



SAFETEA-LU 6002
Impact Analysis Methodology

US 51
I-39/90 to US 12 (Madison South Beltline)
Dane County, WI
WisDOT Project I.D. 5845-06-02



U.S. Department of Transportation
Federal Highway Administration



Wisconsin Department of
Transportation

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Section 1: Introduction

1.1 Purpose of Impact Analysis Methodology

Section 6002 of the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU) requires lead agencies for proposed federally funded transportation projects to determine the appropriate methodology and level of detail for analyzing impacts, in collaboration with cooperating and participating agencies.

The purpose of the impact analysis methodology is to communicate and document the lead agency's structured approach to analyzing impacts of the proposed transportation project and its alternatives. Collaboration on the impact analysis methodology is intended to promote an efficient and streamlined process and early resolution of concerns or issues.

1.2 Project Background

The US 51 study corridor extends approximately 19 miles, beginning at I-39/90 east of Stoughton and extending through Stoughton and McFarland to the Madison South Beltline Highway (US 12/18) in Madison, Dane County, Wisconsin. Communities in the study area are the towns of Albion, Dunkirk, Dunn, Pleasant Springs, and Rutland, the city of Stoughton, and the village of McFarland.

The purpose of the US 51 Corridor Study is to evaluate alternatives that will improve vehicular traffic flow and safety, and address facilities for bicycles and pedestrians. The study will examine capacity and safety improvements on rural portions of US 51 in the study area as well as potential operational improvements in the Village of McFarland and the City of Stoughton. Transportation needs have already been established in concert with input from FHWA, WisDOT, local government, and the public based on efforts beginning in 2002. These earlier efforts resulted in agreement the study will consider improvements on highways other than US 51 to address the needs of travelers moving between the southeast portion of Dane County and the City of Madison area, as alternatives to major capacity improvements on US 51.

Alternatives that will be evaluated in the study include the following:

No Build - No improvements to existing roadway geometry or capacity.

Alternative A - **US 51 safety improvements throughout** (from County MN in McFarland, through Stoughton to I-39/90)

Alternative B - **Four-lanes on US 51 from McFarland to Stoughton** (includes US 51 Safety Improvements within and east of Stoughton and mobility enhancements around Stoughton)

Alternative C - **Four-lanes on WIS 138 from Stoughton to Oregon** (includes US 51 Safety Improvements within and East of Stoughton and mobility enhancements around Stoughton)

Alternative D - **Four-lanes on County N from Stoughton to I-39/90** (includes US 51 Safety Improvements within and east of Stoughton and mobility enhancements around Stoughton)

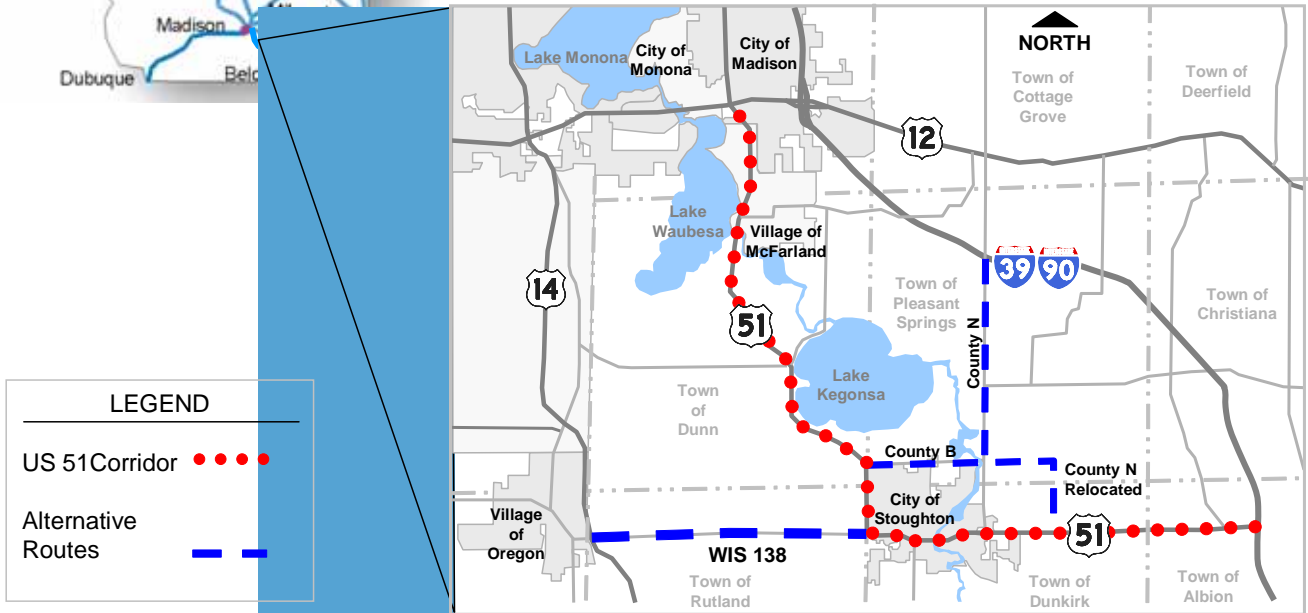
NOTE: "mobility enhancements" are part of Alternatives B, C, and D and involve improvements to County B East and County N Relocated (Skaalen and Pleasant Hill Roads) around the north and east sides of Stoughton.

