres)



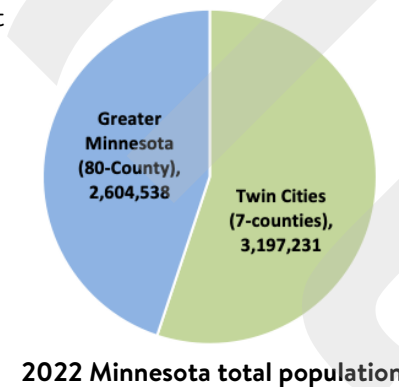
Population and land use

Meeting the needs of a growing population is one of the strongest drivers for land conversion. From 2010 to the present, Minnesota's population grew by 7.6%, from about 5.3 to over 5.7 million. By 2050, the state's population is projected to be almost 6.8 million.

As our population and economy grows, we need room for housing, businesses, recreation, shopping, transportation, government services, and more. Additionally, the state is striving to achieve the Minnesota Renewable Energy Standard that includes a shift toward solar and wind as renewable sources of electricity. In the process, we convert farm, forested, and natural lands, as well as other open areas, to developed lands. By doing so, we lose irreplaceable farmland, natural resources, and risk damaging ecosystems.

Development patterns across the state have been changing. The amount of land per new person and per new household has fallen, while the population continues to grow. Reuse and cleanup of existing contaminated sites, reuse of existing buildings, smaller residential lots, and more apartments and other multi-family dwellings have contributed to this more efficient land use, and reduced the rate we impact our natural areas and farmland.

The benefits of efficient land use include improved accessibility, less costly utilities, public services, and transportation, open space preservation, and less pollution and impervious surfaces (such as pavement).



2022 Minnesota total population

Successful land conversion

The Metropolitan Regional Parks and Trails System offers large-scale, natural resource-based recreation opportunities to all Minnesotans. With 56 regional park and park reserves totaling more than 54,000 acres, over 400 miles of interconnected regional trails, and 8 special recreation features, the regional system provides a wealth of opportunities for recreation as well as protects significant green space and wildlife habitat.

The Metropolitan Council's Park Acquisition Opportunity Fund grant program provides funding for the ten Regional Park Implementing Agencies to acquire park and trail inholdings that are part of the park or trail's long-range plan. Many of the parcels acquired have ecological significance, from prairies and forests to wetlands and shoreline protection. Other parcels may be acquired as trail easements to build out the regional trail system. Funding for the Park Acquisition Opportunity Fund comes from the Parks and Trails Legacy Fund, the Environment and Natural Resources Trust Fund, and the Metropolitan Council.

A recent acquisition for the Minneapolis Park and Recreation Board added land to the Minneapolis Chain of Lakes Regional Park, protecting a view of Lake Bde Maka Ska.



The effects of land loss

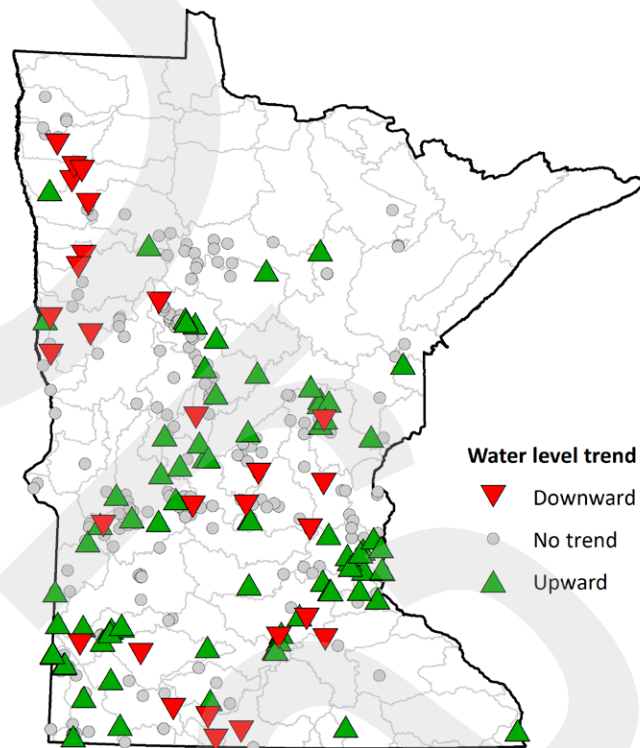
Problems can arise when land is converted from one land use type to another. For example, loss of forest land can reduce carbon sequestration; loss of farmland will often lead to the transition of other land cover types (marginal land or Conservation Reserve Program land) into active farmland; loss of wetlands to agriculture or urbanization can lead to water quantity and quality impacts to surface water systems; and alteration of natural lands by power line and pipeline expansion can lead to natural habitat disruption or loss. We are focusing our efforts to reduce the amount of land conversion and increase preservation and protection of the most affected land cover types from conversion.

Condition: Water and land Water sustainability

Minnesota is at risk of depleting its water supplies in several areas of the state. Sufficient water supply and sustainable water management are vital to our public health, economy, and ecosystems. Despite increases in water use in recent drought years, overall water use per person is decreasing.

Status **GOOD**

Trend ↻ ↻ ↻



Groundwater level trends

Statewide, only 7% of the wells analyzed show a downward trend for the period between 2003-2022. This is an improvement over the number of wells exhibiting downward trends between 1997-2016 (19%). Water levels in some western Minnesota wells have highlighted local downward trends, while groundwater levels in the metro area illustrated an upward trend. Hydrologists are actively investigating potential causes for the downward trends documented in the parts of the state.

