EAW Guidelines

Preparing Environmental Assessment Worksheets

ENVIRONMENTAL QUALITY BOARD

EAW Guidelines was prepared by the staff of the Environmental Quality Board at Minnesota Planning to assist units of government and others in preparing Environmental Assessment Worksheets. *EAW Guidelines* is not intended as a substitute for Environmental Quality Board rules and should be used in conjunction with the EAW rule provisions at parts 4410.1000 to 4410.1700. Copies of the rules are available from the Minnesota's Bookstore at 651-297-3000 or 800-657-3757, or at the Revisor of Statutes homepage at www.revisor.leg.state.mn.us. Officials and agents of governmental units may obtain printed copies from the Environmental Quality Board. Further information about the environmental review process can be found in the *Guide to Minnesota Environmental Review Rules*, available from the EQB.

The updated guidelines replace the 1990 edition of *EAW Guidelines* and correspond to the 1999 edition of the EAW form. Updates and corrections to the guidelines and EAW form will be posted on the EQB homepage at www.mnplan.state.mn.us.

Upon request, the *EAW Guidelines* will be made available in an alternate format, such as Braille, large print or audiotape. For TTY, contact Minnesota Relay Service at 800-627-3529 and ask for Minnesota Planning.

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For additional information, or paper or electronic copies of the guidelines, contact:

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EAW Guidelines

Glossary

Alternative Urban Areawide Review
A substitute review process based on review of development scenarios for an entire geographic area rather than for a specific project.

Connected actions
Two or more projects that are related, interdependent parts of a larger whole.

Construction
Any activity that directly alters the environment, excluding surveying or mapping.

Cumulative effects
Effects resulting from a project and other past, present and reasonably foreseeable future projects.

Discretionary review
Environmental review ordered by any government unit, usually in response to a citizen petition, where review is not mandatory.

Environmental Assessment Worksheet
A document providing basic information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit to determine whether an Environmental Impact Statement should be prepared.

Environmental Impact Statement
A thorough study of a project with potential for significant environmental impacts, including evaluation of alternatives and mitigation.

Environmental Quality Board
State agency that adopts environmental review rules, monitors their effectiveness and revises as appropriate; provides technical assistance to interpret and apply rules.

EQB Monitor
Biweekly publication of the Environmental Quality Board, lists deadlines for Environmental Assessment Worksheets, Environmental Impact Statements and other notices.

Expansion
A facility's capability to produce or operate beyond its existing capacity, excluding repairs or renovations that do not increase capacity.

Mandatory review
Legally required review, established by the Environmental Quality Board through rules authorized by the Environmental Policy Act.

Mitigation plan
An action plan developed in an Alternative Urban Areawide Review for how environmental effects will be avoided, including mitigation measures, legal and financial measures and institutional arrangements.

Phased actions
Two or more projects by the same proposer that will have environmental effects on the same geographic area and will occur sequentially over a limited time period.

Responsible Governmental Unit
Government unit responsible for environmental review, usually the unit with the greatest authority over the project as a whole. Using a standardized process, the RGU prepares an EAW or EIS when required by the rules.

Scoping
Process to identify what potential environmental impacts, alternatives and other issues will be addressed in the EIS.

Environmental Assessment Worksheet process

EAW Guidelines provides information about preparing an Environmental Assessment Worksheet to determine whether an Environmental Impact Statement is needed for a project. The EAW is defined by state statute as a "brief document which is designed to set out the basic facts necessary to determine whether an EIS is required for a proposed action."

The purpose of the EAW process is to disclose information about potential environmental impacts of the project; it is *not* an approval process. The information disclosed in the EAW process has two functions: to determine whether an EIS is needed, and to indicate how the project can be modified to lessen its environmental impacts; such modifications may be imposed as permit conditions by regulatory agencies. The information comes from three sources: the EAW, comments made on the EAW and responses by the RGU and project proposer to the comments. All three sources are important, but the EAW generally provides the most significant information.

The EAW process involves four major steps:

Step 1. The project proposer supplies all necessary data to the Responsible Governmental Unit, which is assigned responsibility to conduct the review according to the EQB rules.

Step 2. The RGU prepares the EAW by completing the standard form supplied by the Environmental Quality Board.

Step 3. The EAW is distributed with public notice of its availability for review. The comment period is 30 calendar days. Certain state, federal and local agencies always receive EAWs for review. Any person may review and comment in writing on an EAW. A public meeting to receive oral comments is optional at the discretion of the RGU, but is not commonly held.

Step 4. The RGU responds to the comments received and makes a decision on the need for an EIS based on the EAW, comments received and responses to the comments. The RGU and other units of government may require modifications to the project to mitigate environmental impacts as disclosed through the EAW process.

When an EAW is required

An EAW is required for any project listed in the mandatory EAW categories in the rules at part 4410.4300. This listing, as well as mandatory EIS and exemption categories, can also be found in the EQB's *Guide to Minnesota Environmental Review Rules.* An EAW is also required whenever any governmental unit with approval authority over the project determines that available evidence indicates that the project may have the potential for significant environmental effects. This typically occurs in response to a citizen petition.

An EAW is also prepared as the first step in scoping an EIS if required for a project. A different approach is necessary to answering questions on the EAW when it is used for scoping purposes, see Chapter 4.

Prohibition on governmental approvals and on construction during review

Whenever a EAW is mandatory or has been ordered, or when a petition for an EAW has been properly filed, state law directs that no final governmental decision may be made to grant a permit, approve or begin a project and that construction on the project may not begin until environmental review is completed. When an EAW is required, review is completed when either the RGU determines that no EIS is needed – issuance of a negative declaration – or when the EIS is completed and found adequate. A final governmental decision is one that conveys rights to the project proposer, whether the last or an intermediate decision. Final decisions include preliminary as well as final plat approvals since they convey rights that may be difficult to alter or undo, conditional use permits and zoning decisions if associated with a specific project. The *Guide to Minnesota Environmental Review Rules* provides additional information about prohibited approvals.

How the RGU is determined

Environmental Quality Board rules assign responsibility for preparing the EAW and determining the need for an EIS to a specific unit of government. The Responsible Governmental Unit is generally the unit with the greatest responsibility for approving or supervising the project as a whole. For a mandatory EAW, the rule automatically assigns the RGU as part of the mandatory category text. For an EAW initiated by citizen petition, the EQB chair or staff designee assigns the RGU. If a unit of government orders an EAW or responds to a request of the project proposer, that unit is the RGU. A state agency is always the RGU for projects it will conduct.

Responsibility for EAW preparation and costs

Project proposers are required to supply any data or other information in their possession or to which they have reasonable access to the RGU, which prepares the EAW after reviewing the submitted information. Sometimes an RGU will hire consultants to prepare all or part of the EAW or to independently review the proposer's submittal. This topic is covered in detail in the next chapter.

The environmental review statutes do not address the issue of charging for EAW costs, however, some local units of government have enacted ordinances that allow them to recoup at least part

of their expenses for preparing an EAW. In most cases, these are relatively small since the proposer incurs most data costs.

The 30-day comment period

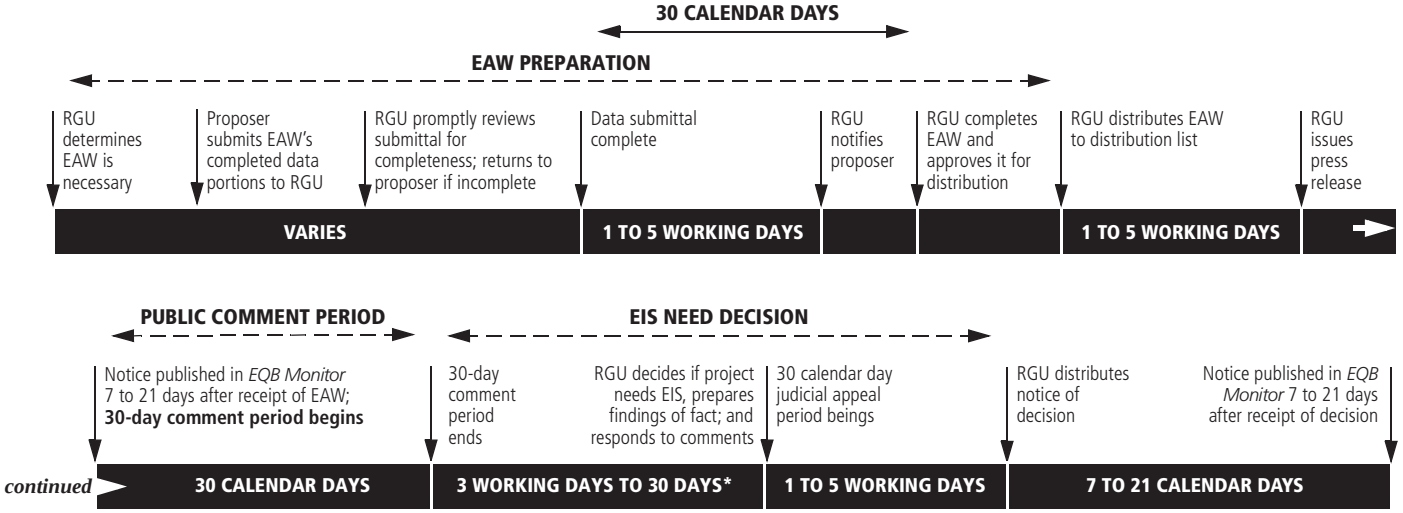
After receiving a completed EAW from the RGU, the Environmental Quality Board staff publishes a notice in the *EQB Monitor,* which is distributed biweekly on Mondays. The public comment period begins on the distribution date of the *EQB Monitor* containing the EAW notice. The 30-day comment period usually ends on a Wednesday at 4:30 p.m. unless indicated otherwise by the RGU; comments must reach the RGU by this deadline.

At the same time the EAW is sent to the Environmental Quality Board staff, the RGU must also send copies to all offices on the EQB's official distribution list. Available online or from the EQB, the distribution list includes state, federal, regional and local units of government that have expertise and responsibilities in the environmental area, as well as several libraries that serve as repositories for environmental reports. In addition, copies should be made available locally for public review, at such locations as a local library or the RGU offices. The rules require that a copy be given to any person submitting a written request, although the RGU may charge a copying fee. The RGU should also make extra copies for requests by the public.

The RGU must also send a press release to at least one newspaper in the project area announcing the availability of the EAW for public review; a paid legal notice is optional. The press release briefly describes the project, explains that an EAW is available for review and comment and gives details such as when comments are due, where to send comments and how to obtain a copy for review. If there will be a public meeting for oral comments, it should be announced in the press release. The RGU should keep a record documenting that it complied with the requirement to supply a press release in case the release is not published. The law requires that a press release be distributed, not that it be published.

Anyone who wishes may review and comment on the EAW during the comment period. Unless the RGU holds an optional public meeting, all comments must be submitted in writing within the 30 days. The rules suggest that comments address: the accuracy and completeness of the information, potential impacts that may warrant further investigation before the project is commenced

ENVIRONMENTAL ASSESSMENT WORKSHEET PROCESS



** Can vary depending on RGU.*

NOTES

Time frames are diagramed as prescribed in the rules and should be considered minimum estimates.

Day can mean either calendar or working day depending on the timeframe listed for a specific event. If the text lists 15 or fewer days, they are working days; calendar days are 16 or more days (4410.0200, subpart 12). Working days exclude Saturdays, Sundays and legal state holidays.

How to count a period of time. The first day of any time period is not counted but the final day is counted (part 44100.0200, subpart 12). The last day of the time period ends with normal business hours, generally at 4:30 p.m. No time period can end on a Saturday, Sunday or legal state holiday.

The 30-day period for EAW comments begins on the biweekly publication date of the *EQB Monitor,* which is always on Monday. Thirty days from a Monday always falls on a Wednesday, so the comment periods end on Wednesday unless it is a legal holiday.

and the need for an EIS on the project. Without draft and final versions of the EAW, minor errors or omissions should be noted only if they bear on larger issues. If a reviewer feels that the process is impeded by a lack of information that could be reasonably obtained, the reviewer should ask for the information during the comment period rather than issuing a comment letter.