1.3 Project Vicinity Map



Project Location

Project ID 5845-06-02
US 51 Corridor Study
I-39/90 to US 12/18 (Madison South Beltline)



1.4 NEPA Studies in the Project Corridor

In 2002, the Wisconsin Department of Transportation (WisDOT) initiated a transportation needs study of the US 51 corridor from I-39/90 to McFarland. The US 51 Needs Assessment report was completed in February 2004. The report identified the following needs to be addressed:

- Corridor Preservation and Long-Term Planning
- Traffic Demand
- Safety
- Substandard Roadway Items
- Bicycle and Pedestrian Accommodations

In the first part of 2005, the study team began work on an Environmental Assessment for US 51 and held an “Alternatives Workshop” for the public that solicited input on transportation problems and brainstormed possible solutions. An “Alternatives Screening” process was completed to determine what impact expansion of adjacent highway corridors and/or US 51 would have on traffic patterns within the general study area. This was done using the Madison Area MPO’s 2030 Regional Travel Demand Model (April 2005 version).

In November 2005, a WisDOT Majors Peer Review Committee gave approval to the study team to include non-US 51 corridor improvements as possible study alternatives to US 51 expansion. FHWA concluded an EIS would be the appropriate environmental documentation. An Agency Scoping meeting was held in January 2006 to discuss an initial draft of the purpose and need and several concept alternatives. Five concept alternatives were presented to the public at information meetings in May 2006. A second Agency Scoping Meeting was held in November 2006 to determine if public and agency input would allow any of the concepts to be dismissed from consideration in the study. None of the concepts were dismissed.

An Environmental Impact Statement (EIS) is being prepared for the US 51 Corridor Study in accordance with National Environmental Policy Act (NEPA) procedures. The EIS is a full disclosure document that details how the project was developed. It includes project purpose and need, alternatives considered, description of the affected environment, environmental consequences of the proposed action, and the results of coordination with agencies and the public. The EIS also demonstrates compliance with other applicable environmental laws and regulations, and is made available for review by agencies and the public. The EIS process includes a Notice of Intent (NOI) to prepare the EIS, Draft EIS, Final EIS, and Record of Decision (ROD).

Section 2: General Economics Impact Methodology

2.1 Laws, Regulations, and Guidelines

Key regulations and guidance:

- Federal Highway Administration's (FHWA's) Technical Advisory 6640.8A.
- Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987).
- WisDOT's Facilities Development Manual (FDM) Chapter 25, Socioeconomic Factors.

2.2 General Methodology

The socioeconomic methodology evaluates social and economic impacts that occur in the project area. Social impacts that will be evaluated include changes in neighborhood or community cohesion, changes in travel and traffic, accessibility, impacts to community facilities and businesses, impacts on traffic safety, public safety, and impacts on special groups such as elderly, handicapped, minority, and transit-dependent persons.