About 50% of Minnesota's rivers have been altered.

About 50% of historic wetlands have been drained.

Less storage means less resilience to shifts in precipitation.



Learning more about our groundwater

Over the past 10 years, we've received new funding to continue expanding the state's monitoring well system to learn more about our groundwater.

Sustainable water use

Water is our most precious resource, but it's often taken for granted in the "Land of 10,000 Lakes". Although we see a lot of water on the surface, much of what we use in our homes, industries, and agriculture is from groundwater.

Minnesota appears to have a good supply of water, but increasing demand from domestic, agricultural, and industrial users can strain water resources.

When it is dry, people use more water. Drought conditions increase water use that can result in well interferences, water use conflicts, or impacts to aquatic ecology. In some areas, groundwater use has caused aquifer water levels to decline. If this overuse continues, groundwater may not be available as needed in the future.

The Department of Natural Resources is assessing the impacts of groundwater use in areas with historical concerns. They are collaborating with large water users and conducting long-term planning to ensure the sustainability of aquifer resources.

The future of sustainable water management

Minnesota has a rich abundance of lakes and rivers, but these surface waters are impacted by our growing needs. By accommodating land use such as our expanding network of roads, cities, industry, and agriculture, we have decreased the amount of water stored naturally on the landscape and the connectivity of surface waters. We will need to manage our connected surface and groundwater resources to ensure that water can cycle sustainably, replenishing water needed for our uses while supporting ecological health and resilience into the future.

Without places to hold water, Minnesota is more vulnerable to both extreme rainfall and extreme drought. During heavy rainfall, there is more water running off and reaching the stream, raising flood water levels. During a drought, there is less water stored in places that would slowly replenish our surface and groundwater. Healthy rivers and lakes have floodplains, shorelines and channels that connect important habitats and protect our communities from extremes in rainfall.

Public land protection and management

The State of Minnesota manages public lands to maintain habitat and water quality, protect the state’s ecological diversity, provide recreational opportunities, promote sustainable economic development.

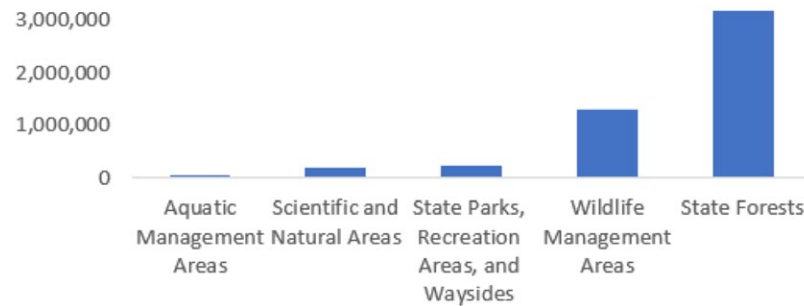
Status **GOOD**

Trend

Maintaining our public lands

Minnesota acquires and manages many types of public lands to address issues stemming from trends in land use change, spread of invasive species, pollution, and a changing climate to sustain the places and experiences we value. We use a series of six goals to evaluate and prioritize acquisition projects that maintain habitat and water quality, protect the state’s ecological diversity, provide recreational opportunities, and promote sustainable economic development. The intent is to prioritize acquisitions that meet multiple Strategic Land Asset Management (SLAM) goals, to leverage and magnify the scope and impact of land acquisition efforts overall.

Acres of public land by DNR management type (2022)



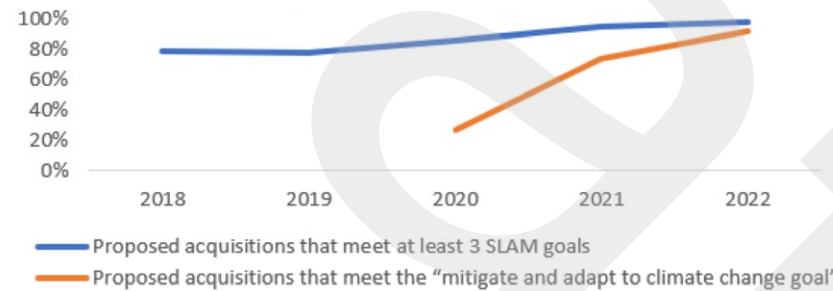
Strategic land asset management goals

- Increase close-to-home outdoor recreation opportunities
- Protect significant and/or rare natural resources
- Protect and restore water resources
- Mitigate and adapt to climate change
- Expand access to existing land holdings
- Consolidate land ownership, creating larger, contiguous blocks

Goal: At least 80% of proposed land acquisitions meet three or more of these goals.

Land acquisitions meeting SLAM goals

(SLAM = Strategic Land Asset Management)



Impacts to the land and efforts to protect it

Minnesota is known for its abundant water, but this precious resource is not unlimited and increasing demands for use, as well as water quality degradation, are impacting the long-term sustainability of our water. Invasive species are spreading, threatening native species, and adversely affecting both recreation and natural resource dependent businesses. Prairie, grassland, and wetland habitats are declining, negatively impacting native species and water resources.