All substantive comments received during the comment period must be given a written response by the RGU. The number of comment letters received by the RGU varies widely. For some projects only one or two letters are received, usually from state agencies. On other projects, dozens of letters may be received from concerned citizens. If the project is controversial and the RGU anticipates many public letters, it may be advantageous to hold a public meeting to hear comments and to answer the public's questions.

RGU response to comments and decision on the need for an EIS

The rules require most RGUs to make a decision on the need for an EIS between three working days and 30 days after the comment period ends; this time frame applies to all RGUs where the decision is made by a council or board that only meets occasionally. If the decision will be made by a single individual, such as by an agency commissioner, then the decision must be made within 15 working days, although a 15 working day extension may be requested from the EQB chair. An RGU may postpone its decision for 30 days under certain circumstances as discussed below.

As part of the process of determining if an EIS will be needed, the RGU must respond in writing to all substantive comments received during the comment period. Late comments may be responded to if the RGU chooses to do so. Each person or unit that submitted timely and substantive comments must be sent the RGU's response to those comments. Usually the responses are sent along with the notice of the EIS need decision, however, in certain cases, it may be advisable to send out responses in advance of the decision to solicit comments before the EIS need decision is made. The RGU may ask the proposer to help prepare responses if the comments ask for changes in the project or a commitment to mitigation, or question the purpose or value of the project.

The purpose of the EAW, comments and comment responses is to provide the record on which the RGU can base a decision about whether an EIS needs to be prepared for a project. EIS need is described in the rules: "An EIS shall be ordered for projects that have the potential for significant environmental effects" (part 4410.1700, subpart 1).

In deciding whether a project has the potential for significant environmental effects, the RGU "shall compare the impacts that may reasonably be expected to occur from the project with the criteria in this rule," considering the following factors (part 4410.1700, subparts 6 and 7):

- A. Type, extent, and reversibility of environmental effects;
- B. Cumulative potential effects of related or anticipated future projects;
- C. The extent to which environmental effects are subject to mitigation by ongoing public regulatory authority; and
- D. The extent to which environmental effects can be anticipated and controlled as a result of other available environmental studies undertaken by public agencies or the project proposer, including other Environmental Impact Statements.

The rules also require the RGU to document how it reached a decision: "The RGU shall maintain a record, including specific findings of fact, supporting its decision. The record must include specific responses to all substantive and timely comments on the EAW. This record shall either be a separately prepared document or contained within the records of the governmental unit" (part 4410.1700, subpart 4).

For most RGUs, the staff or a consultant will draft a proposed or sample record of decision document for consideration and possible adoption by the council or board. This document may be in the form of a resolution or it may be adopted by a resolution. Other RGUs may satisfy the requirements for a decision record through detailed meeting minutes that reflect discussion of the relevant information from the EAW, comments and responses about impacts, mitigation and regulatory oversight.

The record of decision should do more than rely on the absence of adverse comments to justify a decision not to order an EIS. The RGU is obligated to examine the facts, consider the criteria and draw its own conclusions about the significance of potential environmental effects, and it is the purpose of the record of decision to document that the RGU fulfilled this obligation.

Among the four criteria, the first and the third are usually the most relevant. The first deals with the nature and significance of the environmental effects that will or could result from the project. It relies directly on the EAW information and may be augmented by information from the comments and responses. The third criterion is frequently the main justification for why an EIS is not required. Projects often have impacts that could be significant if not for permit conditions and other aspects of public regulatory authority. However, the RGU must be careful to rely on ongoing public regulatory authority to prevent environmental impacts only where is it reasonable to conclude that such authority will adequately handle the potential problem.

The second and fourth criteria are less often important in the EIS need decision. The fourth criterion enters in only where the same information that would be sought in an EIS already is available through past studies, including other impact statements. This

situation rarely occurs, in part because the environmental issues are usually quite specific to the project in question. The second criterion, cumulative potential effects of related or anticipated further projects, has historically been given little attention. The issue of cumulative impacts, however, is currently in the forefront, although it remains difficult to apply in practice often because little is known about other potential projects unless they are also under review at the same time. Nevertheless, the RGU must be alert to the possibility that an EIS could be needed because of cumulative impacts of multiple projects. The RGU should address the project's interaction with other past, present and future projects in the vicinity when answering EAW questions.

Delay of EIS decision due to insufficient information

The RGU may postpone its decision on the need for an EIS for up to 30 additional calendar days *if* it determines that "information necessary to a reasoned decision about the potential for, or significance of, one or more possible environmental impacts is lacking, but could be reasonably obtained" (part 4410.1700, subpart 2a).

This provision is intended to provide for a postponement only on the basis of important missing information that bears on the question of potential for significant environmental impacts. If the missing information is not critical to the EIS need decision in the opinion of the RGU, the decision should not be delayed. The information can be developed later as part of an appropriate permitting process. In its record of decision, the RGU can describe the information and how it will be obtained and used.

If the project proposer agrees, an RGU can extend the postponement beyond the 30 days stated in the rules. In unusual cases where important information is found to be lacking from the EAW, the RGU may simply withdraw the EAW, revise it and restart the 30-day comment period. This can normally only be justified if the project description information is so incomplete or inaccurate that reviewers are not given a fair chance to review the true project.

Appeal of an RGU decision

The decision of the RGU to prepare or not prepare an EIS can be appealed in the county district court where the project would take place. The appeal must be filed within 30 days of the date on which the RGU makes its decision, usually the date the council or board takes the action. There is no administrative appeal of an RGU; the EQB has no jurisdiction to review an RGU's decision.

Use of a federal Environmental Assessment as a substitute for the EAW form

Rule amendments in 1997 authorize the automatic substitution of a federal Environmental Assessment in place of the EAW form as long as the EA addresses all the environmental effects identified by the EAW form. This avoids the need for two different review documents for projects that require both a state EAW and federal National Environmental Policy Act (NEPA) review.

NOTE: Only the *document* can be substituted – all procedural aspects of the state EAW process must still be followed.

Alternative Urban Areawide Review in lieu of an EAW

A more comprehensive and often more expeditious review can be accomplished through the Alternative Urban Areawide Review process. If several different projects in the same area will require preparation of an EAW, or if an RGU has concerns about overall development in an area where some projects require review and others do not, the situation may be best suited for an Alternative Urban Areawide Review. RGUs can find guidance about the AUAR process in Chapter 5 of the *Guide to Minnesota Environmental Review Rules* or by consulting the EQB staff.

General guidance for preparing an EAW

An official form must be used for all Environmental Assessment Worksheets, unless an alternative is approved in advance by the Environmental Quality Board chair, or a federal Environmental Assessment is prepared for the same project.

The Environmental Quality Board develops and revises the official EAW form as necessary. The current version was revised in 1999. Paper or electronic copies of the worksheet, as well as these guidelines, are available from the EQB.

Submitting data for the EAW

The project proposer is required to submit the EAW's completed data portions to the Responsible Governmental Unit to initiate EAW preparation. The RGU must *promptly* review the proposer's submittal and return the submittal to the proposer if it is found to be incomplete. If the submittal is complete, the RGU must notify the proposer in writing within five working days. Proposers are obligated to supply any relevant information to which they have reasonable access. The proposer usually submits the data portions on a copy of the EAW form. In preparing the submittal the proposer should refrain from offering conclusions, rather should focus on supplying data and other factual information.

The proposer should discuss EAW content requirements with RGU staff before beginning work on the EAW.

Preparing the EAW

The RGU is legally responsible for the accuracy and completeness of the information presented in the EAW. After the RGU notifies the proposer that the submittal is complete, the RGU has 30 days to add additional information, revise the text as necessary and approve the EAW for public distribution. In controversial cases, the RGU governing body, a council or board, often authorizes release of the EAW, but it is not required by the EQB rules.

Even if the proposer's data submittal seems complete and accurate, the RGU must exercise independent judgment about the information. The RGU must be in charge of any conclusion-type responses that discuss the significance of impacts or the adequacy of mitigation. If the RGU fails to exercise independent review of the proposer's information, it could lose a legal challenge and have to repeat the EAW process. If the RGU does not have the necessary expertise on staff, it should consider hiring a consultant to help review information and to assist in the preparation of the EAW. If the RGU has adopted the necessary ordinances, it can charge costs to the proposer. Those that have not yet adopted these ordinances may wish to do so before they are needed.

The statutes define the EAW as "a brief document which is designed to set out the basic facts necessary to determine whether an EIS is required for a proposed action" (Minnesota. Statutes, section 116D.04, subdivision 1a). Some EAWs are lengthy, however, rivaling the average EIS in length. Several considerations should be taken into account in preparing an EAW and deciding how much information should be included:

- **Presenting more information does not necessarily reduce the need for an EIS.** The statutory requirement for an EIS is whether the project has the potential for significant environmental effects – it is *not* whether the EAW has adequately disclosed information about potential impacts. At a minimum, an EIS would consider reasonable alternatives that might avoid the impacts and could provide additional information about mitigation for the impacts. An EAW is not designed to be a substitute for the EIS, no matter how thick it is.

- **Information that reduces uncertainties about impacts and their significance belongs in an EAW.** Any information that helps clarify the likelihood or level of significance of a potential impact is useful in an EAW because it helps the RGU make a better determination about the need for an EIS. It could be factual information related to the nature of the impact or its likelihood, or information about how the impact could be mitigated and how that mitigation will be imposed.

- **Incomplete information in the EAW may lead to a delay in the EIS need decision.** The EQB rules provide that if important information is missing in the EAW record, the RGU may postpone the decision. Failure to include relevant information in the EAW may lead to unnecessary delays. In extreme cases, failure to provide adequate information may cause reviewing agencies to suggest that the EAW be withdrawn and redone or that an EIS be prepared.

Item-by-item guidance

This chapter provides guidance for each item of the Environmental Assessment Worksheet, developed by the Environmental Quality Board and revised in 1999. If an answer does not fit in the available space on the printed six-page worksheet, provide or complete the response on an additional sheet of paper and attach to the form; include the question number next to the response. An electronic version of the worksheet is available online from the Environmental Quality Board home page at www.mnplan.state.mn.us.

1. Project title

Indicate what kind of project is involved, such as residential subdivision, gravel mine or county road resurfacing; its specific identification and location. For example: Joe Smith Gravel Mine, Lincoln Township.

2. Proposer

Self-explanatory.

3. RGU

The Responsible Governmental Unit should only give an e-mail address if it intends to accept comments electronically.

4. Reason for EAW preparation

Most EAWs are prepared because of mandatory requirements and should be noted accordingly. If the EAW is not mandatory, mark an appropriate option to indicate how the EAW process was initiated. If more than one could be said to apply — for instance if a citizen petition was filed but the proposer volunteered for an EAW before the RGU acted on the petition — either mark all that apply or none of the items and explain the situation. EIS scoping should be marked only if an EIS is mandatory or the proposer has voluntarily agreed to initiate an EIS.

If an EAW or EIS is mandatory, list the citation for the applicable mandatory category(ies) from the EQB rules. The citation can be found in the rules at parts 4410.4300 or 4410.4400 or in Chapter 6 of the *Guide to Minnesota Environmental Review Rules.* Also, give the name of the category as listed in the rules after the subpart number.

5. Project location

Township, range and section numbers are found on deeds, U.S. Geological Survey topographic maps and county highway maps. The county assessor will also have this information. All applicable section numbers should be listed.

■ Maps may be obtained from map stores or the U.S. Geological Survey; county maps are available from the Minnesota Department of Transportation or county sources.

■ Photocopies of maps are perfectly acceptable as long as they are clearly legible; if less than the complete map is copied, be sure that the label of the map is included so reviewers can refer to the original map if necessary. Be sure to clearly mark the project boundaries on the map.

■ The site plan should provide a graphic "close-up" of the project in sufficient detail to identify the key physical construction features, including roads, utilities, buildings, wells, drainage structures, cut and fill areas, materials or waste storage areas, parking lots and project boundaries. Significant natural features should also be indicated. Note: Some items on the EAW form ask that specific features be noted on the site plan.

