

Wisconsin Department of Transportation

Guidance for Conducting an Indirect Effects Analysis

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Environmental Documents Section, Bureau of Technical
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This guidance document replaces “Land Use in Environmental Documents: Indirect and Cumulative Effects Analysis for Project-Induced Land Development (1996).”

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CHAPTER ONE: INTRODUCTION TO INDIRECT EFFECTS

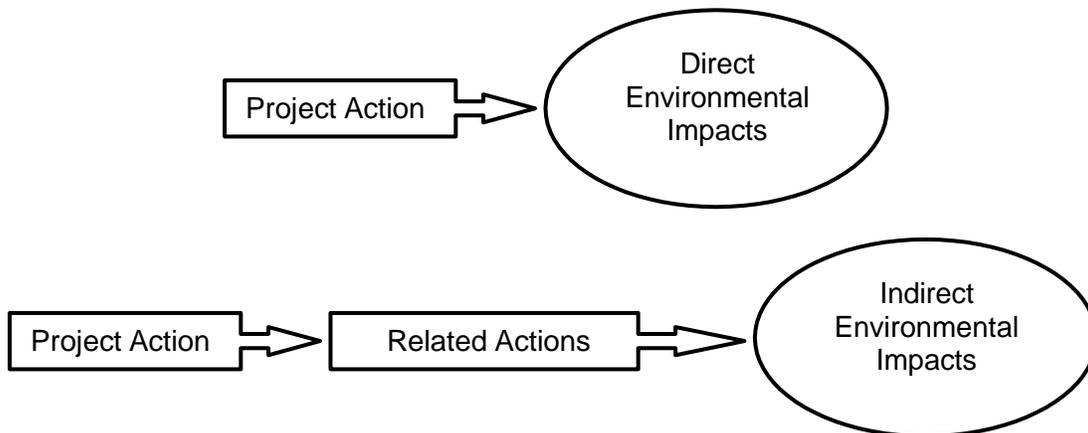
This document provides guidance for analyzing the potential indirect effects of a proposed transportation project and preparing an environmental review of these effects.¹ The six-step methodology outlined in Chapter Four has been modeled after the eight-step approach outlined in the National Cooperative Highway Research Program (NCHRP) Report 466-“A Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects.”

If the Study Team can document that it has followed the six-step methodology found in Chapter Four of this guidance, or the NCHRP’s Report 466 eight-step approach, the Study Team will have likely achieved compliance with NEPA and other legal requirements for providing an analysis. WisDOT guidance provides important distinctions, such as discussion on determining the level of analysis, pre-screening information and mitigation discussion, more pertinent to Wisconsin, which Report 466 does not include. For that reason, the WisDOT guidance should be relied upon and followed.

DEFINITION OF INDIRECT EFFECTS

Transportation projects can have a wide array of effects (or impacts²) on the environment. The direct impacts, indirect effects and cumulative effects³ of a project must be analyzed under NEPA. The Council on Environmental Quality (CEQ) has defined *indirect effects* as project impacts “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.” A project’s potential indirect effects could occur some time after the project is constructed in an area that is outside of project’s actual right of way. The below diagrams illustrate the difference between direct impacts and indirect effects of a project action.

Figure One: Direct Impacts and Indirect Impacts



Source: FHWA’s Questions and Answers on Indirect and Cumulative Effects, January 2003

¹ This guidance has been developed using a variety of resources and references. See the Resources section of this guidance and the appendix for more information.

² The terms “effects” and “impacts” have the same meaning, although the term “indirect effects” is strongly recommended for use in environmental documents.

³ Please see WisDOT’s “Guidance for Developing a Cumulative Effects Analysis”

According to CEQ, “indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.” (40 CFR 1508.08)

The term “reasonably foreseeable” (used in the indirect effects definition) generally means that an ordinary person using common sense would believe an indirect effect(s) is likely to occur, and he/she would consider the effect(s) when making a decision.⁴ While this is not completely straightforward, the important point is that WisDOT must examine what **other actions** may occur as a result of a transportation project, besides the actual construction impacts of a project.

One of the primary issues the indirect effects analysis must address is whether the project is one of the main reasons land use change is expected to occur in an area. “*But for the project,*” would the change be likely to occur? In other words, if you remove the project from the area, would the land use changes occur anyhow? Are land uses in the area expected to change at the same pace, either with or without the project? Or, at similar or different densities? Are the land use types and/or patterns changed by the project? Is economic development in a location dependant on the project?

Based on the above definition and various court cases that help to define what is needed in an acceptable analysis, the project sponsor (WisDOT/FHWA) must consider whether the project component (specific location, scope, surrounding considerations, etc.) will *induce growth* in an area.

THE TRANSPORTATION AND LAND USE LINK: WHAT ARE “GROWTH INDUCING EFFECTS”?

Transportation or a transportation project is not the sole reason growth may occur in an area. Transportation and land use are inherently connected and interrelated. While research shows this relationship exists and in some cases can be strong, there are also many other elements that contribute to the growth potential and development occurrences in a certain area. These include general economic conditions of an area or region; availability of municipal services such as sewer and water; government regulation; government growth promotions such as Tax Incremental Finance (TIF) districts and other economic development programs; population changes; and quality of life issues, etc.

Land use changes occur because of many reasons, including transportation, a very visible element.

Even if indirect effects are found to exist based on a project alternative, transportation is only one of many reasons the potential exists.

Indirect effects can be both positive and negative

While the *direct* impacts of a project are generally considered negative impacts, such as wetland loss from construction activities, indirect effects can be positive, negative or both. For example, a local government may anticipate that a new interchange would significantly benefit the further development of a business park and taking advantage of

⁴ Court case reference: Sierra Club v. Marsh, 976 F2d. (1st Cir. 1992)

improved access to the highway. However, if an environmental corridor runs through the development and project area, and new development is not properly regulated to protect negative impacts to the corridor, natural resources may be negatively impacted.

TWO TYPES OF INDIRECT EFFECTS

There are two types of indirect effects that must be examined: 1) Project encroachment effects and 2) Project influenced effects. *Project encroachment* effects occur when a project action could potentially change the natural, cultural, historic or socio-economic conditions at some time in the future. *Project influenced effects* relate to the potential for land use changes to occur as a result of the project action that could reasonably occur sometime in the future. These can also be called “induced growth effects.”

It is not important to necessarily “*categorize*” indirect effects specifically into types of effects in your analysis, but it is important to sufficiently describe and document what the conditions and issues are related to the potential indirect effects of the project. While one project may have no identifiable indirect effects, another project may have the potential for one or both types of indirect effects.

Transportation is only one of many factors that can affect land use and land use changes.

Other Federal requirements for indirect effects

Beyond NEPA and its requirements for documenting indirect effects, there are other Federal requirements⁵ that include the consideration of indirect (and cumulative) effects. The major provisions are noted here:

Section 106 of the National Historic Preservation Act (NHPA) require the consideration of indirect and cumulative impacts when applying the criteria of adverse effect on historic properties (36 CFR §800.5(a)(1)) and delineating the area of potential effects (APE) (36 CFR § 800.16(d).

Section 404 of the Clean Water Act establishes a permitting program to regulate the discharge of dredged and filled material into waters of the United States, including wetlands. *Section 404 (b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material* (40 CFR § 230 subpart B) requires the Section 404 permitting authority to determine the potential short- or long-term effects by determining the nature and degree of effect the proposed discharge will have, individually and cumulatively (230.11(a)(b)(c)(e)). Cumulative (230.11(g)) and secondary (230.11(h)) effects on the aquatic ecosystem must be considered as part of the Section 404(b)(1) analysis.

The Federal Emergency Management Agency (FEMA) Regulations on Floodplain Management and Protection of Wetlands requires the identification of potential direct and indirect adverse impacts associated with the occupancy, modification, and development of floodplains and wetlands. (44 CFR § 9.10).

⁵ “Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process.” FHWA, January 2003. Question #11.

50 CFR Part 402 Interagency Cooperation-Endangered Species Act of 1973, as Amended requires the evaluation of direct, indirect, and cumulative effects on listed species and designated critical habitat of proposed federal actions (402.12, 402.14).

Farmland Protection and Policy Act implementing regulations, 7 CFR Volume 6, Part 658 applies to Federal or Federally assisted projects that may directly or indirectly and irretrievably convert farmland that is defined as: 1) prime, 2) unique, 3) other than prime or unique that is of statewide importance, or 4) other than prime or unique that is of local importance, to nonagricultural use. *FHWA Standards, 23 USC 109(l)(1)(b)* requires the evaluation of direct and indirect environmental and economic effects of any loss of productive agricultural land before the right-of-way on any Federal-aid highway can be used to locate a utility facility.

Section 3-301(b) of Executive Order 12898 on Environmental Justice states that whenever practicable and appropriate, Federal agency human health analyses must identify multiple and cumulative exposures to substantial environmental hazards.

Summary. Understanding the definition of indirect effects, including the types of indirect effects, is helpful when distinguishing indirect from other impacts/effects such as direct and cumulative.⁶ Only through the comprehensive analysis and documentation of all direct impacts, indirect effects and cumulative effects will NEPA be satisfied.

⁶ See WisDOT's "Guidance for Conducting a Cumulative Effects Analysis" for more on the cumulative effects analysis.

CHAPTER TWO: PREPARATION AND PRE-SCREENING

WHEN DO I NEED TO DO AN ANALYSIS?

The need for an indirect effects analysis could occur at any “level” of environmental review from Environmental Reports (ERs), to Environmental Assessments (EAs) to Environmental Impact Statements (EISs). **NEPA requires that the indirect effects⁷ for all projects be documented.** Depending on the project (location, scope, etc.), there may be a limited potential for indirect effects, which also limits the need for a more extensive or detailed, indirect effects analysis. All EISs need to conduct a detailed analysis of indirect effects that includes public involvement activities and extensive agency coordination.

The WisDOT indirect effects analysis *pre-screening worksheet*⁸ offers guidance in determining if an *EA or ER* project requires a more rigorous, step-by-step analysis to determine the existence and significance of the project’s indirect effects by the various alternatives.

Economic Development as Purpose and Need for the Project

Any project (EIS, EA, ER) that includes economic development as part of the project’s purpose and need requires an in-depth analysis of indirect effects. Why? If the project’s purpose is to stimulate economic development in the area, the project itself is essentially promoting indirect effects. A variety of court cases have addressed this issue. The general conclusion from these cases is that if the project uses economic development as part of the project purpose and need, but fails to adequately address indirect effects (and also cumulative effects), a judicial finding of inadequacy would result.