Strategic Land Asset Management (SLAM) goals are used to ensure that land acquisitions contribute toward protecting water quality, reducing the spread of invasive species, and protecting prairie, grasslands, and wetland habitats to address the increasing pressures on our natural lands. Our goal is to prioritize acquisitions that meet most of our SLAM goals, increasing the impact of our land conservation activity.

Current trends (past five years)

Stable Statewide, our land portfolio has changed by less than one tenth of a percent.

Acquiring land On average, the state acquires about 9,000 acres of land per year, statewide.

69% of these were adjacent to existing DNR complexes, which increases land access, management efficiency, and conservation impact.

65% of these occurred in counties where 5% or less of the land is publicly owned.

Selling On average, the state sells 508 acres of land per year.

We’ve exchanged 773 acres out of state ownership for 734 acres received into state ownership (land exchanges are value for value, within statutory parameters, not acre for acre).

Land in Minnesota by ownership type

11%	5.6 million acres are state-owned, DNR managed lands
7%	3.8 million acres are federally owned lands
6%	2.8 million acres are state-owned, county-administered tax-forfeited lands
2%	0.7 million acres are Tribal owned lands
1%	0.3 million acres are county owned lands
70%	37.8 million is privately owned

Climate change goals

In 2022, 92% of proposed land acquisitions met the state’s goal, up from 74% in the previous year. Acquisitions meet this goal by ensuring lands maintain or increase carbon storage, carbon sequestration or landscape resiliency; create larger blocks of habitat; improve riparian or terrestrial connectivity, or protect specific climate resilient, high biodiversity areas.

DRAFT

mn MINNESOTA

ENVIRONMENTAL QUALITY BOARD

www.eqb.state.mn.us

Air pollution		Condition: Air and climate
<p>This metric is fair because the number of days that air quality has been “green” over the past five years has remained the same. The downward trend in this metric is due to more frequent occurrence of events that trigger poor air quality as we continue to see impacts from climate change. The Air Quality Index (AQI) was developed by the EPA to provide a simple, uniform way to report daily air quality conditions. Minnesota AQI numbers are determined by measurements of six pollutants: fine particles (PM2.5), particulate matter (PM10), ground-level ozone (O3), sulfur dioxide (SO2), nitrogen dioxide (NO2), and carbon monoxide (CO). The pollutants that most commonly influence the daily AQI, however, are fine particles and ozone. The AQI categories developed by the EPA are green (good), yellow (moderate), orange (unhealthy for sensitive groups or USG), red (unhealthy), and purple (very unhealthy).</p>		
GOOD	FAIR	POOR
5-year trend of statewide green AQI days increasing.	5-year trend of statewide green AQI days steady.	5-year trend of statewide green AQI days decreasing.
UPWARDS TREND	STEADY TREND	DOWNWARDS TREND
		Fewer green AQI days.

Asthma		Condition: Air and climate
<p>This metric previously looked at the rates of Minnesota asthma ER visits within three age groups; 0-4, 5-64, and 65+ and was compared against the Healthy People 2020 national target rates for asthma ER visits. However, the new Healthy People 2030 (HP 2030) national target rates are only for two age groups, 0 to 4 and 5 & older. Therefore, this metric for asthma ER visits is adjusted to fit the new HP 2030 goals.</p>		
GOOD	FAIR	POOR
Meeting 2 age group targets	Meeting 1 age group target	Meeting 0 age group targets
UPWARDS TREND	STEADY TREND	DOWNWARDS TREND
Meeting more age group targets than previous year	Meeting the same number of age group targets as previous year	Meeting fewer age group targets than previous year

Heat and rainfall		Condition: Air and climate
<p>In Minnesota, our trends towards warmer years are strongly influenced by winter, which is warming 4 times faster than summer. Winter nights are warming fastest of all, as represented by increases in average daily minimum (or “low”) temperatures between December and February. This metric represents Minnesota’s most direct physical response to increased greenhouse gas concentrations.</p>		
GOOD	FAIR	POOR
1896-2023 statewide winter low temperatures either not changing or decreasing (indicating that nighttime winter warming has stopped or been reversed)	1896-2023 statewide winter low temperatures increasing by less than 0.2° F per decade	1896-2023 statewide winter low temperatures increasing by average rate of at least 0.2° F per decade
UPWARDS TREND	STEADY TREND	DOWNWARDS TREND
The lack of any upward trend would suggest there is no long-term warming	Smaller upward trends generally are not	Long-term (since 1896) increases of at least 0.2°F per decade are usually statistically significant

Reducing climate pollution		Condition: Air and climate
<p>This metric shows progress toward meeting Minnesota’s statutory GHG reduction goals. The goals use a 2005 baseline and are as follows:</p> <ul style="list-style-type: none"> (1) 15 percent by 2015; (2) 30 percent by 2025; (3) 50 percent by 2030; and (4) to net zero by 2050. <p>These statutory goals were updated in 2023 and replace those set in the Next Generation Energy Act of 2007. This measure shows trends in GHG total emissions since 2005 in comparison to the goal of reducing GHG emissions by 30% from a 2005 baseline by 2025.</p> <p>Emissions in 2020 were 23% below 2005 levels. Significant emissions reductions in electricity generation and transportation have been made. COVID-19 created unusual circumstances where emissions were reduced more than would be expected otherwise, so it is possible that years after 2020 may see an increase in GHG emissions, particularly in the transportation sector. This is why the 2023/2024 rating has been marked as yellow even though we technically meet the requirements for green. When transportation emissions return to pre-COVID levels, it is likely we will no longer meet the requirements for green.</p>		
GOOD	FAIR	POOR
Meeting or better than Next Generation Climate Act Reduction Goal	80%-99% of Next Generation Climate Act Reduction Goal	Less than 80% of Next Generation Climate Act Reduction Goal