6. Description

This is the single most important item in the EAW, and care should be taken to ensure that it is completed thoroughly and accurately. Additional sheets should be added to the EAW as needed to provide a complete response.

■ a. Summary for publication in the *EQB Monitor.* Submitted by the RGU, this should be a concise statement of the project's basic nature, characteristics and location, which the EQB staff can print verbatim in the *EQB Monitor* notice of the EAW. It should not exceed 50 words.

■ b. The description should be focused on aspects of the project that may directly or indirectly manipulate, alter or impact the physical environment. This can include: **construction methods**, especially in regard to site preparation; **operational features**, especially in regard to waste production and management; and in some cases such as mining activities, **project closure actions**.

The EAW description should not include information that serves only to justify or promote the project, and is otherwise irrelevant to the EAW process. The purpose of the EAW is to identify and assess environmental impacts.

■ c. This item was added to the EAW in the 1997 rule amendments. For private projects, state the purpose of the project. For public projects, state the purpose and in addition, explain why the project is needed and describe who will benefit from the project. This information was added to assist reviewers in identifying appropriate mitigation. Without a clear idea of the project's goals, it is difficult to assess whether changes in process, scale or design that may be environmentally superior would also meet the goals.

■ d. These items identify past or future stages of the project and describe how the present EAW relates to prior or future review. If the answer to either part of d is "yes," it is likely that the project is related to other developments as a "phased action" or a "connected action" as defined by the EQB rules at part 4410.0200, subpart 60 and 9b, respectively. The rules require that all parts of these actions be reviewed as a single project. The RGU should refer to the EQB rules (parts 4410.1000, subpart 4 and 4410.2000, subpart 4) and Chapter 2 of the *Guide to Minnesota Environmental Review Rules* to ensure that the complete project has been reviewed in the EAW. If the project is a residential project, relevant requirements are at part 4410.4300, subpart 19 and part 4410.4400, subpart 14. Also note that the certification at the end of the form asks the RGU to verify that it has complied with the requirements for reviewing the complete project.

7. Project magnitude data

This item asks for certain data that help quantify the magnitude of the project. Depending on the type of project, some of the data requested may not be applicable, in which case simply leave the item blank.

■ **Total project area or length**. For linear projects such as roads, pipelines, sewers or electric transmission lines, the length should be given; for other projects the area should be given. If the total acres involved in a linear project are known, give both area and length.

■ **Residential units**. Single family, duplex and triplex units are considered unattached while four or more units to a building are attached. Each individual dwelling unit counts as one attached unit; therefore, a 24-unit apartment building has 24 attached units.

■ **Commercial, industrial and institutional building areas**. The form asks for a total of the gross floor space for any project of a commercial, industrial or institutional nature such as a school, prison or hospital. Count all floors of all enclosed structures on the site except for any space used for parking. The form also asks for a breakdown of the total among nine subclasses of commercial, industrial and institutional space. This should be self-explanatory except for "agricultural," which is intended primarily for the building areas of feedlot projects. If you are uncertain about where something fits, list it under "other commercial" and describe what it is.

■ **Building heights**. List at least the maximum height of the buildings; provide more information where appropriate, such as an office complex with two or more towers of varying sizes, or an office tower with a communications tower mounted on top. A comparison to the heights of other nearby buildings is required if any buildings will exceed two stories.

8. Permits and approvals required

List the permits, approvals, reviews and financing required or sought from all government agencies prior to the beginning of the project. Include any necessary regional reviews and approvals from agencies such as the Metropolitan Council. Include approvals already obtained and any modifications of any existing permits. A comprehensive listing of state and local permits can be obtained from the Minnesota Small Business Assistance Office listed in the appendix. The local unit's planning and zoning office can also help identify necessary permits. Federal permits most likely to be required would be from the Army Corps of Engineers or the Fish and Wildlife Service; listed in the Appendix.

Any public funding or support must now be listed, including Tax Increment Financing, public infrastructure constructed to assist the project, bond guarantees and other forms of public assistance or subsidies.

If a potential environmental impact will or can be addressed by conditions of any required permits or approvals, this should be discussed in the EAW. See also item 31, which provides an opportunity to explain how potential impacts can be mitigated through permit and approval conditions.

When an EAW is required or ordered, no final decision to grant any governmental permit or approval (including financial assistance) can be made until either a decision has been made that no EIS is needed or until an EIS has been completed. See part 4410.3100 or Chapter 2 of the *Guide to Minnesota Environmental Review Rules*.

In some cases there may be permits previously issued for activities on or near the project site that are relevant to the review of the proposed project. This is most likely where the proposed project is an expansion of an existing project, but could occur under other conditions as well, for example, if a past dredging project permitted by the Corps of Engineers or the DNR placed soil on the proposed project site. These permits should be identified, including the permit number and issuing agency. This information can either be presented under this item or preferably under the items most relevant to the nature of the permit.

9. Land use

The point of this question is two-fold: (1) to identify any past land uses on the site which might contribute to present environmental concerns such as soil contamination from past industrial use; and (2) to identify any potential conflicts between the project and existing surrounding land uses with environmental aspects that may require mitigation. A typical example would be a gravel operation proposed next to a residential area: dust and noise could cause significant conflicts with the residential land use. The form asks whether potential land use conflicts involve environmental matters because not all land use conflicts do. For example, heavy truck traffic from a gravel mine near a residential area may

cause a land use conflict due to safety concerns but it is not an environmental matter. The EQB rules define "environment" to include: land, air, water, minerals, flora, fauna, ambient noise, energy resources, and man-made objects or natural features of historic, geologic or aesthetic significance (part 4410.0200, subpart 23). As of 1998, the item includes any pipelines for gas or hazardous liquids that may pass through or near the site.

10. Cover types

Estimates of the acres of land cover before and after the project should be provided. One important purpose of this information is to assess the project's impact on wildlife habitat.

Site surveys or recent aerial photos provide the best source of information. If the total number of acres is not equal for the pre-project and post-project conditions, explain why not. Be sure to provide descriptions for any acres listed under "other."

In identifying types of wetlands, use the guidelines in the Appendix. Dedicated stormwater detention ponds should not be designated as wetlands. The "wooded/forest" category should be applied only to relatively undisturbed wooded areas; "urban/suburban lawn/landscaping" is the appropriate classification for developments constructed in wooded areas, even if many of the trees are maintained. Similarly, the "brush/grassland" category applies to areas that are undisturbed or infrequently maintained; if an area is to be regularly mowed or maintained, even if in a rural setting, list it under "urban/suburban lawn/landscaping."

11. Fish, wildlife and ecologically sensitive resources

■ a. Fish and wildlife habitat areas exist throughout the state and are not all specifically designated. State and federally designated refuges and protected trout streams or spawning areas are well-defined and lists can be obtained for your county.

Nearly all undeveloped land has some wildlife habitat value. The quality and value of the habitat depends on many factors including the degree of disturbance, the nature of the adjoining areas, and the area and type of vegetation or water resources present. Questions about the value of the habitat can be directed to regional offices of the DNR listed in Appendix A. Keep in mind, however, that it is the responsibility of the RGU to determine the nature and significance of any project-related impacts. If unusually valuable or extensive habitat may be impacted, it may be necessary to hire a specialist to conduct a field survey of the site.

■ b. "Ecologically sensitive resources" generally refers to rare or unique natural features or features of special significance, including threatened and endangered species; habitats that are rare statewide such as prairie remnants or virgin timber; locally rare habitats; colonial waterbird nesting colonies; and high quality wetland complexes. A database of these features is maintained by the DNR Natural Heritage and Nongame Program; contact program staff for a listing of known features near the project (a fee may be charged for this information). This information should be incorporated into the EAW; state the correspondence number on the EAW for reference. The worksheet also asks whether a habitat site survey was conducted. Ecologically sensitive resources not in the DNR database should also be identified and described in the EAW.

"Mitigation measures" for fish, wildlife or ecologically sensitive resources impacts include avoiding, minimizing and compensating for impacts. Examples include landscaping or revegetation with plant species of value to wildlife, retaining wooded travel corridors (especially along waterways), and construction or restoration of wetlands.

12. Physical impacts on water resources

Physical or hydrologic alteration of any surface water should be discussed in this question. Hydrologic modifications include all actions which alter the existing hydrologic regime, that is, rate of discharge into or out of a waterbody, frequency and extent of water level fluctuations, interaction with ground water. The description of the alteration should address: the construction process; volumes of dredged or fill material; the area to be affected; the timing and magnitudes of fluctuations in water surface elevations; spoils disposal sites; and any other relevant information.

Modifications of all wetlands should be discussed, not only "protected wetlands" subject to DNR regulation. Refer to the appendix for information on wetlands classifications. The public waters inventory number and information on permits required for alteration of or construction in aquatic areas may be obtained from DNR regional or area hydrologist offices.

13. Water use

This item covers information about the appropriation and use of water and the systems from which the water will be obtained. It also covers information about any wells already existing on the project site.

The EAW should describe any water use such as water supply, dust control, dewatering or pond testing, and give the source and the permit number if issued. In cases of major appropriations, or where cumulative appropriations are significant, it may be necessary to include a quantitative analysis of the impacts on ground water levels.

Appropriation of water in excess of 10,000 gallons per day or one million gallons per year requires permits from the DNR Division of Waters. Information can be obtained from the division or the applicable DNR regional or area hydrologist's offices.

You must have a licensed well contractor and a permit from the Minnesota Department of Health or the local community health services agency before the construction of any new wells, includ-

ing monitoring wells and dewatering wells. Consult the well management program of the Minnesota Department of Health for more information about wells and well construction requirements.

If the project requires the creation, connection or a change to public water supply, it is important to identify wells that will be used as water sources. Plans for the creation, connection or changes to a public water supply may need to be reviewed and approved by the Minnesota Department of Health. Contact the department's public water supply program for more information.

To locate existing wells, the Minnesota Department of Health recommends conducting a field well inventory on properties affected by the project. Special attention should be paid to areas where construction will take place and where any farmsteads, homes or industrial wells may have been located in the past, as well as along boundaries where wells may exist on adjacent properties. Locating existing wells is important to maintain distances between wells and sources of groundwater contamination. Existing wells cannot be buried during construction without first being properly sealed. If no wells are believed to exist on the site, your response must indicate how this was determined; for example, by a field survey.

All wells that are no longer going to be used must either be sealed by a licensed well contractor according to Minnesota Rules, chapter 4725, or have a maintenance permit from the Minnesota Department of Health, or from the local Community Health Services Agency, if there is a delegation agreement for local well regulation. Currently, this includes Dakota, Blue Earth, Goodhue, LeSueur, Mower, Olmsted, Wabasha, Waseca, and Winona counties and the cities of Minneapolis and Bloomington.

All wells constructed since 1974 were assigned a Unique Well Number, provided to the property owner by the licensed well contractor. The number can also be obtained from the Minnesota Geological Survey or from some local planning and zoning offices.

14. Water-related land use management districts

Shoreland areas refer to developments within 1,000 feet of a lake, pond or flowage (reservoir) or within 300 feet of a river or stream. If a flood plain has been delineated by ordinances, then the outer limits of the flood plain delineate the shoreland jurisdiction. The local planning and zoning office should be contacted regarding local shoreland and flood plain ordinances that may apply.

Special wild, scenic, and recreational river districts are identified in the appendix. Contact the local planning and zoning office or the applicable DNR Regional or Area Hydrologist's office regarding setbacks and other restrictions which apply along these rivers.

Shoreland, flood plain and wild or scenic rivers land use districts are protected by special zoning ordinances designed to protect the resources of such lands. The EAW should discuss whether the project fully complies with all these special zoning requirements. The EAW should also indicate whether the applicable ordinances have been approved by the DNR; this information can be obtained from the DNR regional or area hydrologist's offices.

15. Water surface use

Provide an estimate of the current and projected watercraft use, including the number of acres of water surface per watercraft.

In assessing impacts on fish and wildlife resources, consider the presence of colonial waterbird nesting colonies; nests of bald eagles, osprey or loons; important waterfowl feeding or brooding areas; and other resources sensitive to disturbance.