The potential requirement to conduct this analysis should not factor into altering the project’s purpose and need to avoid the indirect effects analysis. Most likely, if economic development could be a component of the purpose and need, there will be other reasons why an indirect effects analysis would be necessary.

“This [level of analysis for indirect effects] issue should be addressed with other agencies and NEPA participants during early coordination activities or scoping.”
(From FHWA’s Q/A #7)

ENVIRONMENTAL IMPACT STATEMENTS (EIS)

As noted above, all EISs need to include a detailed analysis of indirect effects that includes public involvement activities and extensive agency coordination. For a draft EIS, each of the project alternatives including the “no build” alternative should be analyzed to a basic level for the potential for indirect effects. A more refined and specific discussion for the no build and preferred alternative should be included in the final EIS.

⁷ NEPA requires assessment and documentation of all impacts, including direct, indirect and cumulative effects for every project.

⁸ See Appendix A for the Pre-Screening Worksheet.

ENVIRONMENTAL ASSESSMENTS

Because of the variety of projects examined through EAs, you will need to carefully consider the level of analysis for indirect effects that will be needed for the project through the pre-screening. Discussing the level of analysis with other experts such as the Regional Environmental Coordinator, or WisDOT Environmental Documents Section staff can substantially help you in this process. While some EAs may not require further examination other than a pre-screening and completing basic/factor sheets, many EAs will require analysis closer to the level needed in an EIS effort. This is especially true if the project includes capacity expansion and/or access changes such as interchange improvements or additions. FHWA guidance⁹ on the issue states that the degree to which indirect impacts need to be addressed in an EA depend on the potential for the impacts to be significant and will vary by resource, project type, location and other factors.¹⁰ See the pre-screening worksheet for additional information.

ENVIRONMENTAL REPORTS

While it is unlikely that this level of project type would require anything more than a pre-screening effort, there is a potential that a cursory review of the indirect effects is needed. For example, if the project includes an economic development purpose and need, the indirect effects anticipated would need to be analyzed and documented.¹¹

“Since projects approved with CEs are generally minor in nature...indirect and cumulative impacts assessments will generally not be warranted. There may be exceptions, which can be evaluated on a case-by-case basis.”
(From FHWA’s Q/A #7)

WHAT IS “A HIGHER LEVEL OF ANALYSIS”?

All projects need to be screened to help determine the potential for the project to cause indirect effects. While it is clear that all EIS projects will require a higher level of analysis for indirect effects, EAs and ERs have a varying degree to which analysis would be conducted. Each project must be examined on a case-by-case basis to determine the analysis level, based on the individual project, location, and issues (see pre-screening worksheet). This must be done early in the NEPA project development process to ensure proper agency coordination and public involvement.

If a smaller scale project (ER or EA) has been pre-screened to show an analysis is needed, most of these projects will not require an extensive effort such as the analysis conducted for an EIS document. However, each project needs to be screened and examined to determine the analysis need. Some EAs may even require the same, “higher” level of indirect effects analysis that an EIS would receive. Each analysis should follow the six-step approach found in Chapter Four; however the analysis should be designed to fit the scale of the project.

The box below describes a few examples of projects that would require a high level of analysis for indirect effects.

⁹ Reference: “Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process.” FHWA, January 2003.

¹⁰ See the pre-screening worksheet included in the appendix of this guidance document.

¹¹ Ibid.

Example Projects Requiring Higher Level Analysis (not all inclusive list):

- A proposal for a new facility alignment such as a bypass facility.
- Proposed project that adds new or changes existing access, such as new interchanges, removing access, adding frontage roads.
- Capacity expansion, e.g. two to four lanes, four to six lanes, etc.
- Project's purpose and need includes an "economic development" component.

Summary. All EISs require a detailed analysis. Because the potential for indirect effects exists at any level of project (ERs, EAs, or EISs), each ER and EA project must be examined to determine the level of detail needed in an analysis to sufficiently meet the "hard look" required in NEPA. Use the pre-screening worksheet to first determine if additional analysis is needed (beyond the pre-screening), then move forward by determining the level of analysis needed for the project.

The draft EIS should examine all project alternatives in a comparative view, while the final EIS should include more refined and specific analysis for the preferred project alternative. The majority of EAs will need further analysis based on pre-screening, but may or may not rise to the level of effort that is needed in an EIS. ERs will not usually proceed past the pre-screening level; however if it includes economic development as part of the project purpose and need, an indirect effects analysis is required.

CHAPTER THREE: PUBLIC PARTICIPATION AND THE INDIRECT EFFECTS ANALYSIS

An important aspect to the analysis process and evaluation of the project's potential indirect effects is a well thought-out public participation process. The analysis should be integrated within the overall public involvement efforts found in the project's Coordination Plan.¹²

PRIMARY GOALS OF PUBLIC PARTICIPATION IN THIS ANALYSIS

The main goals of public participation efforts in the analysis of the project's indirect effects are:

- 1.) To provide the public and participating/cooperating agencies information about what the Study Team is finding; and
- 2.) For the Study Team to obtain useful input that can be used in the analysis process.

It is critically important to document the varying opinions, information and sentiments from the public participation process. SAFETEA-LU also provides a process for engaging agencies and the general public throughout the effort.¹³

DOCUMENTING VIEWPOINTS

Many times there will be a wide array of opinions that are directly opposite from each other. There will be occasions where the opinions of the "experts" will be contradictory to the information and data that is analyzed. It is the Study Team's job to document the varying viewpoints and to refer to them when examining trend data, local plans and inventory of notable features. This is another reason public participation is valuable to the analysis. Involving Environmental Justice groups where present in the study area is also very important in helping to shape the analysis.

WHEN TO CONDUCT PUBLIC PARTICIPATION FOR INDIRECT EFFECTS

In general, the more depth that the indirect effects analysis warrants, the higher level or more extensive public participation efforts will be needed. If agencies, stakeholders, and/or the public raise indirect effects issues at the beginning of a project, incorporating additional public participation efforts is recommended as the best approach to ensure the Study Team adequately addresses the issue.¹⁴ Throughout the six-step methodology in Chapter Four, ideas for public participation efforts are outlined. The Study Team should examine during scoping not only the analysis process, but also how participation efforts will be woven throughout the effort.

¹² As part of federal transportation reauthorization bill, SAFETEA-LU, every EIS project requires a "coordination plan."

¹³ See FHWA's SAFETEA-LU guidance, questions #47-57 at www.fhwa.dot.gov/hep/section6002/H

¹⁴ This may also be a signal that the approach for the project may warrant a higher level of analysis.

An EIS project's overall Coordination Plan¹⁵ is the appropriate time to initially discuss public involvement efforts for the indirect effects analysis. Depending on an EA, there may also be a similar plan for public involvement. There may be a need to increase the level of public participation specifically for indirect effects issues. For example, a citizen advisory committee and technical advisory committee are generally included throughout the environmental review process, but a separate focus group or expert panel may be needed in addition as part of the indirect effects analysis to ensure the various views are taken into consideration.

Appendix B discusses some of the various public participation tools that can be used in the process. WisDOT staff and project consultants in the indirect effects analysis have successfully used most of the tools included in the chart provided.

Summary. All projects require some level of public participation, however, indirect effects analysis greatly benefits from a well thought out public involvement process and continuous participation by agencies, interested stakeholders and the public.

¹⁵ Required for all EIS projects under SAFETEA-LU.

CHAPTER FOUR: SIX STEP ANALYSIS METHOD

The WisDOT six step method for analyzing a transportation project's potential indirect effects is based on the National Cooperative Highway Research Program (NCHRP), Report 466 "Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects" (2002). While the analysis methodology is based on Report 466, the complete WisDOT guidance considers WisDOT experiences, statutory components, and addresses questions/issues that have been raised by WisDOT practitioners.

As with all step-by-step approaches, an iterative process naturally occurs. Once the Study Team has gone past one step, you may find in the next step that the previous one did not include all the information it needed to move forward. This should not be looked at as a flaw in your approach, but rather part of the analysis and review process.

Briefly, the six steps are:

1. Scoping, Selecting the Tools/Activities, and Determining the Study Area.
2. Inventory the Study Area and Notable Features.
3. Identify the Impact Causing Activities of the Proposed Project Alternatives.
4. Identify the Potentially Significant Indirect Effects.
5. Analyze the Indirect Effects and Evaluate Assumptions.
6. Assess Consequences and Identify Mitigation Activities.

Each of these steps has a purpose in adequately completing the analysis, based on NEPA, FHWA guidance, and court cases that have shaped indirect effects policy. Providing the appropriate documentation is critical for the entire analysis process for indirect effects.

STEP 1: SCOPING, SELECTING TOOLS/ACTIVITIES AND DETERMINING THE STUDY AREA.

The objective of this step is to scope for the analysis, select the tools/activities that will be employed throughout the analysis, and to delineate the boundaries of the indirect effects study area. These three items are all interrelated. Scoping for indirect effects will generally lead to the ideal approach for the project and will help to determine the tools that will be used in the analysis.

Scoping For Indirect Effects Analysis

Scoping is a critical first step in determining the general direction of the analysis of the environmental impacts of a project. The indirect effects analysis should also be considered within the scoping process.

To a certain extent, as with other impacts, indirect effects may not be readily apparent until the issues are examined and study analysis is conducted. However, after you apply the pre-screening worksheet tool, the Team will have a good starting direction for the analysis of indirect effects. The Study Team will also have a sense of the level of effort that will be required to sufficiently analyze indirect effects.

The scoping process should achieve two main goals: 1) determine the level of effort and general approach that will be needed to satisfactorily analyze indirect effects of the project and its alternatives and 2) determine the location and extent of the study area.

Scoping, under SAFETEA-LU requirements, will necessitate discussion with participating and cooperating agencies and the general public on the approach (or methodology) that will be taken as well as the study area boundaries for indirect effects.

Selecting Appropriate Tools and Activities

Each project is unique and should be examined specifically for the analysis needs for indirect effects. As discussed in Chapter Two, pre-screening the project and consideration of the scope of the project will help shape the analysis and the various tools/activities needed to conduct an appropriate level of analysis. The Study Team should employ the six steps and recommendations found in this guidance document and include an array of tools/ activities to assist in the analysis to complete the full approach to the project. See Appendix B for a list of tools that could be employed to assist in the analysis.