The specific economic impacts that will be evaluated will focus on primary impacts, which include employment opportunities, highway-dependent businesses, and existing and planned business development.

2.3 Project Specific Methodology

No additional project specific methodology has been identified for the US 51 Corridor Study. Data for the socioeconomic impact assessment will be obtained primarily from the 2000 US Census of Population and Housing. Supplemental data will be obtained from the Metropolitan Planning Organization, local and regional land use plans, development plans, and discussion with local officials.

Section 3: Business and Residential Impact Methodology

3.1 Laws, Regulations and Guidelines

Key regulations and guidance:

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (49 CFR Part 24).
- FHWA's Technical Advisory 6640.8A.
- Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987).

3.2 General Methodology

Business/Commercial impacts for this project will include measuring the primary impacts to businesses. This includes right-of-way required and relocations. It will also include how right-of-way requirements and access changes affect the viability of businesses.

Residential impacts are evaluated by estimating the number of residential relocations there are and the characteristics of those properties, including family characteristics, availability of comparable decent, safe, and sanitary housing in the area, measures to replace insufficient housing, and special relocation needs.

Depending on the number and types of homes or businesses displaced, a Conceptual Stage Relocation Plan may be prepared as part of the EIS. Impacts to homes and businesses due to changes in access during and after construction are also evaluated.

3.3 Project Specific Methodology

Projected year 2035 traffic operations will be simulated and the potential impacts to businesses and residents will be evaluated. The potential impacts of this project's roadway jurisdictional transfers on businesses and residents will be evaluated. A Conceptual Stage Relocation Plan will be prepared by the Department and included in the EIS.

Section 4: Environmental Justice Impact Methodology

4.1 Laws, Regulations and Guidelines

Key regulations and guidance:

- Executive Order 12898.
- Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994).
- The 1997 United States Department of Transportation Order on Environmental Justice (5680-1).

4.2 General Methodology

The environmental justice section analyzes each impact category to determine whether the alternatives under construction would have any disproportionately high and adverse effects on minority populations and low-income populations.

The potential impacts that can be evaluated include air, noise, water pollution, soil contamination, decrease in aesthetic value, increase in traffic congestion or vibration, disconnection or disruption in community cohesion, decrease in economic vitality, disruption of cultural resources, negative effects to public and private facilities, adverse employment effects, and displacement of persons, businesses, farms, or nonprofit organizations.

4.3 Project Specific Methodology

The State of Wisconsin Department of Transportation has integrated environmental justice analysis into its Facilities Development Manual (FDM). Chapter 21, Section 15 Subject 1 of the FDM integrates environmental justice analysis into the EIS process. The US 51 Corridor Study will use the methodology for environmental justice analysis contained in this document. The environmental justice analysis will be based on income and race information from the 2000 U.S. Census. Additional information on race and income will be obtained from local agencies and organizations, and through public involvement and community outreach activities.

Section 5: Indirect and Cumulative Effects Methodology

5.1 Laws, Regulations, Guidelines, and Methodology

Indirect and cumulative effects for transportation projects are evaluated in accordance with the following key regulations and guidance:

- The Council on Environmental Quality (CEQ) publication.
- Considering Cumulative Effects under the National Environmental Policy Act, January 1997.
- FHWA's position paper, Secondary and Cumulative Impact Assessment in the Highway Development Process, April 1992, and the 2002 National Cooperative Highway Research Program (NCHRP) Report 466.
- Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects.

Indirect and Cumulative effects are defined as:

Indirect effects are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. 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 1508.8)

Cumulative effects are impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

5.2 General Methodology

The indirect and cumulative effects methodology identifies areas potentially at risk for indirect and cumulative effects. Indirect effects are discovered through analyzing the study area's goals and important features such as land use/development trends, demographics, and natural resources. Next, impact-causing activities such as disruption to travel patterns or access are identified and qualitatively analyzed. This process is completed through community outreach in the study area.