If applicable, discuss any mitigation measures that will be used to minimize conflicts, such as controls on watercraft and their sizes, motors and sizes, speed limits and area zoning.

16. Erosion and sedimentation

Be sure to address both construction and post-construction phases in describing erosion and sedimentation control. Post-construction control measures may be described here or under item 18.

NOTE: If the project will grade or alter five or more acres, an NPDES stormwater permit may be required from the Minnesota Pollution Control Agency.

Steep slopes of 12 percent or more and erosion prone soils, as indicated in item 11, should be described and shown on the site plan or on a separate grading plan.

Specific erosion and sedimentation control measures should be described. If the proposer has not prepared definite plans for these measures, the requirements of the local governmental unit should be described. If erosion control plans or grading plans have been prepared they should be attached. Special attention should be given to discussing erosion control on any identified steep slopes or erosion prone soils.

If significant amounts of soils will be excavated, the EAW should identify the types involved, to where they will be relocated and how they will be used.

17. Water quality: surface water runoff

■ a. The intent of this question is to characterize the effect of the project on the amounts and the composition of stormwater runoff from the site and the techniques planned to minimize adverse quantity and quality impacts. The emphasis should be on post-construction stormwater impacts and on permanent mitigation measures rather than on erosion and sedimentation control during construction, which should be discussed under item 16.

The amount of detail provided and the level of sophistication of the analysis should be commensurate with the magnitude of the potential impacts. For example, if the project will only cause a

small increase in impervious surface and would add only minor amounts of any potential pollutants, it would be sufficient to qualitatively describe the extent of increase and give a general identification of the types of pollutants involved such as fertilizer and herbicides from suburban lawns or pollutants typical of parking lot runoff. On the other hand, if significant increase in runoff or significant amounts or kinds of pollutants would result, a more detailed and quantitative assessment would be necessary to adequately characterize the impacts.

Similarly, the amount of detail provided about management or treatment methods should befit the significance of the quantities and quality of the runoff. Where it is clear or suspected that the runoff would pose water quality problems if not adequately managed or treated, sufficient detail is needed so that reviewers can judge the adequacy of the proposed system. Locations, dimensions and design capacities of detention or retention basins should be given if they will be used to manage runoff.

The EAW should discuss the conformance of the proposed system with any applicable requirements of the local municipality and any watershed district with jurisdiction over the area. If the project is subject to a stormwater pollution prevention plan, it should be discussed.

■ b. The first part of this answer should identify the point(s) of discharge of the stormwater system into receiving waters and also indicate any downstream receiving waters that may be influenced by the stormwater discharge, in terms of volumes or quality. This should include any downstream waters that may be noticeably influenced by the discharge, especially those more sensitive or more valuable than the waters receiving the direct discharge.

An estimate of the stormwater impact on the quality of receiving waters should be made. The level of sophistication of this analysis must be guided by the likely magnitude of the impact and the importance of the water body(ies) affected. Where it is clear that only a minor degradation of water quality and no noticeable impairment of water use would result, only a general qualitative discussion is needed. Where noticeable impairment may occur, however, more quantitative assessment methods should be employed, and predictions should be made about whether any water quality standards will be violated.

A stormwater discharge that may affect a lake is an example of a situation in which the RGU must exercise judgement about the extent of analysis needed. Generally regarded as sensitive and valued resources, the lake may require a numerical nutrient budget analysis to adequately characterize the extent of the potential impact. Any nutrient budget analysis performed should be based on a generally accepted model of a lake's response to increase in phosphorus loading or other critical nutrients if phosphorus is not limiting. The choice of a model should be based on available data, and its expected accuracy based on the likely magnitude of the impact, in addition to the time and costs of using the model. In other words, the greater the likely impact, the greater the need for a more sophisticated model. If insufficient data is available to allow the use of any numerical model, it is necessary to gather the minimally needed data unless the EAW can establish through other analysis that there is no reason to expect noticeable degradation. If the matter is left in doubt in the EAW, it may result in calls for an EIS and a more in-depth analysis.

18. Water quality: wastewaters

■ a. For any project that generates wastewater, details of the sources, composition and amounts need to be given in the EAW. For normal domestic sewage generation such as toilet wastes or wash water from human occupancy, only the amounts need be given, calculated from the number of occupants at a rate of 100 gallons per person per day unless another figure is justified in the particular case.

For industrial processes, the sources of all wastewater streams should be identified and a description should be given of how the various potential pollutants enter the stream or are generated within the stream. The anticipated chemical analysis of the various waste streams should be estimated, and the basis for the estimate should be indicated, such as measurements made at an existing similar plant.

■ b. Provide sufficient information about the nature of any proposed wastewater treatment system to demonstrate that it will be adequate to treat the wastewaters generated. The level of detail needed will depend on the nature of the wastewaters and the proposed system and the degree of treatment that must be achieved; where wastewaters or proposed treatment methods are non-routine, a higher level of detail demonstrating that the system will work will be necessary. For industrial wastewaters, it is advisable to consult with PCA early in the EAW preparation process.

The second part of this question calls for identification of receiving waters for discharges. This should include any downstream waters that may be noticeably influenced by the discharge, especially those more sensitive or more valuable than the waters receiving the direct discharge. An estimate of the impact of the discharge(s) on the quality of the receiving waters should be made. The level of sophistication of this analysis must be guided by the likely magnitude of the impact and the importance of the water body(ies) affected. Where it is clear on the basis of the amounts and quality of the discharge compared to the volume, quality and assimilative capacity of the receiving waters that only a minor degradation of water quality will occur, and no noticeable impairment of uses of the water would result, only a qualitative discussion is generally needed. Where noticeable impairment may occur, however, more quantitative assessment methods should be employed, and predictions should be made about whether any water quality standards will be violated.

In the event that a wastewater discharge may degrade a lake a numerical nutrient budget analysis may be required; however, it is unlikely that any new discharges to any lake would be permitted by the Minnesota Pollution Control Agency. Any nutrient budget should be based on a generally accepted model of a lake's response to increase in phosphorus loading or other critical nutrients if phosphorus is not limiting. The choice of a model should be based on available data, and its expected accuracy based on the likely magnitude of the impact, in addition to the time and costs of using the model. In other words, the greater the likely impact, the greater the need for a more sophisticated model. If insufficient data is available to allow the use of any numerical model, it is necessary to gather the minimally needed data unless the EAW can establish through other analysis that there is no reason to expect noticeable degradation. If the matter is left in doubt in the EAW, it may result in calls for an EIS and a more in-depth analysis.

Where the method proposed is on-site sewage treatment such as septic tanks and drainfields or similar soil absorption facilities, this response must address the suitability of the site conditions for the use of such systems, and should be focused on demonstrating that the systems will function adequately. Where there will be on-site systems on separate lots, the discussion should demonstrate that each system can be reasonably expected to function. Where site conditions require special methods to allow on-site systems to work properly, the proposed methods should be discussed, including information about how they will be employed.

■ c. If wastewaters will be treated by an existing publicly owned treatment system, this question should address the adequacy of that system to handle the volume and composition of wastewaters from the project. Information about the system characteristics, existing loads and present treatment performance should be given. Anticipated improvements to handle the new wastes, including their scheduling, should be discussed. Any pre-treatment of the wastewater before it is discharged into the public system should be discussed under this section, including the nature of the pre-treatment and the wastewater composition and quantity after pre-treatment. Any sludges or other materials removed from the wastewater during pre-treatment must be discussed under the appropriate sections of the EAW.

■ d. This item is intended for projects that involve animal feedlots.

19. Geologic hazards and soil conditions

■ a. This question attempts to provide information pertinent to potential groundwater contamination, including any geologic or landform features of special concern. Possible sources of information include: site surveys, soil surveys, topographic maps, and county sanitation or health department, the State Department of Health and the Minnesota Geological Survey. If any such features are present at the site, the EAW should address how potential ground water contamination problems that could result from these hazards will be prevented.

■ b. Describe the types of soils present using the Natural Resources Conservation Service classification system. Soil surveys showing this information are available from the offices of County Agricultural Extension, Soil and Water Conservation districts. If several soil types exist on the site, a soils map is helpful. It is not necessary to attach copies of the soil interpretation sheets to the EAW. Discuss how soil characteristics, especially granularity, affect the potential for the spread of contaminants through the soil into groundwater, if applicable.

If soil borings have been made, it may be necessary to attach a copy of the boring logs to the EAW if the project may have potential to contaminate the soils or ground water, including projects involving use of on-site sewage treatment by septic tanks and drainfields. When it is not clear that the logs need to be attached, you may simply note that the logs exist and are available upon request.

20. Solid waste, hazardous waste, storage tanks

■ a. All types of wastes generated by the project that are not wastewaters, liquid manure or air emissions should be identified here. This includes any hazardous wastes, all forms of "solid wastes," any sludges, any ashes from combustion, animal manures in solid form, demolition wastes, construction wastes and asbestos. Estimates of the composition and quantities should be given. For common types of wastes of fairly uniform composition, such as municipal solid waste and animal manures, the composition need not be identified other than as by type of waste; for example, "turkey manure mixed with straw bedding" would be sufficient. For other types of wastes, especially if they are hazardous or contain toxic constituents, a chemical analysis should be given along with how it was determined.

The method and location of disposal of all the wastes should be provided. This should include information demonstrating that the proposed method and location is environmentally acceptable.

Discuss source separation, recycling, hazardous waste minimization and reduction assessment plans as appropriate.

■ b. List any chemicals or other substances that will be on the site for any purpose. The level of detail provided should be commensurate with the likelihood that the materials could enter the ground water, the risk associated with the materials and the quantities present or used. The response may reference other items as appropriate, such as item 21 for storage tanks.

■ c. The anticipated contents of all tanks should be specified. It may be useful to show the location of tanks on a site map or plan. If special precautions will be taken to prevent leaks or other problems, these should be indicated, including emergency response containment plans.

21. Traffic

A reasonable estimate is called for; for projects with only minor traffic generation, it is not necessary to provide the maximum peak hour traffic generated. The trip generation rates used to estimate traffic (such as trips per household) and their source should be identified. It is recommended that the Institute of Transportation Engineers *Trip Generation Manual* be used, unless other numbers are justified for the particular project.

The level of effort put into the analysis should be commensurate to the amount of traffic generated and the existing level of congestion; therefore, the more likely the project will contribute to a growing problem, the more detail that should be provided. The analysis should consider not only the adjoining roads but also other connecting roads that may be adversely impacted. One commonly accepted measure of congestion is the level-of-service and delay times.

If a traffic analysis is being prepared because of the requirements of the local unit of government, that analysis should also be used for the EAW, provided that it is based on generally accepted principles of traffic analysis. If an Indirect Source Permit is required, as described in item 22, the traffic analysis method used in the EAW should be consistent with the requirements of the permit application; the Pollution Control Agency should be consulted before the EAW analysis is prepared. If the proposer or the local government has identified needed traffic improvements to serve the project, they should be identified in the EAW.

For projects within the seven-county Twin Cities metropolitan area, the EAW must address the project's potential impact on the regional transportation system.

22. Vehicle-related air emissions

The level of detail needed here depends on the magnitude of the traffic congestion due to the project as described in item 21. When there is no reason to expect traffic congestion or that existing congestion will be noticeably worse due to the project, indicate that it will not cause any significant decrease in air quality. However, if item 21 indicates that the project will cause or worsen traffic congestion, an estimate of the air quality impact of this congestion must be prepared here. This analysis should focus primarily on carbon monoxide concentrations.

The level of sophistication of this air quality analysis will depend on two factors. First, the likely magnitude of the air quality impact: the greater the anticipated impact, the more sophisticated and detailed the analysis must be. Second, whether or not the project will require an Indirect Source Permit from the Pollution Control Agency. Projects involving 500 or more parking spaces may require an ISP, depending on various other factors; for assistance, contact the agency. If the project requires an ISP, in most cases, the air quality analysis provided in the EAW should be the same analysis required to apply for the ISP; the PCA should be consulted before this analysis is prepared.

