MINNESOTA
ENVIRONMENTAL QUALITY BOARD

September 2024 Environmental Review Implementation Subcommittee meeting

Wednesday, September 18 from 1 – 4:00 p.m.

Join in person or online

- In person: 520 Lafayette Road, St. Paul, MN 55155, lower level conference rooms
- Online: For the meeting link and more information, visit the ERIS meeting webpage

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Participating in board meetings

Attending in person

The Environmental Review Implementation Subcommittee (ERIS) will convene its meeting in person in the lower level conference rooms at the Minnesota Pollution Control Agency St. Paul office building. 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.

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.

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 input opportunities at EQB meetings

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

Oral public comment

In this meeting, ERIS will accept oral public comment where specifically noted on the agenda. The following are the procedures 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) to three (3) 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** in order to be made available for 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)

Sarah Strommen– Chair, ERIS

2. Approval of consent agenda (1:05 pm)

- Meeting minutes from the June 12, 2024, Environmental Review Implementation Subcommittee meeting on packet page 5
- Preliminary agenda for the September 18, 2024, Environmental Review Implementation Subcommittee meeting

3. Executive Director's report (1:10 pm)

Catherine Neuschler – Executive Director, EQB

4. Environmental Review: Mandatory Category Report draft (1:15 pm)

Type of item: Informational

Summary: EQB staff will walk through the draft 2024 Mandatory Category Report. Staff will share the report goals, writing process, and next steps. Mandatory categories are categories of project types that require environmental review. The purpose of the Mandatory Category Report is to conduct a review of all mandatory categories and discuss any recommended changes. The report is due to the Legislature December 1, 2024. ERIS will have an opportunity to discuss the draft, ask questions, and provide insights. The draft report can be found on packet page 8.

Public comment: ERIS welcomes oral public comment on the draft Mandatory Categories Report. Please see guidance and procedures on packet page 2.

Outcome: ERIS reviews and discusses the first draft; hears public comment; and provides direction to staff for any recommended changes prior to full Board review.

Presenter: Kayla Walsh – Environmental Review Program Administrator, EQB

Break (2:45 pm / 5 minutes)

5. Climate Calculator – Scoping Update and Data Sources (2:50 pm)

Type of item: Informational

Summary: The Climate Calculator Tool is being created to facilitate the quantification of greenhouse gas emissions required by question 18 of the Environmental Assessment Worksheet. A high-level overview of the likely scope of the climate calculator tool is provided in a staff memo on packet page 91; Attachment 1 to the memo provides in-depth technical information on the scope from the contractor developing the tool.

Staff will discuss updates made to the tool's likely scope in the past six weeks to address comments and questions from the July EQB meeting and discuss next steps in the process of finalizing the scope and beginning to build out the tool.

Public comment: ERIS welcomes oral public comment on the proposed scope of the Climate Calculator Tool. Please see guidance and procedures on packet page 2.

Outcome: ERIS understands the proposed scope of the Climate Calculator Tool, as described in the draft scoping memo, and provides feedback on its content to EQB staff.

Presenter: Stephanie Aho – Greenhouse Gas Data Analyst, EQB

6. Public comment (3:45 pm)

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

7. Closing and adjournment (4:00 pm)

MINNESOTA
ENVIRONMENTAL QUALITY BOARD

June 2024 Environmental Review Implementation Subcommittee meeting

Wednesday, June 12, 2024 | 1:00-4:00 p.m. | 520 Lafayette Road, St. Paul, MN 55155, lower level conference rooms and online via Teams.

Minutes

1. Welcome and roll call

Chair Sarah Strommen, Commissioner of the Minnesota Department of Natural Resources, called to order the meeting of the Environmental Review Implementation Subcommittee.

Members present: Grace Arnold, Nancy Daubenberger, Rylee Hince, Todd Holman, Katrina Kessler, Paul Nelson, Sarah Strommen

Members excused: Joseph Bauerkemper

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

2. Approval of consent agenda

- Meeting minutes from March 20, 2024, Environmental Review Implementation Subcommittee meeting
- Proposed agenda for June 12, 2024, Environmental Review Implementation Subcommittee meeting

Motion: Member Daubenberger moved the consent agenda; Member Kessler seconded. Motion carried with a unanimous vote.

3. Executive Director's report

Catherine Neuschler – Executive Director, EQB

- EQB staff
    - Elizabeth Batsaikhan – Student worker from the Increasing Diversity in Environmental Careers (IDEC)program will be working with EQB through early August on some data projects.

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  - Sarah Lerohl – Starts June 26 as part of the environmental review team, providing technical assistance both generally and with a specific focus on supporting the Minnesota Department of Employment and Economic Development (DEED) energy transitions office and the energy transition communities. She has been working for the Minnesota Pollution Control Agency's (MPCA) landfill operator certification and training program and has a lot of local experience from working for the Western Lake Superior Sanitary District (WLSSD).

- Legislative items – two bills passed that will require the Board to revise the environmental review rules in Minn. R. 4410.
  - The Minnesota Energy Infrastructure Permitting Act which clarifies and changes Minnesota Public Utilities Commission processes, including environmental review, and would require (and direct) us to make some conforming changes.
  - The environment bill included directions to set up a regulatory framework for gas and oil production, including potential mandatory categories.
  - A bill that would require EQB to add a mandatory category for animal feedlots with a threshold of 10,000 animal units did NOT pass.

4. FY25 Environmental Review Draft Workplan

Presenter: Catherine Neuschler – Executive Director, EQB

Type of item: Informational

Summary: ERIS reviewed and discussed environmental review program work, including the status of ongoing work from the FY24 workplan and a draft workplan for FY25.

Discussion:

- EQB has the authority to designate Responsible Government Units (RGU), but has no authority over how local units of government (LGUs) operate. EQB can maybe help the public understand that LGUs can be constructed differently depending on their organization.
- It's great to be aspirational and set a bold vision for EQB, but EQB needs to be realistic about what can actually get done and needs to help manage expectations about this externally.

Outcome: Environmental review program workplan items will be incorporated into FY25 EQB workplan for Board review and approval later in the summer.

5. Data Management: FY25 data gathering

Presenter: Jesse Krzenski – Environmental Review Program Administrator, EQB

Type of item: Informational

Summary: ERIS heard revisions to the environmental review program's Data Management Plan (DMP). The purpose of the DMP is to document standardized data collection procedures for environmental review (ER) program data; this includes the data sources and how data is used to monitor and track ER

program operations and effectiveness. The revision identifies new data that can be collected to better evaluate program effectiveness and new ways to provide greater transparency regarding the data collected.

Discussion:

- Data collection is project specific and guided towards the RGU understanding of what they're doing with information rather than directed toward the public. EQB hopes to incorporate questions into the *EQB Monitor* submittal service to better understand the RGU perspective.
- Important to capture information about the length of time needed prior to the EAW submittal. The questions within the survey capture what sort of back and forth and information was needed to help put together the EAW. It will not be mandatory for the RGU to answer the questions, but EQB will try to make the questions simple and straightforward to solicit as many responses as possible.
- Important to be focused and get useful data; think about how much precision and detail is needed and useful.

Outcome: EQB will continue to hone the questions asked for survey and eventually the *EQB Monitor* submittal service.

6. Mandatory Categories Report update

Presenter: Kayla Walsh – Environmental Review Program Administrator, EQB

Type of item: Informational

Summary: EQB staff provided an update on the Mandatory Category legislative report, including an update on work so far and the remaining process to finalize the report, due December 1, 2024.

Discussion:

- The recommendations are mostly going to be rulemaking, which EQB has the authority to do for rules 4410 for environmental review; any legislative conversation would take place at the legislature.

Outcome: EQB will continue to write the report this summer. Final edits will be sent to the Board for final review in the fall, and Board vote for approval at the November 20, 2024 meeting.

7. Public comment

There were no comments.

8. Closing and adjournment

Member Kessler motioned to adjourn. Member Daubenberger seconded. All in favor; meeting adjourned.

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MINNESOTA
ENVIRONMENTAL QUALITY BOARD

MANDATORY ENVIRONMENTAL REVIEW CATEGORIES

Legislative assessment report

12/01/2024

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This is a report prepared by the Environmental Quality Board, Pollution Control Agency, Department of Natural Resources, and Department of Transportation.

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Upon request, this material will be made available in an alternative format such as large print, Braille, or audio recording.

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Legislative charge

This report fulfills the directive of Minnesota Statutes, section 116D.04, subdivision 5b: *By December 1, 2018, and every three years thereafter, the Environmental Quality Board, Pollution Control Agency, Department of Natural Resources, and Department of Transportation, after consultation with political subdivisions, shall submit to the governor and the chairs of the house of representatives and senate committees having jurisdiction over environment and natural resources a list of mandatory environmental assessment worksheet and mandatory environmental impact statement categories for which the agency or a political subdivision is designated as the responsible government unit, and for each worksheet or statement category, a document including:*

> *(1) intended historical purposes of the category;*
>
> *(2) whether projects that fall within the category are also subject to local, state, or federal permits; and*
>
> *(3) an analysis of and recommendations for whether the mandatory category should be modified, eliminated, or unchanged based on its intended outcomes and relationship to existing permits or other federal, state, or local laws or ordinances.*

Abbreviations

AUAR	Alternative Urban Areawide Review
BWSR	Board of Water and Soil Resources
CWA	Clean Water Act
DEED	Department of Employment and Economic Development
DOT	Minnesota Department of Transportation
DNR	Minnesota Department of Natural Resources
DPS	Minnesota Department of Public Safety
EAW	Environmental Assessment Worksheet
EIS	Environmental Impact Statement
ER	Environmental Review
EQB	Environmental Quality Board
FAA	Federal Aviation Administration
GEO	Genetically Engineered Organism
HAP	Hazardous Air Pollutants
LGU	Local Government Unit
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MEPA	Minnesota Environmental Policy Act
MPCA	Minnesota Pollution Control Agency
NPDES	National Pollutant Discharge Elimination System
PUC	Public Utilities Commission
RGU	Responsible Governmental Unit
SHPO	State Historic Preservation Office
SONAR	Statement of Need and Reasonableness
USDA	United States Department of Agriculture
WWTF	Wastewater Treatment Facility

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Executive summary

The Environmental Quality Board (EQB) is responsible for monitoring the effectiveness of the state's Environmental Review Program, taking measures to improve its effectiveness, and providing assistance to all parties involved. The triennial Mandatory Category Report is part of ensuring the state's environmental review process results in the evaluation of the right projects, of the right sizes, at the right times. Mandatory categories (listed in Minn. R. 4410.4300 and 4410.4400) define project types that require environmental review when they reach certain thresholds. This report fulfills the legislative directive (Minn. Stat. 116D.04, subd. 5b) to regularly analyze each mandatory category and propose recommendations for whether it should be modified, eliminated, or remain unchanged. The report also includes some evaluation of broader changes that impact how the mandatory categories are applied to determine which projects must complete environmental review.

This report begins with an overview of the environmental review program, and then includes a methodology section describing how the mandatory category analysis was conducted. It then contains a section on each mandatory category that briefly describes the history of the category, lays out the potential permits that may be needed, and then provides a discussion section. The discussion section describes the experience of those responsible for conducting reviews for that category, public feedback received, and potential steps that could improve the category's effectiveness.[1]

For some categories, the discussion section describes opportunities for improved guidance from EQB that would support implementation of the mandatory category; these updates can be made by EQB without recommending rule changes. Recommendations are made when there is a need to change the environmental review rule language, including updates to existing mandatory categories, threshold changes, or definitions (in Minn. R. 4410.0200) and clarifying rule language. In some cases, the report recommends "no change," which means that no issues in the way the category functions have been identified at this time. Recommendations are made based on the latest available data.

The mandatory categories are key to fulfilling the intent of the environmental review program. Minnesota is a national leader in state-level environmental review and the Minnesota environmental review program has provided benefits for over fifty years. Throughout that time, environmental review has proven its effectiveness at identifying significant environmental effects and making information available to the public and decisionmakers. This report highlights opportunities for gaining further efficiencies in implementing the mandatory categories.

Next steps

Evaluation of the environmental review program and its mandatory categories, and making any needed changes, is a continuing process. The implementation of any of the mandatory category recommendations will require further

[1] Effectiveness is defined using criteria developed in 2023 through EQB's continuous improvement process development; see Appendix A.

conversations to properly consider technical expertise, user experience and potential unintended consequences of any changes. Recommendations included in this report add to existing recommendations to continually strengthen the program's effectiveness. The EQB will consider all recommendations (from both this report and the continuous improvement process) in their future work planning, guided by the EQB's 2024 strategic plan. Work planning will establish the changes to be evaluated and implemented, along with resources and timelines for doing so. In the future EQB will explore the efficacy of using the continuous improvement process to also evaluate any needed changes to the mandatory categories and may consider asking for changes to the legislative requirement for this report.

Attachments

Appendix A: *Continuous improvement for environmental review*

This appendix describes EQB's continuous improvement process and lists programmatic changes that were identified during public engagement for the continuous improvement process.

Appendix B: *Summary of public engagement for Mandatory Category Report, 2024*

This appendix is the memo which was presented to the board in May 2024; it identifies early theming of the feedback EQB received during public engagement for this report.

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Program overview

Minnesota Statutes, chapter 116D, the Minnesota Environmental Policy Act (MEPA), establishes a formal process for analyzing public and private projects that have the potential to significantly impact the environment. MEPA gives the Environmental Quality Board (EQB), created by Minnesota Statutes, section 116C.03, the authority to implement that law's objectives and requirements through the promulgation of rules for environmental review, which EQB established in Minnesota Rules, chapter 4410 (Minn. R. 4410).

The objectives of environmental review are to provide usable information to the public and decision-makers, delegate responsibility for reviews to the appropriate governmental unit, reduce delay and uncertainty in the review process, and eliminate duplication. The rules outline the environmental review process and procedures and require certain categories of projects to undergo environmental review. These categories are referred to as mandatory Environmental Assessment Worksheet (EAW) categories (Minn. R. 4410.4300) and mandatory Environmental Impact Statement (EIS) categories (Minn. R. 4410.4400). Projects must complete environmental review (ER) if they are of a type listed in the mandatory category rules and meet or exceed the thresholds set out. The requirements for environmental review are based on the nature, size, and location of the proposed project.

The Minnesota Legislature first required a Mandatory Category Legislative Assessment Report in 2013 (Laws of Minnesota for 2012, Chapter 150, Article 2, Section 3); subsequently, they moved to require the report on a recurring basis (currently three years). The Mandatory Categories Legislative Assessment Report was completed in 2013, 2018, 2021 and now in 2024. Each report evaluated the mandatory EAW and EIS categories.

The ER process does not approve or deny a project. While an individual permit usually focuses on compliance with regulations to protect from one type of impact (such as air emissions or water discharges), environmental review provides a holistic view of many potential environmental effects in a single document. ER provides usable information to the public, regulatory authorities, and other decision-makers, and requires a public comment period. ER supports connection with stakeholders to identify regulatory and community concerns and address them early in the project design process. Additional benefits of environmental review include:

- Support of information-gathering and consideration of project improvements
- Consideration of cumulative potential effects
- Consideration of phased and connected actions

In 2023 EQB established an ongoing environmental review continuous improvement process (CI process) to support in monitoring the effectiveness of the program and its rules. The goal of the continuous improvement process is to identify and prioritize environmental review program changes in a strategic, transparent, and efficient manner. As part of this process, EQB asked for ideas for program improvements; EQB received thirty-two comments related to creating, revising, or eliminating mandatory categories. These comments were held for consideration in this report. Conversely, many ideas provided during the public engagement for this report related to larger programmatic changes and will be considered separately; see Appendix A for more details. In the future EQB will explore the efficacy of using the continuous improvement process to also evaluate the mandatory categories.

Environmental review roles and responsibilities

The Environmental Review program involves the Environmental Quality Board, local/state governments, the project proposer, and Minnesota residents. Each plays a unique role throughout the process.

Environmental Quality Board (EQB)

EQB's role is focused on program consistency and helping governmental units and interested persons to understand and implement environmental review rules. EQB also monitors program performance and effectiveness. EQB staff compile and publish environmental review-related notices in the weekly *EQB Monitor*. The environmental review rules delegate the authority to complete environmental review to responsible governmental units.

Responsible Governmental Unit (RGU)

An RGU – such as a county, city, or state agency – conducts environmental review by overseeing the preparation and analysis of environmental review documents for individual projects. RGUs apply the environmental review rules to individual projects. They are assigned responsibility for verifying the accuracy of environmental review documents and complying with environmental review processes. The RGU can be a state agency or a local unit of government (county, city, township, etc.) or a special purpose governmental unit (watershed district, solid waste district, etc.). The RGU is the governmental unit determined to have the greatest expertise or authority to approve or deny a project.

Table 1: Environmental Review Roles and Responsibilities

Roles	Responsibilities
Environmental Quality Board	Oversight of the rules Technical assistance Create and maintain guidance documents Data collection and analysis; measure program effectiveness Continuous improvement Publish weekly *EQB Monitor* Receive and process petitions for environmental review
Responsible Governmental Unit (RGU)	Implement rules Prepare environmental review documents Issue notices Make decisions on petitions and environmental review documents
Project proposer	Provide project details to the RGU
Public	Provide local knowledge and public comment on review documents Submit petitions to EQB

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Report methodology

Minnesota Statute, section 116D.04, subdivision 5b charges EQB and the co-authoring agencies (DOT, DNR, and MPCA) to analyze and make recommendations for each mandatory category as well as identify the category's intended historical purpose and any potential applicable permits. This report was developed through information-gathering, analyses, and collaborative drafting. The following section describes the information sources considered.

Review past reports

Mandatory category reports were published in 2013, 2018, and 2021. In 2019, EQB completed rulemaking that implemented multiple recommendations from the 2013 and 2018 reports. EQB staff reviewed the past reports and their recommendations, with a focus on identifying recommendations that remain relevant.

Review SONARs

Statements of Need and Reasonableness (SONARs) are prepared to accompany changes to the mandatory categories rules that have occurred since 1974 including significant rulemaking efforts completed in 1982, 1988, 2005 and 2019. SONARs provide the basis for examining a mandatory category's intended historical purpose and relevant SONARs are hyperlinked in each mandatory category discussion. No rulemaking has occurred since the 2021 Mandatory Category Report.

Review past EQB data

This report lists the number of review documents completed in each category since the previous mandatory category report. In those three years (2021-2023), a total of 198 mandatory Environmental Assessment Worksheets (EAWs), two mandatory Environmental Impact Statements (EISs), two supplemental EISs, and 19 Alternative Urban Areawide Reviews were completed. There were an additional 24 EAWs and 1 EIS completed that were initiated based on RGU discretion (termed discretionary EAWs/EISs). The count of discretionary reviews can also include EAWs that resulted from petitions. These counts do not include reviews directed by rules other than Minn. R. 4410.

Review state agency RGU input

The Department of Transportation, Department of Natural Resources, Department of Agriculture, Department of Commerce, Department of Health, and the Minnesota Pollution Control Agency reviewed those categories for which they are the designated RGU. The EQB led the analyses for mandatory EAW and EIS categories where EQB is the designated RGU and where a local government unit is the designated RGU. State agency RGUs identified likely permits for mandatory categories where they are the RGU.

Public and LGU engagement

As part of the category analysis, EQB asked for input by way of an online engagement platform (Engagement HQ), an online survey, email, and two listening sessions. Appendix B provides a summary of the demographics and topics covered through this engagement process. Overall, EQB received high interest in this report with over 700 comments received. Both members of the public and local government units (LGUs) provided feedback. LGUs complete about 80% of environmental reviews. About one third of survey respondents self-identified as LGUs. EQB also emailed LGUs who completed a review in the last three years for frequently used categories (over 100 projects) seeking feedback on how the mandatory category process functioned in their experience. EQB used LGU feedback from that process to inform the report.

As noted above, ideas received during the CI process that pertained directly to mandatory categories helped inform this report. The full CI report, including a list of these comments, can be found on EQB's website.

Review 2021-2024 legislative directives

Some mandatory category recommendations for modification result from recent legislative changes. The 2024 legislature made updates to the following areas, with which EQB's rules will need to align.

Gas and Oil Production

DNR is directed to include EQB in a Minnesota Gas and Oil Resources Technical Advisory Committee to make recommendations to the Commissioner about a regulatory framework for the production of gas and oil in Minnesota. EQB was also directed to, as needed, adopt, or amend rules to establish mandatory categories for the environmental review of gas and oil production. This will likely include and address helium gas exploration and extraction. If rulemaking for environmental review is needed, EQB is directed to use an expedited rulemaking process and the rules must be proposed by May 2026.

Minnesota Energy Infrastructure Permitting Act

Laws of Minnesota 2024, Chapter 126 (SF 4942) made multiple changes to the state's process for permitting and environmental review of large energy projects such as power generating facilities, energy storage systems, and transmission lines. EQB was directed to make conforming changes to the environmental review rules using the expedited rulemaking process. Proposed rule changes will need to be public noticed by November 2025.

Report drafting

Issues identified in this report reflect a cross-section of perspectives and experiences from RGUs, the public, and interested or affected parties. EQB and co-authoring agencies sorted through information from sources listed above to formulate the discussion and recommendations sections of the report for each mandatory category. The implementation of any recommendations will require further conversation, scoping, prioritizing, and work planning. Recommendations identify issues and propose changes, but the report does not prioritize those actions or commit the EQB to fulfilling those recommendations.

Mandatory category analysis

Minnesota's environmental review program successfully provides transparency and efficiency in gathering information on a wide variety of project types. Environmental review is beneficial for all parties because it can help identify potential issues in one process and document. This information-gathering creates an opportunity to anticipate and manage potential problems before the project is built and informs subsequent environmental permits.

This section of the report is organized by project types as they appear in the mandatory category rules (Minn R. 4410.4300 and 4410.4400). Each category begins with relevant rule language and lists:

- Potential RGU(s) for each category
- Hyperlinks to SONARs (past rulemaking documents that include the historical purpose)
- Number of environmental review projects completed for each category in the last three years
- Discussion section
- Recommendation(s)

This report is required to include information on "whether projects that fall within the category are also subject to local, state, or federal permits." The report provides an extensive list of potential permits for each mandatory category, but permits are always project specific, and projects may have highly individualized permitting needs. Project proposers should always discuss their individual requirements with permitting authorities.

The discussion section of each category constitutes the main evaluation of the potential need for supporting structures or changes to the category. The discussion section includes the RGU's experience implementing the category as well as the EQB's experience and knowledge on common issues that may impact program effectiveness. It also reflects the public perspectives heard during the public engagement process.

The discussion generally aims to provide information on actions that might be needed to provide consistency and efficiency when applying the rules. It includes a variety of actionable strategies that vary in the time and resources needed for implementation. For some categories, the discussion section describes opportunities for actions that would support implementation – such as new or improved guidance or best practices. These guidance updates and supporting tools can be made by EQB and do not rise to the level of a recommendation for change. Recommendations for change are made when there is a need for a change to the environmental review rule language, including updates to existing mandatory categories, threshold changes, definitions (in Minn. R. 4410.0200), or clarification of terms. In some cases, the report recommends "no change."

EQB will consider these opportunities and recommendations, along with those gathered from the CI process, in future work planning. Carrying out any of the recommendations will require additional work and will likely need to be phased to ensure adequate evaluation of needs, scoping, and engagement with practitioners.

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Nuclear fuels and nuclear waste

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 2	EQB, MDH	1982 SONAR) page 112 and 2019 SONAR page 23.	None

Permits

Fissionable materials: Minnesota Department of Heath pursuant to Minn. Stat. 144.12. In addition, Minn. Stat. 116C.72 requires legislative authorization of any radioactive waste management facility.

Processing facilities: Minnesota Pollution Control Agency pursuant to Minn. Stat. 115.03 and Minn. Stat. 116.07. Environmental review documents prepared pursuant to these proposed rules would be subject to cooperative state/federal procedures. The U.S. Nuclear Regulatory Commission has jurisdiction over nuclear materials.

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 2	EQB, MDH, DNR, MPCA, Commerce, PUC	1982 SONAR page 112	1 (2022)* 1 (2023)

**The project listed here was a supplemental EIS conducted through the Public Utilities Commission rule process and is not counted in the EQB's total of projects conducted in the last three years.*

Permits

Fissionable materials: Minnesota Department of Heath pursuant to Minn. Stat. 144.12. In addition, Minn. Stat. 116C.72 requires legislative authorization of any radioactive waste management facility.

Processing facilities: Minnesota Pollution Control Agency pursuant to Minn. Stat. 115.03 and Minn. Stat. 116.07. Environmental review documents prepared pursuant to these proposed rules would be subject to cooperative state/federal procedures. The U.S. Nuclear Regulatory Commission has jurisdiction over nuclear materials.

Independent spent-fuel storage installation: Operating License and Subsequent License Renewal from the Nuclear Regulatory Commission. Minnesota Public Utilities Commission (PUC) Certificate of Need. Building permits from local government cities or townships.