Fuel and transportation		Condition: Air and climate
<p>This measure is evaluated against goals defined in the Next Generation Energy Act to reduce GHG emissions from 2005 levels by 15% by 2015, 30% by 2025, and 50% by 2030. Further the 2022 Minnesota Climate Action Framework set goals to reduce emissions 50% by 2030 achieve net-zero emissions by 2050.</p> <p>A good result (green) is defined as a 3-year average that is ahead of the pace needed to achieve these goals. Defining a good result in this way aligns the criterion with Minnesota’s statutory goal of reducing greenhouse gas emissions from the transportation sector. The 3-year average is used to smooth out the effects of year-to-year fluctuations due to gas prices or the economy. Three-year averages that are less than 5% behind the pace needed to meet the emission goals are scored as okay (yellow). The 5% cutoff was chosen as a reasonable threshold for significant change. The criterion uses the same 5% threshold for significant change to determine whether a year-to-year change in the 3-year average warrants an up, down, or flat arrow.</p>		
GOOD	FAIR	POOR
3-year average ahead of pace to meet Next Generation Energy Act and MN Climate Action Framework targets AND year-over-year decrease greater than target.	3-year average ahead of pace to meet Next Generation Energy Act and MN Climate Action Framework targets but year-over-year decrease less than target OR 3-year average behind pace to meet target, but year-over-year decrease greater than target.	3-year average behind pace to meet Next Generation Energy Act and MN Climate Action Framework targets and year-over-year decrease less than target.
UPWARDS TREND	STEADY TREND	DOWNWARDS TREND
Fuel use decreases by more than the reduction target.	Fuel use decreases by less than the reduction target.	Fuel use increases.

Carbon-Free electricity		Condition: Air and climate
<p>In order to meet the 2040 carbon free standard, Minnesota will need to see a steady increase in the amount of electricity generated by carbon free sources each year. In the past there have been minor fluctuations up and down that aren't reflective of the overall trend, but with the 2040 carbon-free electricity standard, the share of electricity from carbon-free sources needs to increase by at least 2.6 percentage points each year for Minnesota to reach that goal. The trend currently shows carbon-free electricity generation steadily increasing year over year. This trend is expected to accelerate in the coming years. Renewable generation is driving this increase.</p>		
GOOD	FAIR	POOR
Share of electricity generated from carbon free sources is up by more than 2.6 percentage points from the previous year.	Share of electricity generated from carbon free sources is greater than 0 but not at 2.6 percentage points.	Share of electricity generated from carbon free sources has declined from the previous year.
UPWARDS TREND	STEADY TREND	DOWNWARDS TREND
Carbon-free electricity is expected to accelerate.		

Household heating		Condition: Air and climate
<p>Household heating is one of Minnesota's biggest residential energy demands, and with the passage of the Inflation Reduction Act, analysts are expecting a shift away from heating homes with natural gas and towards using electricity to heat homes, specifically with the use of heat pumps. While some electric-heating technologies are not necessarily more efficient than heating with natural gas we expect future increases in households using electricity to heat their homes will come from heat pump adoption. If 100% of Minnesota households were to heat their homes using electricity by 2050, then the share of households that heat using electricity would need to increase by roughly 2.8 percentage points each year between 2021 (the year of the most recent Census estimates) and 2050.</p>		
GOOD	FAIR	POOR
The share of households that report heating with electricity has increased from the previous year by at least 2.8 percentage points.	The share of households that report heating with electricity is greater than 0 but is less than 2.8 percentage points.	The share of households that report heating with electricity decreased.
UPWARDS TREND	STEADY TREND	DOWNWARDS TREND
Electric heating is expected to increase.		

Sustainable materials management		Condition: Air and climate
<p>In 1989, Minnesota legislation set county recycling goals. Each Greater Minnesota county (outside of the seven-county Metro Area) must recycle a minimum of 35% by weight of total solid waste generation. The 2014 Legislature increased the recycling goal for counties in the seven-county metro to the following: by December 2030, counties in the Twin Cities metropolitan area will be required to recycle 75% of the solid waste they generate. Reuse is included in statutory recycling definitions. Since 2017, recycling and reuse has decreased.</p>		
GOOD	FAIR	POOR
≥ 48.6% Recycling & Reuse	44.5-48.5% Recycling & Reuse	≤ 44.4% Recycling & Reuse
UPWARDS TREND	STEADY TREND	DOWNWARDS TREND
Recycling and Organics management rates are on track to meet goals.	Recycling and Organics management rates are at or above historical levels but are not on track to meet goals.	Recycling and Organics management rates are below historical levels.