Some projects that do not require an ISP may nevertheless require an estimate of likely air quality impacts if they may contribute to traffic congestion. The most common example of this is a project that will attract large numbers of people but will rely on off-site parking to accommodate them. The air quality analysis in such cases should be comparable to that used in the ISP process.

23. Stationary source air emissions

This response should cover all sources of air emissions other than traffic, odor sources and construction-phase dust. The most common sources of such emissions are boilers and industrial processes. The level of detail and the degree of sophistication of the analysis should be commensurate with the magnitude of the emissions and their likely impacts on air quality. Where emissions will be large or contain significant air pollutants, quantitative estimates derived from generally accepted air quality models may be necessary. If emissions will be minor, a qualitative emissions description should suffice.

Any hazardous air pollutants must be specifically addressed, as well as the greenhouse gases identified on the form. Judgment must be exercised in determining the level of information needed for the pollutants carbon dioxide, methane and nitrous oxide from the project in question.

This item now includes dust except construction-phase dust. Fugitive dust is defined as "particulate matter uncontaminated with industrial emissions that becomes airborne due either to the force of wind or man's activity," such as dust generated by traffic on unpaved roads or parking areas, or dust from storage piles. The locations of and distances to sensitive receptors should be given. Proposed mitigation measures should be described.

Air emission sources frequently require air quality permits from the PCA and applications for such permits may require extensive information. In these cases, the EAW may be based on information being developed for the air permit application. The proposer is advised to consult with the PCA regarding air permit requirements prior to preparing the EAW data.

24. Odors, noise and dust

■ **Odors**. Identify any strong or potentially offensive odors and identify the locations or and distances to sensitive receptors. Describe any mitigation measures. Discuss both odors which have potential human health effects and also those which, although they do not pose health risks, may result in a loss of quality of life to surrounding neighbors due to nuisance or annoyance conditions.

■ **Noise**. Any major noise should be described, including information on their levels (dBA) and hours of duration. However, construction noise need not be described unless the construction

of the project will be unusually noisy — the blasting of rock, for example; prolonged; affect especially sensitive receptors — a hospital, for example; or otherwise can be expected to have unusual noise impacts during construction. The locations of and distances to sensitive receptors should be given. For projects in the vicinity of major noise sources, such as highways, railroads or airports, noise levels should be estimated using generally accepted noise prediction models, regardless of whether the noise standards are legally enforceable with respect to the project. Mitigation measures should be described, and their effects assessed.

Projects requiring PCA Indirect Source air quality permits, described under item 23, often require a noise analysis as part of the permit application, which should be included in the EAW.

■ **Dust**. Wind-blown dust from construction, demolition, haul roads and other activities should be addressed here instead of under item 23 if the quantities of dust will be large, prolonged or otherwise greater than routinely expected during project construction. Mitigation measures should be discussed.

25. Nearby resources

■ **Archaeological, historical or architectural resources**. Contact the State Historical Preservation Office, Minnesota Historical Society, listed in the appendix, for information about possible archaeological or historical resources at the site. A local "heritage preservation" committee may also provide assistance. Where archaeological resources exist, a site survey by a qualified archeologist may be necessary. Results of the survey should be presented in the EAW.

■ **Prime or unique farm lands and agricultural preserves**. Information on prime and unique farmlands is available from the Natural Resources Conservation Service or the Minnesota Planning Office Land Management Information Center. The local unit of government (county or city) has information on any established agricultural preserves.

■ **Designated parks, recreational areas or trails**. Locations of these may be obtained from the local unit's planning and zoning or recreation office or from the DNR.

■ **Scenic views and vistas**. These may include spectacular viewing points along lakes, rivers or bluffs; virgin timber tracts; prairie remnants; geological features; waterfalls; specimen trees; or plots of wildflowers. Many are not officially designated or marked, but because of their local or statewide interest should be considered by the RGU. Impacts on the visual quality or integrity of these resources should be addressed as well as the physical impacts.

26. Visual impacts

Describe any nonroutine impacts that may be due to the emission of light or a "visual nuisance" caused by the project during construction or operation. An example of an emission impact is an intense light causing a glare problem for passing motorists. Examples of "visual nuisances" include lights on tall communication towers intruding on the visual integrity of a scenic vista, or a large water vapor plume from an exhaust stack or cooling tower.

27. Compatibility with plans and land use regulations

Discuss whether the project is subject to any official governmental management plans adopted for the area. These could include a local comprehensive land use plan (likely in any city in the Twin Cities metropolitan area); a local comprehensive water plan; or management plans specific to resource areas under public management such as parks, watershed districts or rivers. Plans of all levels of government should be considered here: local, regional, state and federal. The local planning and zoning office is probably the best source of this kind of information.

If no such plans exist in the area, the EAW should so indicate. If there is a plan, but the project is not subject to the plan, the EAW should indicate why not.

If the project is subject to a plan, the EAW should identify its requirements relevant to the project and discuss how the project complies with the plan. The RGU should consult with the government unit responsible for the implementation of the plan regarding provisions that relate to the project and about the consistency of the project with the plan. Emphasis in the EAW should be given to any conflicts or incompatibilities between the project and plan provisions that relate to the environment or use of natural resources.

28. Infrastructure and public services

Identify new or expanded public services or public works necessary to serve the project such as sewers, storm sewers, streets, water mains, water towers, power lines, gas lines, police protection, fire protection and schools.

NOTE: Any infrastructure utilities constructed to serve the project and not independent of this specific project must be treated in the EAW as part of the project; for example, a road built to serve a specific project must be treated as part of the project and its impacts should be included in the EAW. According to the EQB rules, all "connected actions" are to be reviewed as one project. Connected actions are defined as projects related in any of the three following ways: (1) one project would induce the other; (2) one project is a prerequisite for another; or (3) neither project is justified by itself (part 4410.0200, subpart 9b). Further guidance regarding connected actions is presented in Chapter 2 of the *Guide to Minnesota Environmental Review Rules*.

If the project will result in a future commitment to build an infrastructure, the EAW should identify that infrastructure and its timing and provide a general assessment of its impacts.

29. Cumulative impacts

The intent here is to put the project's potential impacts into the context of impacts caused by other past, present or future projects in the area, so that the RGU can assess the *cumulative* impacts to the environment. One criterion which must be considered in determining the need for an EIS is the "cumulative potential effects of related or anticipated future projects" (part 4410.1700, subpart 7, item B). The EAW record must provide some information about potential cumulative impacts in order to support the EIS need decision according to the rules. Such information can be presented under item 29. Some of the analyses under other items may also address cumulative impacts. To do an accurate traffic analysis, for example, the background traffic from other sources must be considered.

For potential cumulative impacts that are not addressed under another EAW question, the RGU should provide the information here, to the extent known. References should be made to other questions where a cumulative impacts-related response has been made.

30. Other potential environmental impacts

This item is provided in case there should be some type of environmental impact from the project which cannot be adequately discussed under any other items on the form. This item will seldom need to be used.

31. Summary of issues

This section should include a brief synopsis of the potential impacts defined in the EAW. It should also discuss further studies of impacts which may be planned or necessary and mitigation measures or alternatives which could be implemented to avoid or minimize possible impacts. Discussion of mitigation measures or alternatives should include information about how these will or could be required through various permits or approvals required for the project.

This section of the EAW should be used to summarize the examination of alternatives, focusing on the reasons why the proposed project was selected and the comparative environmental impacts of other alternatives considered.

Certification by the RGU

The worksheet requires the signature of an authorized official of the RGU. ***The EQB will not accept an EAW for publication of the notice of availability without an appropriate signature on the worksheet.*** The signature represents certification by the RGU that: (1) the information is complete and accurate; (2) the "complete" project is reviewed by the EAW; there are no aspects of the project such as future "phased actions" or other related "connected actions" that have not been taken into account in the EAW; and (3) the EAW has been properly distributed to the official distribution list, available from the EQB home page at www.mnplan.state.mn.us, or by contacting the EQB staff.

Guidance for certain types of projects

In this chapter suggestions for completing the worksheet are given for specific types of projects, in order of the mandatory EAW categories in part 4410.4300.

Prior to initiating work on an EAW, proposers are advised to contact the following for guidance:

Nuclear fuels and nuclear wastes
Subpart 2. Assigned Responsible Governmental Unit: the Environmental Quality Board or the Department of Health.

Electric generating facilities
Subpart 3. EQB Power Plant Siting program staff.

Petroleum refineries
Subpart 4. Minnesota Pollution Control Agency Metropolitan, North or South Planning units.

Fuel conversion facilities
Subpart 5. PCA Metropolitan, North or South Planning units.

Transmission lines
Subpart 6. EQB Power Plant Siting program staff.

Pipelines
Subpart 7. EQB staff. For many pipelines the environmental review requirements will be satisfied as part of the EQB pipeline routing and permitting process at Minnesota Rules, chapter 4415, which has been approved by the EQB as an alternative form of environmental review.

Transfer facilities
Subpart 8. PCA Metropolitan, North or South Planning units.

Underground storage
Subpart 9. Minnesota Department of Natural Resources Environmental Review and Assistance Unit.

Storage facilities
Subpart 10. PCA Metropolitan, North or South Planning units.

Metallic mineral mining
Subpart 11. DNR Environmental Review Section.

Nonmetallic mineral mining
Subpart 12. For peat mining projects, DNR Environmental Review Section.

In preparing an EAW for **sand and gravel mining projects**, be sure to include the following information. References are to item numbers on the worksheet.

■ 5c and 6. The site plan and description must include the boundaries, depths, buffer areas, access roads, fixed equipment locations, wells, ponds, discharge points and any other significant features of the mine. The plan and schedule of development and proposed hours of operation should be indicated. The reclamation and end use plan should be discussed.

■ 9. Sand and gravel mining is frequently viewed as a "nuisance" by nearby residents; therefore, discuss surrounding land uses, including distances to residences and measures to attempt to reduce nuisances.

■ 18. If there will be a discharge of water from the pit, discuss its quality and treatment.

■ 21. Although safety-related traffic concerns are not "environmental" in nature, nearby residents will likely want to know about the numbers and routing of truck traffic to and from the mine. This information can be given at item 22.

■ 23. If the mine will include facilities for the making of asphalt or concrete, information on air emissions should be included here, including fugitive dust from mining, stockpiles and unpaved haul roads.

■ 24. Address noise and odors such as those from asphalt making. Give sources, characteristics and distances to receptors. Discuss measures to minimize these impacts; indicate the extent to which local permits can impose conditions to minimize impacts.

■ 27. Discuss how the ultimate end use of the mined area compares to the local unit's future plans for the area; discuss the reclamation plan.

■ 29. If appropriate, discuss how the mine may be expanded in the future, or how the mine relates to past mining in the vicinity with respect to cumulative environmental impacts.

Paper or pulp processing mills
Subpart 13. The proposer is advised to contact the PCA Metropolitan, North or South Planning units for guidance prior to initiating work on the EAW.

Industrial, commercial and institutional facilities
Subpart 14

■ **Industrial projects**. Prior to initiating an EAW, local units should review the other mandatory EAW categories to make sure that the project does not fit into a more specific category assigned to a different RGU such as the Pollution Control Agency or Department of Natural Resources. If the project fits two or more categories, all potential government units must agree on which will serve as RGU for the review before it begins; if they cannot agree, the EQB chair must determine the RGU. In general, it is preferable for the state agency to serve as RGU for such projects due to the technical nature of the analysis needed.

Even when the local unit is assigned as the RGU for an industrial project, the proposer should contact the state PCA Metropolitan, North or South Planning units prior to initiating the EAW to discuss whether special information may be needed for adequate review of air, water or waste issues.

In general, an EAW for an industrial project must give special attention to: air emissions (item 23), water discharges (item 18), solid/hazardous wastes (item 20), transportation and storage of raw materials or products (items 6, 19 and 20b), noise (item 24), traffic (item 21), and site runoff (item 17).

■ **Commercial or institutional projects**. In general, an EAW for a commercial or institutional project must give special attention to: traffic (item 21), traffic-related air quality (item 22), site stormwater runoff (item 17), and impacts due to land use conversions such as loss of wildlife habitat (item 11). Since such development frequently takes place in urbanizing or suburbanizing areas, the EAW should attempt to put the project and its impacts into the context of other nearby development (item 9), infrastructure needs (item 28), and government plans for the area (item 27).