Discussion

Background

This category includes projects that construct or expand various kinds of nuclear waste storage and disposal facilities as well as nuclear waste processing facilities. It was proposed, according to the 1982 SONAR, "because of the potential for significant adverse environmental and human health effects." Due to the nature of planning and

operating these types of facilities and their disposal needs, these projects happen infrequently. Some housekeeping changes were made to the EAW mandatory category in the 2019 rulemaking. Item C, referring to independent spent-fuel storage installations, was added at that time. The 2023 EIS was for the proposed additional dry cask storage of spent nuclear fuel at one nuclear plant. There was a supplemental EIS in 2022 for another nuclear plant requesting a change in spent fuel storage technology.

RGU Experience

RGUs have shared that it seems unclear when the DNR is the RGU versus MPCA for this mandatory EIS category's subpart A, particularly for uranium mills.

Public perspective

There were no comments directly related to this mandatory category.

Opportunities for improved guidance

Minn. R. 4410.4400, Subp. 2 A is worded in a way that can create confusion as to who serves as the RGU. EQB interprets this subpart to mean that any project with a uranium mill requires the DNR to be the RGU for that project (not the MPCA) and that construction/expansion/fuel fabrication facilities, and reprocessing plants (without uranium mills) require MPCA to be the RGU. This can be clarified in EQB guidance.

Rule change considerations

Laws of Minnesota 2024, Chapter 126, Article 9 amends Minn. Stat. 116C.83, subd.6 (b) – which requires an EIS for independent spent-fuel storage installations – to make the PUC the RGU for these projects instead of the Department of Commerce, effective August 1, 2024. EQB was directed to enact rulemaking in Minn. R. 4410 to align with those changes and will therefore update the RGU for this EIS category accordingly.

Recommendation

EQB updates the EIS category to make the PUC the RGU for independent spent-fuel storage installations, as directed by the 2024 Legislature.

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Electric-generating facilities

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 3	MPCA, PUC, LGU	1982 SONAR page 115, 2003 SONAR, and 2019 SONAR page 23	2 (2021) 1 (2022) 1* (2023)

**One electric generating facility EAW was ordered by the PUC due to an expansion.*

Permits

As of the date of this report, permitting is addressed through Minn. Stat. chapters 216B, 216E, and 216F as well as Minn. R. chapters 7849, 7850, and 7854. Amendments to existing regulations and the addition of Minn. Stat. 216I made in Laws of Minnesota 2024, Chapter 126, Article 7 will affect future permitting.

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 3	PUC	1982 SONAR page 115, 2003 SONAR, and 2019 SONAR page 23	none

Permits

As of the date of this report, permitting is addressed through Minn. Stat. chapters 216B, 216E, and 216F as well as Minn. R. chapters 7849, 7850, and 7854. Amendments to existing regulations and the addition of Minn. Stat. 216I made in Laws of Minnesota 2024, Chapter 126, Article 7 will affect future permitting.

Discussion

Background

This category includes the construction and expansion of various kinds of electric-generating facilities. This category is unique in that the EQB's environmental review rule (Minn. R. 4410) points to procedures under Minn. R. chapters 7849, 7850 and 7854, administered by the PUC. Over time, the relationship between the state's environmental review process (established under MEPA and administered by EQB) and the PUC's separate statutes and rules (related to power plant siting and energy projects) has evolved. Most recently, the 2024 Legislature passed the Minnesota Energy Infrastructure Permitting Act, which revises many of the permitting and environmental review requirements related to this category. The act repealed multiple rules and statutes that are referenced within this category, including much of Minn. R. 7850, all of Minn. R. 7854, all of Minn. Stat. chapter 216E, and all of Minn. Stat., chapter 216F. The act also directs PUC to amend and adopt rules in permitting and environmental review related to large energy infrastructure facilities — for instance, the new legislation calls out that solar energy

generating systems would have an option to conduct local review through the PUC if they are less than 80 megawatts (MW). EQB will need to update the Minn. Rules 4410 to align with these changes.

The PUC's Environmental Impact Statement portion of environmental review is tied to Minn. Stat., chapter 116D, but certain projects have the option of doing an Environmental Assessment through procedures currently outlined in Minn. Stat. 216E.03 (and to be enacted in 2025 in Statute 216I). For instance, the PUC conducted environmental assessments for one solar project in 2021, four solar projects in 2022, and one solar project in 2023. For wind projects, environmental review is a part of the site permit application as prescribed in chapter 216F with an analysis of environmental impacts according to requirements in Minn. R. 7854.0500, Subp 7; PUC used this process for three wind projects in 2021 and two wind projects in 2022. These solar and wind projects are not reflected in EQB's counts in the tables above.

It is expected that more storage systems will be proposed in the future to accommodate increased availability and usability of renewable energy. The legislature has recently clarified that the PUC's environmental review and permitting process applies to energy storage systems with a capacity of 10 megawatts or greater (Minn. Stat. 216I.02, subd. 6). This category is not reflected in EQB's mandatory category rules.

RGU experience

The 2021 Mandatory Category Report lists the following "identified issue" that remains unresolved: "PUC is [the] RGU for Wind Energy Conversion System operation at 5 MW or more (not 25). A clarity/grammar change would make this rule consistent with PUC statute 216F." This was proposed by the Department of Commerce, but subsequent updates are now dependent on alignment with the new Minnesota Energy Infrastructure Permitting Act that will incorporate PUC as the RGU for wind energy conversion systems over 5MW into Minn. Stat. 216I. In the past three years, EQB received one petition for a project that falls in this category; it resulted in an EAW.

Public perspective

Some commenters shared concerns that wind turbine projects were not being adequately reviewed because wind projects do not have a mandatory EIS category. Others asked for solar electric-generating facilities to be expressly called out in the PUC's siting and permitting program, due to potential land use changes and related impacts. Some respondents commented on their concerns for energy storage systems, such as a battery storage facility. These types of facilities are not likely to meet the threshold for square footage to require a mandatory EAW under Minn. R. 4410 but are likely to trigger the new category for energy storage systems over 10 MW with the PUC (Minn. Stat. 216I.02, subd. 6). Currently, under Minn. Stat. 216E.04, subd. 2 (9) "energy storage systems" are applicable projects for environmental review. This statute will be repealed when Minn. Stat. 216I takes effect.

Opportunities for improved guidance

EQB staff and PUC staff could collaborate on designing a guidance that reflects the most recent legislatively directed changes to this category and documents a shared understanding of this category's history and applicability. EQB also heard questions on whether "construction" in this category applies only to new facilities or also to modifying existing facilities. There does not appear to be any reference in the SONARs that says "construction" is explicitly applicable to new facilities. Minn. Stat. 216E currently, and in the future Minn. Stat. 216I,

clarify that the definition of construction does not exclude expansions or modifications. An update to EQB guidance can specify whether existing facilities undergoing expansion or modification do apply.

Rule change considerations

Newly created Minn. Stat. 216I restructures existing PUC law including sections on when energy storage, wind, and solar projects require review. EQB must make conforming changes in 4410 rule updates to align with the changes made in the 2024 Minnesota Energy Infrastructure Permitting Act.

Recommendation

EQB must make conforming changes to this category to align with the changes made in the 2024 Minnesota Energy Infrastructure Permitting Act.

Petroleum refineries

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 4	MPCA	1982 SONAR page 116	None

Permits

City: Conditional Use Permit; Permit for Discharge of Industrial Wastewater; Plan Review and Approval; Building Permit.

County: Conditional Use Permit, Building Permit

State: Air Emissions Permit (MPCA); NPDES Wastewater Discharge (MPCA); NPDES General Construction Stormwater Permit (MPCA); NPDES Industrial Stormwater Permit (MPCA); Above Ground Storage Tank MPCA); Highway Crossing Permit (MnDOT); Utility Permit to work in the State Right-of-way (MnDOT); Fire Marshall (MnDOT); Plan Review for Above Ground Storage Tanks (MnDOT).

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 4	MPCA	1982 SONAR page 116	None

Permits

City: Conditional Use Permit; Permit for Discharge of Industrial Wastewater; Plan Review and Approval; Building Permit.

County: Conditional Use Permit, Building Permit

State: Air Emissions Permit (MPCA); NPDES Wastewater Discharge (MPCA); NPDES General Construction Stormwater Permit (MPCA); NPDES Industrial Stormwater Permit (MPCA); Above Ground Storage Tank MPCA); Highway Crossing Permit (MnDOT); Utility Permit to work in the State Right-of-way (MnDOT); Fire Marshall (MnDOT); Plan Review for Above Ground Storage Tanks (MnDOT).

Discussion

Background

The 1982 rulemaking established this category with the SONAR stating, “This category area is proposed because of the potential for environmental impacts relating to air pollution, transportation, energy use, toxic discharge, spills, water pollution, and odors resulting from these facilities.”

RGU experience

No projects were completed for this category in the previous three years. The project type, criteria, and threshold are still relevant.

Public perspective

There were no comments directly related to this mandatory category.

Recommendation

No change.

DRAFT

Fuel conversion facilities

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 5	MPCA	1982 SONAR page 117, and 2019 SONAR page 50	None

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 5	MPCA	1982 SONAR page 117, 2005 SONAR page 41 and 2019 SONAR page 50	None

Permits

City: Building Permit; Utilities Permit; Industrial Stormwater Agreement; Conditional Use Permit.

County: Conditional Use Permit; Utilities Permit; On-site Septic Permit; Building Permit; Driveway Permit; Incinerator Permit; Permit to dispose at the County Landfill; Ditch Use Authorization; Watershed Districts; Watershed District Permit.

State: NPDES General Construction Stormwater Permit (MPCA); NPDES Industrial Stormwater Permit (MPCA); Air Emissions Permit (MPCA); Section 401 Water Quality Certificate (MPCA); Feedlot Permit (MPCA); Industrial By-Products Permit (MPCA); Solid Waste Permit (MPCA); Aboveground Storage Tank Permit (MPCA); Wastewater Treatment Permit (MPCA); Water Appropriation Permit (DNR); Work in Public Waters Permit (DNR); Work in Public Lands Permit (DNR); Natural Heritage and Nongame Database Review (DNR); Agricultural Liming License (MDA); Construction Easements (MN Historical Society); Minnesota State Historical Concurrences on Findings of Cultural Preservation Office Resource Impacts; Mississippi National River and Recreation Area Critical Area Site Plan Approval; Highway Crossing Permit (MnDOT); Utility Permit to work in the State Right-of-way (MnDOT); Dewatering Well Construction Permit (MDH); Monitoring Well Construction Permit (MDH); Plumbing and Engineering Plumbing Plan Review (MDH); Special Well Construction Area Approval (MDH); Fire Marshal Plan Approval; Above Ground Flammable and Combustible Liquids Review (MN DPS).

Federal: Army Corps of Engineers Section 404 Wetland Permit. U.S. Fish and Wildlife permitting.

Discussion

Background

This category encompasses conversion of coal, peat, or biomass sources to fuels. As detailed in the 1982 SONAR when this category was developed, it was enacted largely based upon information from the 1980s for peat or coal gasification. This category was updated in 2005 to differentiate thresholds for projects either in or outside of the

Twin Cities metropolitan area. Changes in 2019 were meant to provide clarifying language for both the EAW and the EIS.

RGU experience

MPCA provides guidance that anaerobic digestion facilities convert biomass to fuel and are therefore considered in this mandatory category. Minnesota is seeing an increased interest in building anaerobic digesters that handle manure, food waste, and other inputs; one fuel conversion EAW has been completed since 2011. No mandatory EAWs or EISs for this category have been completed in the previous three years. One discretionary review took place in addition to the mandatory reviews listed in the chart above.

Public perspective

During the public engagement period for this report, EQB heard interest in anaerobic digesters from individuals and environmental organizations, advocating for EQB to address anaerobic digestion due to concerns over air, soil, water, and public health impacts.

Rule change considerations

EQB may consider adding rule language to explicitly add anaerobic digestion to this category under Subp. 5 A. Defining anaerobic digestion and updating the rule to explicitly include this technology would provide clarity to project proposers and the public. If pursued, EQB may consider changing the threshold to measure the fuel conversion facility's outputs instead of inputs. This would include clarity on how to calculate a project's outputs to consistently apply them to this category's threshold. Having a threshold based on an output aligns with the way other categories' thresholds are measured. If updated, careful considerations should be made to align with exemptions in Minn. Stat. 116D and Minn. R. 4410.4600, so terms and intentions are aligned.

Opportunities for improved guidance

EQB can also update their guidance documents to clarify that anaerobic digesters are fuel conversion facilities.

Recommendation

Clarify in Minn. Rule 4410.4300, Subp. 5 that this category applies to anaerobic digestion facilities. If rulemaking is pursued, also evaluate if changes to all thresholds in this category should be measured based on projects' outputs rather than material inputs as it is currently written.

DRAFT

Transmission lines

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 6	PUC, EQB	1982 SONAR page 118 and 2019 SONAR page 25	1 (2021)* 4 (2022)* 1 (2023)*

**The projects listed here conducted environmental assessments through the Public Utilities Commission process and are not counted in the EQB's total of projects conducted in the last three years.*

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 6	PUC, EQB	1982 SONAR page 118 and 2019 SONAR page 51	1 (2021)*

**The projects listed here conducted review through the Public Utilities Commission process and are not counted in the EQB's total of projects conducted in the last three years.*

Permits

As of the date of this report, route permitting and certificate of need processes are addressed through Minn. Stat., chapter 216E and Minn. R. chapters 7849 and 7850 for projects greater than or equal to 100 kilovolts (kV) and greater than 1,500 feet in length. Changes made in Laws of Minnesota 2024, Chapter 126, Article 7 will affect future permitting and environmental review.

Discussion

Background

The 1982 SONAR says, "This category area is proposed because of the potential for significant adverse environmental impacts associated with construction, operation, and maintenance of a linear facility, as well as significant social and economic impacts associated with the location of a linear facility." For certain facilities, the Legislature has prescribed how environmental review must be conducted according to either the EQB's or the Public Utilities Commission's process. Some transmission line projects have the option of following environmental review procedures currently outlined in Minnesota Statute 216E.04 Subd. 2.

RGU experience

No projects were completed for this category in the previous three years using Minn. R. 4410. Subsequent updates to this category are dependent on alignment with the new Minnesota Energy Infrastructure Permitting Act that will incorporate new definitions, environmental review procedures, and thresholds into Minn. Stat. 216I.

Public perspective

There were no comments directly related to this mandatory category.

Opportunities for improved guidance

Over time, the relationship between the state's environmental review process (established under MEPA and administered by EQB) and the environmental assessment and review process (established in statutes administered by PUC) has evolved. Both agencies could benefit from having a well-documented history on such changes and an up-to-date factsheet on how project proposers, RGUs, and the public can navigate between each set of rules. EQB and PUC staff may consider a collaboration on designing a guidance that reflects the most recent legislatively directed changes to this category and documents a shared understanding of this category's history and applicability.

Rule change considerations

The 2024 Legislature passed the Minnesota Energy Infrastructure Permitting Act, which revises many of the permitting and review requirements related to this category. The act repealed some rules and statutes that are referenced within this category, including much of Minn. R. 7850 and Minn. Stat. 216E. EQB will need to update references in this category to align with these changes. The act also directs PUC to amend and adopt rules in permitting and environmental review related to large energy infrastructure facilities such as transmission lines.

Recommendation

EQB must make conforming changes to Minn. R. 4410 for this category, as directed by the 2024 Legislature.

DRAFT

Pipelines

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 7	EQB, Municipality	1982 SONAR page 119 and 1988 SONAR page 37	1 (2023)

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 24	PUC	1988 SONAR page 68	1 (2021)* 1 (2022)* 1 (2023)*

**The projects listed here conducted environmental review through the Public Utilities Commission's "partial exemption" process per Minn. Rules 7852.0600 and are not counted in the EQB's total of projects conducted in the last three years.*

Permits

Permitting is addressed through Minn. Stat., Minn. R. 7852, and Minn. R. 7853.

Discussion

Background

This is a longstanding category. According to the 1982 SONAR, "This category area is proposed because of the potential for significant adverse environmental effects during construction as well as during the use of the facility if a leak should develop." This category is unique due to connections between EQB's rules and those administered by the PUC. For certain facilities, the Legislature has prescribed how environmental review must be conducted according to either EQB's Rules or the Public Utilities Commission's environmental review process.

RGU experience

In the last three years, EQB received four petitions for projects that fit this category; one resulted in an EIS for a carbon dioxide pipeline. The PUC clarified that current rules defining hazardous liquids or gas apply to carbon and helium types of pipelines, setting legal precedent where no further refinements are required to specifically call out carbon or helium in Minn. R. 4410. In 2024, the Legislature passed a bill that mandates an EIS be completed using Minn. R. 4410 for carbon dioxide pipelines (Laws of Minnesota 2024, Chapter 126, Article 9, Sec. 17) and designates the PUC as the RGU.

DRAFT

Public perspective

During the engagement period for this report, commenters shared concerns that having pipeline environmental review take place using PUC rules was confusing, inefficient, and less protective. Commenters also expressed concerns over the transportation of both helium and carbon gas through pipelines, saying that these projects are often controversial and risk leaks and land disturbances.

Opportunities for improved guidance

For clarity in application of this category, EQB could update guidance to reflect that this category applies to helium and carbon dioxide pipelines. As with other certain categories, the relationship between PUC's environmental review process and EQB's environmental review process has continuously evolved. Both agencies could benefit from having a well-documented history on such changes and an up-to-date factsheet on how project proposers, RGUs, and the public can navigate between each set of rules and statutes. EQB and PUC staff may consider a collaboration on designing guidance that reflects the most recent legislatively directed changes to this category.

Rule change considerations

The EQB considers rule updates to this mandatory category subpart, conforming to changes to the Laws of Minnesota 2024, Chapter 126, Article 9, Sec. 17.

Recommendation

EQB must make conforming changes to rule references in this category, as directed by the 2024 Legislature to clarify that carbon dioxide pipelines (as defined in Minn. Stat. 216G.025, subd. 1) require EISs.

DRAFT

Transfer facilities

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 8	MPCA	1982 SONAR page 120 and 2019 SONAR page 28	None

Permits

City: Building Permit; Conditional Use Permit;

County: Conditional Use Permits; Septic System Permit; Watershed Districts; Watershed Permits;

State: NPDES General Construction Stormwater Permit (MPCA); NPDES Industrial Stormwater Permit (MPCA); Above Ground Storage Tank Permit (MPCA); Section 401 Water Quality Certificate (MPCA); Access Permit (MnDOT); Minnesota Natural Heritage Database Search (DNR); Cultural Resources Review (MN SHPO);

Federal: Army Corps of Engineers Section 404 Wetland Permit.

Discussion

Background

This category was first enacted to address facilities for coal and hazardous waste. The 2019 SONAR documents the addition of silica sands projects to this category.

RGU Experience

No projects were completed for this category in the previous three years. The project type, criteria and threshold are still relevant.

Public perspective

There were no comments directly related to this mandatory category.

Recommendation

No change.

DRAFT

Underground storage

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 9	DNR	1982 SONAR page 121	None

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 7	DNR	1982 SONAR page 122	None

Permits

State: Minn. Stat. 103I.681; Minn. R. 6115.0130; Minn. Stat., chapter 216B; Minn. R., chapter 7851.

Discussion

Background

Underground storage relates to projects that store any liquid or gas below ground. This is a longstanding category. There have been no updates since the 1982 rulemaking. The 1982 SONAR says that this category was proposed, in part because an underground storage facility, "has the potential for groundwater contamination and serious human health impacts."

RGU Experience

No projects were completed for this category in the previous three years.

Public Perspectives

There were no comments directly related to this mandatory category.

Recommendation

No change.

DRAFT

Storage facilities

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 10	MPCA, PUC, MDA	1982 SONAR page 123, 1988 SONAR page 38, and 2019 SONAR page 31	None

Permits

City: Building Permit; Conditional Use Permit.

County: Conditional Use Permits; Septic System Permit; Watershed Districts; Watershed Permits.

State: NPDES General Construction Stormwater permit (MPCA); NPDES Industrial Stormwater Permit (MPCA); Above Ground Storage Tank Permit (MPCA); Section 401 Water Quality Certificate (MPCA); Access Permit (MnDOT); Minnesota Natural Heritage Database Search (DNR); Cultural Resources Review (MN SHPO).

Federal: Army Corps of Engineers Section 404 Wetland Permit.

Discussion

Background

This category encompasses many types of storage including that of coal, hazardous waste, liquified natural gas, and more. This is a longstanding category. According to the 1982 SONAR, “Concerns documenting the need for this category include fugitive dust emissions, leaching, transportation related issues, and water pollution issues.” The 1988 SONAR describes the addition of anhydrous ammonia to the category and the 2019 rulemaking added several items with new thresholds to the category.

RGU Experience

No projects were completed for this category in the previous three years.

Rule change considerations

Certain items require housekeeping updates. For example, subpart E says, “the PUC is the RGU, except as provided in item G”; however, the PUC is also the RGU for item G, making this reference unnecessary.

Recommendation

Consider housekeeping fixes to item E, removing inaccurate references.

DRAFT

Metallic mineral mining and processing

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 11	DNR	1982 SONAR page 124	None

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 8	DNR	1982 SONAR page 124	None

Permits

Local: Commercial septic tank permit; Building permit; Permit for construction in shoreland area; Zoning variances.

State: Permit to mine; Water appropriation permit; Public water work permit; Dam safety permit; Burning permit; Listed species takings permit; Part 70 operating permit; Title V air permit modification; NPDES General Construction Stormwater general permit; NPDES Industrial Stormwater permit; Section 401 Water Quality Certification; Waste tire storage permit; Storage tank permit; Solid waste permit; Hazardous waste generator and storage; Demolition debris disposal facility permit; Radioactive material registration; Noncommunity nontransient public water system; Government loan/grant; High Voltage Transmission Line routing permit.

Federal: 404 permit; Permit for tower construction next to existing radar.

Discussion

Background

This category includes mines, stockpiling, and mining tailing basins. This category is longstanding. Since the 1982 rulemaking no updates have been made. Projects are relatively infrequent but are often controversial. EQB has reviewed the category multiple times since program inception and has chosen to keep thresholds where they were initially established.

RGU Experience

DNR has reviewed the existing thresholds and has not identified any rule changes that would improve the implementation of this category at this time. No mandatory reviews were conducted for this category in the last three years.

Public perspective

EQB noticed considerable interest in this category during public engagement opportunities. Leasing of mineral interests was requested to be included within this mandatory category. Per a 2013 Court of Appeals decision a

lease sale does not constitute a project, so EQB can clarify this in guidance. Many comments requested programmatic changes that were deemed outside of the scope of the Mandatory Category Report.

Recommendation

No change.

Nonmetallic mineral mining

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 12	DNR, LGU	1982 SONAR page 127 and 2007 SONAR page 42	4 (2021) 8 (2022) 1 (2023)

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 9	DNR, LGU	1982 SONAR page 127 and 2007 SONAR page 52	None

Permits

Local: Comprehensive plan amend if the community has a plan; Rezoning if the community has zoning; Subdivision/platting approval; Conditional Use Permit; Interim Use Permit; Local mining permit; Site plan approval; Grading/drainage/erosion control plan; Wetland Conservation Act approval and/or mitigation plan; Road access permit on local road; Building permits for structures.

State: Water appropriation permit; Permit to mine (Reclamation permit); Land lease; NPDES/SDS permit; Clean Water Act 401 certification; Driveway permit (DOT) if state highway.

Federal: Clean Water Act 404 permit (wetlands).

Discussion

Background

This category applies to sand and gravel mines. This is a longstanding category. The 1982 SONAR says, “This category area is proposed because of the potential for significant effects on ground and surface water quality and quantity, air quality, land use, and the local and state economy.” The 2007 changes include provisions for shorelands.

RGU experience

In the past three years, EQB received nine petitions for nonmetallic mining projects. Seven of these petitions resulted in an EAW. In the last three years, five discretionary reviews were completed in addition to the mandatory reviews listed above. All mandatory EAWs in the last three years were under subpart B, which includes extraction or mining of sand, gravel, stone, or other nonmetallic minerals other than peat. All EAWs were completed by local government units.

Public perspective

EQB received comments identifying cases where an EIS may have been completed decades ago, yet the current science and regulatory environment may have since changed. While the comments were specific to this category, the concept would imply programmatic considerations. This idea is discussed under the heading “expirations” in Appendix A. EQB also received some comments supportive of adding thresholds applicable to project expansions.

Rule change considerations

EQB suggests future evaluation to determine if there is a need for different thresholds for expansions in both the EAW and EIS category by either percent increase in permitted capacity, acreage, or tons processed or disposed of.