Lakes and rivers		Condition: Water and land	
<p>State and national goals for the Clean Water Act are to have all waters be fishable and swimmable (100% attainment). In Minnesota, the surrogate for swimmable in lakes is analogous to the trophic state – amount of nutrients, amount of algae, and how clear the water is and the surrogate for fishable instreams is aquatic life health – that rivers and streams support a healthy fish and macroinvertebrate (bug) community. The Clean Water Fund Roadmap lays out a path towards achieving the attainment desired; setting the pace of expected progress, given climatic, economic, and social shifts, rates of implementation of Best Management Practices, and ease with which waters can be restored. For the 25-year life of the Clean Water Land and Legacy Amendment, an improvement of 8% in swimability of lakes and 7% in fishability of streams is projected.</p>			
GOOD	FAIR	POOR	
Greater than 60% lakes and streams support swimming and fishing.	40 to 60% of lakes and streams support swimming and fishing.	Less than 40% of lakes and streams support swimming and fishing.	
UPWARDS TREND	STEADY TREND	DOWNWARDS TREND	
Lakes and streams show improving trends in water quality over the last 10 years.			

Nitrate (Public wells)		Condition: Water and land	
<p>These are the number of community and noncommunity public water systems that exceed the Maximum Contaminant Level (MCL) for nitrate under the Safe Drinking Water Act. The MCL is 10 mg/L. The U.S. Environmental Protection Agency sets performance goals for Safe Drinking Water Act compliance, including a goal that 95% of public water systems meet health-based standards. Minnesota consistently exceeds this performance goal, so we also aim to have a decreasing trend of nitrate exceedances over time. Our public health goal is to have zero nitrate exceedances in community and noncommunity water systems. However, nitrate levels in source water can be affected by factors outside of public water systems' control, so it is beneficial to have achievable performance benchmarks to mark progress and trends over time.</p>			
GOOD	FAIR	POOR	
At least 95% of community and noncommunity systems are meeting the nitrate MCL and the number of nitrate exceedances is decreasing since the last reporting year (or zero).	At least 95% of community and noncommunity systems are meeting the nitrate MCL and the number of nitrate exceedances is static or increasing since the last reporting year.	Fewer than 95% of community and/or noncommunity public systems are meeting the nitrate MCL.	

Nitrate (Private wells)		Condition: Water and land	
<p>This metric is based on Minnesota Department of Agriculture's private well monitoring network for nitrate in two vulnerable areas of the state (southeast and central Minnesota) to determine nitrate concentrations and trends. In many areas, drinking water aquifers are not vulnerable to surficial contamination. Wells may have low levels of nitrate-nitrogen. In some areas it can be a significant concern. New local partnerships continue to be established for nitrate-nitrogen monitoring and reduction activities. The state-wide dataset does not have enough information to support a trend currently.</p>			
GOOD	FAIR	POOR	
<p>≤2% nitrate at or above the HRL in Central Sands Regional Network</p> <p>≤5% nitrate at or above the HRL in southeast regional network</p>	<p>4% at or above HRL- status in Central Sands Regional Network</p> <p>11% at or above the HRL- status in SE Regional Network</p>	<p>>4% of wells have nitrate at or above the HRL in the Central Sands Regional Network</p> <p>>11% of wells are at or above the HRL in southeast regional network</p>	

Land conversion		Condition: Water and land
<p>This metric is based on levels of land conversion and how efficiently we develop land as our population and economy grows. As our population and economy grows, we need room for housing, businesses, recreation, shopping, transportation, government services, and more. Since 2002, the rate at which farmland, forest, wetlands, and wildlife habitat is converted to urban and suburban development has decreased. There is no stated goal, but we are looking at historic trends for how to use land efficiently. We want to better understand land conversion patterns and the impact of trends.</p>		
GOOD	FAIR	POOR
Decrease in rate of land conversion.	Stable rate of land conversion.	Increase in rate of land conversion.
UPWARDS TREND	STEADY TREND	DOWNWARDS TREND
15-year trend is greater than 0.5% downward (i.e., is negative).	15-year trend is relatively flat (0.5% or less positive or negative).	15-year trend (percent change) in developed acres per 1,000 persons is greater than 0.5% upward (i.e., is positive).

Water sustainability		Condition: Water and land
<p>Annual data will be based on the previous calendar year reported water use and state population. The criteria are an indication of the overall trend in water use statewide. The impact of water use depends on the source and geographic concentration of the use which varies across the state. Specifying a goal of 1.5% reduction of generally consumptive water use is in line with the goal of reducing non-residential public water supply water use by 15% over 10 years. That goal is in line with a general goal to reduce energy use based on water use by 15% over 10 years. The broad goal is water resource sustainability. Public water suppliers are directed to achieve the objectives: 1.5% annual water use reduction of non-residential consumption and 75 gallons per capita, per day residential water use. There are not parallel objectives in other classes of appropriations.</p>		
GOOD	FAIR	POOR
Decreasing per capita water consumption – exceeding 1.5 percent per year.	Per capital water consumption change between +.5% to -1.5% per year.	Per capita water consumption increasing > .5% per year.
UP ARROW	STEADY TREND	DOWN ARROW
10-year linear trend line for rolling 3-year average per capita water consumption has a negative slope of at least -500 gal.	10-year linear trend line for rolling 3-year average per capita water consumption has a slope of between 500 gal. and -500 gal.	10-year linear trend line for rolling 3-year average of per capita water consumption has a positive slope of at least 500 gal. per person

Public land protection and management		Action: Water and land
<p>DNR strives to have 80% of proposed acquisitions meet SLAM goals because we want most of our acquisitions to meet multiple acquisition goals and ensure we’re layering the benefits of acquisition. We are currently meeting these goals</p>		
GOOD	FAIR	POOR
At least 80% of proposed land acquisitions meet three or more SLAM goals.	60-80% of proposed land acquisitions meet three or more SLAM goals.	Less than 60% of proposed acquisitions meet three or more SLAM goals.
UPWARDS TREND	STEADY TREND	DOWNWARDS TREND
On track to meet goals.		