The scoping process should be used to the best of the Study Team's abilities to formulate the approach for the project. For example, if a particular project is located in an urban setting, the analysis will require closer examination of socio-economic issues related to indirect effects. The project approach would utilize public participation activities to examine these particular issues more closely.

In the vast majority of indirect effects analyses, the recommended approach for the analysis is primarily based upon a **qualitative approach**—meaning the analysis is based on trend data, local plans, and input from experts, agencies, local governments and the public.

Every indirect effects analysis will use a variety of technical and statistical data, local and regional information sources and plans, and other data/analyses collected in the environmental documentation process. Examples of activities and tools generally considered useful include expert panels, focus groups, Delphi Surveys, and trend extrapolation.¹⁶ Generally, a more extensive, larger scale project EIS analysis will utilize a greater variety of activities/tools to fully understand the indirect effects issue. More information can be found in other analysis steps and within Chapter Eight, where resources for the techniques can be found.

“Generally, the determination of an appropriate methodology for a given situation and project, should not need to be revisited, if the decision was made cooperatively and early in the NEPA process. It is recommended that every effort be made to reach agreement or consensus with project participants regarding the appropriate methodology, but it must be understood that the final decision is the responsibility of the lead agency.”
(FHWA “Questions & Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process.” January 2003.)

Computer Models

The need for computerized modeling (quantitative analysis approaches) such as gravity models or regression analyses are sometimes considered preferable by certain stakeholders, especially those that depend on scientific data for their work.

¹⁶ See Appendix C for more information on the various tools to help assess indirect effects.

Computerized models do not necessarily provide a more “objective” look at land use impacts of project alternatives.

This guidance recommends limited use of computerized modeling due to the general ineffectiveness in assisting in the analysis, the cost to conduct, and the fact that the results will not answer the question of which alternative has the least amount of land use impact. WisDOT’s experience and that of other DOTs around the U.S.¹⁷ is that the use of highly technical models often confuses the process and analysis efforts, in providing a statistical result with limited use in the overall indirect effects analysis. A computer model is not needed to create a useful analysis and legally defensible document under NEPA. Using a computer model will not make the analysis approach more “scientifically based” or more complete. Other trend data and public input that must be used as part of the analysis can be contradictory to the model’s outcome for a variety of reasons.

If the Study Team decides to include a model as part of the analysis, it should only be used to add value to the discussion, rather than be the center of it. The trend data and local plans, combined with the public participation process are much more critical in assisting the Study Team in analyzing and documenting a project’s indirect effects.

Delineating the Study Area

Defining an indirect effects study area is not an exact science. Specific project components, including its scope, context, and location are all part of determining an appropriate study area. It can also depend on whether there are other transportation projects occurring in the area.

Arbitrarily determining a study area to a particular distance from the project Right-of-Way (ROW) is not recommended (e.g. ¼ mile from the ROW, ½ mile from the interchange); unless it can be shown that the particular study area is appropriate for the particular project. Be cautious about adding a significantly larger area because the potential indirect effects become less clear the further out from the actual project. That being said, a project that has regional implications may require a broader examination to determine regional effects. See Appendix C for examples of ways to determine study area.

A Comment on Models. Are there projects that may warrant a computerized model in the indirect effects analysis process?

It is possible; however, the Study Team should be certain that a decision to include a computerized model in the analysis is based on sound reasoning, rather than a response to a stakeholder group’s desire for statistical data and that use of the model will add to the analysis, rather than be the center of the discussion.

The Study Area should be delineated on a location map and placed in the document, so it is clear what area is included in the analysis.

Summary of Step 1. Project scoping for indirect effects should occur as early in the project as possible. The various tools chosen and overall approach to analyze indirect effects should consider the project scope (especially items from pre-screening), its purpose and need, the local planning context, and the environmental context. Coordination with stakeholders, participating and cooperating agencies on the scoping

¹⁷ WisDOT sponsored a Peer Exchange with state DOTs on indirect and cumulative effects in 2005.

and selecting of the analysis methodology is critical to the process and is required under SAFETEA-LU for EIS projects (and potentially some EA projects). By making an early determination of the approach needed to analyze indirect effects, the Study Team can avoid conflicts over methodology later in the process.

STEP 2: INVENTORY THE STUDY AREA AND NOTABLE FEATURES.

The objective of this step is to collect data/information regarding the study area, population and demographic trends; the communities' plans (especially for future development); the regulatory framework for that growth (e.g. zoning and other ordinances); environmental resources in the study area; and other pertinent location-specific information.

Much of the data and information the Study Team will need for the Study Team's analysis will be found in other sections of the environmental document. However, it is important to remember that the study area identified in Step 1 above is generally a larger area than that of the project area identified in the direct impacts analysis. The Study Team will need to account for the difference in areas in the inventory.

Inventory the Study Area

The major items that should be collected in Step Two include:

1. Local and regional trend data. This includes historic and current demographic data. It is important to especially understand changes in population and household growth. Population data, including population projections, can be obtained online from the [Wisconsin Department of Administration](#). Population projections provide an understanding of the anticipated population growth without consideration of future transportation improvements. Existing land use data and future land use projections and plans are critical in understanding the study area's direction for development. A map should be provided for the existing land uses and future planned land uses in the study area.
2. Local (town, village, city and county), Regional, and State Plans. Examples of local plans include: land use plans, master plans, neighborhood plans, comprehensive plans (under s. 66.1001, Wis. Stats.), economic development plans, farmland preservation plans, and park and open space plans. WisDOT maintains a [local comprehensive plan database](#). Regional plans may include highway corridor plans, regional planning commission's regional comprehensive plans, Metropolitan Planning Organization Transportation and Land Use plans, special area studies and environmental corridor plans. Statewide plans include the Wisconsin Department of Natural Resource's [Land Legacy Plan](#) and other more localized/regional natural resource and state park plans. If the plans are outdated by more than 10 years, the likelihood that the local or regional government is utilizing these plans in their decision-making processes is doubtful. The relevance of these plans to the local government is important to document in the analysis in step six.
3. Local Regulations (town, village, city and county). These include: zoning and subdivision ordinances, extraterritorial zoning, official maps, and Tax Incremental Financing (TIF) district information. It is important that the regulations in the study area are examined to understand how land use is regulated. It is also important to understand if plans (above) and regulations are followed or are readily ignored

or quickly revised to accommodate any new development proposal. If a local government has limited regulatory provisions, it is important to identify this in the analysis of the regulation in step six.

4. **Other information.** There may be maps, data or information that participating and cooperating agencies and other stakeholders may provide that could help to better understand the study area in context to indirect effects potential. Ask during scoping if agencies and other persons may have plans, data or information relevant to indirect effects analysis. There are certainly additional data or information resources that can be discovered along the way through the public involvement process that could add to the discussion. For rural areas, collecting information on farmland and agricultural land including trends for conversion are often informative to the analysis. The Wisconsin Department of Revenue has data on farmland conversions by county.

In this portion of Step 2, the Study Team is collecting base data/information needed for the complete analysis of the project's potential indirect effects. A list of all the information and data is not necessary to be documented in the actual text of the analysis, but needs to be documented in project files (e.g. technical memo) for the record. Documenting the relevance of the data is important and whether the information was used as part of the process or discarded. It is acceptable that some data/information ends up being considered irrelevant, outdated, or simply not meaningful in the analysis. What is most important is that the Study Team documents its consideration of the full range of available information and the missing or outdated information that could have added value to the analysis.

Inventory the Study Area's Notable Features

Part of the inventory of the study area includes identifying specific environmental issues. The environmental issues in this inventory must include the natural, cultural/historic, and socio-economic features, conditions, and/or issues.

Some "notable features" for the indirect effects study area have been gathered in the environmental review process as part of the general project area. However, in the majority of projects, the indirect effects analysis study area (as identified above in Step 1 is a broader area than the general project area. Additional collection of notable features will be necessary. The Study Team should identify what has already been collected in the environmental review process and then determine the additional information the Study Team will need to collect.

Notable environmental features include sensitive natural resource areas such as groundwater recharge areas, wetlands, floodplains, streams, and other water features. Notable features should also include cultural and historic sites, or structures such as park sites, identified structures, etc. Notable features should also include socio-economic issues such as affordable housing, minority populations, and other environmental justice considerations. A quarry or borrow pit can also be a notable feature. The socio-economic information collected for the project area for direct impacts will most likely best match the indirect effects study area, as this information is generally collected for a broader area

The Study Team may need to make (and must then document) assumptions as to the accuracy of the data and also whether plans/regulations are being followed. To ensure

that the Study Team has gathered an appropriate level of information, it will be important for the Study Team to review what was collected through the public participation process and from the participating/cooperating agencies.

Summary of Step 2. This step should result in the collection of maps, data, plans, notable features and other information about the study area. The actual listing or collection should be documented in a technical memo or appendix and briefly outlined in the document, so it is clear that the analysis is based from the data and information collected. Where there is outdated, missing, or limited data, document the specific concerns and provide some context of the importance of the missing or limited data.

The listing of notable environmental features should be included in the document. Engage stakeholders and agencies by providing the listing of the inventory and notable environmental features. Request that participating and cooperating agencies, the public, and other stakeholders provide additional information relevant to the analysis.

STEP 3: IDENTIFY IMPACT CAUSING ACTIVITIES OF THE PROPOSED PROJECT ALTERNATIVES.

The objective of Step 3 is to closely examine the proposed project action and alternatives to identify what, about these actions, could cause potential indirect effects in the study area. Using the project pre-screening worksheet (found in Appendix A) will also provide guidance in identifying the impact causing activities of the proposed alternative(s).

What are the components of the proposed alternative(s) (the transportation project) that may have an identifiable indirect effect(s)? According to FHWA and NCHRP guidance, the types of actions that should be identified include:

- Capacity expansion (new travel thru lanes)
- New Alignment
- Bypass
- Changes in Access (closing or adding access such as a frontage road)
- New or improved interchanges

For the draft EIS, all alternatives should be examined and placed in a descriptive paragraph or table to outline the potential actions that could have an indirect effect of the various alternatives. For the final EIS and EA or ER projects, the preferred alternative should be fully outlined for the project impact causing actions.

Step 3 – An Example (“Identify the Activities”):

Three project alternatives include a controlled access 4-lane bypass around a village with one interchange, a “through town” option in the village that includes 2 to 4 lane widening throughout the project, and a no build option.