Opportunities for improved guidance

Both the EAW and EIS thresholds ask the RGU to interpret effects during the project’s “existence” which is not fully defined by existing rules, SONARs or guidance. EQB could update guidance by adding an interpretation of the phrase “during its existence” to allow for a consistent interpretation of the thresholds in all items of this category.

Recommendation

No change.

DRAFT

Paper and pulp processing mills

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 13	MPCA	1982 SONAR page 129	None

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 10	MPCA	1982 SONAR page 129	None

Permits

City: Building Permit; Utility Permit; Capacity Allocation Agreement Wastewater Treatment Plant

County: Conditional Use Permit; Building Permit

State: Air Emissions Permit; NPDES Discharge Permit; NPDES General Construction Stormwater Permit; NPDES Industrial Stormwater Permit; Above Ground Tank Permit; Water Appropriation Permit; Highway Crossing Permit; Utility Permit

Discussion

Background

This is a longstanding category. There have been no updates since it was enacted. The 1982 SONAR says, “This category area is proposed because of the potential for significant effects on water quality, air quality, solid waste generation, and transportation impacts. These potential impacts are regulated by several different agencies. Environmental review would facilitate multi-agency coordination.”

RGU experience

No projects were completed for this category in the previous three years. The project type, criteria, and threshold are still relevant.

Public perspective

There were no comments directly related to this mandatory category.

Recommendation

No change.

DRAFT

Industrial, commercial, and institutional facilities

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 14	LGU	1982 SONAR page 130, 1986 SONAR page 9, and 1988 SONAR page 39	6 (2021) 13 (2022) 2 (2023)

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 11	LGU	1982 SONAR page 131 and 1986 SONAR page 14	None

Permits

Local: Comprehensive plan amend if the community has a plan; Zoning permits; Subdivision/platting approval; Conditional Use Permit; Site plan approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Building permits for structures.

State: Driveway permit (MnDOT) if state highway.

Federal: Clean Water Act 404 permit (wetlands).

Discussion

Background

This category includes a wide variety of developments categorized as industrial, commercial, or institutional. Examples include retail spaces, hospitals, or office buildings. This is a longstanding category. According to the 1982 SONAR, “This category area is proposed because of the potential for significant impacts on water quality, air quality, solid waste generation, hazardous waste generation, transportation, land use, demographic and economic impacts on local economies.” Later rulemaking sought to clarify when this category would be used if projects fall into multiple mandatory categories.

RGU experience

All reviews in this category were conducted by local government units. The majority fell under item A and item B. In the last three years, EQB received one petition for an industrial, commercial, institutional project; it did not result in an EAW. Three additional discretionary reviews took place, in addition to the mandatory reviews listed in the chart above.

DRAFT

Public perspective

EQB heard it can be confusing as to what constitutes a "new use" in this category. For example, EQB was asked if converting an existing commercial building into an industrial building is a new use. Relating to the threshold, EQB heard one commenter suggest lowering square footage thresholds especially for projects in the metro area.

Opportunities for guidance

EQB can improve guidance on what constitutes a "new use" and therefore applies to this category.

Recommendation

No change.

Air pollution

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 15	MPCA	1982 SONAR page 134, 1988 SONAR page 41, 2005 SONAR page 34, 2010 SONAR	1 (2022) 1 (2023)

Permits

City: Building Permit; Conditional Use Permit; Sanitary Sewer Hook-up; Wastewater Discharge Permit; Zoning Certificate; Utility Permit.

County: Watershed District Permit; Conditional Use Permit.

State: Air Emissions Permit (MPCA); NPDES General Construction Stormwater Permit (MPCA); NPDES Industrial Stormwater Permit (MPCA); NPDES Wastewater Discharge Permit (MPCA); Above Ground Tanks Permit (MPCA); Very Small Quantity Hazardous Generator License (MPCA); Beneficial Use Approval for ash land application (MPCA); Concurrence on Findings of Cultural Resources Impacts (MN SHPO); Water Appropriation Permit (DNR); Minnesota Natural Heritage Database Search (DNR); Fire Marshall Plan Review; Highway Crossing Permit (MnDOT).

Federal: Threatened and Endangered Species Review (US FWS); Hazardous Waste Generators Identification Number (EPA).

Discussion

Background

This category encompasses any project that emits air pollution at levels defined by the category. This is a longstanding category. According to the 1982 SONAR, “This category area is proposed because of public concern relating to air quality and its impact on human health and the environment, especially via implications relating to acid rain.” Initially, this category applied to parking facilities and stationary sources. Over time, changes were made to remove parking facilities partly because those projects, if large enough, would generally be reviewed through other categories. The State of Minnesota has further prioritized greenhouse gas emissions reductions and mitigation measures for climate change since this category was last updated.

RGU experience

Since 2021, one facility has exceeded the 250 ton per year threshold in item A of this subpart. It is likely that smaller facilities may still have the potential for significant environmental effects. A 100 tons per year threshold would be consistent with the major source threshold used in air emissions permitting under the Clean Air Act.

Public perspective

One comment said air permitting programs make this category unnecessary, but environmental review fulfills a different planning need and is meant to inform permitting. Most related comments asked EQB to consider adding a mandatory EIS category for greenhouse gas (GHG) emissions. Comments say this should be based on the assumed project’s life, or a life cycle assessment of the project.

Rule change considerations

MPCA recommends adding a category for Hazardous Air Pollutants (HAPs) with a threshold of 10 tons per year (TPY) per single HAP, and 25 TPY for a combination of HAPs. HAPs are known to cause cancer and other serious health impacts. This recommendation aligns with the definition of a “major source” of HAPs in the Clean Air Act. The Clean Air Act requires EPA to regulate such pollutants, also referred to as air toxics. There are 188 known HAPs on EPA’s list.

MPCA also recommends changing the existing threshold of subpart A from 250 tons per year to 100 tons per year. The same recommendation was made in the 2021 Mandatory Category Report. In addition to providing consistency with air permitting rules, the threshold should be modified to 100 tons per year because:

1. The U.S. Environmental Protection Agency has revised multiple National Ambient Air Quality Standards (NAAQS) for criteria air pollutants (lead, particulate matter, nitrogen dioxide, sulfur dioxide, and ozone) to be more stringent.

2. The MPCA considers air assessments, which may include modeling and Air Emission Risk Analysis (AERA), for projects with air emissions that go through environmental review. Although some air emissions projects would go through modeling independently during their permitting reviews, they do not typically undergo

an AERA, which captures information about air toxics and health risks. This additional information helps inform the EAW.

MPCA also recommends considering a mandatory EIS category for large emitters of Greenhouse Gases (GHGs). Creating a GHG emissions subpart aligns with the Climate Action Framework, where Minnesota has set goals to reduce its GHG emissions by 50% by 2030 and to achieve net-zero emissions by 2050. If a mandatory EIS category were created, any new projects that emit substantial amounts of GHGs would then be subject to the information-gathering and planning required by an EIS. Establishing a mandatory GHG EIS category would require further discussions by an interagency team of experts.

Recommendation

Consider creating a mandatory EIS category for air pollution, as it relates to criteria pollutants, air toxics, and greenhouse gas emissions; consider changing the EAW threshold in item A from 250 tons per year to 100 tons per year; consider adding an item to establish separate thresholds for hazardous air pollutants.

Hazardous waste

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 16	MPCA	1982 SONAR page 135, 1988 SONAR page 41 and 2019 SONAR page 35	None

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 12	MPCA	1982 SONAR page 135, 1988 SONAR page 59, and 2019 SONAR page 53	None

Permits

City: Building Permit; Conditional Use Permit; Zoning; Fire Department Review.

County: Conditional Use Permit; Septic System Permit; Watershed Districts; Watershed Permits.

State: NPDES General Construction Stormwater permit (MPCA); NPDES Industrial Stormwater Permit (MPCA); Above Ground Storage Tank Permit (MPCA); Section 401 Water Quality Certificate (MPCA); Air Emissions Permit (MPCA); Access Permit (MnDOT); Minnesota Natural Heritage Database Search (DNR); Work within Waters of the State Permit (DNR); Cultural Resources Review (MN SHPO).

Federal: Army Corps of Engineers Section 404 Wetland Permit.

Discussion

Background

This category includes hazardous waste facilities, including storage and treatment. This is a longstanding category. According to the 1982 SONAR, “This category area is proposed because of the potential for ground and surface water contamination and the resultant human health and environmental impacts that may result from the disposal, processing, and storage of hazardous wastes. Additional concerns include potential air quality, noise and odor impacts, safety questions relating to handling, and transportation and land use issues.” Later changes clarified how the category applied to sensitive areas and clarified terms.

RGU experience

There were no projects completed under this category in the previous three years. The project type, criteria, and threshold are still relevant.

Public perspective

During the engagement process, few comments related to updating the hazardous waste terms or thresholds. One comment noted that current regulations do not call out lithium batteries. The primary issue with lithium batteries is that their compaction or improper storage can leads to fires. However, this category references the “hazardous waste” definition used in Minn. R., Chapter 7045 and lithium batteries are included in this definition.

Recommendation

No change.

DRAFT

Solid waste

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 17	MPCA	1982 SONAR page 137, 1988 SONAR page 43 and 2019 SONAR page 36	none

Permits

City: License to Operate Waste Transfer Facility; Building Permit; Utility Permit; Conditional Use Permit; Zoning Amendment; Watershed Districts; Watershed Permit; Compost Facilities.

County: Conditional Use Permit; Operating License; Septic Permit; Very Small Quantity Generator Hazardous Waste License.

State: Solid Waste Management Facility Permit (MPCA); NPDES Industrial Stormwater Permit (MPCA); NPDES General Construction Stormwater Permit (MPCA); Metropolitan Area Policy Plan Review (MPCA); Solid Waste Permit (MPCA); Very small Quantity Generators Hazardous Waste License (MPCA).

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 13	MPCA	1982 SONAR page 137 and 2019 SONAR page 53	1*

**The project listed here is a supplemental EIS performed under Minn. R. 4410.3000.*

Permits

City: Building Permit; Conditional Use Permit; Zoning; Fire Department Review.

County: Conditional Use Permit; Septic System Permit; Watershed Districts; Watershed Permits.

State: NPDES General Construction Stormwater permit (MPCA); NPDES Industrial Stormwater Permit (MPCA); Above Ground Storage Tank Permit (MPCA); Section 401 Water Quality Certificate (MPCA); Air Emissions Permit (MPCA); Access Permit (MnDOT); Minnesota Natural Heritage Database Search (DNR); Work within Waters of the State Permit (DNR); Cultural Resources Review (MN SHPO).

Federal: Army Corps of Engineers Section 404 Wetland Permit.

DRAFT

Discussion

Background

This category includes multiple project types including landfills, transfer stations, and solid waste energy recovery and incineration facilities. This is a longstanding category. The 1982 SONAR says, “This category area is proposed because of the potential for significant impacts relating to ground and surface water contamination…Additional environmental concerns relate to methane gas generation, fugitive dust, emissions, odor and noise problems, transportation issues, aesthetic impacts, toxic air emissions and land use issues.”

RGU experience

Three discretionary reviews took place since 2021, in addition to the mandatory reviews listed in the chart above. The MPCA notes that the term “permitted capacity” is used in this category, but that term is not defined in the solid waste rules nor in the environmental review rules.

Public perspective

There were few comments related to this category. One commenter did suggest a mandatory category for commercial composting, but mixed municipal solid waste compost facilities are already included in item E.

Rule change considerations

To provide consistency, “permitted capacity” could be replaced with the term “design capacity,” which means “the total volume of compacted solid waste, topsoil, intermittent, intermediate, and final cover specified in the facility permit, as calculated from final contour and cross-sectional plan sheets that define the areal and vertical extent of the fill area.” Alternatively, permitted capacity could mean “permitted capacity as defined in the existing permit.”

Resource recovery facilities and recycling facilities could be explicitly included in this category, added to Subp. 17 item E. In keeping with the solid waste program rules, it may also be prudent to include construction and demolition land disposal facilities and transfer stations in this category. Such wastes are found to be more environmentally impactful than once thought. This could be accomplished simply by changing references from “mixed municipal solid wastes” to “solid waste” as defined in Minn. Stat. 115A.03.

Recommendation

Consider updating terminology to include all waste types, like ‘construction and demolition’ waste and better align with the MPCA solid waste program’s existing definitions for terms like ‘design capacity.’

DRAFT

Wastewater systems

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 18	MPCA	1982 SONAR page 140, 1986 SONAR page 12, 1988 SONAR page 46, 1995 SONAR page 12, 1997 SONAR page 17, 2005 SONAR page 36, and 2019 SONAR page 37	2 (2021) 2 (2022) 0 (2023)

Permits

City: Conditional Use Permit; Street and Utility Plan Approval; Wastewater Treatment Facility Permits; Building Permit.

County: Highway Access/Entrance Permit; Watershed District Project Approval; Watershed Permit; Application for Minnesota Wetland conservation Act Exemption; Building Permit; Certificate of Wetland Conservation Act Exemption; Utility Permit; Right-Of-Way Permit.

State: Sewer Extension Permit (MPCA); NPDES General Construction Stormwater Permit (MPCA); Section 401 Water Quality Certificate (MPCA); Water Appropriation Permit (DNR); Minnesota Natural Heritage Database Review (DNR); Utility Crossing License (DNR); Work Within Public Waters Permit (DNR); Utility Permit on Trunk Highway Right-Of-Way (MnDOT); Watermain Plan Approval (MDH); Water Extension Permit (MDH); Metropolitan Council Connection Permit; Concurrence on Findings of Cultural Resources Impacts (MN SHPO); WWTF Plans and Specifications Approval (MPCA); SDS Permit for land application of treated Wastewater (MPCA); Sanitary Sewer Extension Permit (MPCA); NPDES/SDS Surface Water Discharge Permit (MPCA); NPDES Industrial Stormwater discharge Permit (MPCA); Air Quality Permit for backup generators (MPCA); Non-degradation to All Waters Review (MPCA); Water Appropriation Permit (DNR); License to Cross Public Lands and Waters (DNR); Natural Heritage and Nongame Database Review (DNR); Outfall Permits (DNR); Well Abandonment Permit (MDH); Public Facilities Authority Funding Application; Board of Water and Soil Resources Wetland Conservation Act Permits.

Federal: Section 10 Permit for activities affecting navigable waters in the U.S (USACE); Section 404 Permit (USACE); Wastewater Infrastructure Funding Program (USACE); Outfall Permits (USACE).

Discussion

Background

This category includes sewage collection systems and wastewater treatment facilities. This is a longstanding category and multiple changes have been made to this category over time. According to the 1982 SONAR, this category was first proposed because of “problems associated with treatment facilities including ground and surface water pollution due to effluent discharges and sludge and ash disposal, and air pollution from sludge incineration.”

DRAFT

RGU experience

One discretionary review took place, in addition to the mandatory reviews listed in the chart above. The RGU for this category notes several areas for potential clarifications. For example, during previous rulemaking, the words "per day" were inadvertently omitted in the adopted rule language for Item B regarding expansion, modification, or replacement of a municipal sewage collection system. The correct language using "per day" was described in the SONAR. The recommendation to add in the words "per day" was also made in the 2021 Mandatory Category Report.

Public perspective

EQB received no comments specifically relating to this mandatory category.

Rule change considerations

According to notes in the SONAR, this category is intended to read, "…with the capacity of 20,000,000 gallons per day or greater, the PCA is the RGU." Therefore, EQB should consider correcting Item B to include "per day." Additionally, items C and D refer to municipal or *domestic* WWTF when WWTF is defined as municipal or *industrial* in Minn. R. 4410.0200; these terms should be reviewed for consistency and clarity. For clarity, EQB should also consider adding definitions for the following terms: "design average daily flow," "average wet weather design flow capacity," and "design flow capacity." MPCA also recommends adding clarity to specify the movement of a discharge outfall is considered a "new wastewater treatment facility." EQB could also consider modifying the definition for "sewage collection system" to include a lift station. Lastly, during housekeeping, the following sentence should be moved to the beginning of the subpart so that it may clearly apply to the entire category and not be housed under Item F: "This category does not apply to industrial process wastewater treatment facilities that discharge to a publicly owned treatment works or to a tailings basin reviewed according to subpart 11, item B."

Recommendation

Consider housekeeping updates and defining terms for clarity.

DRAFT

Residential development

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 19	LGU	1982 SONAR page 141 and 1988 SONAR page 47	6 (2021) 11 (2022) 7 (2023)

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 14	LGU	1982 SONAR page 141 and 1988 SONAR page 63	None

Permits

Local: Comprehensive plan amendment if the community has a plan; Rezoning if the community has zoning; Subdivision/platting approval; Conditional Use Permit or Planned Unit Development Permit; Site plan approval; Grading/drainage/erosion control plan; Shoreland permit; Floodplain permit/approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Road access permit on local road; Building permits for structures.

State: Driveway permit (MnDOT) if state highway; Public Waters Permit (DNR).

Federal: Clean Water Act 404 permit (wetlands).

Discussion

Background

This category includes any residential development, and it is a longstanding category. The 1982 SONAR says, “This category area is proposed because of the potential for significant impacts on land use, demographic and economic impacts on local economies, transportation facilities, wildlife habitat and water quality.”

RGU experience

A relatively large number of projects performed an EAW for this category in the last three years. Three additional discretionary reviews took place, in addition to the mandatory reviews listed in the chart above. The 2021 Mandatory Category report suggested simplifying the formula for calculating this threshold. EQB has received questions on how to interpret the phrases, “permanent” and “potentially permanent.” The 2021 Mandatory Category Report also notes that creating definitions for “private septic systems” and “incorporated” versus “unincorporated” would help in applying this category. In the last three years, EQB received ten petitions for residential development projects. Four of these petitions resulted in an EAW.

Public perspective

Some commenters say this category is overly complex and difficult to enact due to the calculations required. Comments on this category represent differing perspectives on the threshold, ranging from raising the threshold to performing more EISs due to large developments' potential climate impacts. For more context, one commenter explained the threshold could be increased for the metro region, because those sites are already completing a comprehensive plan every ten years. Many commenters agreed that if no comprehensive plans were in place, then a threshold would be more useful. Many numerical thresholds were offered to EQB, but further conversations would need to take place before formulating any new thresholds that align with program goals for user-friendliness, consistency, and up to date science-based evaluation.

Rule change considerations

EQB can simplify how the formula is presented in rule, so that it is easier to use. EQB should consider definitions in Minn. R. 4410.0200 for the terms "permanent" and "potentially permanent", "private septic systems", and "incorporated" versus "unincorporated."

Recommendation

Consider simplification of computations in rule; consider defining terms in Minn. R. 4410.0200 to clarify when projects meet the threshold.

Residential development in shoreland outside of the seven-county Twin Cities metropolitan area

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 19a	LGU	2007 SONAR page 43	3 (2021) 4 (2022) 2 (2023)

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 14a	LGU	2007 SONAR page 52	None

Permits

Local: Comprehensive plan amendment if the community has a plan; Rezoning if the community has zoning; Subdivision/platting approval; Conditional Use Permit or Planned Unit Development Permit; Site plan approval; Grading/drainage/erosion control plan; Shoreland permit; Floodplain permit/approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Road access permit on local road; Building permits for structures.

State: Driveway permit (MnDOT) if state highway; Public Waters Permit (DNR).

Federal: Clean Water Act 404 permit (wetlands).

Discussion

Background

This category refers specifically to residential development that takes place within shoreland, but outside of the seven-county metro area. This category was added in 2007.

RGU experience

The 2021 Mandatory Category Report says, “Clarification in the shoreline development section could help determine when or if a subdivision might require an EAW.” Also, it suggests that EQB “Clarify the difference between ‘permanent’ and ‘potentially permanent.’” EQB also receives technical assistance questions about the application of “common open space,” indicating that its definition could be improved. EQB received one petition for residential development in shorelands, which did not result in an EAW.

Public perspective

There were no comments specific to residential development in shorelands.

Rule change considerations

EQB can consider defining “permanent,” “potentially permanent,” and “common open space” to help project proposers and RGUs understand if projects meet or exceed the thresholds in this category.

Recommendation

Consider defining terms in Minn. R. 4410.0200, such as clarifying the difference between “permanent” and “potentially permanent” and refining the definition of “common open space” to help clarify when projects meet the threshold.

DRAFT

Campgrounds and RV parks

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 20	LGU	1982 SONAR page 144	2 (2023)

Permits

Local: Comprehensive plan amendment if the community has a plan; Rezoning if the community has zoning; Subdivision/platting approval; Conditional Use Permit or Planned Unit Development Permit; Site plan approval; Grading/drainage/erosion control plan; Shoreland permit; Floodplain permit/approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Road access permit on local road; Building permits for structures.

State: Driveway permit (MnDOT) if state highway; Water appropriation permit.

Federal: Clean Water Act 404 permit (wetlands).

Discussion

Background

This category originated as part of the "Recreational Development" category which was proposed because campgrounds and RV parks tended to be near natural areas. The 1982 SONAR says, "This category area is proposed because recreational developments are typically proposed adjacent to areas with significant natural resources. Such development may significantly increase human activity in sensitive areas."

RGU experience

The project type, criteria and threshold are still relevant.

Public perspective

Commenters shared feedback on campgrounds, but almost all of them pertained to campgrounds in shorelands (Minn. R. 4410.4300, Subp. 20a).

Recommendation

No change.

DRAFT

Resorts, Campgrounds, and RV parks in shorelands

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 20a	LGU	1982 SONAR page 144, 2007 SONAR page 49, 2009 SONAR page 28	1 (2021)

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 26	LGU	2007 SONAR page 55	None

Permits

Local: Comprehensive plan amendment if the community has a plan; Rezoning if the community has zoning; Subdivision/platting approval; Conditional Use Permit or Planned Unit Development Permit; Site plan approval; Grading/drainage/erosion control plan; Shoreland permit; Floodplain permit/approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Road access permit on local road; Building permits for structures.

State: Driveway permit (MnDOT) if state highway; Water appropriation permit.

Federal: Clean Water Act 404 permit (wetlands).

Discussion

Background

This category pertains to resorts or other recreational developments accessible by vehicle, that are located wholly or partially in shoreland. Shoreland ordinances are established and enforced by the county. The 1982 SONAR shows this category was first referred to as “Recreational development” and specifically notes, “This category area is proposed because recreational developments are typically proposed adjacent to areas with significant natural resources. Such development may significantly increase human activity in sensitive areas.” The category was later changed to refer to “shoreland” which is consistent with other changes made throughout the mandatory categories.

RGU experience

One discretionary review took place in addition to the mandatory reviews listed in the chart above. EQB has received questions on the interpretation of “common open space” so evaluation of this definition may be appropriate. The 2021 Mandatory Category Report also suggested a definition for “common open space.” EQB has also received feedback during technical assistance calls that the calculation for this category can be confusing to

interpret. In the last three years, EQB received five petitions for projects in this category; two of these petitions resulted in an EAW.

Public perspective

EQB heard concerns that the threshold requirements assume all lakes have the same ability to accommodate the same number of dwelling sites, without considering lake classification (like deep or shallow) or lake carrying capacity. Some comments suggest that the threshold is too high, and others said that the threshold was too low. Other comments said that there should be a mandatory EIS required for RV campgrounds and resort development of RV campgrounds on shallow lake areas or wetland areas, and that there should be consideration of phosphorous sensitivity of the lake, overall lake health trends, wildlife impacts, etc. In further evaluating if there is a need for an EIS category, EQB could consider if these types of concerns may also be covered by other mandatory categories such as Subp. 27.

Rule change considerations

EQB could consider evaluating a threshold proportional to lake size or carrying capacity, improving calculations for readability in rule, and revising the definition for “common open space” to promote consistent interpretation of this category’s thresholds.

Recommendation

EQB could consider simplifying this category’s calculation for better readability in rule, revising the definition for “common open space” in Minn. R. 4410.0200, and beginning further conversations to evaluate the effectiveness of measuring the threshold using a marker of lake carrying capacity.

DRAFT

Airport projects

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 21	DOT, LGU, Metropolitan Airports Commission	1982 SONAR page 145 and 1997 SONAR page 19	None

Permits

Local: Site plan approval; Grading/drainage/erosion control plan; Wetlands mitigation plan; Conditional use permits; Zoning permit; Possible subdivision/platting review; Building permit for structures.

State: NPDES Construction Stormwater General Permit (stormwater pollution prevention during construction).

Federal: FAA 7460 Notification (height, safety and operational hazards related to airspace).

Discussion

Background

This category generally relates to the construction or extension/upgrade of airport runways. According to the 1982 SONAR, “This category area is proposed because of the potential for significant impacts related to local and regional land use, local economic and demographic issues, transportation, noise, air quality, and energy.” No projects were completed for this category in the previous three years.

RGU experience

There were no issues identified and no changes recommended.

Public perspective

There were no issues identified and no changes recommended.

Recommendation

No change.