As noted in item 22, projects involving 500 or more parking spaces may require a detailed traffic-related air quality study and may also require an indirect source air quality permit from the PCA Air Quality Division. The analysis for the EAW and the permit should be basically the same; coordination between the RGU and the PCA will ensure this.

Prior to initiating work on an EAW, proposers are advised to contact the following for guidance:

■ **Air pollution**, subpart 15. Minnesota Pollution Control Agency Metropolitan, North or South Planning units.

■ **Hazardous waste**, subpart 16. PCA Metropolitan, North or South Planning units.

■ **Solid waste**, subpart 17. RGU.

■ **Sewage systems**, subpart 18. PCA Metropolitan, North or South Planning units.

Residential development
Subpart 19

Be sure to include the following information for these items on the EAW:

■ 5c. The site plan should be a copy of the plat drawing, reduced to a suitable size and should include all major features of the project. Other drawings should also be attached, if available, for grading, drainage or other plans relating to changes the project would make to the environment.

■ 6. For purposes of the environmental review, the project includes any infrastructure such as streets, sewers, water mains or utility lines constructed to serve the residences. In addition the impacts of any such infrastructure must be described here, under item 28 and addressed throughout the worksheet.

■ 6d and e. These items frequently apply to residential projects because they are often built in stages. The proposer and RGU should be sure that rule provisions regarding "phased actions" are complied with as discussed in Chapter 2 of the *Guide to Minnesota Environmental Review Rules*. The cumulative impacts of the project and past, present and future projects in surrounding areas must also be addressed at item 29.

■ 14. For projects along lakes or rivers, be sure to discuss the consistency of the project with the applicable shoreland, flood plain and special river management district ordinances, indicating how any inconsistencies will be resolved. Indicate whether the local ordinances have been officially approved by the DNR.

■ 15. For projects along lakes and rivers, address the impact of the project on water surface use.

■ 18b. If on-site sewage systems will be used, discuss in detail the suitability of the site conditions such as soils, terrain and lot sizes, and the potential for impacts on the ground water and surface waters, especially any lakes. The discussion should include information about local requirements for such systems.

■ 21 and 22. Larger residential projects of 250 units or more should provide detailed information on traffic generation and air quality as discussed for these items in the previous chapter.

■ 27. Discuss the compatibility of the project with any applicable local comprehensive plan and indicate how any inconsistencies will be resolved.

■ 28. Generally, any infrastructure improvements intended to serve primarily the project are considered part of the project and must be reviewed in the EAW (see also guidance at item 6). "Connected actions" (Minnesota Rules, part 4410.0200, subpart 9b) occur when one action will induce the other or is a prerequisite for the other, or if neither is justified by itself. The rules require that connected actions must be treated as one action (part 4410.1000, subpart 4).

■ Major infrastructure projects intended to serve a number of projects or a wide area, such as a trunk sewer or collector roadway, generally do not require review as part of a residential project EAW but should be listed under item 28. These infrastructural projects may, however, require review on their own.

Certification B. The RGU must use caution when certifying that a complete residential project has been reviewed. Residential projects are frequently developed in stages and the EQB rules have special provisions which apply to them. **If the project proposer owns any additional contiguous land on which residential development would be allowable, the RGU must comply with the following EQB rule provisions before signing this certification:**

■ 4410.1000, subpart 4

■ 4410.2000, subpart 4

■ 4410.4300, subpart 19

■ 4410.4400, subpart 14

Additional guidance can be found in Chapter 2 of the *Guide to Minnesota Environmental Review Rules.* If there is any uncertainty about these requirements, the RGU is advised to consult with the EQB staff as early in the EAW process as possible.

Recreational development

Subpart 20

■ 5c. The site plan should show the layout of all sites as well as support facilities such as sewage lines, roads and buildings.

■ 10. Areas of the site which will be maintained by mowing or other means should be classified as "urban/suburban lawn/landscaping."

■ 12, 14 and 15. If this particular project will be built by a lake or river – as many recreational developments are – these questions should be given special attention.

■ 18b. If on-site sewage systems will be used, discuss in detail the suitability of the site conditions – soils, terrain, lot sizes – and the potential for impacts on the ground water and surface waters, especially any lakes. The discussion should include information about local requirements for such systems. If effluent may impact a lake, a nutrient budget analysis should be included.

■ 21. Residents near proposed recreational developments are frequently concerned about increases in traffic, especially if the access roads are unimproved; therefore, provide sufficient information about potential traffic impacts and indicate what improvements to the roads will be made to accommodate the increases, if appropriate.

■ 22. Unless the development is large, traffic increases should not impact air quality significantly except for dust, which should be addressed under item 23, if the access to the site is via unpaved roads.

■ 24. Noise that may be perceived by neighbors as a nuisance and mitigation measures, such as limiting hours of noisy activities, should be discussed.

■ 25. Regarding archaeological and historical resources, the Minnesota State Historical Society can provide information about any known resources in the area and may be able to advise the RGU about the potential for undiscovered resources at the site. In cases where such resources are likely on the site, an archaeological survey may need to be completed and reflected in the EAW.

Airport projects

Subpart 21

The primary concern over runway extensions covered by this category, which relates to extension that would allow use by jet aircraft, is noise. Therefore, the EAW at item 24 should include a noise analysis with a determination of whether state noise standards would be exceeded at surrounding land uses. Since many airport projects are supported by federal funding, they often require preparation of a federal Environmental Assessment. The federal EA can be substituted for the EAW form, but additional information about noise levels with respect to state noise standards may be needed. The Pollution Control Agency should be contacted if information is needed about noise standards.

Highway projects

Subpart 22

■ 6a and b. The description should focus on the physical characteristics of the project rather than programmatic aspects, such as the reasons for the project, and should include information about construction methods and the schedule for construction.

■ 6c. Information relating to other alternatives considered can be provided at item 31.

■ 9, 10, 11a and 19. For lengthy projects with a variety of adjoining land uses, provide a general overall description of the land uses and more detail for those areas where there may be conflicts or the land uses are more sensitive.

■ 21. Although this item is worded to suggest traffic generation rather than the carrying of traffic, proposers of highway projects should address anticipated traffic to be carried by the roadway. This discussion should also address project impacts on connecting roadways, including an analysis of how it would affect congestion on these roadways, either negatively or positively, and an identification of any other traffic improvements which may be necessary as a result of this project.

■ 22. As for item 21, address traffic anticipated to be carried by the roadway. If the project requires an indirect source permit from the PCA, the EAW should incorporate or summarize the air quality analysis prepared for the ISP application.

■ 24. Attention should be paid to this item, especially regarding sensitive receptors and mitigation measures.

■ 29. Describe the relationship of the present project to the existing highway network and to anticipated future roadways.

NOTE: review of highway networks – that is, how the whole is divided up for review purposes – is constrained by part 4410.1000, subpart 4, which should be consulted prior to preparing the EAW. Chapter 2 of the *Guide to Minnesota Environmental Review Rules* also provides guidance on defining "the whole project."

■ 31. Information may be included here about the alternatives considered in the project design; an alternative discussion location is item 6, need for and purpose of the project.

Certifications. Before signing, the RGU must verify that the review conforms to part 4410.1000, subpart 4, regarding the division of "network" projects into segments for purposes of review; also see discussion at item 29.

Barge fleeting

Subpart 23. The following items should be given special attention:

■ 6. Describe any onshore support facilities.

■ 9. Address this item with respect to nearby onshore lands.

■ 11 and 12. Discuss impacts of construction and operation on the benthic (bottom) and aquatic habitat.

■ 14. Address the compatibility of any onshore support facilities with shoreland, flood plain or scenic river zoning.

■ 15. Address in detail the potential conflicts between the barges and other watercraft.

■ 17 or 18. Discuss the potential for water pollution from spills of any materials carried on or transferred to or from barges, and any mitigation measures to be used.

■ 20c. Note any onshore tanks.

■ 27. Address the compatibility of the fleeting with any adopted governmental plans that apply to the river or shoreland.

■ 29. Refer to development up and down the river from the site.; cumulative impacts from such development should be addressed.

Water appropriations and impoundments

Subpart 24. The proposer is advised to contact the Department of Natural Resources for guidance prior to initiating work on the EAW.

Marinas

Subpart 25. Special attention should be given to the following item numbers:

■ 6. The project description must include all onshore ancillary facilities as well as the marina facility itself.

■ 11. Discuss impacts of construction and operation to the benthic (bottom) and aquatic habitat.

■ 12. If the project involves any dredging this question should be given close attention. Details should be given about excavation, including construction methods; timing; volumes of dredged material; composition, with special attention to any contaminants which may be present; spoils disposal methods and location; and mitigation measures to minimize impacts of both dredging and spoils disposal, such as treatment of spoils site runoff.

■ 14. Address the compatibility of the onshore facilities with shoreland, flood plain or scenic river zoning.

■ 15. This item should be addressed in detail. Information should be obtained from the DNR or other agencies about existing watercraft use. The number and types of watercraft expected at the marina should be estimated, along with use characteristics: peak and average use, timing and length of season. In regard to overcrowding, provide at least an estimate of the number of acres of water surface per watercraft with and without the marina.

■ 17 and 18. Discuss the potential for water pollution from spills, runoff from the onshore facilities or any other sources, and any mitigation measures to be used.

■ 20c. Note any onshore tanks.

■ 21. Address traffic and parking including traffic flow into, out of and within the marina. Discuss whether the maneuvering of vehicles with boat trailers at the marina may interfere with normal traffic flow on adjoining roads.

■ 29. Include other marina development up and down the river from the site.

Stream diversion

Subpart 26. Give special attention to the following items:

■ 5c. The site plan should show the existing and proposed new channel alignments and the location of any spoils disposal.

■ 6. Present an overview of the project and how it will be constructed. Details of the construction should be presented at item 12.

■ 11. Information about the existing stream habitat should be given including: a description of the stream bed and stream flow characteristics in the reach, including their uniformity or variety; types and distribution of instream and bank vegetation; nature of the streambed materials; presence of fish, insects, invertebrates,

amphibians and birds; extent of past disturbance. It may be helpful to display this information in maps or sketches.

The changes in the stream bed and flow conditions due to the projects must be discussed including estimates of the consequences for flora and fauna.

■ 12. Include a detailed explanation of how and when excavation will be done; where the spoils will be deposited; measures to be taken to protect the rest of the stream from sedimentation during construction; and measures to stabilize the new channel and spoils to prevent erosion after construction.

■ 14. If the stream is surrounded by designated shoreland, flood plain, wild or scenic river zones, discuss the project compatibility with the requirements of applicable zoning codes.

■ 16. Generally, the response to this item should be covered by the response to item 12. If the excavation acreage and cubic yardage were not previously given, present that information here.

Wetlands and protected waters

Subpart 27. A great variety of project types may require review under this mandatory category, so giving specific guidance is difficult. If the project fits under another mandatory category, regardless of whether the project exceeds that threshold, any guidance given for that category should also be considered.

With respect to impacts on wetlands and protected waters, particular attention should be given to items 11 and 12:

■ 11. A description of the existing wetland or water body should be given including the types and distribution of vegetation. Animal life known to frequent the site should be indicated. A description of the wetland or water body after the project should be given. Estimates of the effects on plant and animal communities must be given; DNR area wildlife personnel may be able to help in this assessment. If compensatory creation or restoration of other wetlands will be done to mitigate the overall impact of the project, this may be described here or at item 31.

■ 12. Describe in detail the physical changes to be made in the wetland or water body, including timing of work; methods of work; volumes, composition and placement of excavated materials or fill materials; and mitigation measures to prevent erosion and sedimentation.

Animal feedlots

A special customized EAW form that applies only to animal feedlots was developed by the EQB in 1999. This customized form should be filled out in preparing feedlot EAWs. Forms and guidance are available at the EQB homepage of the Minnesota Planning website (www.mnplan.state.mn.us), from the EQB staff, the Pollution Control Agency and many county feedlot officers.