The cumulative effects methodology qualitatively analyzes the direct and indirect effects of the proposed project. It is a resource-based evaluation. It looks at valuable resources within the project boundary and then evaluates how the transportation project, along with all the other influential factors, will affect it.

5.3 Project Specific Methodology

The indirect effects analysis will include a series of meetings with local experts with knowledge in land use planning and transportation. The expert panel is one of the forecasting tools described in NCHRP Report 466, Desk Reference for Estimating the Indirect Effects of

Proposed Transportation Projects, and has been used in many environmental impact studies in Wisconsin, including the STH 26 EIS, USH 41 EIS, Hwy 18-151/Verona Rd EIS., I-39/90 EIS, USH 8 EIS, and the USH 12 Fort Atkinson EIS. Using a series of smaller, face-to-face meetings is convenient for participants and will allow them to provide in-depth discussion and analysis of the specific geographic area of their expertise. The expert panel methodology is derived from the Delphi method, a systematic and iterative survey research technique directed toward the systematic solicitation and organization of expert opinion from a group of knowledgeable people. The Delphi method is carefully structured and requires several survey iterations. The less formal technique proposed for this study means a reduced time commitment for participants, ensuring better participation.

Information about the purpose and need of the project, an explanation of the alternatives, and a summary of the direct effects of each alternative will be provided to each participant in advance of the meeting. Participants will be asked to determine the areas within their community that will be likely to experience indirect effects, including the magnitude of the effect, the certainty with which they feel the effect will happen, the timing of the potential effect, and what might be done to avoid or minimize the effect.

The cumulative effects of the alternatives must be discussed in the greater context of other activities that have occurred in the past, as well as those that may be reasonably foreseen. The DEIS document will include an estimation of potential cumulative effects of the alternatives based on the direct and indirect effects. A more comprehensive evaluation of cumulative effects will be conducted in the FEIS, once a preferred alternative has been recommended and a construction schedule identified. This will include more precisely defined improvements, updated status of local comprehensive planning efforts, and greater knowledge of the potential direct impacts.

Section 6: Agricultural Impact Methodology

6.1 Laws, Regulations, Guidelines, and Methodology

Key regulations and guidance:

- The Farmland Protection Policy Act of 1981(7 USC 4201-4209).
- FHWA's Technical Advisory 6640.8 A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987).
- WisDOT's Facilities Development Manual (FDM), Chapter 24, Section 10, Agricultural Lands, and Chapter 32.035, Wisconsin Statutes (Agricultural Impact Statement).

6.2 General Methodology

The Agricultural impact methodology is developed to minimize adverse impacts on farmland and maximize the project's ability to be compatible and work with the state and local farmland programs and policies. The Department of Agriculture, Trade, and Consumer Protection (DATCP) is required to prepare an Agricultural Impact Statement (AIS) when the actual or potential exercise of eminent domain powers involves an acquisition of interest in more than 5 acres of land from any farm operation. DATCP may choose to prepare an AIS if an acquisition of 5 or fewer acres will have a significant impact on a farm operation. Significant impacts could include the acquisition of buildings, the acquisition of land used to grow high-value crops, or the severance of land.

6.3 Project Specific Methodology

No additional project specific methodology has been identified for the US 51 Corridor Study. At this time, it is anticipated that an Agricultural Impact Statement will be required.

Section 7: Air Quality Impact Methodology

7.1 Laws, Regulations, and Guidelines

Air quality impacts for transportation projects are evaluated in accordance with the following key regulations and guidance: The Clean Air Act as amended (42 USC 7401), FHWA's Technical Advisory 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987), FHWA air quality conformance guidance (23 CFR 450), FHWA guidance on analyzing Mobile Source Air Toxics (February 2006), Wisconsin's State Implementation Plan, and Wisconsin Administrative Code Chapter NR 411, Construction and Operation Permits for Indirect Sources.

7.2 General Methodology

The Environmental Protection Agency (EPA) has set national air quality standards for six principal air pollutants (also referred to as criteria pollutants): carbon monoxide (CO), lead, nitrogen dioxide (NO₂), ozone, particulate matter, and sulfur dioxide. Transportation contributes to CO, NO₂, ozone, and particulate matter. Air quality impacts for transportation projects are evaluated in view of these criteria pollutants using established air quality assessment techniques.