DRAFT

Airport runway projects

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 15	DOT, LGU	1997 SONAR page 19	None

Permits

Local: Site plan approval; Grading/drainage/erosion control plan; Wetlands mitigation plan; Conditional use permits; Zoning permit; Possible subdivision/platting review; Building permit for structures.

State: NPDES Construction Stormwater General Permit (stormwater pollution prevention during construction).

Federal: FAA 7460 Notification (height, safety and operational hazards related to airspace).

Discussion

Background

This category generally relates to the construction or extension/upgrade of airport runways. No projects were completed for this category in the past three years.

RGU experience

There were no issues identified and no changes recommended.

Public perspective

There were no issues identified and no changes recommended.

Recommendation

No change.

DRAFT

Highway projects

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 22	DOT, LGU	1982 SONAR page 146 and 2019 SONAR page 39	2 (2021) 2 (2022) 3 (2023)

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 16	DOT, LGU	1982 SONAR page 147	None

Permits

Local: Grading/drainage/erosion control plan; Wetland Conservation Act approval and/or wetlands mitigation plan; Shoreland permit; Floodplain permit/approval; Subdivision/platting approval; Conditional use permits; Building permit for structures; Easement Vacation; Watershed District permit (wetland mitigation, stormwater pollutant restrictions, infiltration requirements, or volume control reductions).

State: NPDES Construction (stormwater pollution prevention during construction); 401 Certification (MPCA authority to review 404 permit applications (per CWA)).

Federal: USACE Section 10 (work on structures other than bridges or causeways that affect the course, condition, or capacity of navigable waters of the United States); USACE 404 (regulates the discharge of dredged and fill material into waters of the United States, including wetlands).

Discussion

Background

According to the 1982 SONAR, “This category area is proposed because of the potential for significant impacts related to local and regional land use, local economic and demographic issues, transportation, noise, air quality, energy, water quality, erosion, drainage, water resources, habitat destruction, and construction impacts.” In the last three years, EQB received one petition for a highway project; it did not result in an EAW. Two additional discretionary reviews took place, in addition to the mandatory reviews listed in the chart above. Seven projects completed mandatory review; MnDOT performed three of those EAWs and local governments performed four. Those reviews met thresholds under Items A or B.

RGU experience

There were no issues identified and no changes recommended.

Public perspective

Only a few public engagement comments pertained to this category. One comment asked EQB to clarify exemptions from review of highway projects, particularly the exemptions for "highway safety improvement projects," and to define "modernization" of existing roadways or bridges. Of note, a "highway safety improvement project" is defined in Minn. R. 4410.0200.

Recommendation

No change.

Barge fleeting

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 23	DOT, Port Authority	1982 SONAR page 149	None

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 17	DOT, Port Authority	1982 SONAR page 149	None

Permits

Local: Site Plan Approval; Possible subdivision/platting review; Grading permit; Building permit for structures; Conditional use permits (operator facilities).

State: DNR, MPCA and MnDOT (review or permitting of sheet pile at edge of slip).

Federal: USACE Section 404 permit, FAA Temporary Airspace Permit (for construction cranes); FAA Permanent Airspace Permit (with mapping revisions for cranes and building locations in area).

International: Boundary Waters Treaty of 1909 (guarantees international navigable waters be free and open).

Discussion

Background

This category covers the construction or expansion of barge fleeting facilities – those facilities where barges are temporarily held while waiting for other actions (loading/unloading, towing, repairs, etc.). This is a longstanding category. The 1982 SONAR describes that "Primary problems associated with the environmental impacts center on the effects of dredging and [soil] disposal on water quality and habitat disruption for wildlife populations." There were no projects completed for this category in the previous three years. The project type, criteria, and threshold are still relevant.

RGU experience

There were no issues identified and no changes recommended.

Public perspective

There were no comments directly relating to this category.

Recommendation

No change.

Water appropriation and impoundments

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 24	DNR	1982 SONAR page 150 and 1988 SONAR page 53	1 (2021) 1 (2022)

Permits

Local: Grade and fill permit; Building permit; Conditional use permit; Land use permit.

State: Water appropriation permit; Public water work permit; Utility crossing license; Permit to appropriate from infested waters; Listed species takings permit; Construction stormwater general permit; Tank registration; Air emissions permit.

Federal: 404 permit.

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 18	DNR	1982 SONAR page 150	None

Permits

State: Dam safety permit; Public water work permit

Discussion

Background

This category applies to dams and large water appropriations from surface or groundwater. This is a longstanding category. According to the 1982 SONAR, “This category area is proposed because of the potential for significant

impacts related to ground water quantity and quality, dam safety, habitat alteration, flooding, and land use issues." Statewide, water appropriation needs are growing to support community and commercial expansions.

RGU experience

Two discretionary reviews took place, in addition to the mandatory reviews listed in the chart above. The 2021 Mandatory Category report identified issues that are still relevant: "Large water users that modify existing permits or use multiple wells might not surpass the threshold. Cumulative totals of water usage by a single entity/owner/user are not considered in the threshold since the category is limited to 'new appropriations.'" The 2021 report also mentions that "'Continuous parcel' warrants definition since it has been interpreted historically to indicate a parcel that contains no breaks/subdivisions (such as multiple parcels divided by a road). Considering parcels are routinely smaller than 540 acres, this threshold is rarely surpassed though there are many large irrigation facilities."

Public perspective

During the engagement process over eighty comments were received related to water appropriations, most as part of a form letter. In general, commenters highlighted water appropriations as a concern due to increased water use over time in combination with the additional pressures of climate change. Commenters suggested the development of a mandatory EIS category that would apply to large water users. Some comments suggested considering a lower EAW threshold for water appropriations due to environmental impacts resulting from commercial users that propose to transport appropriated water offsite for consumptive uses.

Opportunity for rule change

EQB suggests continued conversations to ensure that the thresholds of this category are serving their intended purpose.

Recommendation

No change.

DRAFT

Marinas

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 25	LGU	1982 SONAR page 151	1 (2022)

Permits

Local: Comprehensive plan amend if community has a plan; Rezoning if the community has zoning; Subdivision/platting approval; Conditional Use Permit; Site plan approval; Grading/drainage/erosion control plan; Shoreland permit; Floodplain permit/approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Road access permit on local road; Building permits for structures.

State: Work in public waters (DNR).

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 19	LGU	1982 SONAR page 151	None

Permits

Local: Grading Comprehensive plan amend if community has a plan; Rezoning if the community has zoning; Subdivision/platting approval; Conditional Use Permit; Site plan approval; Grading/drainage/erosion control plan; Shoreland permit; Floodplain permit/approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Road access permit on local road; Building permits for structures.

State: Work in public waters (DNR).

Discussion

Background

This category includes the construction or expansion of a marina or harbor. This is a longstanding category. The 1982 SONAR says, “This category area is proposed because of the potential for significant impacts related to water quality, air quality, noise, wildlife habitat, aesthetics, and the use of public resources.”

RGU experience

EQB has fielded questions asking how to calculate areas for ‘maneuvering’ and for ‘an increase in water surface area’. One project was completed in the previous three years.

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Public perspective

There were no comments directly related to this mandatory category.

Opportunities for guidance

EQB can evaluate existing guidance resources and opportunities to ensure consistent application of terminology for terms like 'maneuvering' and 'increase in water surface area.'

Recommendation

No change.

Stream diversion

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 26	DNR, LGU	1982 SONAR page 152, 1997 SONAR page 20, and 2019 SONAR page 41	1 (2021) 3 (2022) 2 (2023)

Permits

Local: Grading/drainage/erosion control plan; Shoreland permit; Floodplain permit/approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Land alteration permit; Conditional use permit.

State: Work in public waters (DNR).

Federal: Section 404 Clean Water Act.

Discussion

Background

This category applies broadly to projects that impact the flow of streams; it is applicable to a variety of projects such as culverts, banks stabilizations, restoration activities and other projects. The 1982 SONAR says, "This category area is proposed because the alteration of watercourses affects flooding in downstream and adjacent areas, wildlife habitat, fisheries resources, water quality, and area land use." EQB rulemaking in 1997 amended subpart 26 to add the word "realignment." The SONAR says, "Realignment often means straightening, which has a serious effect on water flows and stream habitat." 2019 rulemaking aligned exemptions in 4410.4600 to also reflect the addition of the word "realignment."

RGU experience

Of the six environmental reviews that took place, four were completed by local government units. The 2021 Mandatory Category Report says there needs to be definitions for “diversion,” “realignment,” and “channelization.” This recommendation still stands, and the need was affirmed by some LGU feedback.

Public perspective

Some commenters said stream restorations should be exempt. EQB also heard that sometimes projects are proposed that result in fewer improvements to streams to avoid an EAW.

Rule change considerations

EQB can work with technical experts to develop definitions in Minn. R. 4410.0200 for the terms “diversion,” “realignment,” and “channelization” to eliminate uncertainty and provide consistency in application of this category.

Recommendation

Consider adding definitions for terms like “diversion” and “realignment” to Minn. R. 4410.0200.

Public waters, public waters wetlands, and wetlands

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 27	DNR, LGU	1982 SONAR page 153, 2005 SONAR page 39, and 2019 SONAR page 42	16 (2021) 12 (2022) 11 (2023)

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 20	DNR, LGU	1982 SONAR page 153 and 2019 SONAR page 55	1 (2023)

Permits

Local: Grading/drainage/erosion control plan; Shoreland permit; Floodplain permit/approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Conditional use permit.

State: Work in public waters (DNR).

Federal: Section 404 Clean Water Act.

Discussion

Background

This category relates to certain types of changes within waters and was first called “Wetlands and Protected Waters.” This is a longstanding category. Forty-two projects were completed in the past three years. The 1982 SONAR says, “This category area is proposed because of the potential for significant impacts related to flood control, erosion control, water quality, wildlife habitat, recreation, and aesthetics.” Changes made in 2005 aligned terminology with amended State water laws. Changes in 2019 renamed the title of the category and updated the definition of “wetland.”

RGU experience

Thirty reviews in this category were conducted by local government units. In the last three years, EQB received one petition for a public waters/wetlands project; it did not result in an EAW. In the last three years, EQB received five petitions for ditch improvement projects, none of which resulted in an EAW. Two discretionary reviews took place, in addition to the mandatory reviews listed in the chart above. The 2021 Mandatory Category Report identified the following suggestion which remains relevant: “Overlay districts should be examined and investigated for historical purpose and effectiveness in current context.”

Public perspective

EQB received a wide array of comments with some saying this category is unnecessary and others looking to include more projects under review in this category. Broadly, respondents highlighted the importance of documenting cumulative impacts to water quality. Comments asked EQB to consider revising thresholds so EAWs may be required when there are cumulative impacts to five or more wetland basins or wetland impacts of a certain acreage. Respondents mentioned that requiring an EIS for a dam removal — which may exceed a threshold in this category because it results in the elimination of a public water — is onerous and may result in a less ecologically sound option being selected in the name of avoiding an EIS.

Recommendation

No change.

DRAFT

Forestry

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 28	DNR	1982 SONAR page 154 and 1997 SONAR page 21	None

Permits

Local/Sate/Federal: Timber sale.

Discussion

Background

This category includes clearcutting and harvesting of timber. According to the 1982 SONAR, this category started as "Agriculture and Forestry" and was enacted due to the "potential for significant impacts relating to water quality, soil erosion, and land use." According to the 1997 SONAR, this subpart was proposed to apply only to forestry activities.

RGU experience

There were no projects completed in this category in the past three years.

Public perspective

Item A of this subpart specifically mentions timber harvesting on public lands. Commenters shared concerns for deforestation activities not covered by this category because they are on private lands - because of their potential to contaminate groundwater with herbicides, pesticides, fungicides, and fertilizers and due to widespread loss of fire-adapted forest and habitat. Commenters shared concerns over losing fire-adapted forest and emitting greenhouse gases from deforestation.

Recommendation

No change.

DRAFT

Genetically engineered wild rice

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 28	EQB	2007 SONAR page 56	None

Permits

State: The EQB issues a release permit unless the Board has authorized an agency with a significant environmental permit. The EQB determined that the MDA had a significant environmental permit for agriculturally-related GEOs. The MDA has the authority to regulate GE wild rice per Minn. Stat., chapter 18F.

Federal: The USDA has jurisdiction over agriculturally- related GEOs. USDA works within the Coordinated Framework for the regulation of Biotechnology (EPA, USDA-APHIS, FDA). The MDA cooperated with the USDA in regulation of agriculturally related GEOs.

Discussion

Background

This category is for the release of genetically engineered wild rice. The 2007 SONAR says, **"**This new subpart establishes a mandatory category for preparation of an EIS for any project proposed in Minnesota that would involve the release and a permit for a release of genetically engineered wild rice. The 2007 session of the Minnesota Legislature enacted a law making this specific requirement."

RGU experience

No projects were completed for this category in the previous three years. The project type, criteria, and threshold are still relevant.

Public perspective

There were no comments directly related to this mandatory category.

Recommendation

No change.

DRAFT

Animal feedlots

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 29	MPCA, County	1982 SONAR page 156, 1988 SONAR page 55, 2005 SONAR page 42	2 (2021) 1 (2022) 1 (2023)

Permit

Local: Conditional Use Permit; Grading/drainage/erosion control plan; Wetland Conservation Act approval and/or wetlands mitigation plan; Zoning; Building permits for structures; Discharge to Surface Waters.

State: NPDES/SDS Feedlot Permit (MPCA); NPDES Construction Stormwater Permit (MPCA); Water Appropriations Permit (DNR); Board of Animal Health (DNR); Notification to Compost Dairy Cattle (DNR); Fire Marshall (DNR); Plan Review (DNR).

Federal: NPDES administered by State.

Discussion

Background

This category includes animal feedlot facilities. It is a longstanding category. The 1982 SONAR says, “This category is proposed because of the potential for significant environmental impacts relating to ground and surface water quality, odors, and local land use issues.” Thresholds were adjusted in 2005.

RGU experience

The MPCA almost always serves as the RGU for animal feedlot projects that meet or exceed the mandatory category thresholds. In 2000 MPCA created an alternative feedlot form, which EQB approved for use. MPCA is proposing changes to State Disposal System (SDS) and National Pollution Discharge Elimination System (NPDES) general feedlot permits. Proposed changes specifically address manure application to fields. MPCA is currently developing updates to their alternative EAW form for animal feedlots to coincide with the requirements of the revised feedlot permits, as well as to reflect changes to the overall EAW form, such as addressing climate resilience and greenhouse gas emissions. EQB will need to approve any updates to the alternative form. EQB will need to analyze the changing regulatory landscape and engage with experts before taking any meaningful steps toward updating this category. In the last three years, EQB received two petitions for feedlot projects, neither of which resulted in an EAW because the projects were exempt from review.

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Public perspective

This category received many comments during the engagement period of this report. Overall, interest surrounded the potential for nitrate pollution resulting from feedlots and their related activities (like manure land application), especially in sensitive areas. Commenters pointed out that manure structures may not be in sensitive areas, but manure may be land applied to sensitive areas. The rule does not directly address land application of manure although it is a part of the project's operation; the threshold only relates to construction or expansion of a facility. EQB heard requests that the current EAW threshold in this category be lowered, rooted in a desire to avoid agriculture-related pollution to waterways. One organization stated the need for an EIS for large feedlots. Additional organizations shared they supported the 2024 proposed bill to add a mandatory feedlot EIS category.

Rule change considerations

The SONAR seems to imply that the exemption for feedlot connected actions was only meant to apply to multi-site hog operations. Thus, it seems appropriate for EQB to further research and evaluate this topic. Furthermore, EQB could consider evaluating the current EAW threshold and adding an EIS threshold.

The EAW threshold is 1,000 animal units and 500 animal units in sensitive locations; those sensitive locations are specifically listed in rule. One example of a sensitive location is an area within a drinking water supply management area. However, this term is specific to state programming and does not recognize Tribal or federal equivalents. Therefore, a solution like the one proposed in the 2021 Mandatory Category Report remains relevant; it says, "consider adding the following language to the list of sensitive locations in order to capture projects impacting Tribal Nations: '…delineated under chapter 4720, or federally delineated under similar criteria'". However, there is no similar federal criteria and further review is needed.

If rulemaking should occur, the following housekeeping changes should be made at that time:

- This category should use the term "floodplain" instead of "flood plain" as the former is defined in Minn. Stat. 103F.105.
- Delete reference to Minnesota River Project Riverbend area as it no longer exists.
- Define exemptions for connected actions to include only hogs or all categories.

Recommendation

Consider evaluating possible threshold changes, adding an EIS threshold, evaluating exemptions from connected actions, and housekeeping updates.

Natural areas

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 30	DNR, LGU	1982 SONAR page 157 and 2019 SONAR page 44	none

Permits

Local: Comprehensive plan amendment if community has a plan; Zoning; Subdivision/platting approval; Conditional Use Permit; Site plan approval; Grading/drainage/erosion control plan; Wetland Conservation Act approval and/or wetlands mitigation plan; Road access permit on local road; Building permits for structures.

State: Master plan per Minn. Stat. 86A.09.

Federal: National Park or forest management plans.

Discussion

Background

This category includes projects resulting in permanent physical encroachment on certain lands. This is a longstanding category. According to the 1982 SONAR, "This category is proposed because natural areas are publicly owned properties that have been set aside to preserve significant natural resources for future generations. These are sensitive areas of unique quality which may be significantly impacted by inappropriate development. Environmental review is necessary for these activities to allow public involvement in decisions affecting publicly owned resources."

RGU experience

No projects have been completed for this category in the previous three years. The project type, criteria, and threshold are still relevant.

Public perspective

Commenters suggested protecting natural areas such as the Superior National Forest or the Boundary Waters Canoe Area Wilderness, but none suggested direct changes to the category.

Recommendation

No change.

DRAFT

Historical places

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 31	LGU, the permitting state agency	1982 SONAR page 157, 1997 SONAR page 21, and 2005 SONAR page 39	2 (2021) 3 (2022) 4 (2023)

Permits

Local: Demolition permit (building permit); Zoning.

State: Environmental Site Assessments (if state funding is provided).

Discussion

Background

This category includes the destruction (in whole or part) or the moving of a historic property. This is a longstanding category. According to the 1982 SONAR, "This category area is proposed because there is very little government authority to protect sites listed on the National Register of Historic Places. The requirement for environmental review prior to the destruction of such facilities is needed to provide the public an opportunity to take part in decisions that may significantly affect the preservation of our national [heritage]. Historical resources are protectible natural resources under the Minnesota Environmental Right Act at Minn. Stat., ch. 116B."

RGU experience

Nine of the ten reviews in this category (listed in the chart above) were completed by a local governmental unit. One discretionary review took place, in addition to the ten mandatory reviews listed in the chart above. In the last three years, EQB received two petitions for a historical project; one resulted in an EAW. Research confirms that construction and demolition waste going to landfills is environmentally impactful, yet this category does not seem to fully encompass such effects. An alternative EAW form could be designed to better meet the unique needs of this project type.

Public perspective

One comment shared the EAW form for these projects can be difficult to complete, since the form does not directly pertain to building demolition. Some commenters believed modifications or removal of historic places is already handled responsibly and would result in no environmental impact.

Rule considerations

Further evaluation is necessary to determine the long-term relevancy of this category before EQB can offer constructive rulemaking recommendations.

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Recommendation

No change.

Mixed residential and industrial-commercial projects

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 32	LGU	1988 SONAR page 55	5 (2021) 6 (2022) 2 (2023)

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 21	LGU	1988 SONAR page 66	None

Permits

Local: Comprehensive plan amendment if the community has a plan; Zoning; Subdivision/platting approval; Conditional Use Permit or Planned Unit Development Permit; Site plan approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Building permits for structures.

State: Driveway permit (MnDOT) if state highway.

Federal: Clean Water Act 404 permit (wetlands).

Discussion

Background

This category includes projects that have mixed residential and industrial-commercial projects. The 1982 SONAR explains the purpose of this category: “This new subpart is included to close a loophole in the existing rules. Currently, a project consisting of a mix of residential and commercial uses (e.g., a condominium complex with retail shops and office space) only requires an EAW if either the residential component or the commercial component exceeds its respective threshold. This means that projects which nearly equal thresholds for two categories are not reviewed, despite the fact that they may have the potential for significant environmental effects.”

RGU experience

The 2021 Mandatory Category Report for this category says, “EQB staff support issues identified from LGUs that the criteria and threshold for these categories be modified, to provide greater clarity in determining if ER is required for a proposed project.” At that time EQB recommended considering a possible change in thresholds, and

that recommendation still stands. In the last three years, EQB received two petitions for projects under this category; one resulted in an EAW.

Public perspective

There were no comments directly related to this mandatory category.

Rule change considerations

EQB can consider housekeeping rule changes to better illustrate how to calculate this threshold. This will provide clarity in interpreting the thresholds for RGUs and project proposers.

Recommendation

EQB should consider making housekeeping changes to this category that uses a calculation that improves readability of the subpart.

Communications towers

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 33	LGU	1988 SONAR page 56 and 1997 SONAR page 22	None

Permits

Local: Conditional Use Permit; Zoning permit; Grading/drainage/erosion control plan; Wetland Conservation Act approval and/or wetlands mitigation plan; Site plan approval; Building permits for structures; Road access permit local road.

State: Driveway permit (MnDOT) if state highway.

Discussion

Background

This category includes construction of a communications tower. The 1997 SONAR says, “The current category for communication towers is based on well-documented hazards to birds posed by towers over 500 feet tall.” It was later noted in the 1997 SONAR that tower location can be as much a factor in bird mortality as tower height. Therefore, changes were made to account for low-flying birds in the vicinity of wetlands or along river bluffs.

RGU experience

No projects were completed for this category in the previous three years. The project type, criteria and threshold are still relevant.

Public perspective

There were no comments directly related to this mandatory category.

Recommendation

No change.

Sports or entertainment facilities

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 34	LGU	1988 SONAR page 57	1 (2023)

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 22	LGU	1988 SONAR page 66	None

Permits

Local: Comprehensive plan amendment if community has a plan; Rezoning if the community has zoning; Subdivision/platting approval; Conditional Use Permit; Site plan approval; Building permits for structures.

State: NPDES; Highway improvements.

Federal: Highway improvements.

Discussion

Background

This category includes facilities such as stadiums, horse racing tracks, entertainment venues, or amphitheaters. The 1988 SONAR says, “This new category is proposed in order to have a more appropriate threshold measure for facilities of this type…Presently, these facilities are covered by the general industrial commercial-institutional category, which has a threshold based on gross floor space. The problem with this relative to sports or entertainment facilities is that the nature of the use of the floor space is entirely different from that in industrial, retail, office, or typical industrial commercial uses.”

RGU experience

One EAW was completed for this category in the previous three years. The project type, criteria and threshold are still relevant.

Public perspective

There were no comments directly related to this mandatory category.

Recommendation

No change.

Release of genetically engineered organisms

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 35	EQB, Permitting State Agency	1991 SONAR page 23	None

Permits

State: The EQB has statutory authority related to permitting GEOs and serves as the coordinating organization within Minnesota for GEO-related state and federal regulatory activities. Additionally, the EQB can approve a different agency to oversee the regulation of certain GEOs. The board approved the MDA's oversight of agriculturally related GEOs in 1995. MDA works closely with the federal GEO coordinated framework for the regulation of agriculturally related GEOs.

Federal: The Coordinated Framework for Regulation of Biotechnology (EPA, USDA-APHIS, FDA)

Discussion

Background

This category includes the release of a genetically engineered organism. According to the 1991 SONAR, "This new mandatory EAW category is proposed to carry out the statutory mandate of Minn. Stat. § 116C.94 that the board adopt rules to require an EAW for the proposed release of genetically engineered organisms. The requirement for an EAW for the release of a genetically engineered organism is needed because a number of potentially serious environmental impacts could result from such activities, if not properly conducted."

RGU experience

No projects were completed for this category in the previous three years. The project type, criteria and threshold are still relevant.

Public perspective

There were no comments directly related to this mandatory category. EQB is actively reviewing the overall federal and state regulatory structure related to GEOs and may have recommendations for changes in the future.

Recommendation

No change.

Land use conversion, including golf-courses

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 36	LGU	1988 SONAR page 54 and 1997 SONAR page 22	3 (2021) 3 (2022) 2 (2023)

Permits

Local: Comprehensive plan amendment if community has a plan; Rezoning if the community has zoning; Subdivision/platting approval; Conditional Use Permit; Land use amendment; Site plan approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Road access permit on local road; Building permits for structures; Grading/drainage/erosion control plan.

State: Water appropriation permit; Driveway permit if state hwy.

Federal: CWA 404 permit.

Discussion

Background

Most often, golf courses were the project types triggering this review. Originally part of a subpart titled “agriculture and forestry,” this mandatory category became its own subpart as explained in the 1988 SONAR.

RGU experience

This category is regularly used with nine EAWs completed in the last three years. The project type, criteria and threshold are still relevant.

Public perspective

Some comments shared concerns of habitat loss and biodiversity loss, but none specifically mentioned changes to this category.