The Mandatory EAW thresholds and other aspects of feedlot environmental review rules was amended effective October 11, 1999. For more information go to the EQB website homepage.

Subpart 29. The proposer is advised to consult the PCA Metropolitan, North or South Planning units or the county feedlot officer for guidance prior to initiating work on the EAW.

Natural areas

Subpart 30. If the DNR is the RGU for the project, the proposer should consult with the DNR Environmental Review and Assistance Unit staff for guidance before initiating work on the EAW.

One of the primary concerns about a project reviewed under this mandatory category will be its compatibility with the management plan for the natural area being affected. This issue should be addressed in detail under item 27.

Historical places

Subpart 31. Many EAW questions will not be pertinent to the review of property on the National Register of Historic Places; for those, simply indicate "not applicable." Give attention to the following items:

■ 1 to 9.

■ 10 and 11. Answered if the demolition work will disturb any vegetated areas around the property.

■ 13a. Answer if wells will be abandoned.

■ 16. Answer if grading or other erosion-causing activities will occur.

■ 20. Address the disposal of demolition debris. Also discuss any storage tanks or wastes at the site which will require special handling for removal and disposal, including asbestos.

■ 24. Discuss demolition noise and dust, and their mitigation.

■ 25a. This item deals with impacts on historical or architectural resources, and should describe historical or architectural property values, including any factors which led to its being placed on the National Register. Information should be obtained from the Minnesota State Historical Society and any local historic preservation organizations.

The response should also explain any measures to be taken to preserve these values if the property is demolished, such as removing portion for preservation, photographing or documenting.

It is appropriate here to explain any alternatives to demolition also considered, such as restoration, reuses for another purpose or sale to another owner who would have preserved the property; this information can otherwise be presented at item 31.

Mixed residential and commercial-industrial projects

Subpart 32. Please refer to the guidance given for both residential and commercial-industrial projects.

Communication towers

Subpart 33. Give special attention to the following items:

■ 6. The description should include information on guy wires, ancillary facilities such as equipment sheds or fuel tanks, and access roads.

■ 11. Obstructions to bird flights is one of the primary concerns over these projects. The DNR area or regional wildlife staff should be consulted regarding information on bird flights in the vicinity and how they may be affected by the tower.

Describe any measures taken to minimize impacts such as special lighting, modified design or choice of location.

■ 25d and 26. Visual impact of towers is frequently a concern, and is a legitimate *environmental* concern when it would detract from an otherwise noteworthy view or vista or when it would intrude on a "wilderness" type view or vista, such as from the Boundary Waters Canoe Area. If the project is near any scenic views or vistas or near an area known for a "wilderness" type of experience, note here and give a description of the potential visual impact on the resource in question. This should at least include an analysis of the "viewshed" of the tower.

Sports or entertainment facilities

Subpart 34. Particular attention should be paid to the items on compatibility with surrounding land uses (9, 27 and 28); surface water runoff (17); traffic generation and related air quality impacts (21 and 22); and noise (24) from amplified music or public address systems. Numerical analysis of traffic, air quality and noise impacts will generally be necessary.

Preparation of an EAW for scoping an EIS

Before an EIS is done, an EAW is required for "scoping," the decision-making process that determines what alternatives, impacts and issues, and mitigation measures will be assessed and at what level of detail. These decisions are made by the RGU after a period of public and agency input. The function of the EAW is to inform the public and agencies about a project so they can help identify topics and issues that should be addressed in the EIS.

The EAW must be accompanied by a draft scoping decision document. This is a draft version of the document that will be adopted by the RGU after the scoping period as the official "blueprint" for the EIS. The EAW focuses on the project, its settings and physical impacts, while the draft scoping decision document focuses on the RGU's plans for reviewing the project's impacts, including economic and social impacts, and the impacts of "reasonable alternatives" to the project.

The *Guide to Minnesota Environmental Review Rules* provides guidance about completing the EAW when used for scoping.

Two items on the EAW are always answered differently when the form is used for EIS scoping:

■ 3. Summary of issues. Do not answer this item for a scoping EAW since the information is covered in the draft scoping decision document that accompanies the EAW.

■ 4. Reason for EAW preparation. Mark the box for EIS scoping.

Agency contacts and other resources

The following agencies may review an EAW or provide information on how to appropriately respond to questions on the EAW form.

State agencies

Environmental Quality Board 651-296-8253
or toll-free 1-800-657-3794
(ask for environmental review program)

Department of Agriculture 651-296-1488

Department of Health 651-215-0807

Department of Natural Resources 651-296-4796
(or the regional office indicated on the DNR map below)

Department of Transportation 651-779-5094

Metropolitan Council 651-602-1000
Data Center 651-602-1140
Environment Resource Planning and Management 651-602-1145
Environmental Services 651-602-1005

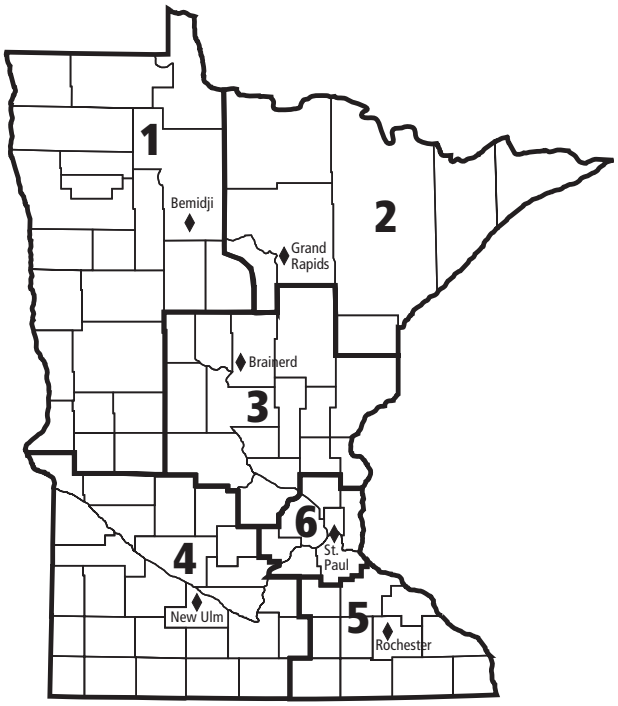
Minnesota Geological Survey 612-627-4780

Minnesota Historical Society 651-296-5462

Minnesota Planning 651-296-3985
Datanet 651-296-6866

Pollution Control Agency
Environmental review coordinator 651-296-7398

DNR ADMINISTRATIVE REGIONS



Federal agencies

Army Corps of Engineers 651-290-5200

Fish and Wildlife Service 612-713-5300

Natural Resources Conservation Service
(check local phone directory blue pages)

Other resources

Minnesota Department of Transportation county highway maps: These maps show all roads, national and state parks, forests, wildlife management areas and refuges.

MnDOT Map Sales 651-296-2216
http://www.dot.state.mn.us/maps.shtml

U.S. Geological Survey maps: These 7.5-minute maps are available for the entire state from local map dealers and government agencies.

Minnesota Geological Survey 612-627-4780
http://www.geo.umn.edu/mgs

U.S. Geological Survey 800-ASK-USGS
http://mapping.usgs.gov

Aerial photographs: Aerial photography of Minnesota is available for much of the state in several different scales.

For forested regions:

Department of Natural Resources
Division of Forestry 218-327-4449
http://www.ra.dnr.state.mn.us/photos

For Twin Cities metropolitan area:

Metropolitan Council
Regional Data Center 651-602-1140
http://www.metrocouncil.org

For all of state:

EROS Data Center 605-594-6151
Sioux Falls, South Dakota
http://edcwww.cr.usgs.gov

Soils and geological data: Soil surveys are available for many Minnesota counties. Soil survey information is available from the Natural Resources Conservation Service at 651-602-7891. For a report on the status of soil mapping in Minnesota, see http://www.mnplan.state.mn.us/press/soilsrpt.html.

The Minnesota Geological Survey has a variety of geological maps and publications that may be helpful for some EAWs. Contact the Minnesota Geological Survey at 612-627-4780 or the USGS at 612-783-3100 (http://wwwmn.cr.usgs.gov).

Wetland types

The following wetland classification is based on U.S. Fish and Wildlife Service, Circular 39, *Wetlands of the United States.*

Type 2, Inland fresh meadows

The soil is usually without standing water during most of the growing season but is waterlogged within at least a few inches of its surface. Vegetation includes grasses, sedges, rushes and various broad-leaved plants. Representative plants are carex, rushes, redtop, reedgrasses, mannagrasses, prairie cordgrass, reed canary grass and mints. Meadows may fill shallow lake basins, sloughs or farmland sags, or these meadows may border shallow marshes on the landward side. Wild hay is often cut from these meadows.

Fresh meadows are used somewhat in the north by nesting waterfowl, but in most of the country their value is mainly as supplemental feeding areas.

Type 3, Inland shallow fresh marshes

The soil is usually waterlogged during the growing season; often it is covered with as much as 6 inches or more of water. Vegetation includes grasses, bulrushes, spikerushes and various other marsh plants such as cattails, arrowheads, pickerelweed and smartweeds. Common representatives are reed, whitetop, rice cutgrass, carex and giant burreed. These marshes may nearly fill shallow lake basins or sloughs, or they may border deep marshes on the landward side. They are also common as seep areas on irrigated lands.

Marshes of this type are used extensively as waterfowl nesting and feeding habitat. In combination with deep fresh marshes (type 4), they constitute the principal production areas for waterfowl.

Type 4, Inland deep fresh marshes

The soil is covered with 6 inches to 3 feet or more of water during the growing season. Vegetation includes cattails, reeds, bulrushes, spikerushes and wild rice. In open areas, pondweeds, naiads, coontail, watermilfoils, waterweeds, duckweeds, waterlilies or spatterdocks may occur. These deep marshes may almost completely fill shallow lake basins, potholes, limestone sinks and sloughs, or they may border open water in such depressions.

Deep fresh marshes constitute the best breeding habitat in the country, and they are also important feeding places.

Type 5, Inland open fresh water

Shallow ponds and reservoirs are included in this type. Water is usually less than 10 feet deep and is fringed by a border of emergent vegetation. Vegetation (mainly at water depths of less than 6 feet) includes pondweeds, naiads, wild celery, coontail, watermillfoils, mushgrasses, waterlilies and spatterdocks.

Type 5 areas are used extensively as brood areas when, in midsummer and late summer, the less permanent marshes begin to dry out. The borders of such areas are used for nesting. Where vegetation is plentiful, they are used as feeding and resting areas by ducks, geese and coots, especially during the migration period.

Type 6, Shrub swamps

The soil is usually waterlogged during the growing season, and is often covered with as much as 6 inches of water. Vegetation includes alders, willows, buttonrush, dogwoods and swamp-privet. Shrub swamps occur mostly along sluggish streams and occasionally on flood plains. They are used to limited extent for nesting and feeding.

Type 7, Wooded swamps

The soil is waterlogged at least to within a few inches of its surface during the growing season, and is often covered with as much as 1 foot of water. Wooded swamps occur mostly along sluggish streams, on flood plains, on flat uplands and in very shallow lake basins. Trees include tamarack, arborvitae, black spruce, balsam, red maple and black ash. Evergreen swamps usually have a thick ground covering of mosses. Deciduous swamps frequently support beds of duckweeds, smartweeds and other herbs.

Wooded swamps often occur in association with shrub swamps, and waterfowl often use the two types interchangeably.

Type 8, Bogs

The soil is usually waterlogged and supports a spongy covering of mosses. Bogs occur mostly in shallow lake basins, on flat uplands and along sluggish streams. Vegetation is woody or herbaceous or both. Typical plants are heath shrubs, sphagnum moss and sedges. Leather-leaf, labrador-tea, cranberries, carex and cottongrass are often present. Scattered, often stunted black spruce and tamarack may occur in bogs.

River classifications

Created by the Minnesota Wild and Scenic Rivers Act (Minnesota Statutes 104.31 – 104.4), the Minnesota Wild, Scenic and Recreational Rivers Program is for rivers that have qualified to be designated as components of the state system. Land use and recreation management controls are adopted via state rules which in turn are implemented through local land use controls in communities fronting designated rivers.