Identify the “Impact Causing Activities” (abbreviated here in the example)

The bypass is a new alignment, located in a more rural area. Access will be limited, except at the new interchange. Construction impacts include purchase of ROW, removal of houses, loss of some farmland and wetlands. Could attract new development at the interchange location, could change current development patterns to locate nearer to bypass, and could improve regional travel time. New quarry or borrow pit would be anticipated.

The “through town” option would remove on street parking, and change access, disrupt business during construction. Could change land uses in downtown, could provide for redevelopment opportunities, and could harm business from lack of parking on street level.

No build option—Option would create safety and congestion issues along the corridor if nothing is done based on modeling and other information. Could limit economic development for the community.

Summary of Step 3. This step should result in a description in the environmental document of each alternative’s actions/activities, including the “no build” alternative for an EIS that could result in indirect effects. For EA and ER projects, the description should include the proposed project conditions and the pre-project construction conditions (“no build” scenario).

Step 3 and Step 4 (below) are closely related and may be analyzed together. They are identified as separate steps in this guidance for the purposes of insuring that the issues are adequately addressed. During Steps 3 (and 4), the process may include a group activity to engage a project’s advisory committee(s) if established, participating agencies¹⁸ and/or the general public to identify activities may potentially cause indirect effects. The examination may also include to what extent there is certainty and to what degree that the project can be identified as the cause of specific indirect effects.

STEP 4: IDENTIFY THE POTENTIALLY SIGNIFICANT INDIRECT EFFECTS.

Now that the activities causing the indirect effects have been identified, it is time to identify the effects themselves. This step is designed to identify indirect effects for each project alternative (EIS) including the extent the project’s actions will potentially cause indirect effects. Having an understanding of the cause and effect relationship is necessary to determine the level of significance of the indirect effects of the project.

Using Step 3’s listing of impact-causing activities from the various project alternatives, the Study Team will compare this list of “causes” to a list of “effects” resulting from those causes. One way to accomplish Step 4 is to use a table with a brief description for each alternative being considered in the draft EIS. NCHRP’s Report 466 suggests using a decision-tree tool to address the importance of the effect and whether further analysis in Step 5 is warranted.¹⁹ This step is best described by providing an example. See box below.

¹⁸ Participating agencies include: state/federal agencies, local governments, tribal governments

¹⁹ See pages 68 – 69 of the Report 466.

In the particular example, identify whether there are notable environmental features near the interchange area that could be affected by the new development. Using the interchange addition example, the discussion should include both positive effects (such as economic development opportunities) and/or negative effects (such as impacts to wetlands in the areas of new development) to the environment.

Step 4 – Example (Identify the Indirect Effects associated with Step 3):

Three project alternatives include a bypass, a through the village widening, and no build option. The potential impact “causing” activities of the alternatives were described in Step 3. Step 4 is to outline the potentially significant effects resulting from these causes.

The draft EIS document, for Step 4, should describe the alternatives, findings of Step 3 in relation to the potential indirect effects including the possibility for land use changes, shifts in development patterns, changes in travel patterns, access changes, potential for the interchange area to develop, and other potential future trends such as those based on local plans.

Identify the “Potentially Significant Indirect Effects” (abbreviated here in the example)

Bypass Alternative (new development at the interchange location). EFFECTS: change current development patterns to locate nearer to bypass, new gravel pit, and improve regional travel time. Consistency/inconsistency with local plans, zoning.

“Through town” Alternative. EFFECTS: Could change land uses in downtown, could provide for redevelopment opportunities, and could harm business from lack of parking on street level. Consistency/inconsistency with local plans, zoning.

No Build Alternative. EFFECTS: May limit economic development for the community or region. Could harm existing businesses in downtown. Also, consider consistency/inconsistency with local plans and zoning.

There may be a need to revisit these steps as more discovery and public involvement is conducted. The Study Team will recall and refer to the study area’s trend data/plans/other information and the notable environmental features collected in Step 2.

A “Value Neutral” Approach

When describing “significance” and “effects,” it is important to remain “value neutral” in discussing future land use changes – this means, avoid discussing development as either “good” or “bad” or placing “values” on development issues. Often, local governments desire economic development, which often means population growth and planned (or unplanned) development of land. They view development very positively. Agencies may view these same types of changes as a threat to natural resources in the study area and/or regionally. What does this mean for the analysis and documentation? Certainly potential wetland loss resulting from improperly planned development is a negative indirect effect and should be documented as such. However, it is important to document these different perspectives and values that are shared with the Study Team. Focus on the discussion in terms of both the benefits and possible negative environmental effects if the development is not well planned.

Public Participation

As noted in Step 3 there may be public participation activities or other tools employed within the analysis process that will help to clarify this step. These activities will help foster a better understanding of what is perceived about the project actions in respect to land use changes. In particular, you may wish to use this as a check-in point. Is the

Study Team on the right track in its analysis? Have you overlooked any information that would help in the analysis of indirect effects?

Summary of Step 4. This step is designed to identify indirect effects for each project alternative (EIS) including the extent the project's actions will potentially cause indirect effects. This step should result in a list or description that compares the project activities from Step 3 to the potential for indirect effects noted in Step 4. This description is then further analyzed in Step 5.

STEP 5: ANALYZE INDIRECT EFFECTS, DESCRIBE THEIR SIGNIFICANCE FOR THE PROJECT ALTERNATIVE(S) AND EVALUATE ASSUMPTIONS.

Step 5 is officially considered the analysis step; however, as noted, the Study Team will begin to conduct the analysis within Steps 3 and 4. In the above example in Step 4, the Study Team may have indicated that the development near the proposed interchange is supported by local plans. However, the step also revealed that the location of the development near the interchange might cause negative environmental effects to wetlands nearby.

In this analysis step, you will describe and summarize the cause and effect relationship in the document analyzing the extent to which the development could cause negative environmental damage. For example, what is the significance of this negative effect on potential wetland loss in the study area? Is the wetland a high quality wetland? Is stormwater management a concern?

Revisit Assumptions

The Study Team may also have made a set of assumptions in Steps 1-4, including the adequacy of a specific study area, the accuracy of data, impact causing activities and the potential effects. This is the appropriate time to determine if the assumptions are valid or have a certain degree of uncertainty that cannot be overcome. For example, if a community indicates a desire to remain a rural community in its plan, however it has been approving developments, you may have to make the assumption that the local government intends to continue the pattern regardless of the plan. This may lead the Study Team in the analysis to show that indirect effects are more likely to occur because of the growth desires of the local government. Document these assumptions where made, where the Study Team attempted to validate the assumptions, and if possible, document whether support for them is based on various information sources or patterns.

Within Step 5 is a good time to engage the public and agencies in the Study Team's initial findings. The public participation efforts help to solidify or point out concerns of the direction of the Study Team. If there are issues with the analysis results from Steps 3-5, it is better to know upfront when the opportunity to revisit the issues can be done in a timelier manner.

Once the Preferred Alternative is Selected

For draft EIS documents, all alternatives should have a basic review of the various potential causes and effects. When a preferred alternative is selected, greater analysis and focus should be included in Step 5 for the alternative. Steps 3 and 4 should be revisited and refined for the preferred alternative, comparing it with the "No build"

alternative including discussion of mitigation activities in Step 6. Comparing the “no build” alternative to the preferred alternative in the analysis also provides a view of indirect effects that would only occur “but for the project.” In other words, if there were no project, what is the likelihood that certain changes to land use (types, patterns, density, location, etc.) would occur?

Summary of Step 5: Step 5 takes into account the “cause and effect” relationship and analyzes the likelihood that indirect effects could occur based on the relationship in the various alternatives. The end product of Step 5 will help to determine whether the identified effects in Step 4 are reasonably foreseeable, and determine the potential for negative impacts on the environment. Revisiting assumptions is very important. One key way to accomplish this, while also assessing your analysis is to include public participation opportunities.

The document should provide a summary of Steps 3, 4 and 5. While Steps 3, 4 and 5 are interrelated; the important point is that all the components of these steps were conducted and documented appropriately. Use the project file and/or appendix for technical memos, and other information that may have been gathered for this step.

STEP 6: ASSESS CONSEQUENCES AND IDENTIFY MITIGATION ACTIVITIES.

The objective of Step 6 is to examine the results of Step 5 and identify strategies, including mitigation activities, to avoid or minimize undesirable indirect effects.

Land use is controlled in Wisconsin through local government planning and zoning regulations. While a WisDOT transportation project may be found to have indirect effects for land use through this analysis process, development that may occur as a result of the project’s indirect effects is not controlled or regulated by US DOT or WisDOT.

Wisconsin’s local governments control land use decision-making. Under state statutes, local governments have the authority to develop comprehensive plans, adopt an official map, adopt zoning and land division regulations including subdivision regulations. Wisconsin’s local governments may approve/deny the development and can place conditions or provisions to avoid negative effects potentially resulting from development to the natural, cultural, historic or socio-economic conditions of the area. As such, land use changes are the ultimate responsibility of the local governments.

Assess Consequences

Through the previous steps in the analysis, you will have developed an understanding of the area’s conditions and the various project influences that are potentially associated with project alternatives. This step assesses environmental consequences of the project alternative’s indirect effects, based on the analysis of the indirect effects found in Steps 3-5.

There may also be varying degrees of indirect effects. In addition, many indirect effects and the possible resultant environmental consequences are not under the control of WisDOT or FHWA. However, these issues should not be viewed as problematic. The important part of this step is to ensure that you at least document the various consequences. Mitigation through avoidance, minimization or compensatory actions may include activities by WisDOT, FHWA or by others.

Identify Mitigation Activities and Techniques

It is important to identify all the possible mitigation techniques for indirect effects and to provide information to decision-makers, state/federal agencies, local and regional governments and the public about what techniques can be useful and who has authority to impose or implement those mitigation techniques and/or controls. This can be done through the use of a table or matrix outlining the various mitigation activities with the respective agency/stakeholder who has the authority to implement.

Identifying the mitigation techniques that could be used to avoid or minimize potential negative indirect effects can be accomplished by comparing the list of indirect effects and their potential environmental consequences and then identifying tools/techniques/other activities that can be employed. To address these effects/consequences, the listing should also include whether or not the tools are already being employed, and who is responsible for their implementation.

Chapter Five of this guidance document further discusses mitigation issues as it relates to WisDOT and statutory limitations.

Summary of Step 6: This step should result in a discussion about the potential environmental consequences of the project's reasonably foreseeable indirect effects. The document should include a summary of various tools, activities, and actions that WisDOT, FHWA, and others (local governments, counties, state/federal agencies, stakeholder groups, and other private entities) can implement or use to minimize, avoid and/or compensate for negative impacts.