Recommendation

No change.

Land conversions in shoreland

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 36a	LGU	2007 SONAR page 55 and 2019 SONAR page 45	1 (2022)

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 27	LGU	2007 SONAR page 55	None

Permits

Local: Comprehensive plan amendment if community has a plan; Rezoning if the community has zoning; Subdivision/platting approval; Conditional Use Permit; Site plan approval; Grading/drainage/erosion control plan; Shoreland permit; Floodplain permit/approval; Wetland Conservation Act approval and/or wetlands mitigation plan; Road access permit on local road; Building permits for structures.

State: Water appropriation permit; Driveway permit (MnDOT) if state highway; Permit to mine (Reclamation permit); Clean Water Act 401 certification.

Federal: Clean Water Act 404 permit (wetlands).

Discussion

Background

This category was added to address concerns in shoreland areas. According to the 2007 SONAR, “This subpart proposes two thresholds, one for sensitive and the other for nonsensitive shorelands, of 40 and 80 acres, respectively, of permanent conversion of naturally vegetated land, including forests.” Rulemaking in 2019 clarified the category with the term “permanent conversion.”

RGU experience

No projects were completed for this category in the previous three years. The 2021 Mandatory Category Report said, “Clarification in the shoreline development section could help determine when or if a subdivision might require an EAW.” This recommendation remains relevant.

Public perspective

No comments specifically mentioned changes to this category.

Opportunity for guidance update

Shoreline can be measured from flood stage or from a high-water line, so EQB can work with DNR to provide more guidance on how the RGU and project proposer can measure.

Recommendation

Consider housekeeping change for consistency of terms and clarifications for when an EIS is required.

Recreational trails

EAW overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4300. Subp. 37	DNR, Governmental unit sponsoring the project, LGU	2004 SONAR and 2019 SONAR page 46	1 (2021) 1 (2022) 1 (2023)

Permits

Local: Permission to cross land; Land alteration permit; Site permit application; Roadway utility permit; Wetland Conservation Act approval and/or wetlands mitigation plan; Approval for bridges lease amendment; Land use zoning approval; Subdivision/platting approval; Conditional Use Permit; Grading/drainage/erosion control plan; Road access permit on local road.

State: Construction stormwater general permit; 401 certification Section 4(f) evaluation; 401 certification; State trail plan amendment; State funding; Special use permit for highway crossings; Lease agreement State grant; Public water work permit; WCA mitigation plan; SNA permit to cross & trail maintenance agreement; Driveway permit (MnDOT) if state highway.

Federal: Federal grant; Clean Water Act 404 permit; Clean Water Act 401 certification.

Discussion

Background

This category includes trails and vehicle recreation areas; it was initiated by a legislative directive. Trails are subject to in-depth planning processes, which are described in the 2004 SONAR. Trails are divided into two main groups- motorized use and non-motorized use.

RGU experience

RGUs experience these projects to be frequently controversial. In the last three years, EQB received two petitions for trail projects. Neither resulted in an EAW. One discretionary review took place, in addition to the mandatory reviews listed in the chart above. The 2021 Mandatory Category Report said that this category, “Warrants further examination and investigation of discrepancy between paved and unpaved trails threshold, as well as how category applies to trails in Twin Cities Metropolitan Area.”

Public perspective

EQB received a wide range of feedback, but most comments asked for stricter review of trails. Comments asked broadly for re-evaluation of trails on public lands, an EIS threshold for new trail systems, ensured evaluation of connected and phased actions, and for EQB to consider wildlife movements across trail corridors.

Opportunity for guidance

EQB can work with RGUs to provide updated guidance on this category so that there is a better shared understanding of terms within the current context of recreational development. Any re-evaluations of thresholds or definitions should be considered after guidance is considered and updated as needed.

Recommendation

No change.

DRAFT

Water diversions

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 23	DNR	1988 SONAR page 67	None

Permits

State: Water appropriation permit; Minn. Stat. 103G.265; Minn. Stat. 103G.801

Discussion

Background

This category applies to water diverted to areas outside the state. The 1988 SONAR says, “This new category is proposed at the suggestion of the DNR and is in recognition of the awareness that has developed in recent years that the state may be faced in the future with the question of whether and under what circumstances it should permit the diversion of water to other parts of the country.” Minn. Stat. 103G.271 subd. 4.b. prohibits the bulk transfer or sale of water greater than 50 miles from the source or up to 100 miles for public, private, and rural water suppliers. This statutory change occurred within the past 5 years.

RGU experience

No projects were completed for this category in the previous three years. The project type, criteria and threshold are still relevant.

Public perspective

There were no comments directly related to this mandatory category and no projects were completed for this category in the previous three years.

Recommendation

No change.

DRAFT

Incinerating wastes containing PCBs

EIS overview

Rule Language	Responsible Government Unit	Intended historical purpose	2021-2023 projects
4410.4400. Subp. 25	MPCA	1995 SONAR page 17	None

Permits

Local: Comprehensive plan amendment if the community has a plan; Rezoning if the community has zoning; Land Use plan; Conditional Use Permit; Site plan approval; Grading/drainage/erosion control plan; Wetland Conservation Act approval and/or wetlands mitigation plan; Building permits for structures.

State: Air permit; Hazardous Waste (RCRA) treatment or storage permit, NPDES General Construction Stormwater Permit; NPDES Industrial Stormwater Permit, Wastewater permit

Federal: Title V Air permit

Discussion

Background

PCBs stands for polychlorinated biphenyls. According to the 1995 SONAR adding this subpart was, “necessary to bring the rule into conformance with Minn. Stat., section 116.38, subd. 2…The primary environmental concern with the burning of PCBs is the emission of hazardous combustion products and their fate in the environment, including human health impacts.”

RGU experience

No projects were completed for this category in the previous three years. The project type, criteria and threshold are still relevant.

Public perspective

One respondent said this mandatory category could be expanded to include incineration of flame-resistant materials containing any chemical in the PFAS (per- and polyfluoroalkyl substances) family of chemicals. EQB will closely follow the evolving regulatory framework for PFAS and address any gaps for including PFAS in environmental review in the future.

Recommendation

No change.

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Additional considerations

Some of the feedback received impacted multiple mandatory categories or the overall implementation of Minn. R. 4410.4300 and 4410.4400. The following items discuss potential broader changes to how the mandatory categories are implemented.

Three-year look-back - Minnesota Rule 4410.4300, Subp. 1 is often referred to as the "three-year look-back" rule. The 1988 SONAR (page 37) explains that language was added to clarify that multiple stages of a single project must be considered in total when comparing the project to mandatory category thresholds: "This amendment is intended to emphasize to persons who are about to screen a project against the mandatory EAW categories that it is the whole of the project which is potentially subject to review." The 1995 SONAR for a rulemaking that revised this language says, "It is recognized that because of the policy of not counting anything already approved or built, a potential loophole exists through which review can be circumvented. By segmenting larger projects into smaller pieces and staging them over time without revealing the true size of the whole upfront, proposers can avoid EAW thresholds even though the whole project, if considered together, would exceed the thresholds."

In 1997 the rule was further amended to state existing stages or components of a project would be required to be included as part of the project unless they were constructed more than three years previously, "The three year period was chosen because it represents the amount of time historically considered by the EQB staff to typically represent 'a limited period of time' as used in the definition of 'phased actions' at part 4410.0200, subpart 60. Therefore, the proposed revision would count only those existing project stages that would have met the test of being part of a phased action with the current proposal if the current proposal had been acknowledged when the earlier stage was under review."

Some RGUs, including DNR and MPCA have asked for clarifications to this subpart to ensure it accomplishes its intended purposes and is easily interpretable for all categories. This may include defining terms like "cumulative total" or clarifying if an RGU should consider decommissioning components of an existing project. Further evaluation is needed.

Housekeeping update – EQB notes several additional opportunities for housekeeping updates throughout Minn. Rules 4410. One such example includes that Minnesota Rule 4410.4400 references subparts "2 to 25," but this is incorrect since there are 28 subparts. This should be updated to read, "An EIS must be prepared for projects that meet or exceed the threshold of any of subparts 2 to ~~25~~ 28. Another example is that EQB should rename all mentions of a "ordinary high-water mark" within the mandatory categories to an "ordinary high-water level" as the latter is defined in rule.

Adding new categories – EQB heard from RGUs and members of the public that adding certain project types to mandatory categories could provide a level of certainty for project proposers. Evaluation of new category ideas is needed; the co-authors have no recommendations at this time.

Appendix A

Continuous improvement for environmental review

Some input EQB received during public engagement for the mandatory category report suggested broadly scoped programmatic changes. Some of these suggestions are better evaluated through the EQB's continuous improvement process.

Continuous improvement process steps

In June 2023 the Board approved a continuous improvement process that involves performing the following steps on a regular basis:

1. EQB staff solicit ideas for program improvements.
2. EQB staff review the scope of the improvements.
3. EQB staff evaluate and score improvements using a program effectiveness prioritization matrix.
4. EQB staff plan for implementation of improvements.
5. ERIS completes review of implementation planning.
6. Board completes review and directs staff to implement selected projects.

The prioritization matrix referenced in step three identifies nine characteristics of an effective program: scientific integrity, environmental protection, measurability, inclusivity, user-friendliness, accessibility, consistency, quality assurance, and accountability.

Topics of programmatic interest

The mandatory category report documents recommendations for specific individual mandatory category rule subparts, while the continuous improvement process was designed to help EQB consider broad program initiatives. The following items reflect themes EQB heard as feedback during preparation of this report. Due to their programmatic nature, they are out of scope for the recommendations of this report. These topics were considered in the 2023 continuous improvement process and remain open recommendations that should be evaluated for future inclusion in EQB's work. Each would require substantial interagency collaboration to further scope, define, and prioritize.

- **Tribal cultural resources –** The ER program is meant to consider historic and cultural properties. For example, the EAW form asks for information on historic structures, archaeological sites, and/or traditional cultural properties near the site. It is important that project proposers and RGUs are able to assess if the proposed project activities will impact Tribal cultural resources, then work to ensure that any projects impacting those resources receive adequate consideration within environmental review. This methodology would need to be co-developed with Tribes that share geography with Minnesota,

following procedures outlined in EQB's Tribal Coordination and Consultation Policy. Further conversations can help EQB determine how best to address Tribal cultural resources; beginning this work is on EQB's workplan for state fiscal year 2025.

- **EAW and EIS expirations –** EQB rules generally require a project to undergo a new review only if there has been a "substantial change" to the project since the environmental review was initially completed. The measure of "substantial change" was first added in 1988 rulemaking as explained in the 1988 SONAR (page 11). Language further clarifying "substantial change" was added in a 2006 rulemaking in response to similar concerns as were expressed to EQB during the preparation of this report. The 2006 SONAR (page 12) explains: "It has been pointed out to the EQB staff that if a project is not built for a long time and there is no time limit on the 'shelf-life' of the EAW, there could be substantial changes in the circumstances in which the project would be built that could affect the potential for environmental impacts of the project that were not addressed in the EAW…The EQB considered addressing the issue by adding a time limit on the 'shelf-life' of an EAW." However, a specific expiration timeline applicable to all projects was found to be unreasonable; instead, the clarifying language around "substantial change" was added. Further interagency discussion on this topic is needed to determine if things have changed since this idea of expirations was last considered.

- **Cumulative impacts -** Environmental review rules use and define both "cumulative impacts" and "cumulative potential effects." The consideration of "cumulative impacts" in permitting, particularly air permitting, is an ongoing topic of interest and development. Over the long-term, EQB should consider changes to the definitions in 4410.0200 be consistent with the state's needs for information and data to support environmental decision-making.
- **Considering health impacts –** Health impacts assessments (HIAs) are intended to help investigate the potential health impacts of a policy, program, or project – both positive and negative – to inform decisionmakers. HIAs are one tool to help elevate health in environmental reviews; further conversations (amongst state agencies, environmental groups, the public, or any interested party) can help EQB and RGUs determine if health is being adequately considered in the environmental review process and if not, what is the appropriate scope and tool to do so. The board considered integrating health impacts more officially into environmental review in 2016, but action has been deferred as the board voted to first integrate climate change into the EAW.

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Appendix B

Summary of public engagement for Mandatory Category Report, 2024

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MINNESOTA
ENVIRONMENTAL QUALITY BOARD

Memo

Date: May 3, 2024

To: Environmental Quality Board Members

From: Environmental Review Program Administrator, Kayla Walsh

RE: Analysis of feedback on mandatory categories

This memo provides a summary of feedback received during the process of engagement on the mandatory categories for Environmental Assessment Worksheets (Minn. R. 4410.4300) and Environmental Impact Statements (Minn. R. 4410.4400). EQB staff extended our outreach efforts for the 2024 Mandatory Category Report. In addition to public feedback, EQB asked all technical representatives to provide feedback directly to EQB. Technical expertise and professional judgement will be used by EQB and co-authoring agencies to determine final recommendations in the report.

EQB intends for the 2024 mandatory categories report to be a thorough review of all mandatory categories, focused on the following key goals:

- Reviewing the intended purpose or history of each mandatory category
- Identifying new project types that may need to be the subject of a mandatory category
- Providing a discussion that lays the groundwork for potential future updates to the categories and their thresholds

The report will provide a "state of the state" on the mandatory categories and their use, followed by potential recommendations for changes, or identification of areas where further evaluation is needed. The recommendations will center on those changes that will continue to move towards an effective ER Program through better alignment with our effectiveness criteria.

EQB staff recognize and appreciate the thoughtful involvement of the public and environmental review practitioners in the process to date and we look forward to future discussion. EQB staff have read and summarized all comments. Feedback was extensive, and in some cases went beyond the anticipated scope of the final mandatory categories report. Ideas will be documented and further discussed under the appropriate mandatory category section of the report or, as appropriate, in other EQB work products.

Methodology

In addition to Board meetings, Tech Rep meetings and any meetings requested by Tribes or stakeholders, the following mediums were used to collect feedback:

- Engagement HQ
- Online survey
- Emails
- Roundtable (virtual listening session)

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Participants were asked to submit one set of information; however, there is no way to cross-check submittals to ensure the same person did not submit ideas through more than one medium.

Engagement HQ

Engagement HQ is a web-based platform that allows users to post their ideas in response to a question. The question EQB posed is: *"What kind of projects should go through environmental review and why? If suggesting a new category, include an explanation. Consider what types of projects have environmental impacts that would benefit from having environmental review. What specific health, equity, or environment concerns do you have related to these types of projects?"*

Engagement HQ was open from January 30, 2024, until the end of the day February 28, 2024. EQB staff promoted this link for the following groups to share with their networks: board members, technical representatives, cities, counties, members of the EQB monitor gov-delivery listserv, known advocacy organizations, tribal representatives, and more.

Engagement HQ tracked 1,800 total visits to the page. There were 35 engaged participants who contributed 39 ideas and 9 comments on others' ideas. There was a total of 80 upvotes, or agreements with others' ideas. This means there were 128 contributions, overall. Table 1 identifies common themes EQB heard from Engagement HQ.

Table 1. Topics and themes identified in feedback on engagement HQ

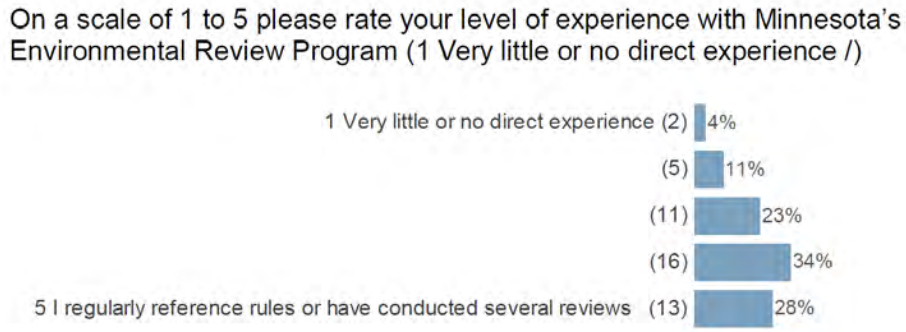
Topic	Number of posts	Number of total upvotes of all posts
Greenhouse gas emissions	22 posts, most mention measuring using life cycle impacts and choosing a threshold for an EIS	61
RV Campground	7 posts, specifically pertaining to RV campground theshholds near lakes and shorelands. This may be in relation to a recent petition on one specific proposed project.	6
Drainage	4 posts, especially mentioning agricultural drainage projects such as new ditches, drain tiling on croplands, and considering the cumulative impacts of such projects.	4
Alternative reviews	1 post gave detailed information recommending withdrawal of EQB approval for the Public Utilities Commission's alternative review process for pipelines.	5

Other notable topics included suggesting an EAW be required for pre-mining activities such as mineral leasing and exploratory drilling; requiring an EIS for all mining expansions; suggesting the addition of an EIS threshold for water appropriations; including a Health Impacts Assessment as a part of all EISs; and establishing an expiration timeline for reviews.

Online survey

Overall, 51 respondents completed the online questionnaire. About 33% of respondents said they identified as a local government unit and 17% said they were a state responsible governmental unit.

Respondents were well-informed, with over 85% identifying a moderate to high level of experience in environmental review.



Thirty-six respondents answered the question: "Are reviews generally being conducted by the right entity at the right level of government?" Responses show that 64% said "yes" and 36% said "no."

In a follow up question, EQB asked "If not, list which project types should be reviewed by a different entity and why." In response to this, we heard that "many times, Tribes are not consulted." We also heard that many projects at the local level require expertise beyond the responsible governmental units' capabilities. This results in higher costs, necessitating the hiring of consultants. Put succinctly by one commenter, "Local RGUs, like cities and counties, often do not have the expertise needed to conduct environmental reviews, and they often favor the local development proposed." Another commenter shared concerns over potential conflicts of interest, saying "The RGU should not be the same as the permit approver." This was also discussed during a subsequent listening session where similar sentiments arose, but EQB also heard that some local units of government appreciate having RGU discretion and that all local governments operate differently.

When asked if any existing mandatory categories need changes, 87% (thirty-four) of survey respondents said "yes." Through the survey, EQB received an additional 91 substantive comments on mandatory categories. A summary of popular topics is listed in Table 2, below.

Table 2. Topics and themes identified in feedback via the survey

Topic	Number of comments
Campgrounds	4 ideas ranging from making mandatory EAWs or EISs for all projects on lakeshores to raising the thresholds to result in fewer EAWs
Drainage	3 ideas pertaining to requiring EAWs for agricultural drainage such as drain tiling, and properly assessing cumulative impacts to water from drainage projects
Feedlots	3 ideas asking for review of manure application in sensitive areas
Forestry	4 ideas ranging from saying this category is not useful to saying it should have no exemptions, and it should involve an EIS to address cumulative effects from all actions that require deforestation
Industrial	4 ideas ranging from needing clarity of terms to increasing the threshold because many impacts are already addressed in comprehensive planning
Land Use	4 ideas ranging from exempting land use to lowering its threshold for conversion of forest or native vegetation to better know the anticipated habitat and biodiversity loss
Mining	3 ideas including requiring an EIS for any mine expansion
Public Waters	8 ideas such as making dam removals easier and reducing certain thresholds
Residential	17 ideas saying the threshold should be raised or the category exempt, or that the rules are overly complex and difficult to comprehend
Streams	18 ideas mostly asking for clarification, an accelerated review process, or exemption for trout stream restoration
Trails	5 ideas asking for clarification of terms, cumulative impacts of trail systems, or requiring an EAW for trail additions over one mile
Water Appropriations	3 ideas mostly asking for lower thresholds

Comments range widely from urging deletion of entire categories to lowering thresholds of those same categories (resulting in more reviews). For example, some respondents suggest eliminating Minn. R. 4410.4300 Subp. 27 (Public Waters), while other suggest lowering the threshold. Some respondents asked for expedited reviews for stream restorations. Some also said the residential subpart is overly complex. As with other modes of feedback, all comments will be considered in the recommendations brought forward in the report.

Emails during the survey period

Some participants opted to directly email EQB staff their comments, instead of taking the survey. Staff received 122 separate emails amassing a total of 470 comments. Comments were on behalf of individual members of the public and some environmental organizations. One form letter resulted in high numbers of comments related to the topics of mining, water appropriations, and health impacts statements. Table three shows some common themes EQB read in the emails.

Table 3. Topics and themes identified in feedback via emails

Topic	Number of comments
Enforcement	4
Expirations	73
Feedlots	4
Greenhouse Gas Emissions	3
Health Impacts Assessments	84
Mining	144
Water Appropriations	76

The following are examples of quotes from the feedback, to serve only as examples. Feedback is considered in the recommendations made in the report.

Enforcement: *"Enforcement should have the most stringent criteria and the most significant funding. Rules mean nothing if they are not enforced."*

Expirations: *"All EISs should have an expiration date specified in EQB rules so that analysis of expansions, phases, or changes in a project 15 years or even 50 years later aren't allowed to rely on outdated facts and outdated scientific knowledge."*

Feedlots: *"The mandatory category requiring EAWs for animal feedlots should be revised in two ways. First, Subp. 29(B) should be revised to add vulnerable groundwater areas, as identified for the Minnesota Department of Agriculture's Groundwater Protection Rule, to the list of "sensitive locations" where animal feedlots with more than 500 animal units must undergo an EAW. These areas, which have coarse textured soils, shallow bedrock, or karst geology, have already been identified as areas where nitrate can move easily through soil and into groundwater, contaminating drinking water sources… Second, the rule should be revised to remove the following sentence, "The provisions of part 4410.1000, subpart 4, regarding connected actions do not apply to animal feedlots." No other EAW section includes this exception, and there is no reason animal feedlots–which are a significant source of water pollution in Minnesota–should be allowed not to consider connected actions when determining whether an EAW is required.*

Greenhouse Gas Emissions: "*A new mandatory EIS category should be added to require an EIS for any project that emits a significant amount of GHG emissions, based on a lifecycle analysis. As part of the Climate Action Framework, Minnesota has set goals to reduce its GHG emissions by 50% by 2030 and to achieve net-zero emissions by 2050….In a rulemaking, EQB could determine whether an EIS should be triggered based on an absolute threshold, if different types of projects should have different triggering thresholds, or whether a project could avoid an EIS if it demonstrates it will reduce its emissions over time."*

Health Impact Assessments: "*Any action that requires an EIS under EQB rules should also require a Health Impact Assessment done by a qualified independent contractor selected by the Minnesota Department of Health and paid for by the project proposer. Health Impact Assessment is a community-based process to analyze cumulative health effects, including direct and indirect effects on physical, nutritional, cultural, and social factors that contribute to harmful and unjust environmental health impacts."*

Mining: "*EQB rules should require an EAW for mineral leasing, so that the state of Minnesota doesn't relinquish rights to control drilling and use of surface lands for 50 years without some level of environmental review and public notice."*

"EQB rules should make it less likely that mining facilities will spread and create additional environmental harm without new environmental review. Rules should require an EIS for expansions of mining, mine waste disposal, and processing based on the percent increase over the original permit as well as changes in acres or tons."

Water Appropriations: *"EQB rules should protect the quality and quantity of Minnesota surface water and groundwater, by requiring an EIS when large amounts of water are appropriated for industry or agriculture or when waters are diverted from the Lake Superior Basin at levels exceeding the limits in the Great Lakes Compact."*

Listening session

EQB hosted two virtual roundtables in the month of April. Each meeting lasted one hour. Participants totaled 56 attendees, although some attendees were members of EQB or did not participate. The purpose of these two sessions was to provide an additional medium for feedback; commenters could verbalize new ideas or expound on ideas they've already submitted. Using a mentimeter survey in real-time, about half of participants identified as "new" commenters across both sessions.

Themes identified in the roundtables aligned with what EQB heard through written feedback. Several commenters explained their concerns over conflicts of interest in having RGUs do environmental review on a project they may have a vested interest in. Commenters also discussed the benefits and drawbacks of having local government units conducting reviews.

Of note, one commentor did submit a letter with 106 signatories making specific recommendations for anaerobic digesters, saying that "Anaerobic manure digesters present significant environmental risks to our rural communities' air, soil, water, and public health…. Given these concerns, it is essential to lower the environmental review threshold of anaerobic manure digesters from 25,000 dry tons of input/year to 10,000 dry tons of input or more per year within the MN EQB's 2024 Mandatory Categories for thorough environmental review."

The topic of cumulative impacts was also important to commenters. They expressed concerns over connected and phased actions not properly being addressed and asked for a stronger assessment of cumulative impacts. It was again noted that there should be an EIS for water appropriations, pipelines that carry helium or carbon dioxide, and feedlots. Mining, greenhouse gas emissions, and instituting health impacts assessments were all themes of conversation that aligned with previous feedback. EQB also heard from commenters who were concerned over fragmented review of off-road vehicle trails. Meetings were not recorded, but EQB staff took notes. Comments from the roundtable listening session will be addressed in the report.