Memo

Date: February 9, 2024

To: Environmental Quality Board Members

From: Catherine Neuschler, Executive Director

RE: Strategic plan outcomes and strategies

At the January meeting, the Board had a focused conversation about draft language for an updated mission statement and options for presenting values and outcomes. The goal was to provide a foundation for a discussion in February to develop strategies to focus and direct our work over the next three to five years. This will be a large group facilitated discussion.

Mission

We are proceeding through the process using the revised mission statement that was presented at the January meeting. At that time, we discussed who we serve and in what ways. The intent of saying that the EQB's mission is to "support Minnesotans" is to be broadly inclusive of responsible government units (RGUs) making decisions in environmental review; state agencies making decisions about how to protect and enhance the environment; and individuals making decisions about participating in state and local processes and about environmental issues in their own lives.

My sense was that the Board was generally supportive of the concept of the revised mission statement, even if wording revisions might need to take place later. One potential option would be to say "The EQB's mission is to support informed decision making that protects and enhances the state's environmental quality."

Values

The Board seemed overall very supportive of calling out specific values in the strategic plan. I have carried forward the four values presented in January – collaboration, engagement, trust, and equity.

Outcomes

Much of our January discussion focused on the connection between values and outcomes and the importance of outcomes in shaping the work we undertake.

For our February discussion, we are moving forward with discussing a draft that contains four potential key outcomes.

1. The EQB fosters meaningful conversations around environmental issues.
2. The EQB supports innovative state policy development on priority and emerging environmental issues.
3. The EQB maintains and improves Minnesota's environmental review program.
4. The EQB works towards achieving environmental quality without disproportionate impacts.

The very preliminary fourth outcome was added based on the Board’s discussion of equity and that while it is an important value, it also is distinctly different than the other values in terms of its scope and what is required to move towards equity. The idea of working towards mitigation of disproportionate impact felt like a distinct path towards improved equity, separate from ensuring access to conversations and the ability to be meaningfully involved in decisions. If we move this outcome forward, it would work very closely with the first outcome to ensure we learn about and then share and disseminate information about disproportionate environmental impacts.

As you prepare for the February meeting, think about the outcomes as bigger picture or long-term goals for the EQB. They represent the work we want to do and to do well.

Strategy Development

A key goal of the strategic plan is to set forth a reasonable number of strategies that will support and lead to the identified outcomes. The *strategies* will be the key components that drive what we work on over the next three to five years. In all cases, there are likely to be many things that we could do that would help achieve the outcomes. We should focus on developing strategies that:

- Help us fully implement our values.
- Are distinct and well-bounded (they point towards specific needs or work).
- Can concretely and clearly move us toward the goal (so they can be completed and then replaced with another strategy).
- That we are well-equipped to undertake.
- Which are responsive to our organizational context.

Strategies like this will help us make intentional choices about the work we will prioritize and how to most effectively utilize our capacity. Annual workplans can be built to accomplish these strategies through specific work and projects.

In February, we will discuss the four draft outcomes and brainstorm potential strategies that will help us achieve them. We will start with a situational analysis of internal and external factors that shape the needs of those we serve and affect our ability to achieve the outcomes. These include internal strengths and weaknesses and external opportunities and threats.

As the Board began to discuss in January, some of these outcomes may be things that we want to do – but we are not currently doing as much of, or doing as well as we could be. As we discuss strategies for each outcome, we will begin by thinking and talking about the gaps between the current reality of each of these outcomes and where we want to be – what we would see if we were being successful. The focus of strategy development will be to look at what helps us improve or go from “good to great” in each area.

As noted above, one potential area to think about and discuss is whether any (or all) of the outcomes need one or two strategies that are specific to ensuring we realize the values included in the plan.

From the Board discussion, I hope to craft a plan with three to five strategies for each outcome. With the inclusion of the strategies, we will have a complete draft strategic plan for the Board to review and which we plan to release for public input.

Strategic Plan 2024 to 2029

Introduction

The 1973 Legislature established the Minnesota Environmental Quality Board (EQB/Board) as a forum for leadership and coordination across Minnesota state agencies on priority environmental issues that are interdisciplinary and cross-jurisdictional. As a public-facing board, the EQB strives to engage Minnesotans and provide meaningful access to conversations regarding the future of our environment.

Minnesota Statutes, chapter 116C establishes the Board, its membership, and power and duties. Minn. Stat. § 116C.04 gives the Board the responsibility to investigate interagency environmental issues. The law identifies a range of environmental matters for investigation, including: air, water, solid waste management, transportation and utility corridors, energy policy, and planning.

Minnesota Statutes, chapter 116D – the Minnesota Environmental Policy Act – gives the EQB authorities and functions related to Minnesota’s Environmental Review Program. The Board serves as the coordinating body, with responsibilities to:

- Measure and improve the effectiveness of the environmental review program.
- Develop and maintain the state’s environmental review rules – including those that establish the types of actions for which environmental review is required and govern the environmental review process.
- Regularly review and report on those rules and the mandatory categories.
- Review and approve the forms for environmental review.
- Publish the EQB Monitor, which includes required notices for environmental review.
- Take various administrative actions related to environmental review, including designating the responsible government unit.