CHAPTER FIVE: MITIGATION AND STATUTORY LIMITATIONS

DEFINITION OF “MITIGATION”

FHWA has defined mitigation to include actions/activities undertaken to **avoid** impacts, **minimize** effects, and **compensate** for impacts where technically and financially feasible.

“Mitigation” is defined in CFR s. 1508.20 to include:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

INDIRECT EFFECTS AND MITIGATION ISSUES

FHWA guidance states that NEPA does not specifically require substantive mitigation for project impacts: direct, indirect or cumulative... However CEQ regulations require that the environmental impact statements include consideration and discussion of *possible* mitigation for project impacts” (40 CFR s. 1502, 1505, 1508) even if FHWA/WisDOT would not be responsible to conduct the mitigation. FHWA guidance notes that the mitigation must be both reasonable and related to project impacts.²⁰ WisDOT has conducted a variety of mitigation activities for a range of project impacts, including indirect effects.

While mitigation is often required for a project’s direct impacts, it is less clear how mitigation for indirect²¹ effects should be addressed, especially if the effects of land development are ultimately the responsibility of others to control. In Wisconsin, land use decision-making is the responsibility of local governments. FHWA’s guidance²² notes that US DOT has a lack of authority to commit Federal funds to the mitigation activities that are not attributable to transportation projects or the actions of others not within our direct control. With that said, finding creative solutions to project mitigation issues is often in the best interests of all parties. Mitigation decisions are a part of a collaborative process. However, FHWA and WisDOT have final determination of the decisions.

FHWA guidance also states that “mitigation includes avoidance and minimization of project impacts first”²³ whereas replacement or compensation is the last of a sequence of consideration that constitute the overall mitigation expectation of the CEQ regulations

²⁰ Reference: “Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process.” FHWA, January 2003.

²¹ This also includes cumulative effects.

²² Reference: “Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process.” FHWA, January 2003.

²³ Ibid.

(s. 1508.20) In all cases, mitigation proposals must be both reasonable and related to project impacts.

In the environmental review process, the analysis of indirect effects might not lead to agreement with interested parties on the results. It is critical that WisDOT address and document the potential impacts and mitigation issues within the environmental document including stakeholder concerns. The discussion of mitigation for identified indirect effects should include the various tools and methods that could or will be used by WisDOT, other state/federal agencies, local governments and other entities to mitigate (avoid, minimize and/or compensate) for project's negative indirect effects/impacts.

INDIRECT EFFECTS AND MITIGATION TECHNIQUES

Each transportation project and project area is unique. Therefore, each mitigation package needs to be considered individually. Where mitigation activities may be appropriate in one project, the same activities may not be appropriate in another.

Stakeholders, agencies and other interest often use the term “mitigation” to mean compensation or purchase of land (e.g. wetland mitigation/banking). However, the term should be used in a broader context, consistent with the CEQ guidance, when referencing various strategies and activities to address the impacts of indirect effects. Additionally mitigation responsibilities for indirect effects are based on the distinction between the activities that area within the control of the project sponsors (WisDOT and FHWA) and those that are outside the control of the department and FHWA as discussed in the previous section.

Generally, WisDOT has control of the following activities:

- The design and location of the project, including access and community sensitive design, borrow pits;
- The project's construction activities including the modification of land, land transformation and construction, land alteration and resource extraction; AND,
- How the project ROW will be used and maintained, for example traffic and traffic related effects, landscaping, maintenance practices, chemical de-icing, etc.

These activities must be considered to avoid and/or minimize project impacts, ultimately weighing the various alternatives against their potential effects. When avoidance and/or minimization of adverse effects to resources are not possible through these activities, other strategies will need to be considered. Because indirect effects involve the actions of other entities (e.g. local governments) beyond WisDOT control, mitigation options are less straightforward than for direct impacts, such as wetland losses.

Wisconsin's local governments make land use decisions including the location, design and density of development. Local governments also have authority to approve or disapprove development proposals if they are inconsistent with local goals, plans, ordinances, surrounding land uses, etc. WisDOT has no control over the land use decisions made by local governments, which may in turn negatively affect natural, historic, cultural and/or socio-economic resources. That being said, WisDOT's proposed action may contribute to added development pressure that local governments will face in the future.

WisDOT can offer to assist and participate in various activities, especially in cooperation with local governments, to reduce the potential for negative effects. Examples of these activities include:

- Access management activities and implementation of statutory access controls.
- Corridor planning activities that address both land use and transportation issues along a highway corridor and near existing, redesigned, or new interchanges and new access points.
- Local planning assistance, including staff and financial assistance for the development/revision of the transportation/land use components of local plans, subdivision ordinances.
- Educational activities to assist area governments to have a better understanding of growth management tools and techniques such as forums, workshops, and panel discussions.
- Other tools and activities that may not be listed here.

LAND PURCHASE AND/OR BANKING AS MITIGATION FOR INDIRECT EFFECTS

WisDOT has been requested to contribute transportation funds to land banking programs and transfer/purchase of development rights programs for the purchase of farmland, natural resource or other sensitive areas as mitigation for a project that has the potential for negative indirect effects. Although WisDOT has contributed funds in this manner in past projects, it is currently not a legally feasible mitigation activity according to Wisconsin State Statutes, s. 86.255.

Wisconsin State Statutes

In 1999, the State Legislature prohibited WisDOT from spending any moneys from the highway program, “for the purposes related to the purchase of land, easements, or development rights in land, *unless* the land or interest in land is purchased in association with a highway projects and the land or interest in land is located within one-quarter mile of the highway.” (Wis. Statutes, s. 86.255(1))

The statutes provide a specific exemption to allow WisDOT to spend highway money for “the purchase of any land that is acquired as compensatory mitigation for another wetland... that will suffer an adverse impact by degradation or destruction as part of the highway project.”(Wis. Statutes, s. 86.255(2))

As a practical and legal matter, WisDOT lacks expenditure authority outside the highway program to undertake compensatory mitigation activities for indirect effects. In short, WisDOT cannot consider land purchase or land banking in the mitigation package funded through Wisconsin’s transportation funds. Additionally, WisDOT cannot lawfully transfer money to another local government, state or federal agency to undertake such an activity.

There may be special circumstances in which indirect effects may be identified for certain affected properties within one-quarter mile of a highway project. These cases, while rare, need to be specifically connected to the transportation project, and not based on speculative development potential. FHWA, WisDOT BTS and Office of General Counsel staff must be consulted before any consideration is given to purchase property

in these circumstances in order to ensure adherence to state and federal laws and department policy.

DOCUMENTING MITIGATION ACTIVITIES CONDUCTED BY OTHER GROUPS/AGENCIES

In Wisconsin, the most effective way to reduce the potential of adverse effects to natural, cultural, historic, or population resources from land use changes is through preventative measures. The best prevention is through the application of local development tools such as zoning, subdivision/land division ordinances, comprehensive plans and official maps.

It is important to thoroughly discuss within the indirect effects analysis documentation all the possible mitigation activities that could be conducted to address potential negative indirect effects and the primary responsible entity, whether it is WisDOT, another state agency, local governments, or private entities. Examples of mitigation activities that other agencies could conduct include land preservation activities through the Stewardship Program (Wisconsin DNR), sewer service area planning/approvals (DNR/local government entity), and local land banking programs.

The discussion should also include the “likelihood” of their implementation, even though WisDOT is not responsible for the activities. This serves the purpose of disclosing as much information as possible so other decision-makers have information needed to make the best decisions possible.

See Step 6 in Chapter 4 for more information on documenting mitigation activities.

CHAPTER SIX: IMPORTANT DOCUMENTATION FOR INDIRECT EFFECTS

In addition to the items discussed in the Six-Step process, below is reminder list of additional information that should be included in the environmental document. Technical memos and information that should be included in the project record are important to keep track of as well. The environmental document should provide enough documentation to adequately provide decision-makers with the information they need to make informed decisions. For all document types, include these basic items:

1. Document study area and why it was selected.
2. Document the approach and the tools employed in the indirect effects analysis.
3. Document the data, plans and other relevant information collected.
4. Document notable features and what sources of information were used to determine the features.
5. Document the public participation process for the analysis. Include meetings with individuals, meetings with technical and citizen advisory committees (where applicable), specific meetings with participating and cooperating agencies.
6. Indicate the information received through the public participation process and include where relevant, its use in the analysis for determining indirect effects.
7. Outline the analysis findings and make sure to provide statements succinctly. Avoid “blanket” and far reaching statements unless the Study Team can provide substantive data and information to support such statements.

“The environmental document may also provide a basis for other decision makers, such as local officials, to understand the related and potential results of one alternative over another and take appropriate action to achieve environmentally desirable outcomes.”
(FHWA “Questions & Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process.” January 2003.)

EIS Documents

You have some flexibility in how to place the analysis in the EIS document. The draft EIS document should outline the steps of the analysis for indirect effects for each alternative. If a build alternative is selected as the preferred alternative, a more extensive, comparative analysis of the preferred alternative and the “no-build” option is important to document in the final EIS.

While it is important to be careful that the documentation for the EIS is concise, attempting to shorten the documentation for this issue is not recommended to save report size. That being said, while the full report doesn’t need to be published in the document, it is critical that a full, complete report is written and be made available. This can be accomplished either by including it as a document appendix or a stand-alone report that is published and can be easily obtained by the general public.

EA Documents

For EA documents reference the indirect effects analysis within the context of the factor sheets and indicate where the technical memo/report of the complete analysis can be found in the document. This is best accomplished by including the analysis as part of the appendices.

CHAPTER SEVEN: BEST PRACTICES

There are plenty of good examples of well-intended approaches, but sometimes the most basic issues become overlooked. And, despite your best efforts, sometimes the issues surrounding indirect effects becomes quite contentious. The best practices listed below are simply a list of the consistent messages that come from WisDOT's project experiences.

Ask for assistance—there are people who can help you.

You are encouraged to ask for help. Indirect effects and the issues associated with the development of the analysis can be one of the project's most difficult and sometimes controversial issues to address. There are people and resources in WisDOT available to help your Study Team, especially if an impasse appears eminent. Chapter Eight of this guidance document provides additional information. Do make those contacts and take advantage of the assistance that is in the department.

Remember that the analysis process can be iterative.

The step-by-step approach can be iterative. This means that the Study Team may reach one of the steps and discover that more information is needed. The Study Team may find through public involvement or applying one of the tools that the Study Team's assumptions were incorrect, leading the Study Team down a different path. While frustrating, this can represent the nature of an analysis in that it includes many issues to consider and diverse values that often permeate the discussion.