The controls address minimum lot size requirements, building setbacks, vegetative and landscape alterations and allowable uses that can occur within the designated land use controls in the communities fronting designated rivers.

If you are planning any excavation, grading or filling work on the river bank or in the main river channel, backwater areas or oxbows within the district, a DNR permit may be required. Draining or filling in of wetlands within the district is prohibited. Questions about permit requirements should be directed to the appropriate regional hydrologist. Please contact the DNR before initiating any work of this nature.

The following list identifies designated rivers, affected communities, the type of designation and its extent along the river corridor. *A Guide To Buying and Selling Property Along Wild and Scenic Rivers* has been prepared for the Cannon, Mississippi and Rum rivers and is available from DNR offices and local zoning authorities. If you are buying property or building along a designated river, questions should be directed to the community zoning authority.

Cannon River

Dakota County

Goodhue County: Cannon Falls, Red Wing

Rice County: Dundas, Northfield

Recreational: Northern city limits of Faribault to Eastern city limits of Cannon Falls; excluding Lake Byllesby, 25 miles

Scenic: Eastern city limits of Cannon Falls to Mississippi River, 27 miles

North Fork Crow River

Meeker County: Kingston

Recreational: Spillway at Lake Koronis to Meeker-Wright County line, 41 miles

Kettle River

Pine County: Rutledge, Sandstone, Willow River

Scenic: Carlton-Pine County line to dam at Sandstone, 30 miles

Wild: Dam at Sandstone to St. Croix River, 22 miles

Minnesota River

Chippewa County: Granite Falls, Montevideo

Lac Qui Parle County

Redwood County: North Redwood Falls

Renville County: Morton

Yellow Medicine County: Granite Falls

Scenic: Lac Qui Parle Dam to U.S. Hwy. 212 Bridge (Montevideo); and, pipeline ¼ mile downstream from Minnesota Falls Dam to Redwood CSAH 11 Bridge (Franklin), 74 miles

Recreational: U.S. Hwy. 212 bridge to pipeline ¼ mile downstream from Minnesota Falls Dam, 20 miles

Mississippi River

Sherburne County: Becker, Elk River

Stearns County: St. Cloud

Wright County: Clearwater, Dayton (also Hennepin County), Monticello, Ramsey (also Anoka County)

Scenic: CSAH 7 Bridge (St. Cloud) to Stearns-Wright County line/ State Hwy. 24 Bridge (Sherburne County side), 13 miles

Recreational: Stearns-Wright County line/ State Hwy. 24 bridge to northwestern city limits of Anoka and Champlin, 39 miles

Rum River

Anoka County: Andover, Anoka, Ramsey, St. Francis

Isanti County: Cambridge, Isanti

Mille Lacs County: Onamia, Milaca, Princeton

Sherburne County

Wild: Ogechie Lake Spillway to north shore Lake Onamia, 5 miles

Scenic: Mille Lacs CSAH 20 Bridge to CSAH 9 Bridge, and Mille Lacs CSAH 13 Bridge to southern border Anoka County fairgrounds, 101 miles

Recreational: State Hwy. 27 Bridge (Onamia) to Mille Lacs CSAH 20 Bridge, Mille Lacs CSAH 9 Bridge to CSAH 13 Bridge, and southern border Anoka County Fairgrounds to Madison and Rice streets in Anoka, 33 miles

St. Croix River*

Chisago County: Taylors Falls

Washington County: Afton, Bayport, Lake St. Croix Beach, Lakeland, Lakeland Shores, Marine-on-St. Croix, Oak Park Heights, St. Mary's Point, Stillwater

Rural District: Unincorporated area of Chisago and Washington counties, and portions of Marine-on-St. Croix and Afton urban districts; all municipalities listed at left and portions of Marine-on-St. Croix and Afton.

*Designated pursuant to separate legislation; see Minnesota Statutes 104.25 Lower St. Croix National Scenic Riverway, 52 miles total.

Lakes needing a nutrient budget analysis

A nutrient budget analysis is needed to adequately assess the potential for significant impacts on water quality in lakes. Many lakes need a nutrient budget analysis; there are too many to list in this appendix. If stormwater or wastewaters from the project may affect a lake, contact the Pollution Control Agency environmental review coordinator at 651-296-7398 for guidance about whether the analysis should be included in the EAW. The PCA recommendation will be based upon the present lake quality and nutrient input levels, the present and future uses of the lake, and the likely nutrient input from the project.

The following lakes located within the seven-county metropolitan area are designated as "priority lakes" by the Metropolitan Council. These lakes require a nutrient budget analysis for an EAW (see items 17 and 18). Secondary watersheds are listed in parentheses. For additional information, contact the Metropolitan Council, Environmental Resources Planning and Management, at 651-602-1145.

Anoka County

East Twin and George (Rum River)

Crooked, Ham and Netta (Coon Creek)

Coon, Island, Linwood and Martin (Sunrise River)

Centerville, Columbus, Howard, Peltier, Randeau and Otter (Rice Creek)

Carver County

Ann, Lucy and Riley (Riley Creek)

Bavaria (Hazeltine-Bavaria)

Burandt, Hydes, Miller, Reitz and Waconia (Carver Creek)

Auburn, Parley, Pierson, Minnetonka, Minnewashta, Schutz, Stieger, Wasserman and Zumbra (Minnehaha Creek)

Dakota County

Crystal and Marion (Vermillion River)

Orchard (Credit River)

Hennepin County

Riley (Riley Creek)

Calhoun, Cedar, Christmas, Dutch, Harriet, Lake of the Isles, Langdon, Little Long, Long, Minnetonka, Nokomis, Parley, and Whitetail (Minnehaha Creek)

Mitchell and Starling (Purgatory Creek)

Bryant, Bush and Glen (Nine Mile Creek)

Medicine (Bassett Creek)

Bass, Eagle and Twin (Shingle Creek)

Fish and Weaver (Elm Creek)

Independence, Rebecca and Sarah (Crow River)

Ramsey County

Bald Eagle, Johanna, Josephine, Long, Otter, Turtle and White Bear (Rice Creek)

Charley, Deep, Owasso, Pleasant, Snail, Sucker, Wabasso and Vadnais (St. Paul-Ramsey)

Gervais and Phalen (Ramsey-Washington Metro)

Scott County

Cedar and McMahon (Sand Creek)

Fish, Lower Prior, Spring, and Upper Prior (Prior Lake-Spring Lake)

O'Dowd and Thole (Shakopee)

Washington County

Bald Eagle, Clear, Pine Tree, Sunset and While Bear (Rice Creek)

Bone and Forest (Sunrise River)

Big Carnelian and Big Marine (Big Marine-Carnelian

Square (Marine on St. Croix)

Demontreville, Elmo and Jane (Valley Branch)

Hazardous air pollutants

A
Acetaldehyde
Acetamide
Acetonitrile
Acetophenone
2-Acetylaminoflourene
Acrolein
Acrylamide
Acrylic acid
Acrylonitrile
Allyl chloride
4-Aminobiphenyl
Aniline
o-Anisidine
Antimony compounds
Arsenic compounds (inorganic including arsine)
Asbestos

B
Benzene
Benzidine
Benzotrichloride
Benzyl chloride
Beryllium compounds
Biphenyl
Bis (2-ethylhexyl) phthalate (DEHP)
Bis (chloromethyl) ether
Bromoform
1,3-Butadiene

C
Cadmium compounds
Calcium cyanamide
Caprolactam
Captan
Carbaryl
Carbon disulfide
Carbon tetrachloride
Carbonyl sulfide
Catechol
Chloramben
Chlordane
Chlorine
Chloroacetic acid
2-Chloroacetophenone
Chlorobenzene
Chlorobenzilate
Chloroform
Chloromethyl methyl ether
Chloroprene
Cobalt compounds
Coke oven emissions
Cresols/Cresylic acid (isomers and mixture)
0-Cresol
m-Cresol
p-Cresol
Cumene
Cyanide compounds

D
2,4-D, salts and esters
DDE
Diazomethane
Dibenzofurans
1,2-Dibromo-3-chloropropane
Dibutylphthalate
1,4-Dichlorobenzene (p)
3,3'-Dichlorobenzidene
Dichloroethyl ether (Bis(2-chloroethyl)ether)
1,3-Dichloropropene
Dichlorvos
Diethanolamine
N,N-Diethyl aniline (N,N-Dimethylaniline)
Diethyl sulfate
3,3-Dimethoxybenzidine
Dimethyl aminoazobenzene
3,3-Dimethyl benzidine
Dimethyl carbamoyl chloride
Dimethyl formamide
1,1 Dimethyl hydrazine
Dimethyl phthalate
Dimethyl Sulfate
4,6-Dinitro-o-cresol, and salts
2,4-Dinitrophenol
2,4-Dinitrotoluene
1,4-Dioxane (1.4-Diethleneoxide)
1,2-Diphenylhydrazine

E
Epichlorohydin (1-Chloro-2,3-epoxypropane)
1,2-Epoxybutane
Ethyl acrylate
Ethyl benzene
Ethyl carbamate (Urethane)
Ethyl chloride (Chloroethane)
Ethylene dibromide (Dibromoethane)
Ethylene dichloride (1,2-Dichloroethane)
Ethylene glycol
Ethylene imine (Aziridine)
Ethylene oxide
Ethylene thiourea
Ethylidene dichloride (1,1-Dichloroethane)

F
Formaldehyde

G
Glycol ethers

H
Heptacholar
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexamethylene-1,6-diisocyanate
Hexamethylophosphoramide
Hexane
Hydrazine
Hydrochloric acid
Hydrogen flouride (hydrofluoric acid)
Hydroquinone

I
Isophorone

L
Lead compounds
Lindane (all isomers)

M
Maleic anhydride
Manganese compounds
Mercury compounds
Methanol
Methozychlor
Methyl bromide (Bromomethane)
Methyl chloride (Choromethane)
Methyl chloroform (1,1,1-Trichloroethane)
Methyl ethyl ketone (2-Butanone)
Methyl hydrazine
Methyl iodide (Iodomethane)
Methyl isobutyl ketone (Hexone)
Methyl isocyanate
Methyl methacrylate
Methyl tert butyl ether
4,4-Methylene bis (2-chloroaniline)
Methylene chloride (Dichloromethane)
Methlene diphenyl diisocyanate (MDI)
4,4′-Methylenedianiline
Mineral fibers

N
Naphthalene
Nickel compounds
Nitrobenzene
4-Nitrobiphenyl
4-Nitrophenol
2-Nitropropane
N-Nitroso-N-methylurea
N-Nitrosodimethylamine
N-Nitrosomorpholine

P
Parathion
Pentachloronitrobenzene (Quintobenzene)
Pentachlorophenol
Phenol
p-Phenylenediamine
Phosgene
Phosphine
Phosphorus
Phthalic anhydride
Polychlorinated biphenyls (aroclors)
Polycyclic organic matter
1,3-Propane sultone
Beta-Propiolactone
Propionaldehyde
Propoxur (Baygon)
Propylene dichloride (1,2-Dichloropropane)
Propylene oxide
1,2-Propylenimine (2-Methyl aziridine)

Q
Quinoline
Quinone

R
Radionuclides

S
Selenium compounds
Styrene
Styrene Oxide

T
2,3,7,8-Tetrachlorodibenzo-p-dioxin
1,1,2,2-Tetrachloroene
Tetrachloroethylene (Perchloroethylene)
Titanium tetrachloride
Toluene
2,4-Toluene diamine
2,4-Toluene diisocyanate
o-Toluidine
Toxaphene (chlorinated camphene)
1,2,4-Trichlorobenzene
1,1,2-Trichloroethane
Trichloroethylene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
Triethylamine
Trifluralin
2,2,4-Trimethylpentane

V
Vinyl acetate
Vinyl bromide
Vinyl chloride
Vinylidene chloride (1,1-Dichloroethylene)

X
Xylenes (isomers and mixtures)
o-Xylenes
m-Xylenes
p-Xylenes