Supporting One Minnesota Plan

The EQB supports the State’s [One Minnesota Plan](#) and its mission to “Improve the lives of all Minnesotans by working collaboratively to implement policies that achieve results.” The EQB’s unique contribution to this goal is the ability to bring multiple agencies and the public together to advance interdisciplinary discussions on complex environmental issues.

As stated in the One Minnesota Plan, “Minnesota does better when state agencies and community partners collaborate to achieve common goals.”

EQB joins with individual Minnesotans, communities, and public and private organizations to work collaboratively and implement policies that achieve results. With multiple state agencies and public members of the Board, collaboration across these spaces is a key identity for EQB to leverage and strengthen to support statewide goals.

Specifically, the EQB supports the One Minnesota Plan work to solve problems in the key priority area of Minnesota’s environment, while supporting thriving communities and ensuring equity and inclusion.

Strategic Plan

Purpose and Overview

The purpose of this strategic plan is to provide a directional framework to guide and focus EQB's action and organizational decision-making over the next five years. The strategic plan aims to intentionally align the organization's aspirations with its capabilities to achieve meaningful and purposeful outcomes.

The strategic plan begins with EQB's mission, vision, and organizational values. These three components provide high-level guidance about what work EQB can and should do and how that work should be done. They serve as a shared reference point for the EQB, agency partners, and Minnesotans as to the organization's aspirations.

The strategic plan then lays out four key outcomes that the EQB wishes to achieve in support of its mission. These are designed to provide high-level direction and focus, while simultaneously accommodating emerging issues and dynamic state needs.

Each key outcome is followed by (three to five) detailed strategies that represent the specific things EQB hopes to do over the next five years to support meeting the desired outcomes. These strategies will guide board and staff activities, such as future work plans and decisions about allocation of resources.

Mission

The EQB's mission is to support Minnesotans in making informed decisions that protect and enhance the state's environmental quality. We accomplish this by fostering meaningful conversations; supporting collaborative policy development; and ensuring effective environmental review of potentially impactful projects.

Vision

Minnesota has healthy and sustainable environmental quality that equitably supports public health, economic vitality, societal quality of life, and sustained natural resources.

Values

The EQB strives to incorporate the following key values in all our work and the way we do it:

- **Collaboration:** EQB facilitates connections across executive branch agencies; between branches of governments; and between government and those it serves.
- **Engagement:** EQB ensures that public voices, including diverse and underrepresented groups and those who will be most impacted, are actively included and considered in all our work.
- **Trust:** EQB is a trusted public entity in the work of enhancing Minnesota's environmental quality and a reliable partner to State, Tribal, and local governments.
- **Equity:** EQB works to ensure equity for all Minnesotans' environmental, economic, and social wellbeing.

Key Outcomes

The following key outcomes are those that the EQB aspires to achieve in our work.

1. The EQB fosters meaningful conversations around environmental issues

What does this mean? The EQB convenes open, approachable and accessible conversations. EQB ensures that public voices – including diverse and underrepresented groups and those who are most likely to be impacted by an issue under discussion – are provided a range of opportunities to become involved in key environmental discussions and are actively included and considered. EQB builds and maintains meaningful relationships with diverse groups statewide to support equal access for underrepresented groups and environmental justice communities to participate in conversations, policy development, and program implementation. EQB listens and learns from the input provided.

EQB provides Minnesotans a unique space to discuss important environmental issues, particularly those that are cross-programmatic and interdisciplinary. EQB provides a forum for Minnesotans to talk to each other and to governmental decision makers about what matters so that Minnesota has healthy and sustainable environmental quality.

2. The EQB supports innovative state policy development on priority and emerging environmental issues. (Current priority issues: climate, water, and biodiversity)

What does this mean? The EQB coordinates the development and sharing of data and information about key priority and emerging environmental issues. Combining this with our role as a convener of conversations, EQB facilitates interagency coordination so that policy and programs are aligned for public health and environmental protection. EQB provides a forum where information is shared about environmental problems, the actions being taken, and the gaps and opportunities – to make recommendations for collective state action to advance and improve environmental outcomes.

3. The EQB maintains and improves Minnesota’s environmental review program

What does this mean? The EQB ensures that Minnesota’s environmental review program meets the objectives of the Minnesota Environmental Policy Act and provides information that supports understanding the impact proposed projects will have on the environment. The EQB is a valued source of information for anyone seeking assistance with environmental review. The EQB measures and monitors program effectiveness, looking at how the program provides usable information, engages with the public, and follows a sound process.

4. The EQB works towards achieving environmental quality without disproportionate impacts

What does this mean? Through conversations, the EQB works to understand and gather information about the unequal distribution of environmental and public health benefits or resources and environmental and public health burdens. EQB shares and presents this information about disproportionate impacts and potential opportunities to mitigate them. EQB supports responsible governmental units and state agencies in considering disproportionate impacts in environmental review and policy development.

Strategies

The following strategies, grouped by the outcome they support, are those where EQB intends to focus in the coming five-year period. Organizational work planning will be focused on work and projects within these strategic areas that will result in the desired outcomes.