Maintain a value neutral approach.

Development in the minds of various persons, agencies or stakeholder groups can be good, bad, or considered inevitable. The Study Team are not being asked to judge the values of others; however the Study Team needs to document the variety of opinions, and reasons for those opinions in the analysis, addressing both the negative and positive aspects of development.

Many environmental impacts such as wetland losses are considered negative – addressing the possibility for negative environmental impacts is done through the analysis. However a judgment call on the value of the development itself is not necessary.

Communicate with and seek input from the public, stakeholders and participating/coordinating agencies.

If the project has the potential for indirect effects, it is important to document them. But, it is also important to discuss this with agencies and stakeholders. Be direct. While land use decisions are made at the local level, WisDOT has an obligation to discuss what the potential is for indirect effects and what activities could avoid and/or minimize the effects.

Acknowledging this potential will not harm the process. In fact, it is essential to communicate in order to avoid issues that can arise when not diligently addressing the

project's indirect effects. While there are limitations to mitigation activities, there are activities that WisDOT and FHWA can do (and have done in past projects) to avoid or minimize the negative effects.

Be sure to have knowledgeable experts to develop this analysis.

Consultants are often tasked with the indirect effects analysis effort. While there are some consultants that have had past experience with the issue, others have very limited knowledge of the issues, NEPA requirements or a basic analysis process. This lack of expertise can cause the Study Team delays and possible conflicts with agencies/stakeholders or the public. More time is then wasted at the end of the process to repair a broken effort, when that time would have been more efficiently spent within the actual process.

CHAPTER EIGHT: WISDOT ASSISTANCE & OTHER RESOURCES

WisDOT RESOURCES

WisDOT's Region Environmental Coordinator is the primary contact for questions related to the environmental review process. For general questions, contact the BTS environmental liaison and the Region Environmental Coordinator.

For questions on indirect effects analysis, this guidance, the FDM, and/or other related issues such as indirect effects pre-screening, analysis approaches and mitigation issues, we strongly encourage the Study Team to contact the BTS or Janet Nodorft, 608-267-7360 janet.nodorft@dot.wi.gov

RESOURCES (SORTED BY RELEVANCE)²⁴

Desk Reference for Estimating Indirect Effects of Proposed Transportation Projects, Report 466, NCHRP. 2002. http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_466.pdf

Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process. FHWA. January 2003.

This document contains some of the most clear federal guidance on both indirect and cumulative effects analysis: www.environment.fhwa.dot.gov/projdev/qaimpact.asp

"Draft Baseline Report." Indirect and Cumulative Impacts Workgroup from Executive Order #13274, U.S. DOT. March 2005.

The report describes existing legal requirements, practices, challenges, opportunities to improve the analysis of indirect and cumulative impacts and interagency agreement on these issues. www.dot.gov/execorder/13274/workgroups/icireport.htm

Position Paper: Secondary and Cumulative Impact Assessment In the Highway Project Development Process. 1992. FHWA.

The paper (although dated) provides a basic orientation to the subject and suggests a decision-making framework of 8 general concepts for incorporating secondary (indirect) and cumulative impact considerations into the highway project development process. www.fhwa.dot.gov/environment/guidebook/index.htm.

ADDITIONAL WEB RESOURCES

FHWA's Environmental Guidebook—Indirect and Cumulative Impacts (Site contains multiple documents.) www.environment.fhwa.dot.gov/guidebook/Results.asp

²⁴ These resources were also primarily utilized in developing this guidance document.

AASHTO's Center for the Environment Website: Secondary/Indirect and Cumulative Impacts [Center for Environmental Excellence by AASHTO](#)

STATE GUIDANCE (SORTED ALPHABETICALLY)

California: "Guidance for Preparers of Growth-Related Indirect Impacts Analysis." [CalTRANS Guidance for Indirect Impact Analyses](#)

Maryland: "Secondary and Cumulative Effects Analysis Guidelines." June 2000. [Maryland Guidelines.rtf](#)

North Carolina: "Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in NC—A Practitioner's Handbook" [North Carolina ICI Guidance Volume2.pdf](#)

Oregon: ODOT's Guidebook for Evaluating Indirect Land Use and Growth Impacts of Highway Improvements <http://ntl.bts.gov/sec508/guidebook.pdf>

OTHER SELECTED REFERENCES (SORTED BY RELEVANCE)

FHWA's SAFETEA-LU Website including a Toolkit: [FHWA | Environmental Review Toolkit | Streamlining and Stewardship | SAFETEA-LU](#)

FHWA's Final Guidance on SAFETEA-LU Section 6002 Environmental Review Provisions. November 15, 2006. (For public participation and the coordination plan see questions #47-57.) www.fhwa.dot.gov/hep/section6002/

Guide to Public Involvement techniques for Transportation Decision-Making, FHWA. 2002, 256 pages www.planning.dot.gov/Pitool/toc.asp

"Projecting Land-Use Change: A Summary of Models for Assessing the Effects of Community Growth and Change on Land-Use Patterns." U.S. EPA, 2000. www.epa.gov/ecocommunity/tools.htm

"The Use of Expert Panels in Analyzing Transportation and Land Use Alternatives." Transportation Research Board, National Research Council. FHWA National Cooperative Highway Research Program. [http://nepa.fhwa.dot.gov/ReNEPA/ReNepa.nsf/All+Documents/CCECF4D789DB510E85256CE6006142A0/\\$FILE/use_of_expert_panels.pdf](http://nepa.fhwa.dot.gov/ReNEPA/ReNepa.nsf/All+Documents/CCECF4D789DB510E85256CE6006142A0/$FILE/use_of_expert_panels.pdf)

"Land Use Impacts of Transportation: A Guidebook." NCHRP Report 423A. Prepared for FHWA National Cooperative Highway Research Program, 1999. www.nationalacademies.org/trb/bookstore

"Guidebook for Assessing the Social and Economic Effects of Transportation Projects." NCHRP Report 456. Prepared for FHWA National Cooperative Highway Research Program, 2001. www4.trb.org/trb/crp.nsf/All+Projects/NCHRP+25-19

"Issues in NEPA Litigation." William M. Cohen, Adjunct Professor and Consultant, Washington College of Law, American University, Washington, DC. www.naep.org/NEPAWG/NEPA_Issues_1.html

"Our Built and Natural Environments: A Technical Review of the Interactions between Land Use, Transportation, and Environmental Quality." U.S. EPA, 2000. www.smartgrowth.org/library/built.html

Toolbox for Regional Policy Analysis Website. Federal Highway Administration and Federal Transit Administration. www.fhwa.dot.gov/planning/toolbox/index.htm

TRAINING

Wisconsin Department of Transportation Training: “Introduction to Indirect Effects Analysis and Cumulative Effects of Projects.”

Sponsored by BTS-DTSD this workshop provides an overview of both indirect and cumulative effects analyses methodologies and is provided free of charge to a requesting regional office. A more extensive intermediate course is also available. Contact your training coordinator and BTS for further information.

FHWA Resource Center Training: “Indirect and Cumulative Impacts Workshop”

This training is a one and a half to two day workshop that can be catered to the state's specific needs. It provides an overview of both indirect and cumulative impacts, NEPA requirements and analysis methodology
<http://www.fhwa.dot.gov/resourcecenter/teams/environment/courses.cfm#bb>

APPENDIX A: WisDOT's Pre-Screening Worksheet for EA and ER Projects For Determining the Need to Conduct a *Detailed* Indirect Effects Analysis

Prepared by Environmental Documents Section
Bureau of Technical Services
Division of Transportation System Development
Wisconsin Department of Transportation

NEPA requires the assessment of indirect effects of all projects under CEQ regulations. **All EIS documents require a detailed indirect effects analysis.** However, not all, non-EIS environmental reviews for transportation projects will warrant a *detailed analysis* of indirect effects. This pre-screening guidance will assist the Study Team in determining whether a more detailed analysis is necessary in order to comply with NEPA requirements. Refer to the complete indirect effects analysis guidance document and FDM (chapter 25-5-17) for further information.

This prescreening worksheet may be helpful in scoping for the analysis. If the Study Team is uncertain what level of analysis the project will need, do not make an assumption that the project doesn't require the analysis. Contact the Region Environmental Coordinator for more assistance.

The factors listed below are not in any order of importance. Each EA and ER project needs to be examined individually to understand whether a particular factor or combination factors requires detailed analysis for indirect effects.

Factors to Consider

1. Project Design Concepts and Scope
2. Project Purpose and Need
3. Project Type (Categorical Exclusions, etc.)
4. Facility Function (Current and Planned—principal arterial, rural arterial, etc.)
5. Project Location
6. Improved Travel Times to an Area
7. Local Land Use and Planning Considerations
8. Population and Demographic Considerations
9. Rate of Urbanization
10. Public Concerns

1. Project Design Concepts and Scope

Do the project design concepts include any one of the following?

- Additional thru travel lanes (expansion)
- New alignment
- New and/or improved interchanges and access
- Bypass alternatives

2. Project Purpose and Need

Does the project purpose and need include:

- Economic development –in part or full (i.e. improved access to a planned industrial park, new interchange for a new warehouse operation).

3. Project Type

- What is the project document “type”?
- EIS project—a detailed indirect effects analysis is warranted.
- Many EAs will require a detailed indirect effects analysis however, it also depends on the project design concepts and other factors noted here.
- If a Categorical Exclusion applies, a detailed assessment is not generally warranted, however documentation must be provided that addresses this determination including basic sheet information.

4. Facility Function

What is the primary function of the existing facility? What is the proposed facility?

- Urban arterial
- Rural arterial

5. Project Location (Location can be a combination.)

- Urban (within an Metropolitan Planning Area)
- Suburban (part of larger metropolitan/regional area, may or may not be part of a metropolitan planning area)
- Small community (population under 5000)
- Rural with scattered development
- Rural, primarily farming/agricultural area

6. Improved travel times to an area or region

- Will the proposed project provide an improvement of 5 or more minutes? (Based on research, improvements in travel time can impact the attractiveness of an area for new development.)

7. Land Use and Planning

- What are the existing land use types in project area?
- What do the local plans, neighborhood plans, and regional plans, indicate for future changes in land use?
- What types of permitted uses are indicated in the local zoning?
- Would the project potentially conflict with plans in the project area? (e.g., capacity expansion in areas in which agricultural preservation is important to local government(s)?)