As part of the US 51 project, WisDOT will assess four distinct types (ozone, carbon monoxide, mobile source air toxics, and particulate matter) of traffic-related air quality issues. Each distinct air pollutant will be analyzed using the appropriate analysis tool and the results will be recorded in the project's EIS.

Ozone

At the mesoscale level, the motor vehicle pollutants of concern are oxides of nitrogen (NO_x) and volatile organic compounds (VOC), which can be combined in a series of chemical reactions catalyzed by sunlight to produce ozone (O₃).

No federal agency may approve or fund a transportation project until the project has been shown to conform to the applicable State Implementation Plan (SIP) for air quality. The 1990 Clean Air Act Amendments (CAAA) provide a general definition of SIP conformity, applicable to all transportation plans, programs, and projects funded under Title 23 U.S.C. or the Federal Transit Act, which states that such activities will not:

- Cause or contribute to any new violation of any National Ambient Air Quality Standard (NAAQS) in any area.
- Increase the frequency or severity of any existing violation of an NAAQS in any area.
- Delay timely attainment of any NAAQS or any required interim emissions reductions or other milestones in any area.

Carbon Monoxide

In Wisconsin, CO is the only motor vehicle pollutant currently analyzed at the microscale level as required by NEPA. The NAAQS criteria for an adverse CO impact are an exceedence of the one-hour standard of 35 parts per million (ppm) or the eight-hour average of 9 ppm. The

Wisconsin Department of Natural Resources (DNR) requires a construction permit when any modeled receptor will be exposed to more than 75 percent but less than 100 percent of the NAAQS for CO within ten years of construction.

Mobile Source Air Toxics

FHWA developed interim guidance in 2006, titled *FHWA's Interim Guidance on Air Toxics Analysis in NEPA Documents*, on when and how to analyze Mobile Source Air Toxics (MSAT) since MSAT science continues to evolve. The FHWA's interim guidance on air toxins lists three categories of potential MSATs.

- No analysis for projects with no potential for meaningful MSAT effects.
- Qualitative analysis for projects with low potential MSAT effects.
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

According to that guidance, any project exceeding the 150,000 Annual Average Daily Traffic (AADT) traffic volume in the design year (2035) is categorized as a "project with higher potential MSAT effects" and thus would require a quantitative MSAT analysis.

Particulate Matter 2.5 (PM 2.5)

Dane County was designated nonattainment for the PM 2.5 standard in December 2008. However, this designation is not effective until early April 2009. Quality assured, clean monitoring data for the county over the past three years has prompted DNR to request that EPA re-designate Dane County as attainment. This is being done in the form of a technical amendment that EPA is anticipated to act on by the end of April 2009.

7.3 Project Specific Methodology

No additional project specific methodology has been identified for the US 51 Corridor Study.

Section 8: Noise Impact Methodology

8.1 Laws, Regulations, and Guidelines

Highway noise impacts are evaluated in accordance with the following key regulations and guidance: FHWA's Technical Advisory 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987), FHWA's Federal Aid Policy Guide, Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772), and Wisconsin Administrative Code Chapter TRANS 405, Siting Noise Barriers.

8.2 General Methodology

Transportation projects are evaluated for traffic noise impacts and abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to provide information to local officials for land use planning near highways. The noise analysis also provides information on noise generated from typical construction equipment during the construction period.

Existing and design year traffic noise levels are modeled at residential, commercial, and other sensitive receptors along the project corridor using FHWA's Traffic Noise Prediction Model (TNM)[®] 2.5 computer program. The TNM[®] includes traffic characteristics that yield the greatest hourly traffic noise on a regular basis for existing conditions and the future design year. Field sound level readings may also be taken at select locations. Under TRANS 405, noise impacts will be evaluated further to determine the reasonableness and feasibility of potential mitigation measures such as noise walls or berms. If noise mitigation is reasonable under TRANS 405 criteria, additional public involvement related to noise mitigation would be initiated.