Summary

EQB has performed more outreach for the 2024 Mandatory Category Report than for prior reports. Overall, EQB is very pleased to see interest in environmental review programming from both the public and practitioners. Commenters made it clear that Minnesota is a beautiful place to live, work and play and that we can all rally around protecting and improving our land, air, and water. EQB staff have much gratitude for the engagement received on this report thus far.

From all written sources (EHQ, the survey, emails) EQB received 680 substantive written comments. Additionally, about 25 separate comments on mandatory categories were documented by notetakers during listening sessions. Popular topics include, but are not limited to: cumulative impacts, expirations for EAWs and EISs, greenhouse gas emissions, water appropriations, health impacts assessments, mining, and feedlots.

For each mandatory category in the report, EQB plans to include a discussion section that summarizes what we've heard and what potential changes warrant further evaluation. It is important to the success and long-term usefulness of this report that concerns about each category are properly summarized and addressed. That way, in future years, we can fully track the progress made toward finding appropriate solutions and greater effectiveness of the environmental review program.

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MINNESOTA
ENVIRONMENTAL QUALITY BOARD

Memo

Date: September 6, 2024

To: ERIS Members

From: Stephanie Aho

RE: Climate Calculator – Scoping Update and Data Sources

The quantification of greenhouse gas (GHG) emissions was added to the Environmental Assessment Worksheet (EAW) in December 2022. Question 18 requires the quantification and discussion of a project's GHG emissions; it also asks for emissions mitigation considerations and an explanation of decisions related to the GHG calculations provided. The motivation for asking for this information in the form is to assess the potential GHG emission impacts from a project and compare it to other similar projects to gain insight about mitigation and adaptation approaches.

However, climate pollution estimation is complicated. There is a strong need to make the process of answering the EAW climate questions more efficient, effective, and consistent. The purpose of the Climate Calculator Tool is to help project developers estimate greenhouse gas emissions that will directly or indirectly result from the implementation of a project over its lifetime.

Project Goals

The climate calculator tool aims to improve upon the current method of filling out the EAW climate questions by providing a standardized approach to answering question 18 on the EAW form for many key mandatory categories. The intent is for the calculator to take simple inputs from the user to quantify greenhouse gas emissions. The user would not have to make outside calculations or use multiple tools, decreasing both the time and cost of filling out the form. The tool also aims to make the calculation more complete and more defensible through increased standardization and accuracy of GHG accounting across project types and emission sources.

Methodology / Defining Lifecycle Assessment

The climate calculator tool will be constructed to estimate GHG emissions using a lifecycle assessment (LCA) approach. Life cycle assessment is the prevailing methodology to quantify environmental impacts associated with all the stages of a product or project lifespan − from raw material extraction through materials processing, manufacture, distribution, use, repair, maintenance, and disposal or recycling. This technique is used to identify where impacts occur, to measure the magnitude of these impacts, and to evaluate alternatives.

The goal of LCA is to compare the full range of environmental effects assignable to products, projects, and services by quantifying all inputs and outputs of material flows and assessing how these material flows affect the environment. This information is used to improve processes, support policy, and provide a sound basis for informed decisions that reduce the environmental impacts of the products, projects, and services.

The climate calculator tool will encompass as much of the entire lifespan of projects that occur within the mandatory categories as is reasonable to include. The resulting output – a robust estimate of the project's climate pollution – will consider all project phases (construction, operation, and decommissioning) and include upstream and downstream emissions where there is data to do so. This approach aligns with the scope 1, 2, and 3 greenhouse gas emissions that EQB's current guidance on climate assessments asks users to complete. EQB's guidance will be updated when the calculator becomes available.

This LCA tool is **not** using an ISO LCA. ISO, or the International Organization for Standardization, develops consensus-based standards for processes using expertise from global experts. These standards can be applied to a wide variety of products or processes. ISO has developed a standard that describes the principles and framework for completing life cycle assessment for studies and inventories. The climate calculator tool is not using the formal ISO standards. A tool does not fit into the ISO standard the way an individual product or process would. However, the consultant that is working on the tool will be transparent in reporting the limitations of the calculator, detailing which phases are included in the calculator, and how it should be used.

This tool is also **not** a greenhouse gas inventory, or to develop components of an inventory. A greenhouse gas inventory quantifies the greenhouse gas emissions generated within a boundary (such as the whole state of Minnesota) from identified sectors; typically, the goal is to see a downward trend in generation from those sectors over time. The EQB tool, in contrast with an inventory, will quantify the greenhouse gas emissions from a project over its lifespan (or life cycle). The calculator tool assesses emissions that will be generated outside the boundaries of Minnesota. For example, emissions generated from steel manufactured outside of Minnesota that is required for a building project undergoing environmental review will be counted even though they were not generated within the state.

Scoping Approach

Due to time, resources, and available data, a tool that can perfectly estimate the greenhouse gas emissions from every type of project that might go through environmental review is not feasible. Therefore, developing the tool first requires establishing the scope of the calculator, or the parameters of what emissions can be included. The scoping process began earlier this year, and has been a collaborative approach involving EQB staff, the contractor (ICF), and a technical advisory team (TAT).

The remainder of this memo describes the scoping approach used and the current draft scope envisioned for the calculator. Attachment 1 to this memo provides detailed technical information on the scoping process.

Scoping: Step 1

The first step in defining the emission sources and project types the calculator will include (known collectively as the quantification boundaries) is to examine the distribution of historical EAWs. This provides an understanding of the project categories that are most often used and will likely be most important to cover with this tool. Expecting future needs to align with past EAW frequency is not a perfect assumption. The look back at the last five years of projects included the anomalous COVID-19 years. There are also emerging project categories that have not been historically utilized but will have higher representation in future projects. Despite these limitations, this approach is a useful exercise to determine focus areas for emission calculation. The top 10 (non-energy) categories are shown below. Energy projects are already known to be high frequency and highly important for inclusion in this tool despite not being included in this look-back.

Scoping: Step 2

The second step to accurately assessing the appropriate quantification boundaries is examination of the mandatory categories to find commonalities in emission sources leading to economies in tool construction. Emission sources that are necessary for many mandatory categories are more economical to include than those incorporated into fewer categories. Common emission sources can also simplify the calculator's construction and make the tool most useful to the widest audience possible with our finite resources. In general, work done on the tool that can apply to many different project types will give us more "bang for our buck."

When this exercise was completed, ten groupings emerged containing projects with similar emission quantification needs. From this analysis we can anticipate that including emission sources related to, for example, residential and commercial buildings (with eight mandatory categories sharing common emission sources) is likely more economical than including emission sources related to communication towers (with one unique mandatory category). As highlighted above, commonalities in implementation lead to economy of construction.

The groups are shown below, along with the number of mandatory categories that fit into each group.

Group	Mand. Cat. In Group
Residential & Commercial	8
Energy Industries	6
Industrial	5
Natural Resources	5
Transportation Infrastructure	4
Storage	3
Waste	3
Low Emissive Impact	3
Communication Towers	1
Animal Feedlots	1

Scoping: Step 3

The final step in determining the quantification boundaries is examining the available data. To do this, an assessment was done on a wide range of GHG emission data sources to determine the age, availability, and applicability of the data. Emission sources where data is unavailable or hard to obtain, where the data is not appropriate for this tool, or where data is too old are not able to be included within the scope of the climate calculator tool.

Important data sources identified include MICE, CalEEMod, EPA's GHG Emissions Factor Hub, EPA's SIT, EC3, DEFRA, GREET, USAID's CLEER Tool, COMET, WARM, and eGRID. Data source review will be a continuous process throughout calculator construction as additional challenges and needs arise.

Preliminary Scoping Conclusions

Using the above strategy, the project team (ICF, working with EQB and the tech advisory group) has determined the most effective emission sources to include in the climate calculator project.

The following stoplight charts illustrate these decisions into three categories: high priority for the calculator (to be included now); low priority for the calculator (to be included now if resources allow); and emission sources to be included in a future phase of the project after June 2025, if resources are available.

In general, the scope of the calculator tool prioritizes emissions from project construction and the highest emitting components of project operations. While decommissioning is an important stage of life cycle assessment, emissions from decommissioning are not envisioned to be able to be included in the climate calculator tool at this time.

Construction: All sources are included in the current project scope

Source	Description	Priority
Materials	Emissions Associated with Construction Materials	High
Stationary Energy	Onsite Electricity and Fuel	Low
Transportation	Transportation of Materials to Site; Construction Equipment; Transportation of Waste for Disposal;	High
	Employee Commuting to Site	Low
Land Use	Change in Carbon Storage from Land Use Change	High
Waste	Disposal of Waste Generated	High

Operation: Most emission sources are included

Source	Description	Priority
Materials	Emissions Associated with Routine Maintenance	Future
Stationary Energy	Onsite Electricity and Fuel	High
Fugitive Emissions	Mining, Processing, Storage, Transportation of Coal; Natural Gas and Petroleum Systems	High
	SF6 from Transmission and Distribution Equipment; HFCs leakage from cooling equipment	Low
Industrial Processes	Production of Metals and Other Industrial Processes	High
Land Use	Change in Carbon Storage from Land Use Change	High
Transportation	Transportation of Waste to Disposal Site	Low
	Transportation of Materials to Site	Low
	Routing Maintenance; Employee Commuting to Site; Change in Vehicle/Aircraft/Watercraft Operation	Future*
Wastewater	On-site Treatment	High
Waste	Disposal of Waste Generated; On-site Treatment	High
Agriculture	Enteric Fermentation; Manure Management	High
Use of Sold Products	Consumption of Products Generated	Future*

**High Priority for some mandatory categories*

Decommissioning: All sources outside the current scope

Source	Description	Priority
Stationary Energy	Onsite Electricity and Fuel	Future
Transportation	Employee Commuting to Site; Demolition Equipment; Transportation of Waste for Disposal;	Future
Land Use	Change in Carbon Storage from Land Use Change	Future
Waste	Disposal of Waste Generated	Future

Some operation emission sources shown will be applied only to those projects where the emission source represents a large portion of the expected GHG emissions (marked above as “High Priority for some mandatory categories” on the “Operation” table).

The attached memo from ICF goes more in depth into the intricacies of the scoping decisions being made. These include decisions about user inputs to the tool, imbedded assumptions, GHG data sources being utilized, and which emission sources apply to which mandatory categories.

Review of Scope and Next Steps

The scoping memo is outlined as a deliverable within our contract with ICF, targeted for completion in early October 2024; it is attached and provided as information for ERIS, the Board, and the public about the likely scope of the final calculator tool. The scope set forth in the final memo will be a blueprint for tool construction, but the final calculator tool may have a slightly different scope. Likely, these future scope changes will result in slightly fewer emissions being able to be included, due to data challenges or similar issues, rather than more.

The draft scoping memo from ICF is currently being reviewed by subgroups of the Technical Advisory Team for data source completeness and validity of the scope proposed. It has received constructive comments and positive reviews from those subgroups already convened. These TAT subgroup meetings will continue through September 12, 2024. Additional information and comments from those subgroups will be provided in the September 2024 ERIS presentation.

Feedback on the scoping memo is welcomed from the public, Tech Reps, and the ERIS board at any time. To be considered for incorporation into the final scoping memo, comments must be received by September 30, 2024. After this time, feedback is still welcomed, but it will be used to inform smaller decisions about how the tool is constructed based on the quantification boundaries already established.

Memorandum

To:	Stephanie Aho, EQB
Cc:	Kayla Walsh, EQB
From:	Emily Golla, Katie O'Malley, Ajo Rabemiarisoa, Kaila Stein, Maris Welch, and Angus Dillon, ICF
Date:	September 4, 2024
Re:	Revised Draft Methodology for EQB Climate Calculator Tool

This memorandum details the draft approach ICF developed for the Climate Calculator Tool to quantify greenhouse gas (GHG) emissions from major development projects in Minnesota. The memorandum summarizes the agreed upon scope and boundaries of the tool as well as the proposed methodology for quantifying emissions from each emissions source.

This memorandum is organized as follows:

- Climate Calculator Tool Quantification Boundaries
- Emissions Quantification Methods
- Appendix A: Acronyms
- Appendix B: Data Sources
- Appendix C: Applicability of Emission Sources

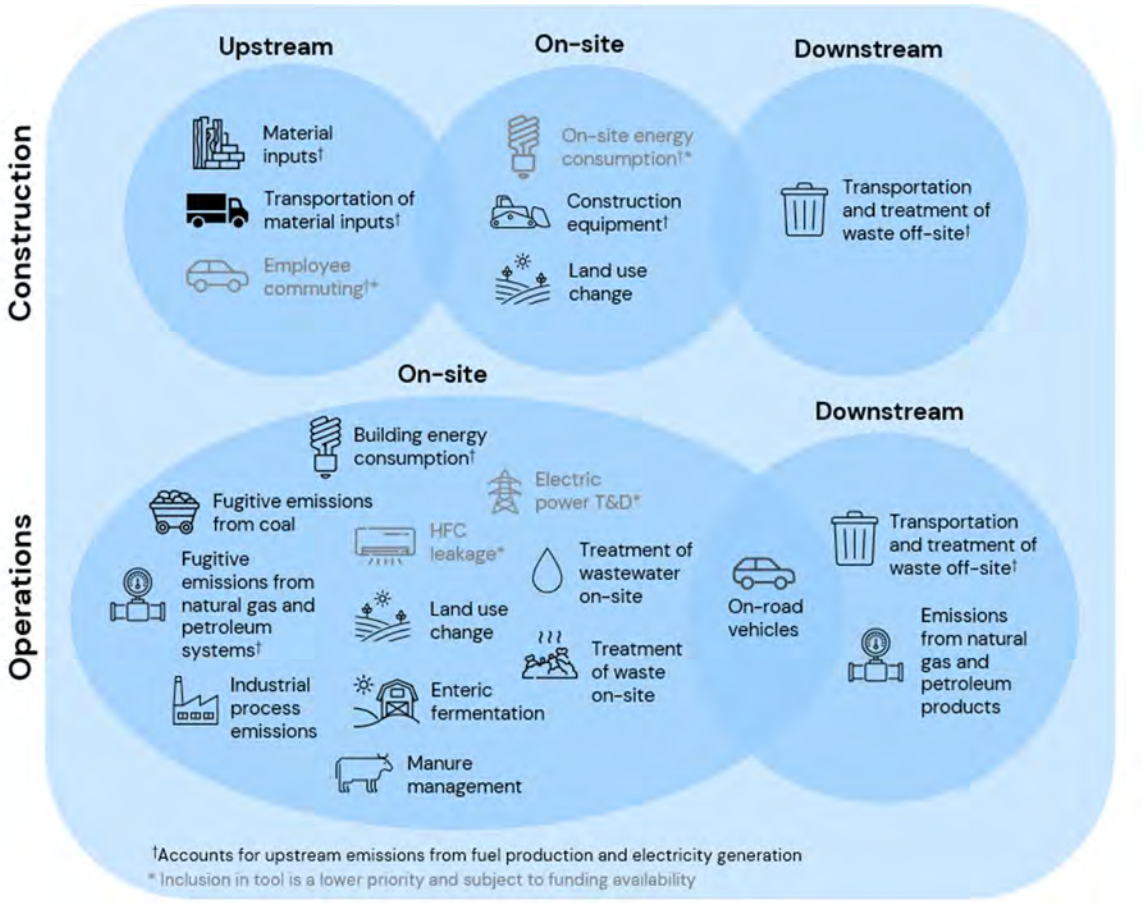
If you have any questions or comments, please contact Emily Golla at Emily.Golla@icf.com.

Climate Calculator Tool Quantification Boundaries

The tool provides a preliminary assessment of life cycle GHG emissions by evaluating the potential for direct and indirect impacts,[1] including emissions associated with fuel production and other material inputs. The output of this tool is intended as a reasonable estimation of GHG emissions with the expectation that actual project emissions will vary.

In the context of this tool, life cycle assessment (LCA) refers to the evaluation of the GHG emissions impact of a project throughout its life cycle, including the project's construction and operational stages. Emissions associated with project decommissioning may also be considered as part of an LCA but are not included in the tool at this time. A comprehensive list of emission sources that were considered for inclusion in the tool and an assessment of their potential applicability to each mandatory project category is provided in Appendix C. As agreed upon with EQB, the Climate Calculator Tool will initially consider emissions from 21 emission sources, as illustrated in Figure 1 and described further below. The applicability and degree of impact of each emissions source is heavily dependent on the specific project. Users of the tool should also assess and consider disclosing the applicability of emission sources not covered by the tool in their assessment of GHG emissions impact, to the extent possible.

Figure 1: Climate Calculator Tool Quantification Boundaries



[1] **Direct emissions** are emissions that are caused by project activities that occur on-site. **Indirect emissions** are emissions that occur *upstream* and *downstream* of the project and are caused by activities that are related to the project which would not have occurred without the implementation of the project.

Construction Phase

The construction phase includes all activities related to the initial development, building, and installation of infrastructure, buildings, or facilities that characterize the project. The scope of the tool includes emissions from on-site project activities such as construction equipment and land use changes as well as emissions that occur upstream (e.g., transportation of materials to the project site and the embodied carbon of the materials used during construction) and downstream (e.g., transportation and treatment of waste) of the project. Contingent on funding availability, the tool will also quantify upstream emissions from employee commuting and other on-site energy consumption (e.g., generators, buildings) that occur during the construction phase. The upstream emissions associated with the production of fuel and electricity consumed are also accounted for within the tool and will be embedded within the emission factors[2] selected for each emissions source.

Operations Phase

The operations phase includes all activities and processes involved in the functional use and operation of the project and related infrastructure or facility. The scope of the tool includes emissions tied to building energy consumption (e.g., heating, cooling, and lighting), energy industries (e.g., fugitive emissions and combustion of fossil fuel products), industrial processes, on-road vehicle transportation, waste generation and treatment, land use changes, and agricultural activities (e.g., enteric fermentation and manure management). The majority of the operational emission sources included in the tool are emission sources that directly result from on-site activities; while, similar to the construction phase, upstream emissions associated with the production of fuel and electricity consumed are also accounted for within the emission factors selected for each emissions source as well as downstream emissions from on-road vehicles, the transportation and treatment of waste generated on-site, and the combustion of natural gas and oil products. Contingent on funding availability, the tool will also quantify hydrofluorocarbon (HFC) and sulfur hexafluoride (SF6) that leak from refrigeration and air conditioning equipment and transmission lines, respectively. This phase also requires defining an operational lifespan for the project.

Emission Sources not Included in the Tool

In scoping out the emission sources to include in the tool, some sources were considered but deprioritized due to budget constraints and the following factors: difficulty in clearly defining the activities that contribute to the emissions source across the diversity of project types, the expected magnitude of emissions relative to other sources, the indirect (rather than direct) nature of the emissions source, the applicability of the emissions source across project types, and the feasibility of accurate quantification (e.g., due to data availability and/or complexity). Specifically, material inputs and transportation of material inputs during operation; transportation tied to routine maintenance, employee commuting, and changes in on-site or induced aircraft and watercraft activity during operation; and all decommissioning emissions (i.e., transportation tied to employee commuting, demolition equipment, and waste transit to disposal site; land use change; and waste treatment) are not included. These sources may be considered for inclusion into the tool in the future.

[2] **Emission factors** are representative values that estimate the quantity of a pollutant released to the atmosphere per unit of activity associated with its release. These factors are usually expressed as the weight of a pollutant divided by a unit weight, volume, distance, or duration of the activity emitting the pollutant.

Emissions Quantification Methods

This section provides the detailed proposed methodology for calculating GHG emissions from each emissions source included in the Climate Calculator Tool, including equations, descriptions of each data element, data sources we anticipate using to develop the required assumptions, and a discussion of limitations. The units identified are provided as an example and will be confirmed as data are compiled and assumptions are finalized. The equations are intended to be indicative of the proposed methodology and will be expanded to reflect final assumptions and unit conversions.

The table below summarizes the user inputs and key assumptions that are discussed in the subsequent subsections. Users will have the ability to override select assumptions or calculated values within the tool to accommodate the availability of project-specific information. Assumptions that can be replaced by a user input are highlighted by an asterisk.

Table 1: Summary of Required User Inputs and Calculator Assumptions by Emissions Source

#	Emissions Source	Phase	User Inputs	Calculator Assumptions
1A:	Material inputs	Construction	• Material quantity by type	• Emission factor by material type
1B:	Transportation of material inputs	Construction	• Material quantity by type	• Emission factors by transportation mode • Distance travelled by mode*
1C:	Employee commuting	Construction	• Number of employees • Toal commuting days	• Commuting distance* • Commuting mode breakdown* • Emission factors by mode
1D:	Construction equipment	Construction	• Number of construction days by equipment type	• Daily electricity consumption by equipment type* • Daily fuel consumption by equipment type* • Electricity emission factor* • Fuel-specific emission factors • Btu conversion factors
1E:	On-site energy	Construction	• Total electricity consumption by equipment type • Total fuel consumption by equipment type	• Electricity emission factor* • Fuel-specific emission factors • Btu conversion factors
1F:	Land use change	Construction	• Land area by land use type, pre- and post-transition • Land use management	• Carbon stocks by land use type

#	Emissions Source	Phase	User Inputs	Calculator Assumptions
1G:	Transportation and treatment of waste off-site	Construction	• Material quantity by type • Waste treatment practice	• Loss rate • Emission factors by material type and practice
2A:	Building energy consumption	Operation	• Building square footage by building type	• Energy building intensity by building type • Electricity building intensity by building type • Electricity emission factor* • Fuel-specific emission factors
2B:	Fugitive emissions from coal	Operation	• Coal production by mine type • Ventilation emissions from underground mining • Degasification system emissions • Methane recovery rate of degasification system • Surface mining emission factor • Post-mining emission factors by mine type	
2C:	Fugitive emissions from natural gas and petroleum systems	Operation	• Incremental throughout by fuel type	• Emission factors by fuel type
2D:	Emissions from natural gas and oil products	Operation	• Incremental throughout by fuel type	• Emission factors by fuel type
2E:	Industrial process emissions	Operation	• Annual production by industrial process	• Emission factors by product type*
2F:	Electric power transmission and distribution	Operation	• Miles of transmission line	• SF_6 consumption per mile
2G:	HFC leakage	Operation	• Building square footage by building type • Building area not utilized	• Equipment type per building type • Refrigerant type per equipment type • Refrigerant capacity by equipment type • Annualized HFC leak rate by equipment type

#	Emissions Source	Phase	User Inputs	Calculator Assumptions
2H:	Land use change	Operation	• Land area by land use type, pre- and post-transition • Land use management	• Carbon stocks by land use type
2I:	On-road vehicles	Operation	• Vehicle miles traveled	• Emission factors by speed bin
2J:	Treatment of waste on-site	Operation	• Quantity of waste treated by management practice • Digestate type (AD facilities only)	• Emission factors by management practice
2K:	Treatment of wastewater on-site	Operation	• Population served	• BOD • BOD emission factor • Percent anaerobically digested • Protein consumption • Nitrogen content • Fraction of nitrogen not consumed • N_2O emission factor
2L:	Transportation and treatment of waste off-site	Operation	• Annual number of residents, visitors, and employees • Waste treatment practice	• Resident, visitor, and employee generation rate • Emission factors by management practice
2M:	Enteric fermentation	Operation	• Number of animals by type	• Emission factors by animal type
2N:	Manure management	Operation	• Number of animals by type	• Emission factors by animal type

* Tool will also include the ability for the user to enter value directly.

Construction Emissions

1A: Material Inputs

This emissions source includes emissions that result from the extraction of raw materials, the transportation of raw materials to the manufacturing site, and the manufacturing of materials used during the construction phase of the project. Using standard Environmental Product Declaration (EPD) boundaries, these activities are described as A1–A3.

Equations

Equation 1 – Embodied Emissions of Material Input

$$\text{embodied emissions}_t = \text{material quantity}_t \times \text{emission factor}_t$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Material type/product	Material type or product (t)	User Selection	NA
Material quantity by type	Total amount of material used as an input during construction (tons)	User Input	NA
Emission factor by material type/product	Emissions associated with the extraction of raw materials, transportation of raw materials, and manufacturing of the material per unit of material (CO_2e/ton)	Default	Databases that contain EPDs, such as EC3 or One Click LCA
Embodied emissions	Total emissions by material type (CO_2e)	Calculated	Equation 1

Limitations and Assumptions

The proposed methodology requires users to provide data on the total quantity of each material required for construction. If this information is not available or unknown, the user will need to use external sources to develop a rough estimate of material quantities. Proprietary tools and data sources such as Dodge Construction Data, One Click LCA or RS Means can provide bulk estimates of specific material quantities for a building type. However, due to the project-specific nature of this data input, budget constraints, and the availability of activity data, default assumptions are not feasible to develop at this time.