8. Population/Demographic Changes

- Have the population changes over past 5, 10 and 20 years been high, medium, low growth rate vs. state average over same period? (i.e. USDA defines high growth in rural areas as greater than annual population growth of 1.4 %.)
- What are the projections for the future for population? (Use Wisconsin DOA projections.)
- Have there been considerable changes for population demographics and employment over the past 10 – 20 or more years?

9. Rate of Urbanization

- Does the project study area contain proposed new developments?

- What are the main changes in developed area vs. undeveloped areas over the past 5, 10 and 20 years?
- Have there been significant conversions of agricultural land uses to other land use types, such as residential or industrial?

10. Public, State and/or Federal Agency Concerns

- Have local officials, federal and/or state agencies, property owners, stakeholders or others raised concerns related to potential indirect effects from the project? (e.g., land use changes, “sprawl”, increase traffic, loss of farmland, etc.)

11. Conclusion

Identify whether or not the results of this prescreening of potential indirect effects indicates a detailed indirect effects analysis is required.

- a. No – Through screening analysis using WisDOT’s pre-screening for indirect effects procedure and FDM guidance on indirect effects, it is concluded that the factors of the project, its location and other conditions do not warrant further detailed analysis of the potential for indirect effects. The project will not have the likelihood to result in *significant* indirect effects as defined by NEPA. This conclusion was based on the evaluation of [the preceding](#) 10 pre-screening factors including project design concepts and scope; project purpose and need; project type; facility function (current and planned); project location; improved travel times to an area; local land use and planning considerations; population and demographic considerations; rate of urbanization; and public/agency concerns. Therefore, further evaluation of indirect effects in a detailed analysis is not warranted. If changes are made to the project design and alternatives, this screening will be re-examined for sufficiency.
- b. Yes – Through screening analysis using WisDOT’s pre-screening for indirect effects procedure and FDM guidance on indirect effects, it is concluded that the factors of the project, its location and other conditions warrant further detailed analysis of the potential for indirect effects.

Documenting Prescreening

The results of prescreening require documentation both in the project file and within the document itself. In the documentation, it is important to include various data sources used and summarize the rationale for determining level of analysis required.

Some projects, especially EAs may need additional analysis, but will not reach the level required in an EIS project. The analysis should be catered to the level of project indirect impacts anticipated.

If the Study Team is uncertain what level of analysis the project will need or if the results of the screening are appropriate, the Study Team should not make an assumption. Contact the region environmental coordinator for more assistance.

APPENDIX B: Indirect Effects Analysis Tools

The step-by-step approach described in this guidance for analyzing indirect effects of a project will most likely require that several analysis tools and various committees be employed in the process. Various tools described below can be used in combination with each other, or alone as part of the overall process. Different projects may also employ these techniques at different times throughout the analysis process. WisDOT has experience in utilizing all the tools, and has found success with each of them when employed correctly in the process.

Whatever set of tools are employed in the analysis the important point is that the tool(s) will assist in the analysis to determine the potential for indirect effects. According to SAFETEA-LU, project methodologies, including the indirect effects analysis methodology, must be discussed early in the process with participating and cooperating agencies as well as the public. Ultimate deference is given to WisDOT and FHWA's decision on the approach taken; however, a consensus-generated approach will help in the overall effort.

Tools/Techniques Commonly Used in Indirect Effects Analysis Process

Public Involvement Materials
Focus Group
Delphi
Interviews
Expert Panel

Workshop
Coordination Meetings
Scenario Writing
Trend Extrapolation

Committee Types Commonly Used in the Indirect Effects Analysis Process

Technical Advisory
 Committee Citizen Advisory
 Committee Expert Panel

For many of the public participation tools listed, especially *Technical and Citizen Advisory Committees*, the tools can be used to achieve various degrees or “levels” of input. A clear understanding of the role of a Stakeholder Group or Advisory Committee and their influence must be determined at the outset of the process. Stakeholder Groups and Advisory Committees must also be informed of this role/level of influence. These groups/committees are more effective at a "collaborative" level, because there is a natural tendency for participants to believe their role to be at that level. If a lower level of public input is desired, cater your group/committee's role to outline as such. Advisory Committees cannot substitute for broader public input.

The below table includes a wide assortment of public participation tools, a brief description and when and/or how to use the tool. Some of these tools are more commonly used in a broader project level context, rather than specifically for the indirect effects analysis. The yellow highlighted rows are the tools more commonly used specifically within the indirect effects analysis process.

These tools are generally used to inform, promote awareness and educate

Public Participation Tools	Brief Description	When/How to use the Tool
Public involvement materials	Materials designed to provide information on plans projects and other activities	To inform, to reach people that may not provide comments; to ensure certain material is shared.
Handouts, Fact Sheets	Written material provided at meetings	To inform, to reach people that may not provide comments, to ensure certain material is shared
Newsletters	Written material generally provided through a mailing on a regular interval	To inform, to reach people that may not provide comments, to ensure certain material is shared
Maps/posters	Graphic material that is used in a variety of venues to offer visual understanding of a project	To inform, to reach people that may not provide comments, to ensure certain material is shared
Information kiosks, event booths	Station or booth that provides current planning or project information	To provide info where there is a high level of public interest; to improve understanding of the information.
News Releases	Written, concise material designed for the press, highlighting a particular issue, project or other information	To inform, to announce certain specific information such as hearings, meetings

Open Houses	Forum to provide project information	To improve understanding of the project
Public Hearings	Formal testimony taken on specific projects, plans and activities	To meet legal requirements, to allow public opportunity for input, to allow public to express concerns or issues.
Telephone Hotlines	Provides information on a project and can be used to submit questions or comments	To support large/complex projects; to provide information
Mailing lists	A list of persons that have either been selected or have requested information about a project that the project sponsor sends materials to	To inform, to announce certain specific information such as hearings, meetings
Websites	Computer based information repository. Posted information may include project information, copies of newsletters, fact sheets, handouts, meeting announcements, environmental documents	To allow anyone anywhere to have information on a project. To reach people across broad geographies and inform those that are not at the meetings
Briefings	Presentation to the press or group to raise awareness, answer questions, generate interest	To create awareness and build rapport
Information Contact (central point of contact)	One designated person who serves as a single point of contact for inquiries about a project	To provide reliable access to get information and questions answered
Listserves and email	Computer based to directly contact persons. Listservs provide an opportunity for anyone to subscribe or unsubscribe	Direct way to contact and share info with stakeholders, can be used to announce new info, meetings, etc

These tools are used to consult – seek broad based input and feedback

Focus Groups	Facilitated small group discussion.	To gauge public opinion especially at start of project; to provide opportunity for input; to supplement other PP efforts.
Open Houses with Presentation	Informal forum to provide project information. Consult level includes a brief presentation and opportunity for providing input.	To improve understanding of the project; to receive public input
Public Comments (Comment Forms, other)	Can be in forms, on web pages, or requested.	To receive public input, understand issues.
Public Involvement Meetings	Organized meetings that provide project information with a brief presentation and opportunity for questions from the public.	To meet legal requirements; to allow public opportunity for input; to allow public to express concerns or issues.
Site Tours	Organized visit to a project area.	To provide direct view of issues; to supplement work by same group (e.g. a stakeholder group)
Scientific surveys	Survey administered to a representative sample of people to learn about a larger population.	To understand group preferences; to achieve a baseline understanding to gather trends
Stakeholder Groups	Group meets in two-way discussion about project issues.	To understand group preferences; to achieve a baseline understanding; to provide an opportunity for individuals from otherwise underrepresented groups
Delphi processes	Surveying technique using a designated group of people. Responses are compiled, sent back to people for opportunity to change responses.. Process repeated until changes do not result in significant changes	To provide opportunity (to select group) to develop consent among a group of people without meeting.

Interviews	Specific questions about a project or activity are asked of particular groups or individuals.	To build relations; to learn individual perspectives; to garner ideas/solutions
Expert Panel	Similar to a focus group, invited members of a panel are asked to participate in a facilitated discussion on specific topics related to a project.	To garner input on project issues/alternatives; ; to compare expert opinions to the general public opinion.
Trend Extrapolation	Using a set of data, trends are identified and a group of people are used to extrapolate the trends	To garner input on project issues; to compare trend data and public opinion.
Response summary	Formal documentation that provides feedback to the public regarding comments received and how they are being incorporated.	To comply with legal requirements; to publicly announce and show how all comments were addressed.

These tools are intended to involve the public and foster meaningful discussions

Advisory Committees** (see notation at end of table below)	A group of individuals convened to meet on a regular basis over time to provide advice to a decision maker	To solicit input from diverse perspectives on complex topics over a period of time; to inform; to help the agency to move forward.
Citizen Advisory Committees	Citizens	
Technical Advisory	Experts in some capacity	
Taskforces Teams	Can be a specific group or a variety of persons	
Stakeholders Groups**	Group meets in two-way discussion about project issues. (similar to advisory committees)	To understand group preferences; to achieve a baseline understanding; to provide opportunity for individuals from otherwise underrepresented groups
Workshops (can also be used at a collaborative level)	Public forum where people work in small groups on defined assignments.	To help the public learn through exchange and discovery; to focus participants on providing input that can feed into the decision- making process
Town Meetings	Group meeting format where people come together as equals to share concerns.	To provide an opportunity for people to share opinions at the start of the project
Computer assisted meetings	Meetings that use computer based tools to promote group interaction and problem resolution.	To enable people to use technology to build common ground where all voices are heard.

These tools are used to collaborate and facilitate consensus.

Coordination Meetings	Meetings that call together invited persons to hear current information on a project and determine the responsibilities for certain issues	To inform; to determine responsible parties for various issues; opportunity to provide feedback on project, determine next steps.
Scenario Writing and Charettes	Intense process that brings all essential persons together for a working meeting or series of meetings to generate lists of ideas, scenarios, alternatives, plans or designs for making	To resolve issues; to promote good relations; to generate alternatives or solutions; to facilitate collaboration;

Study circles	Small group process, meet several times to discuss issues where each session builds on the last one. Starts with personal stories, explores opinions, and solutions/actions for change.	To enable multiple groups to work in detail on the same issue; to foster group learning; to explore alternatives.
Appreciative inquiry	Focused on what is "working" right, rather than what the problems are. Process includes selecting topics for inquiry, conducting structured interviews and identifying themes.	To create a shared vision for change and commitment to action; to initiate transformation.

References: International Association for Public Participation; MnDOT's Hear Every Voice; WisDOT FDM

**Advisory Committees and Stakeholder Groups can be used in a variety of levels, including "Involve" and "Collaborative" levels.