8.3 Project Specific Methodology

No additional project specific methodology has been identified for the US 51 Corridor Study.

Section 9: Wetland Impact Methodology

9.1 Laws, Regulations, Guidelines, and Methodology

Key regulations and guidance:

- Section 404 of the Clean Water Act (33 USC 1251).
- Executive Order 11990, Protection of Wetlands (42 FR 26961).
- DOT Executive Order 5660.1A, Preservation of the Nation's Wetlands, Fish and Wildlife Coordination Act as amended (16 USC 661-667).
- FHWA's policy and procedures for evaluation and mitigation of adverse environmental impacts to wetland and natural habitat (23 CFR 777).
- FHWA's Technical Advisory 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987).
- WisDOT's Facilities Development Manual (FDM) Chapter 24, Section 5, Aquatic Systems.
- WisDOT Wetland Mitigation Banking Technical Guidelines as amended.
- WisDOT/DNR Cooperative Agreement Amendment on Compensatory Mitigation for Unavoidable Wetland Losses Resulting from State Transportation Activities (2001).

9.2 General Methodology

Environmental documents measure wetland impact through existing mapping sources and field delineation. Transportation alternatives then seek to reduce impacts by avoiding wetlands where possible, minimize impacts to wetlands that cannot be avoided, and mitigate all unavoidable wetland loss through various compensation measures.

9.3 Project Specific Methodology

No additional project specific methodology has been identified for the US 51 Corridor Study. Preliminary wetland boundaries will be determined through the use of the year 2003 Environmental Corridor GIS data set that includes DNR wetland inventory mapping. Other natural resource mapping information and field delineation of wetlands on the Preferred Alternative will be completed in consultation with WDNR. The natural resource mapping may include: DNR wetland indicator, topographic, hydric soil, Dane County wetland, floodplain, and Dane County Environmental Corridor mapping.

Field delineation of wetlands on the Preferred Alternative will identify wetlands by type, acreage, associated waterway, and function.

Section 10: Water Resource/Floodplain Impact Methodology

10.1 Laws, Regulations, Guidelines, and Methodology

Key regulations and guidance:

- The Clean Water Act (33 USC 1251) including Section 303(d), impaired waters, Executive Order 11988.
- Floodplain Management (42 FR 26951).
- DOT Executive Order 5650.2, Floodplain Management and Protection.
- Policies and Procedures (23 CFR 650).
- FHWA's Technical Advisory 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987).
- WisDOT's Facilities Development Manual (FDM) Chapter 24.
- Land and Water Resources Impacts and FDM Chapter 10, Erosion Control, Wisconsin Administrative Code Chapter NR 116.
- Wisconsin's Floodplain Management Program, the WisDOT/DNR Cooperative Agreement Amendment.
- Memorandum of Understanding on Erosion Control and Storm Water Management (1994).
- Cooperative Agreement Amendment, Memorandum of Understanding on Erosion Control and Storm Water Management (1994).
- Wisconsin Administrative Code Chapter TRANS 401, Construction Site Erosion Control and Storm Water Management Procedures for Department Actions.

10.2 General Methodology

Transportation improvement alternatives for water resources and floodplain impacts involve finding ways to minimize negative impacts to water quality, floodplains, and stream hydraulics. This may be implemented through using sound erosion control and stormwater management practices and by sizing new and replacement structures to minimize floodplain encroachment and increases in the height of the regional (100-year) floodplain elevation. Properly minimizing adverse effects requires assessment of existing conditions such as water quality, fishery resources, floodplain functions and values, potential undesirable outcomes to these conditions, and proposed measures to minimize the adverse effects.

If impacts to floodplains cannot be avoided by location and design refinements, WisDOT and FHWA will consult with local agencies and governments. In addition, if the impacts require a change to floodplain mapping, the proper coordination and documentation may include a letter of map revision.

10.3 Project Specific Methodology

No additional project specific methodology has been identified for the US 51 Corridor Study.