Additionally, the emissions data collected through EPDs are material product specific, thus implying further disaggregation per material type. For example, the emission factor for concrete can vary significantly depending on the concrete application type and its compressive strength. Since we do not expect the user to be able to identify the specific material product used (and its characteristics), we anticipate including in the tool one or multiple default values based on statistical averages provided through the EPD database, and assumptions gathered on potential market representation of variable products.

Finally, the material types and products that will be available in the tool for quantification will not be exhaustive. Rather, we anticipate including (at a minimum) the following key construction material types in the tool: concrete/cement, asphalt, steel, aluminum, and wood products.

1B: Transportation of Material Inputs

This emissions source includes emissions that result from transportation of construction materials from the manufacturing facility location to the project site (for use or installation) during the construction phase of the project.

Equations

Equation 2 – Emissions from Transportation of Material Input

$$\text{GHG emissions}_t = \text{material quantity}_t \times \text{distance}_m \times \text{emission factor}_m$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Material quantity by type	Total amount of material by type (t) used as an input during construction (tons)	User Input	See Section 1A:
Emission factors by mode of transportation	Emissions intensity by transportation mode (m), including truck, rail, aircraft or watercraft (CO_2e/ton-mile)	Default	GREET
Distance travelled by mode*	Average distance the material product travels from the manufacturing location to the project site by transportation mode (aircraft, watercraft, truck, etc.) or a combination of modes (miles)	Default	Census Commodity Flow Survey; WARM; MICE
GHG Emissions	Total emissions by material type (CO_2e)	Calculated	Equation 2

* Tool will also include the ability for the user to enter value directly.

Limitations and Assumptions

The variables that most significantly impact this emission source include the geographical sourcing (import vs domestic and specific region) of the material product, the distance travelled, and the mode or combination of modes of transportation. To enable the user to build the most accurate estimates, the tool will allow for manual entry of the distances travelled (by material product) by transportation mode. The tool will also include default values informed by multiple sources to derive a defensible assumption for each material type, recognizing that actual emissions may vary significantly.

1C: Employee Commuting

This emissions source includes emissions that result from employees commuting to the project site during the construction phase of the project. This includes emissions from driving personal vehicles, as well as taking public transit or using alternate modes of transportation.

Equations

Equation 3 – Emissions from Empoyee Commuting

$$\text{GHG emissions} = \text{number of employees} \times \text{commuting days} \times \text{commuting distance} \times \sum \text{emission factor}_m \times \text{percent of employees}_m$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Number of employees	Average number of people who will commute to project site each day during construction	User Input	NA
Toal commuting days	Total number of days during the construction phase that employees will commute to project site	User Input	NA
Commuting distance*	Average distance that employees travel to reach project site (miles/day)	Default	Local GHG Inventory Tool
Commuting mode breakdown*	The percent of employees that commute to work by each commuting mode (m) (i.e., single occupancy vehicle, carpool, motorcycle, public transit, bike, or walk)	Default	Local GHG Inventory Tool
Emission factors by mode	Amount of fuel or electricity consumed per mile by commuting mode (CO_2e/mile)	Default	MICE; MOVES; GREET
GHG emissions	Total emissions from employee commuting (CO_2e)	Calculated	Equation 3

* Tool will also include the ability for the user to enter value directly.

Limitations and Assumptions

The proposed methodology requires users to provide data on the number of employees and total number of days those employees are expected to commute to the project site during the construction phase. Key assumptions made by the tool include average commuting distance and the mode by which employees travel to the project site. These assumptions may be directly provided by the user to further tailor the results to their project.

1D: Construction Equipment

This emissions source includes emissions from electricity and fuel used in off-road construction equipment (e.g., dozers, excavators, loaders, etc.) during the construction phase.

Equations

Equation 4 – Electricity and Fuel Consumption by Construction Equipment Type

$$\text{electricity consumption}_t = \text{number of construction days}_t \times \text{daily electricty consumption}_t$$

$$\text{fuel consumption}_t = \text{number of construction days}_t \times \text{daily fuel consumption}_t$$

Equation 5 – GHG Emissions from Electricity and Fuel Consumption in Construction Equipment

$$\text{GHG emissions} = (\text{total electricity consumed} \times \text{electricity emission factor}) + (\text{total fuel consumed}_f \times \text{heat content conversion factor}_f \times \text{fuel emission factor}_f)$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Equipment type	The type of construction equipment (t) used during construction, including fuel source (e.g., diesel, electricity)	User Selection	NA
Number of construction days by equipment type	Total number of construction days each equipment type will be used	User Input	NA
Daily electricity consumption by equipment type	Average electricity consumption per day by construction equipment type (kWh/day)	Default	TBD
Daily fuel consumption by equipment type	Average fuel consumption per day by construction equipment type (gallons/day)	Default	TBD
Electricity emissions factor*	GHG emissions per unit of electricity consumed (CO_2e/kWh)	Default	GREET
Fuel-specific emissions factors	GHG emissions per unit of fuel (f) consumed (CO_2e/Btu)	Default	GREET
Btu (heat content) conversion factors	Heat content per unit of fuel (e.g., Btu/gallon)	Default	EIA
Electricity consumption*	Total electricity consumption (kWh) by construction equipment	Calculated	Equation 4
Fuel consumption*	Total fuel consumption (gallons) by fuel type by construction equipment	Calculated	Equation 4
GHG emissions	GHG emissions from construction equipment (CO_2e)	Calculated	Equation 5

* Tool will also include the ability for the user to enter value directly.

Limitations and Assumptions

The proposed methodology relies on users to provide an estimate of the number of days each type of construction equipment will be utilized during the construction phase. It also requires the development of an assumption regarding the amount of electricity and/or fuel consumed on average per day by equipment type. Additional research is required to develop these assumptions and to confirm the viability of this approach. As an alternative option, the tool will also allow users to directly provide data on the estimated quantity of total fuel and/or electricity consumed by construction equipment during the construction phase of the project.

1E: On-site Energy

This emissions source includes emissions that result from a project's stationary energy consumption during the construction phase of the project. This includes on-site combustion of fuels (e.g., diesel used in generators) as well as emissions from the generation of electricity consumed on-site.

Equations

Equation 6 – GHG Emissions from Energy and Electricity Consumption from Stationary Equipment

$$\text{GHG emissions} = (\text{total electricity consumed} \times \text{electricity emissions factor}) + (\text{total fuel consumed}_f \times \text{heat content conversion factor}_f \times \text{fuel emission factor}_f)$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Total electricity consumption	Total electricity consumption (kWh) by construction equipment type	User Input	NA
Total fuel consumption	Total fuel consumption by fuel type (gallons) by construction equipment type	User Input	NA
Electricity emission factor*	GHG emissions per unit of electricity consumed (CO_2e/kWh)	Default	GREET
Fuel-specific emission factors	GHG emissions per unit of fuel (f) consumed (CO_2e/Btu)	Default	GREET
Btu (heat content) conversion factors	Heat content per unit of fuel (e.g., Btu/gallon)	Default	EIA
GHG emissions	GHG emissions from construction equipment (CO_2e)	Calculated	Equation 6Equation 10

* Tool will also include the ability for the user to enter value directly.

Limitations and Assumptions

To estimate emissions from stationary energy consumption, users will need to estimate the total quantity of electricity and fuel consumption consumed during construction. For many projects, this emission source may not be relevant. Emission source 1D: Construction Equipment likely accounts for most fuel and electricity emissions occurring during construction.

1F: Land Use Change

This emissions source (or sink) includes the net carbon change from the transition of one land use type to another due to project construction. This may include clearing land for construction or otherwise converting it to another land type.

Equations

Equation 7 – Net Change in Carbon Stock

$$\Delta carbon\ stock = \sum(\text{carbon stock}_t \times \text{land area post} - \text{conversion}_t) - \sum(\text{carbon stock}_t \times \text{land area pre} - \text{conversion}_t)$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Land area by land use type, pre- and post-transition	Land area (acres) by type of land (t) before and after conversion (settlement soils, forested lands, wetlands, etc.)	User Input	NA
Land use management	Whether land is managed or unmanaged pre-conversion	User Selection	NA
Carbon stocks by land use type	Sequestered carbon per acre by land use type (forested land, wetland, settlement soils, etc.) for the Minnesota region (C)	Default	iTree, EPA SIT, COMET-Farm, COMET-Planner
Net change in carbon stock	The net change in carbon stock from the conversion of land (C)	Calculated	Equation 7

Limitations and Assumptions

Assumptions regarding carbon stocks by land use type are based on several variables, including ecoregion, soil characteristics, and land-management practices. For the purposes of this tool, the assumed defaults will consider both the climate and soil types relevant to Minnesota. Users will specify the management practices of the pre-converted land if applicable. Values will be derived that are broadly representative of the land use types that are identified in the environmental assessment worksheet (EAW), taking into account potential variation within a single land use type (e.g., coniferous vs. deciduous forest), which also impacts the amount of carbon sequestered per acre.

To account for lifecycle emissions, the net carbon change calculations assume full realization of the land transition and attributes the lifetime changes to the year in which the land is converted. Therefore, the results assume that no further changes to the converted land will occur during the operational phase of the project.

1G: Transportation and treatment of waste off-site

This emissions source includes emissions from the transportation and treatment of construction waste that is landfilled or combusted at a facility off-site.

Equations

Equation 8 – GHG Emissions from the Transportation and Treatment of Waste Off-Site

$$\text{GHG emissions} = \text{material quantity}_t \times \text{loss rate}_t \times \text{emission factor}_{t,p}$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Waste treatment practice	The management practice (p) used to treat the waste generated (i.e., landfilled or incinerated)	User selection	NA
Material quantity by type	Amount of material used as an input during construction by type (t) (tons)	User input	Section 1A:
Loss rate	The percent of each material input that is discarded as waste	Default	WARM, TBD
Emissions factor	The emissions associated with the transportation and treatment of waste by type and treatment practice (CO_2e/ton)	Default	EPA Emissions Factors Data Hub
GHG emissions	GHG emissions from the treatment of waste generated during construction (CO_2e)	Calculated	Equation 8

Limitations and Assumptions

Estimating emissions from transportation and treatment of waste off-site is driven by the amount of material disposed, which is derived using a loss rate assumption by material type and material input quantities provided by the user. Limitations related to users providing data on the total quantity of each material are discussed under Section 1A:. Loss rate assumptions for some material types are identified in WARM documentation, though additional research is required to confirm and identify assumptions for all material types.

While it is anticipated that most waste generated during construction will be disposed of at a landfill, the tool will additionally allow users to quantify emissions associated with the incineration of waste. The emissions factors from EPA's Emission Factors Hub include emissions from the decomposition and combustion of waste as well as the transportation of waste to the waste treatment facility, but do not include avoided emissions associated with energy recovery, displaced electric utility generation, or landfill carbon sequestration. Emissions from the transportation of waste are based on a default assumption regarding the distance traveled from the project site to the waste management facility, which may vary from the actual distance traveled for a specific project.

Operational Emissions

2A: Building Energy Consumption

This emissions source includes emissions that result from a project's building energy consumption during the operational phase of the project. This includes on-site combustion of fuels (e.g., natural gas) as well as emissions from the generation of electricity consumed on-site.

Equations

Equation 9 – Annual Building Energy and Electricity Consumption

$$\text{annual energy consumed} = \sum(\text{building square footage}_t \times \text{building energy intensity}_t)$$

$$\text{annual electricity consumed} = \sum(\text{building square footage}_t \times \text{building electricity intensity}_t)$$

Equation 10 – Annual Emissions from Energy and Electricity Consumption

$$\begin{aligned}\text{annual GHG emissions} &= \text{annual energy consumed} \times \text{energy emission factor} \\ &+ \text{annual electricity consumed} \times \text{electricity emission factor}\end{aligned}$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Building square footage	Square footage by building type (t) of all buildings in the project (square feet)	User Input	NA
Building energy intensity	Average annual energy consumed per square foot by building type (GJ/square foot/year)	Default	EIA RECS, CBECS, MECS
Building electricity intensity	Average annual electricity consumed per square foot by building type (MWh/square foot/year)	Default	EIA RECS, CBECS, MECS
Electricity emission factor*	GHG emissions per unit of electricity consumed (CO_2e/kWh)	Default	GREET
Fuel-specific emission factors	GHG emissions per unit of fuel consumed (CO_2e/Btu)	Default	GREET
Annual energy consumed*	Building energy consumed (GJ)	Calculated	Equation 9
Annual electricity consumed*	Building electricity consumed (MWh)	Calculated	Equation 9
Annual GHG emissions	Annual GHG emissions from buildings (CO_2e)	Calculated	Equation 10

* Tool will also include the ability for the user to enter value directly.

Limitations and Assumptions

To simplify the user input process, the proposed methodology estimates annual electricity and energy consumption by assuming an average energy and electricity building intensity by building type. The building types defined in the tool will be dependent on the availability of data to estimate building intensities. These assumptions may not capture the nuances of different building types or project-specific operations. As a result, the tool will also allow users to directly input annual estimates of stationary energy and electricity consumption.

2B: Fugitive Emissions from Coal

This emissions source includes fugitive emissions from underground mining, surface mining, and post-mining activities (processing, storage, and transportation of coal).

Equations

Equation 11 – Annual Emissions from Underground Mining Activities

$$\text{annual GHG emissions}_{\text{underground}} = \text{ventilation} + \left(\text{degasification system} \times (1 - \text{methane recovery rate})\right) \times \text{GWP}_{\text{CH4}}$$

Equation 12 – Annual Emissions from Surface Mining Activities

$$\text{annual GHG emissions}_{\text{surface}} = \text{coal production}_{\text{surface}} \times \text{emission factor}_{\text{surface}} \times \text{GWP}_{\text{CH4}}$$

Equation 13 – Annual Emissions from Underground and Surface Post-Mining Activities

$$\text{annual GHG emissions}_{\text{post-mining}} = \text{coal production}_{\text{post-mining}} \times \text{emission factor}_{\text{post-mining}} \times \text{GWP}_{\text{CH4}}$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Coal production by mine type	Annual underground or surface coal production (tons) by mine type	User input	NA
Ventilation emissions from underground mining	Estimated annual CH_4 ventilation emissions from underground mining (ft^3)	User input	NA
Degasification system emissions	Estimated annual CH_4 emissions from degasification systems in underground mining (ft^3)	User input	NA
Methane recovery rate of degasification system	Estimated percent of annual CH_4 recovered from degasification system (ft^3)	User input	NA
Surface mining emission factor	Methane emissions from surface mining per unit of coal produced (ft^3 CH_4/ton)	User input	NA
Post-mining emission factors by mine type	Methane emissions from post-mining activities by mine type per unit of coal produced (ft^3 CH_4/ton)	User input	NA
Annual GHG emissions from surface mining	Emissions from surface mining activities (CO_2e)	Calculated	Equation 11
Annual GHG emissions from underground mining	Emissions from underground mining activities (CO_2e)	Calculated	Equation 12
Annual GHG emissions from post-mining	Emissions from surface and underground post-mining activities (CO_2e)	Calculated	Equation 13

Limitations and Assumptions

Emissions from coal mining are heavily dependent on the characteristics of the coal and the way it is handled after leaving the mine. As a result, the proposed methodology relies entirely on user inputs to quantify emissions from this source.

2C: Fugitive Emissions from Natural Gas and Petroleum Systems

This emissions source includes fugitive emissions from natural gas and petroleum production, transmission, and distribution. These emissions are applicable to projects that expand the delivery capacity of these fuels (e.g., pipelines, storage, refineries).

Equations

Equation 14 – Annual GHG Emissions from Natural Gas and Petroleum Systems

$$\text{annual GHG emissions} = \text{throughput}_t \times \text{emission factor}_t$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Incremental throughout by fuel type	Amount of additional throughput expected by fuel type (t) (e.g., natural gas, diesel, gasoline) resulting from the project (Btu)	User input	NA
Emission factors by fuel type	Fugitive emissions per quantity of fuel associated with recovery, processing, transmission, storage, and distribution (CO_2e/Btu)	Default	GREET
Annual GHG emissions from natural gas and petroleum systems	Total emissions from the leakage of natural gas and petroleum (CO_2e)	Calculated	Equation 14

Limitations and Assumptions

The proposed methodology accounts for fugitive emissions from the recovery, processing, refining, transmission, storage, and distribution of natural gas and petroleum products. Users must provide data on incremental fuel throughput by fuel type. Emissions will be quantified using emission factors from the GREET model.

2D: Emissions from Natural Gas and Petroleum Products

This emissions source includes emissions from the combustion of natural gas and petroleum products that are delivered and consumed as an indirect result of project implementation (e.g., pipeline expansion).

Equations

Equation 15 – Annual GHG Emissions from Natural Gas and Petroleum Products

$$\text{annual GHG emissions} = \text{throughput}_t \times \text{emission factor}_t$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Incremental annual throughout by fuel type	Amount of additional throughput expected by fuel type (t) (e.g., natural gas, diesel, gasoline) resulting from the project (Btu)	User input	NA
Emission factors by fuel type	Emissions from the combustion of each fuel type (CO_2e/Btu)	Default	EPA Emissions Factors Data Hub
Annual GHG emissions from natural gas and petroleum products	Total emissions from the combustion of natural gas and petroleum products (CO_2e)	Calculated	Equation 15

Limitations and Assumptions

The proposed methodology accounts for emissions from the direct combustion of fuel that is delivered and consumed as an indirect, downstream impact of the project. Users must provide data on the additional quantity of fuel consumed due to project implementation.

2E: Industrial Process Emissions

This emissions source includes emissions from the production of metals, minerals, chemicals, and other industrial activities.

Equation 16 – Annual GHG Emissions from an Industrial Activity

$$\text{annual GHG emissions}_{p} = \text{quantity of product}_{p} \times \text{emission factor}_{p}$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Annual production by industrial process	Amount of product produced annually by industrial process (p) (MT/year)	User input	NA
Emission factors by product type*	GHG emissions per unit of product (e.g., cement, lime, glass, limestone, magnesium, soda ash, iron and steel, ammonia, aluminum, nitric acid) (CO_2e/MT product)	Default	GREET, EPA SIT, IPCC
Annual GHG emissions	Annual GHG emissions from industrial activity (CO_2e)	Calculated	Equation 16

* Tool will also include the ability for the user to enter value directly.

Limitations and Assumptions

Emissions from industrial activities are dependent on product output. Users are therefore required to provide estimates on the annual production output. The tool will include default emission factors by product type for industries that are applicable to Minnesota. Users will have the ability to tailor these assumptions based on the availability of project-specific data.

2F: Electric Power Transmission and Distribution

This emissions source includes emissions from transmitting and distributing electricity during project operation. Sulfur hexafluoride (SF_6) is used in electricity transmission and distribution infrastructure due to its insulating properties. All equipment that uses SF_6 will slowly release the gas due to small leaks during production and maintenance.

Equations

Equation 17 – Emissions from Transmission and Distribution Lines

$$\text{annual GHG emissions} = \text{miles of transmission line x } SF_6 \text{ consumption per mile} \times GWP_{SF6}$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Transmission line	Length of transmission line associated with the project (miles)	User input	NA
SF_6 consumption per mile	The total amount of SF_6 used per mile of transmission line (SF_6 consumed/mile)	Default	TBD
Annual GHG emissions	Annual GHG emissions from SF_6 leakage from transmission and distribution lines (CO_2e)	Calculated	Equation 17

Limitations and Assumptions

The proposed methodology relies on an assumed average amount of SF_6 consumed per mile of transmission line. This assumption will be derived based on available literature. The proposed approach assumes that all SF_6 consumed is emitted into the atmosphere. Emissions from SF_6 can come from equipment handling during installation and maintenance as well as leakage. Actual leakage rates of equipment will vary due to age and maintenance quality. Leaks are also more likely to occur at equipment fittings (e.g., the joining of two transmission lines), rather than over a consistent mile of transmission line.

2G: HFC Leakage

This emissions source includes emissions from hydrofluorocarbons (HFCs) that are used in air conditioning and refrigeration equipment during project operation. Leakage occurs from this equipment during installation, operation (including servicing), and disposal.

Equations

Equation 18 – Refrigerant Charge of HFC Equipment

$$\text{refrigerant charge}_{\text{HFC}} = (\text{building area}_{\text{t}} - \text{building area not utilized}_{\text{t}}) \times \text{refrigerant capacity}_{\text{HFC}}$$

Equation 19 – GHG Emissions from HFCs

$$\text{annual GHG emissions} = \text{refrigerant charge}_{\text{HFC}} \times \text{HFC leak rate} \times \text{GWP}_{\text{HFC}}$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Building area by type	Area by building type (t) of all buildings in the project (square feet)	User Input	NA
Building area not utilized	Area of the buildings that are not actively utilized (i.e., does not contain refrigeration and A/C equipment) (square feet)	User Input	NA
Equipment type per building type	The type of refrigeration and air conditioning equipment found in each building type	Default	EPA HFC Accounting Tool
Refrigerant type per equipment type	The type of HFC used in each type of refrigeration and air conditioning equipment	Default	EPA HFC Accounting Tool
Refrigerant capacity	Refrigerant capacity per square foot (kg HFC/square foot)	Default	EPA HFC Accounting Tool
Refrigerant charge	Total charge of refrigerant in the equipment (kg HFC)	Calculated	Equation 18
HFC leak rate	HFC charge leaked per year by equipment type (%)	Default	EPA HFC Accounting Tool
Annual GHG emissions	Total emissions from HFCs (CO_2e)	Calculated	Equation 19

Limitations and Assumptions

This approach applies default assumptions for the type of equipment, refrigerant capacity, refrigerant type, and leak rate. Actual emissions will vary based on management practices and the type of equipment installed. In addition, the EPA tool used as the main source for these assumptions is almost a decade old and does not consider recent regulations that require the phasedown of HFCs in the United States.

2H: Land Use Change

This emissions source (or sink) includes the net carbon change from the transition of one land use type to another due to project operation. While most land use changes are expected to occur during the construction phase of the project, this emissions source would cover activities like land use change due to surface mining that occur during project operation.

Equations

Equation 20 – Change in Carbon Stock by Land Type

$$\Delta carbon\ stock = \sum(\text{carbon stock}_t \times \text{land area post} - \text{conversion}_t) - \sum(\text{carbon stock}_t \times \text{land area pre} - \text{conversion}_t)$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Land area by land use type, pre- and post-transition	Type of land (t) before and after conversion (settlement soils, forested lands, wetlands, etc.) (acres)	User Input	NA
Land use management	Whether land is managed or unmanaged pre-conversion	User Selection	NA
Carbon stocks by land use type	Sequestered carbon per acre by land use type (forested land, wetland, settlement soils, etc.) for the Minnesota region (C)	Default	iTree, EPA SIT, COMET-Farm, COMET-Planner
Net change in carbon stock	The net change in carbon stock from the conversion of land (C)	Calculated	Equation 20

Limitations and Assumptions

Assumptions regarding carbon stocks by land use type are based on several variables, including ecoregion, soil characteristics, and land-management practices. For the purposes of this tool, the assumed defaults will consider both the climate and soil types relevant to Minnesota. Users will specify the management practices of the pre-converted land if applicable. Values will be derived that are broadly representative of the land use types that are identified in the EAW, taking into account potential variation within a single land use type (e.g., coniferous vs. deciduous forest), which also impacts the amount of carbon sequestered per acre.

The net carbon change calculations assume full realization of the land transition and attributes the lifetime changes to the year in which the land is converted. The results assume that no further changes to the converted land will occur following the completion of the project.

2I: On-Road Vehicles

This emissions source includes emissions from on-road vehicles that are used during the operational phase of the project. This includes emissions generated on-site from vehicles that are driven on project roadways and downstream from vehicles driven to and from the project site by visitors or residents.

Equations

Equation 21 – Emissions from On-Road Vehicles

$$\text{GHG emissions} = \sum v\text{ehicle miles traveled}_s \times \text{emission factor}_s$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Vehicle miles traveled	Number of additional miles traveled by speed bin (s)	User Input	NA
Emission factors	Emissions per mile traveled by speed bin (CO_2e/mile)	Default	MICE; MOVES; GREET
GHG emissions	Total emissions from on-road vehicles (CO_2e)	Calculated	Equation 23

Limitations and Assumptions

The proposed methodology requires users to provide data on the estimated number of vehicle miles driven that otherwise would not have occurred in absence of the project. The tool will allow users to specify miles traveled by speed bin or default to an average emissions factor if data by speed bin are not known or available. While projects may also impact traffic congestion in addition to trip generation, the proposed methodology focuses only on emissions from trip generation. The proposed methodology is also limited to on-road vehicles and does not account for maintenance activities or the movement of goods to and from the project site.

2J: Treatment of waste on-site

This emissions source includes emissions from the on-site treatment of waste during project operations. This emissions source is applicable to landfills, waste incineration facilities, composting facilities, and anaerobic digesters.