APPENDIX C: Delineating a Study Area for Indirect Effects Analysis

The project study area is *the geographic area that may be affected by indirect effects of the transportation project alternative(s)*. Designating the project study area is an important first step in conducting indirect effects analysis. See Chapter 4, Step One in this guidance document for complete information. The below options are suggestions for the techniques considered acceptable in the state of practice. However if another option is used to delineate the study area, it will be very important to document the method and why it was used to form the study area boundary.

Because transportation projects serve different purposes, this guidance does not promote a one-size-fits-all approach to defining the project study area. This appendix further describes several different approaches to defining the project study area and discusses devising a best fit between a study area definition method and a type of project. However, some general principles apply to all methods and projects:

- The final product of this analysis is a map showing the extent of the project study area.
- The project study area for indirect will be larger than the area under study for direct impacts.
- The project study area should be large enough to contain all areas where subsequent analysis may find important impacts.
- Agreement or consensus from participating agencies on the extent of the project study area early in the process is highly desirable.
- It is critical to DOCUMENT the discussion, rationale for the study area method and study area selected.

Options for Identifying the Project Study Area

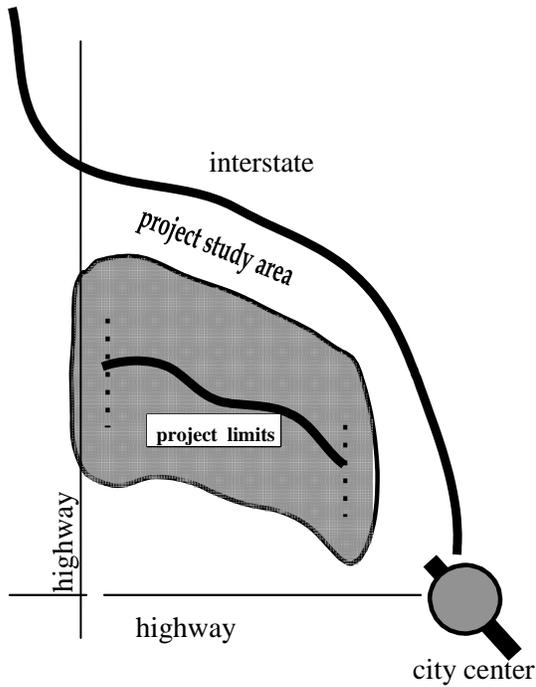
Option 1: Trafficshed (Radial routes to/from attraction)

This option defines the project study area to be the entire area served by the transportation project to reach a major destination.

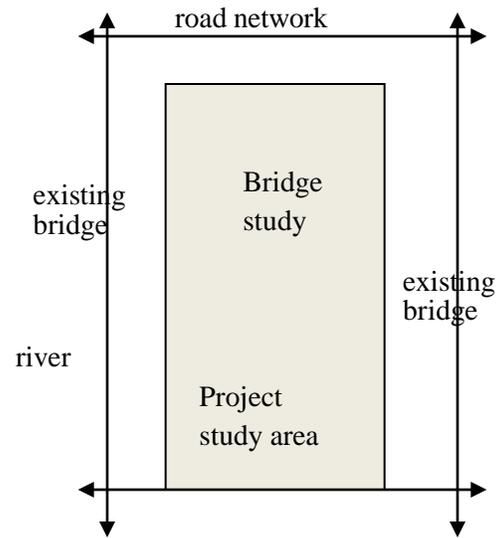
A trafficshed for a transportation facility is analogous to the watershed of a river. First, a major destination, such as a city center, needs to be identified. All origins that logically connect to the major destination via the transportation facility are included in the facility's trafficshed. See below figure - Option 1, Example 1. Option 1, Example 2 illustrates a case where a limited trafficshed may be identified because of the presence of something, in this case a river that provides a barrier to travel.

Since this method includes by definition all land that could possibly be influenced by the project, it is highly defensible. However, this method may define a study area that is unreasonably large, perhaps encompassing multiple counties where it would be difficult to analyze indirect effects.

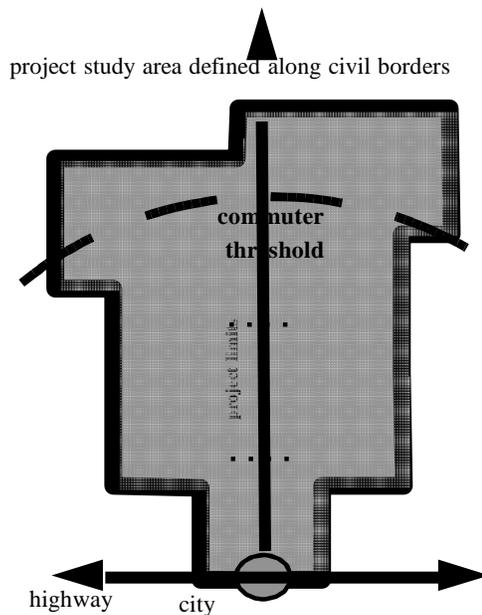
Option 1: Trafficshed, Example 1



Option 1: Trafficshed, Example 2

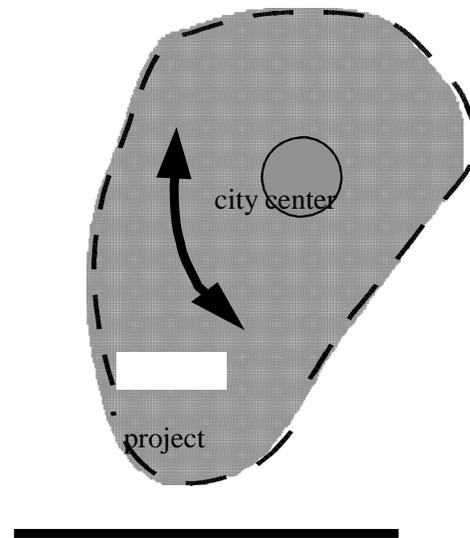


Option 2: Commutershed



Option 3: Growth Boundary

20-year growth boundary



Option 2: Commutershed (Radial routes to/from attraction)

This option defines the project study area to be the area served by the transportation project for commuting to a major destination. This method begins with a definition of the trafficshed, but then limits the project study area to only those areas within a predetermined commuting range or threshold to the identified major destination. See the above figure, Option 2. The rationale is that a project is only likely to affect residential development and associated service development to the extent that it may encourage

commuting to a major destination. The commutershed method is most useful for projects that cross from a rural or urbanizing area into an urban area. The project's effect on residential development by commuters should be one of the key issues to be analyzed.

There are several possible ways to define the commuting range. The range could be based on travel time or existing sources of data on commuter activity, such as census data or origin-destination surveys. To define a commutershed based on travel time, the Study Team needs to decide upon a specific location for the major destination and a commuting time threshold. The major destination may be the central business district or an employment center on the fringe of the urban area. Use the available 2002 census data to account for the commute time to employment. For metropolitan areas, area-specific data on commuting times is available.

Finally, a project study area defined by commuting time needs to take into account travel-time savings attributable to project alternatives. The easiest way to accomplish this is to designate the commutershed based on the alternative with the most travel time savings, if such information is known.

Option 3: 20-Year Growth Boundary (sewer service area boundary, extraterritorial zoning boundary, combination)

This option defines the study area as the area expected to “develop” in the next 20 years. Many communities have already defined 20-year growth boundaries as part of their sewer service area plans, Metropolitan Planning Organization plans, or local plans. See the above figure - Option 3. If the Study Team discovers that 20-year growth boundaries are either not available or based on outdated plans, 20-year growth boundaries can also be developed by considering the DOA projected population growth and employment growth into a general number of developed acres. In this case, consultation with local officials will be necessary to help define where the growth is likely to occur.

Using this option is most useful for bypass projects or other urban transportation projects. It may be a worthwhile approach when all the project alternatives lay within the 20-year growth boundary; however, problems may arise if some of the alternatives are outside the 20-year growth boundary. A drawback to this option is the question of whether a project will change the 20-year growth boundary of a community may be difficult to answer.

Option 4: Interview

This option defines the project study area by asking "experts" what land area may be affected by the project. This method is a useful technique to develop a project study area when the other, more quantitatively based, methods cannot. Techniques for soliciting input can range from informal to a more structured approach. A simplified interview method could consist of WisDOT staff designating a preliminary study area based on professional judgment, data, preliminary input from stakeholders, etc., and then presenting it to selected “experts” and interests for their input. There is a potential for a variety of opinions on the study area and using this method will open the discussion more broadly than that of the other options.

In any case, the study area must be reviewed as part of the public participation process for the indirect effects analysis.

Option 5: Combining Project Study Area Definition Methods

It may sometimes be necessary to combine definition methods to come up with an agreed upon and defensible project study area. Typical combinations include combining the 20-year growth boundary method with the interview method or to combining the 20-year growth boundary method and the commutershed method for a project with both urban and rural segments. Whether it is appropriate to combine methods will depend on the specifics of each project. Be sure to document what combination was used and why.

Option 6: Defining the Project Study Area Boundaries along Civil Borders

It may be helpful to define the project study area to encompass an entire county, town or municipality. Much of the indirect effects analysis will be based on plans and data that are often produced on the local level. This is especially true for small communities or for areas of relatively low population density. Larger urban areas may have data and plans according to neighborhoods or sub-areas and also have many transportation routes to and from the community, limiting the need to include the entire community or all communities in a county. In any case, *a project study area should always be made larger by the decision to follow civil borders, not smaller.*

As noted above, the study area, regardless of the method to delineate it, must be reviewed with the public and agencies as part of the public participation process for the indirect effects analysis under SAFETEA-LU.

Special Information on Interchanges

Projects that include existing and planned interchanges, especially new interchanges and intersections (access points) must be considered when designating the project study area. Access points and interchanges need to be considered in the project study area in the context of the larger project to understand their effect.

In some cases, such as when the trafficshed or commutershed method is used, the project study area will already adequately accommodate the area(s) for the interchanges—new or planned for reconstruction. For other projects, interchanges may need to be accommodated by "bulges" in the project study area. The area can expand depending on whether the land surrounding the interchange especially when vacant land surrounds the new interchange or new access point. While this guidance does not define or recommend specific limits, the state of practice suggests a minimum land area to include in a study area around an existing or new interchange *is a half-mile radius.*

Each project should be considered independently and justification for the area used around the interchange as part of the study area needs to be fully disclosed and documented.