Section 11: Upland Habitat/Wildlife Impact Methodology

11.1 Laws, Regulations, Guidelines, and Methodology

Key regulations and guidance:

- The Fish and Wildlife Coordination Act as amended (16 USC 661-667).
- FHWA's Technical Advisory 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987).
- WisDOT's Facilities Development Manual (FDM) Chapter 24, Land and Water Resource Impacts.
- FHWA's Guidelines for Consideration of Highway Project Impacts on Fish and Wildlife Resources, October, 1989.

11.2 General Methodology

Upland habitats are made up of non-wetland areas in the transportation project's region of potential effect that has vegetative cover suitable for supporting wildlife. Upland areas include remnant prairies dominated by grasses and forbs, woodlands/shrubs thickets, fallow fields, and fence lines.

Impact evaluation includes an assessment of existing conditions (community type, connectivity to other resources, wildlife associations), amount and type of habitat affected by the proposed project, fragmentation or severance of ecosystems, and consequential effects on wildlife permanently inhabiting or passing through the upland habitat areas. At this time, FHWA does not have a policy for mitigating upland habitat impacts. It is FHWA's position that normal practices such as providing appropriate management of land within the highway right-of-way, using location, design and construction techniques to minimize habitat impacts, and possible acquisition of wider rights-of-way will adequately mitigate the loss of upland wildlife habitat.

11.3 Project Specific Methodology

No additional project specific methodology has been identified for the US 51 Corridor Study.

Section 12: Threatened and Endangered Species Impact Methodology

12.1 Laws, Regulations, Guidelines, and Methodology

Key regulations and guidance:

- The Endangered Species Act of 1973 (7 USC 136; 16 USC 1531).
- Migratory Bird Treaty Act (16 USC 661).
- FHWA's Technical Advisory 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987).
- FHWA's guidance memo, Management of the Endangered Species Act Environmental Analysis and Consultation Process (2002), Wisconsin Administrative Code Chapter NR 27.
- Endangered and Threatened Species (2005).
- WisDOT/DNR Cooperative Agreement Amendment.
- Memorandum of Understanding on Endangered and Threatened Species Consultation (1998).
- WisDOT Facilities Development Manual (FDM) Chapter 24, Land and Water Resources.

12.2 General Methodology

The impact evaluation for threatened and endangered species includes a determination of the presence or absence of any federally listed or state listed threatened or endangered species or their critical habitat in the transportation project's area of potential effect. The DNR along with the United States Fish and Wildlife Service determines the presence or absence of threatened or endangered species.

If federally threatened or endangered species or their critical habitat is present and cannot be avoided by location and design refinements to the proposed transportation project, WisDOT and FHWA would proceed with consultation steps under Section 7 of the Endangered Species Act. FHWA will serve as the lead federal agency. Lead federal agency designation will be accomplished via coordination and letter agreement with the Fish and Wildlife Service, FHWA, and the US Army Corps of Engineers.

For state listed species, WisDOT will develop a conservation plan or lay the groundwork for an incidental take permit in consultation with DNR.

WisDOT will also incorporate construction contract special provisions to eliminate or reduce impacts.

12.3 Project Specific Methodology

No additional project specific methodology has been identified for the US 51 Corridor Study.

Section 13: Public Use Lands Impact Methodology

13.1 Laws, Regulations, Guidelines, and Methodology

Public use land impacts (existing and planned public parks, recreation areas, wildlife and waterfowl refuges, other public-use lands, and historic sites) for transportation projects are evaluated in accordance with the following key regulations and guidance:

- Section 4(f) of the U.S. DOT Act (23 USC 138; 49 USC 303).
- FHWA's Section 4(f) Policy Paper (2005).
- FHWA's Technical Advisory 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987).
- Section 6(f) of the Land & Water Conservation Fund Act as amended (16 USC 4601), the Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act) as amended (16 USC 777).
- Pittman-Robertson Wildlife Restoration Act (16 USC 669).
- WisDOT's Facilities Development Manual (FDM) Chapters 20, 21, and 26 and other public use land funding programs such as those administered by DNR.