The EQB fosters meaningful conversations around environmental issues

What are we going to do to support it? (Example areas of work – will be replaced by strategies)

- Build and maintain meaningful relationships with diverse groups statewide
- Improve Tribal coordination and consultation and inclusion of tribal cultural and environmental concerns
- Ensure equal access to for all to EQB’s work
- Lift up underrepresented voices and those that experience disproportionate impacts; ensure meetings and forums bring forward these voices and incorporate them into our processes
- Support conversations between partners, stakeholders, and the Board
- Improve communications and engagement strategies, especially focused on groups that are underrepresented in government discussions and decision making
- Convene Environmental Congress
- Provide information (reports, etc.) that supports conversations on big picture issues
- Connect with and hear from youth leaders

The EQB supports innovative state policy development on priority and emerging environmental issues. (Current priority issues: climate, water, and biodiversity)

What are we going to do to support it? (Example areas of work – will be replaced by strategies)

- Provide data, information, and reports on state agency actions – to support making recommendations for collective state action
 - Currently includes: water plan, pollinator action framework, Climate Action Framework
 - Could include: any additional identified emerging issues or new needs
- Identify emerging issues and initiate and support interagency projects to address those issues
- Evaluate and discuss concerns, trends, policies, and best practices in environmental protection
- Identify, evaluate, and discuss equity and disproportionate impacts in these areas
- Convene interagency teams and workgroups (to share best practices, identify barriers, and develop innovative solutions)
- Continue to support integration of climate pollution measurement and climate adaptation and resiliency in environmental review

The EQB maintains and improves Minnesota’s environmental review program

What are we going to do? (Example areas of work – will be replaced by strategies)

- Provide technical assistance and guidance on how to complete environmental review
- Provide technical assistance and guidance on program changes and new elements, such as climate information
- Monitor effectiveness based on the board defined criteria (Information: Science-based, supports environmental protection, measurable; Engagement: Inclusive, user-friendly, and accessible; Sound Process: Consistent, quality assured, and accountable)
- Provide data, information, and reports on environmental review undertaken around the state
- Make programmatic changes to support effectiveness and continuously improve

The EQB works towards achieving environmental quality without disproportionate impacts

What are we going to do? (Example areas of work – will be replaced by strategies)

- Develop tools, best practices, or guidance to support to meaningful public involvement in environmental review
- Develop tools, best practices, guidance or other supports to evaluate the potential for disproportionate impacts in environmental review
- Provide information on equity and disproportionate impact in all reports

-----Original Message-----

From: Valeria Peralta

Sent: Tuesday, January 16, 2024 12:00 PM

To: MN_EQB_Info <info.EQB@state.mn.us>

Subject: January 2024 EQB Board Meeting Written Comment

This message may be from an external email source.

Do not select links or open attachments unless verified. Report all suspicious emails to Minnesota IT Services Security Operations Center.

To Whom It May Concern,

I wanted to reach out on behalf of the organization, Meet This Moment, to inform you that we are in the midst of submitting a written comment for tomorrow's EQB Board Meeting. This will be submitted in the next 15 minutes to this email address. We apologize for the late response, but hope you can still include our letter to the board in tomorrow's meeting.

Thank you!

Valeria Peralta

Dear Environmental Quality Board,

Thank you to all who have contributed significant effort into the draft Environmental and Energy Report Card. It is a critical undertaking and has the potential to be extremely useful as we navigate through this pivotal decade. We very much appreciate the opportunity to provide a few high level comments on this draft.

- **How We Frame Responsibility:** It is important to refrain from framing issues as matters of individual choices on one hand or the responsibility of “global coordination” on the other. The report should make clear the systems that need to be changed, choices that Minnesota has made and what Minnesota needs to do to achieve our collective environmental and climate goals.

It feels misplaced to highlight the role of individual choices (such as around fuel use choices on page 3) but fail to mention Minnesota’s role in facilitating greenhouse gas emissions resulting from projects like the Line 3 Pipeline. The expanded capacity of this pipeline alone, constructed in 2020 and 2021, contributes more greenhouse gas emissions than the entire economy of our state.

- **Presentation of Key Messages:** The report often speaks in generalities with few tangible examples of the consequences of certain decisions on environmental well being, leaving readers wondering whether the scenarios presented are hypothetical or currently unfolding realities. It would be enormously helpful to
 - incorporate specific calculations and timelines that illustrate the path toward achieving our environmental goals.
 - emphasize the connection between fossil fuel-induced climate disruption, extreme heat and increased wildfire risk and deteriorating air quality as one tangible example of the consequences of policy decisions.
 - use formatting to share key messages like the above to prevent essential information from being overshadowed.
- **Environmental Concerns Omitted** - Several significant environmental concerns seem to be omitted from the report:
 - **Pesticides**
 - **Over harvesting of timber** in wildlife areas meant specifically to protect habitat and other state lands.
 - **PFAS**

- **Metals Recycling and E-Waste** as an opportunity in the materials management section
- **Data from the Impaired Waters List 2024**
- **Fish kills**
- **Context for understanding the nitrate issue over time**
- **The impact of pipelines on climate, aquifers, ground and surface waters, land and ecosystems.**

In conclusion, we appreciate the effort invested in the Environmental and Energy Report Card and believe that addressing these concerns will enhance its effectiveness as a tool for positive change. Thank you for your commitment to our environment and shared future. We look forward to witnessing your continued progress.

Sincerely,

Sara Wolff
Meet This Moment, LLC