Equations

Equation 22 – GHG Emissions from the Treatment of Waste On-Site

$$\text{annual GHG emissions} = \sum \text{quantity of waste treated}_p \times \text{emission factor}_p$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Quantity of waste treated by management practice	Annual amount of solid waste treated by management practice (p) (i.e., landfilled, incinerated, composted, anaerobically digested) (tons)	User input	NA
Digestate type	For anaerobic digestion facilities, identification of the digestate type (i.e., wet or dry)	User selection	NA
Emission factors by management practice	Total emissions per mass of municipal solid waste treated under each management practice (CO_2e/ton)	Default	EPA Emissions Factors Data Hub
Annual GHG emissions	The amount of GHG emissions from the on-site treatment of waste each year (CO_2e)*	Calculated	Equation 22

*Although methane emissions from the decomposition of waste at a landfill are generated over many years, for the purposes of this tool, all methane emissions from landfilled waste will be attributed to the year in which the waste is landfilled.

Limitations and Assumptions

Emissions from the treatment of waste depend on a variety of factors, including waste composition, the distance from the project site to the waste management facility, the landfill conditions, and the gas collection practices. The emission factors from EPA's Emission Factors Hub include emissions from the decomposition and combustion of waste as well as the transportation of waste to the waste treatment facility, but do not include avoided emissions associated with displaced electric utility generation, landfill carbon sequestration, soil carbon storage, or avoided fertilizer application. Emissions from the transportation of waste are based on a default assumption regarding the distance traveled from the project site to the waste management facility. The emission factors for landfilling are based on typical landfill gas collection practices and average landfill moisture conditions. Finally, the emission factors reflect assumptions regarding the typical composition of municipal solid waste and organic waste. Defaults associated with the treatment of hazardous waste are not included.

2K: Treatment of wastewater on-site

This emissions source includes emissions from municipal wastewater treatment plants including direct methane emissions from the wastewater treatment process and indirect nitrous oxide emissions from wastewater effluent.

Equations

Equation 23 – Methane emissions from wastewater treatment process

$$\text{annual } CH_4 \text{ emissions} = \text{population} \times \text{BOD} \times \text{emision factor}_{\text{BOD}} \times \%\ \text{anaerobically digested}$$

Equation 24 – Nitrous oxide emissions from wastewater treatment process

$$\text{annual } N_2O \text{ emissions} = \text{population} \times \text{protein} \times \text{nitrogen content} \times \text{fraction} \times \text{emision factor}_{\text{N2O}} \times \frac{\text{N20}}{\text{N2}}$$

Equation 25 – Annual GHG emissions from wastewater treatment process

$$\text{annual GHG emissions} = (\text{annual } CH_4 \text{ emissions} \times \text{GWP}_{\text{CH4}}) + (\text{annual } N_2O \text{ emissions} \times \text{GWP}_{\text{N2O}})$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Population served	Population served by the wastewater treatment plant	User input	NA
BOD	Per capita 5-day biological oxygen demand (kg/person/year)	Default	EPA SIT
BOD emission factor	Methane emissions per unit of BOD production (kg CH_4/kg BOD)	Default	IPCC
Percent anaerobically digested	Fraction of wastewater anaerobically digested	Default	EPA SIT
Protein consumption	Annual per capita protein consumption (kg/person/year)	Default	EPA SIT
Nitrogen content	Fraction of nitrogen in protein (kg N/kg protein)	Default	EPA SIT
Fraction of nitrogen not consumed	Factor to adjust for the fraction of nitrogen in the protein not consumed	Default	EPA SIT
N_2O emission factor	Nitrous oxide emissions per nitrogen treated (kg N_2O-N/kg sewage N-produced)	Default	EPA SIT
Annual CH_4 emissions	Annual methane emissions from the treatment of wastewater during operations (CO_2e)	Calculated	Equation 23
Annual N_2O emissions	Annual nitrous oxide emissions from the treatment of wastewater during operations (CO_2e)	Calculated	Equation 24
Annual GHG emissions	Annual GHG emissions from the treatment of wastewater during operations (CO_2e)	Calculated	Equation 25

Limitations and Assumptions

Estimating the emissions from treatment of wastewater on-site is limited to municipal wastewater treatment plants. Actual emissions will vary based on the treatment system, biological oxygen demand (BOD), and protein content of the population served.

2L: Transportation and treatment of waste off-site

This emissions source includes emissions from the transportation and treatment of waste during project operation that is landfilled or combusted at a facility off-site.

Equations

Equation 26 – Annual Waste Generation

$$\text{annual waste generation amount} = (\text{residents} \times \text{resident per capita generation rate}) + (\text{visitors} \times \text{visitor per capita generation rate}) + (\text{employees} \times \text{employee per capita generation rate})$$

Equation 27 – Annual GHG Emissions from the Transportation and Treatment of Waste Off-Site

$$\text{annual GHG emissions} = \text{annual waste generation amount} \times \text{emission factor}_{\text{p}}$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Residents	Number of people living on-site	User input	NA
Visitors	Number of visitors each year	User input	NA
Employees	Number of employees working on-site	User input	NA
Waste treatment practice	The management practice (p) used to treat the waste generated (i.e., landfilled or incinerated)	User selection	NA
Resident per capita waste generation rate	The amount of waste generated on average by each resident per year (tons)	Default	EPA SIT
Visitor per capita waste generation rate	The amount of waste generated on average by each visitor per year (tons)	Default	TBD
Employee waste generation rate	The amount of waste generated on average by each worker per year (tons)	Default	TBD
Annual waste generation amount*	Average annual amount of waste generated during project operations (tons)	Calculated	Equation 26
Emission factor	The emissions associated with the treatment of mixed MSW waste by treatment practice (CO_2e/ton)	Default	EPA Emissions Factors Data Hub
Annual GHG emissions	GHG emissions from the treatment of waste generated annually during operations (CO_2e)**	Calculated	Equation 27

* Tool will also include the ability for the user to enter value directly.

**Although methane emissions from the decomposition of waste at a landfill are generated over many years, for the purposes of this tool, all methane emissions from landfilled waste will be attributed to the year in which the waste is landfilled.

Limitations and Assumptions

Estimating emissions from the transportation and treatment of waste off-site is dependent on user inputs regarding the number of people living, visiting, or working on the project site as well as per capita generation estimates that will be estimated based on available literature. The tool will allow users to directly input estimates on the amount of waste generated per year to accommodate the potential availability of project-specific information.

While it is anticipated that most waste generated during operation will be disposed of at a landfill, the tool will additionally allow users to quantify emissions associated with the incineration of waste. The emissions factors from EPA's Emission Factors Hub include emissions from the decomposition and combustion of waste as well as the transportation of waste to the waste treatment facility, but do not include avoided emissions associated with energy recovery, displaced electric utility generation, or landfill carbon sequestration. Emissions from the transportation of waste are based on a default assumption regarding the distance traveled from the project site to the waste management facility, which may vary from the actual distance traveled for a specific project. The emission factor for landfilling is based on typical landfill gas collection practices and average landfill moisture conditions, which also may differ from the characteristics of the landfill where the waste is ultimately disposed.

2M: Enteric Fermentation

This emissions source includes methane emissions from enteric fermentation, or the digestive process of ruminant livestock, during project operation. Livestock categories include cattle (beef or dairy), swine, horses and ponies, mules and donkeys, sheep (including lambs and wool hair crosses), and goats.

Equations

Equation 28 – Methane emissions from enteric fermentation by livestock type

$$\text{annual GHG emissions}_t = \text{number of livestock}_t \times \text{emission factor}_t$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Livestock by type	Number of animals by type (t)	User input	NA
Emission factors by livestock type	Annual emissions per animal by livestock type (i.e., cattle, swine, horses and ponies, mules and donkeys, sheep, goats, and chickens) in Minnesota (CO_2e/head)	Default	Cool Farm Tool, COMET Farm, EPA US Greenhouse Gas Inventory
Annual GHG Emissions	Annual GHG emissions from enteric fermentation (CO_2e)	Calculated	Equation 28

Limitations and Assumptions

A variety of factors impact emissions from enteric fermentation, including species type, livestock diet, temperature, and management practices. For the purposes of this tool, emission factors for each livestock type will be derived by dividing emissions estimates from enteric fermentation for the state of Minnesota by total livestock head (by type).

2N: Manure Management

This emissions source includes emissions from the process of managing livestock manure in solid or liquid systems during project operation. Livestock categories include cattle (beef or dairy), swine, horses and ponies, mules and donkeys, sheep (including lambs and wool hair crosses), goats, and chickens (broilers, layers, pullets, and roosters).

Equations

Equation 29 – Emissions from manure management by livestock type

$$\text{annual GHG emissions}_t = \text{number of livestock}_t \times \text{emissions factor}_t$$

Data Elements and Sources

Data Element	Description	Data Type	Data Source
Livestock by type	Number of animals by type (t)	User input	NA
Emission factors by livestock type	Annual emissions per animal by livestock type (i.e., cattle, swine, horses and ponies, mules and donkeys, sheep, goats, and chickens) in Minnesota (CO_2e/head)	Default	Cool Farm Tool, COMET Farm, EPA US Greenhouse Gas Inventory
Annual GHG Emissions	Annual GHG emissions from manure management (CO_2e)	Calculated	Equation 29

Limitations and Assumptions

A variety of factors impact emissions from manure management, including species type, livestock diet, temperature, and management practices. For the purposes of this tool, emission factors for each livestock type will be derived by dividing emissions estimates from manure management for the state of Minnesota by total livestock head (by type).

Appendix A: Acronyms

BOD	Biological oxygen demand
Btu	British Thermal Unit
CBECS	Commercial Buildings Energy Consumption Survey
CH_4	Methane
CO_2	Carbon dioxide
EAW	Environmental assessment worksheet
EIA	Energy Information Administration
EPD	Environmental product declaration
GHG	Greenhouse gas
GJ	gigajoule
GREET	Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies
GWP	global warming potential
HFC	Hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
kg	kilogram
kWh	kilowatt-hour
LCA	Lifecycle assessment
MECS	Manufacturing Energy Consumption Survey
MICE	Minnesota Infrastructure Carbon Estimator
MOVES	Motor Vehicle Emission Simulator
MT	metric ton
MWh	megawatt hour
N_2O	Nitrous oxide
NA	Not applicable
RECS	Residential Energy Consumption Survey
SF_6	Sulfur hexafluoride
SIT	State Inventory Tool
TBD	To be determined
WARM	Waste Reduction Model

Appendix B: Data Sources

The Cool Farm Alliance (2024) *Cool Farm Tool*. Available at: https://coolfarm.org/

USDA Natural Resources Conservation Service and Colorado State University (2024) *COMET Farm*. Available at: https://comet-farm.com/Home

USDA Natural Resources Conservation Service and Colorado State University (2024) *COMET-Planner*. Available at: http://comet-planner.com/

Environmental Protection Agency (EPA) (2024). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2022 U.S. Environmental Protection Agency, EPA 430R-24004. Available at: https://www.epa.gov/system/files/documents/2024-04/us-ghg-inventory-2024-main-text_04-18-2024.pdf

Environmental Protection Agency (EPA) (2024) *GHG Emission Factors Hub*. Available at: https://www.epa.gov/climateleadership/ghg-emission-factors-hub

Environmental Protection Agency (EPA) (2016) *Accounting Tool to Support Federal Reporting of Hydrofluorocarbon Emissions*. Available at: https://www.epa.gov/snap/accounting-tool-support-federal-reporting-hydrofluorocarbon-emissions

Environmental Protection Agency (EPA) (2024) *Local Greenhouse Gas Inventory Tool*. Available at: https://www.epa.gov/statelocalenergy/local-greenhouse-gas-inventory-tool

Environmental Protection Agency (EPA) (2024) *State Inventory and Projection Tool*. Available at: https://www.epa.gov/statelocalenergy/state-inventory-and-projection-tool

C-Change Labs (2024) *Embodied Carbon in Construction Calculator (EC3) Tool*. Available at: https://buildingtransparency.org/ec3 (Accessed: 9 August 2024).

Environmental Protection Agency (EPA) Waste Reduction Model (WARM). Available at https://www.epa.gov/warm.

Argonne National Laboratory (2024) *The Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies (GREET®) Model*. Available at: https://greet.anl.gov/

ICF International and MN DOT (2022) *Minnesota Infrastructure Carbon Estimator version 2.1*. Available at: https://www.dot.state.mn.us/sustainability/ghg-analysis.html

Environmental Protection Agency (EPA) (2023) *MOVES4 (Version 4.0.1): Latest Version of Motor Vehicle Emission Simulator*. Available at: https://www.epa.gov/moves/latest-version-motor-vehicle-emission-simulator-moves

One Click LCA (2024) *One Click LCA*. Available at: https://oneclicklca.com/en-us/

United States Census Bureau (2017) *Commodity Flow Survey (CFS), Census.gov*. Available at: https://www.census.gov/cfs

U.S. Energy Information Administration (EIA) (2024) *British Thermal Unit Conversion Factors, Appendix A Monthly Energy Review July 2024*. Available at: https://www.eia.gov/totalenergy/data/monthly/index.php#appendices

U.S. Energy Information Administration (EIA) (2020) *Residential Energy Consumption Survey (RECS)*. Available at: https://www.eia.gov/consumption/residential/index.php

U.S. Energy Information Administration (EIA) (2018) *Commercial Buildings Energy Consumption Survey (CBECS)*. Available at: https://www.eia.gov/consumption/commercial/

U.S. Energy Information Administration (EIA) (2018) *Manufacturing Energy Consumption Survey (MECS)*. Available at: https://www.eia.gov/consumption/manufacturing/

USDA Forest Service (2006) *i-Tree*. Available at: https://www.itreetools.org/

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Appendix C: Applicability of Emission Sources

The following table summarizes the emission sources that were considered for inclusion in this tool and an assessment of applicability to each mandatory project category. The actual applicability of each emissions source will vary based on the specific characteristics of a given project. Emission sources that are not currently included in the tool but are anticipated to be a significant source of emissions should also be assessed by project developers to the extent possible.

Emission Source	Subp. 2, Nuclear fuels and nuclear waste	Subp. 3, Electric-generating facilities	Subp. 4, Petroleum Refineries	Subp. 5, Fuel conversion Facilities	Subp. 6, Transmission lines
Construction					
Material inputs	X	X	X	X	X
Transportation of material inputs	X	X	X	X	X
Employee commuting	X	X	X	X	X
Construction equipment	X	X	X	X	X
On-site energy	X	X	X	X	X
Land use change	X	X	X	X	X
Transportation and treatment of waste off-site	X	X	X	X	X
Operation					
Material inputs	-	-	-	-	-
Transportation of material inputs	-	-	-	-	-
Building energy consumption	X	X	X	X	
Fugitive emissions from coal				X	
Fugitive emissions from natural gas and petroleum systems			X		
Emissions from natural gas and oil products			X		
Industrial process emissions					
Electric power transmission and distribution					X
HFC leakage		X	X	X	
Land use change					
Routine maintenance		-	-	-	-
Employee commuting	-	-	-	-	-
Change in vehicle operation/aircraft usage/watercraft operation					
Treatment of waste on-site				X	
Treatment of wastewater on-site					
Transportation and treatment of waste off-site	X	X	X	X	
Enteric fermentation					
Manure management					
Decommissioning					
On-site energy	-	-	-	-	-
Employee commuting	-	-	-	-	-
Demolition equipment	-	-	-	-	-
Land use change	-	-	-	-	-
Transportation and treatment of waste off-site	-	-	-	-	-

Included in Tool (priority)	X
Included in Tool (lower priority)	X
Not included in Tool	-
Not Applicable	

Emission Source	Subp. 7, Pipelines	Subp. 8, Transfer facilities	Subp. 9, Underground storage	Subp. 10, Storage facilities	Subp. 11, Metallic mineral mining and processing	Subp. 12, Nonmetallic mineral mining
Construction						
Material inputs	X	X	X	X	X	X
Transportation of material inputs	X	X	X	X	X	X
Employee commuting	X	X	X	X	X	X
Construction equipment	X	X	X	X	X	X
On-site energy	X	X	X	X	X	X
Land use change	X	X	X	X	X	X
Transportation and treatment of waste off-site	X	X	X	X	X	X
Operation						
Material inputs	-	-	-	-	-	-
Transportation of material inputs	-	-	-	-	-	-
Building energy consumption		X		X	X	X
Fugitive emissions from coal	X	X		X		
Fugitive emissions from natural gas and petroleum systems	X		X	X		
Emissions from natural gas and oil products	X					
Industrial process emissions					X	X
Electric power transmission and distribution						
HFC leakage		X		X	X	
Land use change					X	X
Routine maintenance	-	-			-	-
Employee commuting		-		-	-	-
Change in vehicle operation/aircraft usage/watercraft operation						
Treatment of waste on-site						
Treatment of wastewater on-site						
Transportation and treatment of waste off-site		X		X	X	X
Enteric fermentation						
Manure management						
Decommissioning						
On-site energy	-	-	-	-	-	-
Employee commuting	-	-	-	-	-	-
Demolition equipment	-	-	-	-	-	-
Land use change	-	-	-	-	-	-
Transportation and treatment of waste off-site	-	-	-	-	-	-

Included in Tool (priority)	X
Included in Tool (lower priority)	X
Not included in Tool	-
Not Applicable	

Emission Source	Subp. 13, Paper or pulp processing mills	Subp. 14, Industrial, commercial, institutional facilities	Subp. 15, Air pollution	Subp. 16, Hazardous waste	Subp. 17, Solid waste	Subp. 18, Wastewater
Construction						
Material inputs	X	X	X	X	X	X
Transportation of material inputs	X	X	X	X	X	X
Employee commuting	X	X	X	X	X	X
Construction equipment	X	X	X	X	X	X
On-site energy	X	X	X	X	X	X
Land use change	X	X	X	X	X	X
Transportation and treatment of waste off-site	X	X	X	X	X	X
Operation						
Material inputs	-	-	-	-	-	-
Transportation of material inputs	-	-	-	-	-	-
Building energy consumption	X	X	X	X	X	X
Fugitive emissions from coal						
Fugitive emissions from natural gas and petroleum systems						
Emissions from natural gas and oil products						
Industrial process emissions	X		X			
Electric power transmission and distribution						
HFC leakage	X	X				
Land use change						
Routine maintenance						
Employee commuting	-	-	-	-	-	-
Change in vehicle operation/aircraft usage/watercraft operation		X				
Treatment of waste on-site				X	X	
Treatment of wastewater on-site						X
Transportation and treatment of waste off-site	X	X	X			
Enteric fermentation						
Manure management						
Decommissioning						
On-site energy	-	-	-	-	-	-
Employee commuting	-	-	-	-	-	-
Demolition equipment	-	-	-	-	-	-
Land use change	-	-	-	-	-	-
Transportation and treatment of waste off-site	-	-	-	-	-	-

Included in Tool (priority)	X
Included in Tool (lower priority)	X
Not included in Tool	-
Not Applicable	

Emission Source	Subp. 19, Residential Development	Subp. 19a, Residential Development in shoreland outside of the Twin Cities	Subp. 20, Campgrounds and RV Parks	Subp. 20a, Resorts, campgrounds, and RV parks in shorelands	Subp. 21, Airport projects
Construction					
Material inputs	X	X	X	X	X
Transportation of material inputs	X	X	X	X	X
Employee commuting	X	X	X	X	X
Construction equipment	X	X	X	X	X
On-site energy	X	X	X	X	X
Land use change	X	X	X	X	X
Transportation and treatment of waste off-site	X	X	X	X	X
Operation					
Material inputs	-	-	-	-	-
Transportation of material inputs	-	-	-	-	-
Building energy consumption	X	X	X	X	
Fugitive emissions from coal					
Fugitive emissions from natural gas and petroleum systems					
Emissions from natural gas and oil products					
Industrial process emissions					
Electric power transmission and distribution					
HFC leakage	X	X	X	X	
Land use change					
Routine maintenance	-	-	-	-	-
Employee commuting					
Change in vehicle operation/aircraft usage/watercraft operation	X	X	X	X	-
Treatment of waste on-site					
Treatment of wastewater on-site					
Transportation and treatment of waste off-site	X	X	X	X	
Enteric fermentation					
Manure management					
Decommissioning					
On-site energy	-	-	-	-	-
Employee commuting	-	-	-	-	-
Demolition equipment	-	-	-	-	-
Land use change	-	-	-	-	-
Transportation and treatment of waste off-site	-	-	-	-	-

Included in Tool (priority)	X
Included in Tool (lower priority)	X
Not included in Tool	-
Not Applicable	

Emission Source	Subp. 22, Highway projects	Subp. 23, Barge fleeting	Subp. 24, Water appropriation and impoundments	Subp. 25, Marinas	Subp. 26, Stream diversion	Subp. 27, Wetlands and public waters
Construction						
Material inputs	X	X	X	X	X	X
Transportation of material inputs	X	X	X	X	X	X
Employee commuting	X	X	X	X	X	X
Construction equipment	X	X	X	X	X	X
On-site energy	X	X	X	X	X	X
Land use change	X		X		X	X
Transportation and treatment of waste off-site	X	X	X	X	X	X
Operation						
Material inputs	-	-	-	-	-	-
Transportation of material inputs	-	-	-	-	-	-
Building energy consumption						
Fugitive emissions from coal						
Fugitive emissions from natural gas and petroleum systems						
Emissions from natural gas and oil products						
Industrial process emissions						
Electric power transmission and distribution						
HFC leakage						
Land use change						
Routine maintenance	-	-	-	-	-	-
Employee commuting						
Change in vehicle operation/aircraft usage/watercraft operation	X	-		-		
Treatment of waste on-site						
Treatment of wastewater on-site						
Transportation and treatment of waste off-site						
Enteric fermentation						
Manure management						
Decommissioning						
On-site energy	-	-	-	-		
Employee commuting	-	-	-	-		
Demolition equipment	-	-	-	-		
Land use change	-	-	-	-		
Transportation and treatment of waste off-site	-	-	-	-		

Included in Tool (priority)	X
Included in Tool (lower priority)	X
Not included in Tool	-
Not Applicable	

Emission Source	Subp. 28, Forestry	Subp. 29, Animal feedlots	Subp. 30, Natural areas	Subp. 31, Historical places	Subp. 32, Mixed residential and industrial-commercial projects	Subp. 33, Communications towers
Construction						
Material inputs		X			X	X
Transportation of material inputs		X			X	X
Employee commuting	X	X		X	X	X
Construction equipment	X	X		X	X	X
On-site energy	X	X		X	X	X
Land use change	X	X	X	X	X	X
Transportation and treatment of waste off-site	X	X		X	X	X
Operation						
Material inputs		-			-	-
Transportation of material inputs		-			-	-
Building energy consumption		X			X	
Fugitive emissions from coal						
Fugitive emissions from natural gas and petroleum systems						
Emissions from natural gas and oil products						
Industrial process emissions						
Electric power transmission and distribution						
HFC leakage					X	
Land use change						
Routine maintenance	-	-	-		-	-
Employee commuting		-			-	-
Change in vehicle operation/aircraft usage/watercraft operation					X	
Treatment of waste on-site						
Treatment of wastewater on-site						
Transportation and treatment of waste off-site		X			X	
Enteric fermentation		X				
Manure management		X				
Decommissioning						
On-site energy		-			-	-
Employee commuting		-			-	-
Demolition equipment		-			-	-
Land use change		-			-	-
Transportation and treatment of waste off-site		-			-	-

Included in Tool (priority)	X
Included in Tool (lower priority)	X
Not included in Tool	-
Not Applicable	

Emission Source	Subp. 34, Sports or entertainment facilities	Subp. 35, Release of genetically engineered organisms	Subp. 36, Land use conversion, including golf courses	Subp. 36a, Land conversions in shoreland	Subp. 37, Recreational trails
Construction					
Material inputs	X		X	X	X
Transportation of material inputs	X		X	X	X
Employee commuting	X		X	X	X
Construction equipment	X		X	X	X
On-site energy	X		X	X	X
Land use change	X		X	X	X
Transportation and treatment of waste off-site	X		X	X	X
Operation					
Material inputs	-		-	-	-
Transportation of material inputs	-		-	-	-
Building energy consumption	X		X	X	
Fugitive emissions from coal					
Fugitive emissions from natural gas and petroleum systems					
Emissions from natural gas and oil products					
Industrial process emissions					
Electric power transmission and distribution					
HFC leakage	X		X	X	
Land use change					
Routine maintenance	-		-	-	-
Employee commuting	-		-	-	
Change in vehicle operation/aircraft usage/watercraft operation	X		X	X	X
Treatment of waste on-site					
Treatment of wastewater on-site					
Transportation and treatment of waste off-site	X		X	X	
Enteric fermentation					
Manure management					
Decommissioning					
On-site energy	-		-	-	
Employee commuting	-		-	-	
Demolition equipment	-		-	-	
Land use change	-		-	-	
Transportation and treatment of waste off-site	-		-	-	

Included in Tool (priority)	X
Included in Tool (lower priority)	X
Not included in Tool	-
Not Applicable	