13.2 General Methodology

Public use land impacts are evaluated through an inventory of potentially affected public use land in the project area. The evaluation also includes existing and planned use for the land, funding sources, and jurisdictional agencies. Where it is impossible to avoid public use resources, impacts would be analyzed by the amount of land required from the resource or any constructive use impacts such as increased traffic noise, changes in the visual setting, or impacts that would adversely affect the public land use.

13.3 Project Specific Methodology

No additional project specific methodology has been identified for the US 51 Corridor Study.

Section 14: Cultural Resources Impact Methodology

14.1 Laws, Regulations, Guidelines, and Methodology

Key regulations and guidance:

- Section 106 of the National Historic Preservation Act as amended (16 USC 470).
- FHWA's Technical Advisory 6640.8A.
- Guidance for Preparing and Processing Environmental and Section 4(f) Documents, 1987.
- WisDOT's Facilities Development Manual (FDM) Chapter 26, Historical Preservation.

14.2 General Methodology

The cultural resource impact evaluation includes the identification of cultural resources in the transportation project's area. Qualified archaeologists and historians evaluate the resources to determine the potential effect from the project. The evaluation includes identifying cultural resources, National Register of Historic Places, and an assessment of whether adverse effects will occur.

14.3 Project Specific Methodology

US 51 Corridor Study will identify the Area of Potential Effect for existing US 51 and the other alternatives and conduct a reconnaissance survey following the procedures specified in the WisDOT Facilities Development Manual for archaeology and history. A report will document the results of the reconnaissance surveys. A Determination of Eligibility will be completed for historic properties that are recommended for consideration as eligible for inclusion in the National Register of Historic Places will be prepared. Documenting the eligibility of archaeological site(s) for inclusion in the National Register of Historic Places and preparation of documentation for the determination of effects will be considered if needed as part of an amendment to the study contract services.

FHWA will serve as the lead federal agency for satisfying section 106 of the National Historic Preservation Act. Lead federal agency designation will be accomplished via coordination and a letter agreement with the State Historic Preservation Office, FHWA, and the US Army Corps of Engineers.

Section 15: Contaminated Sites Impact Methodology

15.1 Laws, Regulations, Guidelines, and Methodology

Key regulations and guidance:

- The Resource Conservation and Recover Act of 1976 as amended (42 USC 6901).
- FHWA's Technical Advisory 6640.8A.
- Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987).
- WisDOT's Facilities Development Manual (FDM), Chapter 21, Section 35, Contaminated Site Assessments and Remediation.

15.2 General Methodology

The Phase 1 investigation uses field observations, interviews and records searches to identify sites that have a high likelihood of contamination. Phase 1 screening is performed for all alternatives carried forward in the environmental documentation process. A Phase 2 investigation, which includes subsurface testing, is performed on sites which fall within the preferred alternative. Further investigation is performed when necessary after a preferred alternative is selected.

15.3 Project Specific Methodology

A Phase 1 screening investigation will be completed for each of the alternatives carried forward for detailed analysis in the EIS. Following selection of the preferred alternative, a Phase 1 Hazardous Materials Assessment will be completed in accordance with the FDM on the preferred alternative. The Phase 1 will identify specified sites, if any, along the preferred alternative that require additional investigation (Phase 2 to Phase 3, with subsurface testing).

After subsurface testing is completed, the DNR and possibly affected parties will be notified of the results. WisDOT will work with all concerned to ensure that the disposition of any petroleum contamination is resolved to the satisfaction of the Wisconsin DNR, WisDOT BEES, and FHWA before acquisition of any questionable site and before advertising the project for letting. Non-petroleum sites will be handled on a case-by-case basis with detailed documentation and coordination with FHWA as needed.

Section 16: Aesthetic Impact Methodology

16.1 Laws, Regulations, Guidelines, and Methodology

Aesthetic (visual) impacts for transportation projects are evaluated in accordance with the following key regulations and guidance:

- FHWA's Technical Advisory 6640.8A.
- Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987).
- FHWA's publication on Visual Impact Assessment for Highway Projects (DOT FHWA-HI-88-054).
- WisDOT's Facilities Development Manual (FDM) Chapter 27, Section 10, Visual Impact Assessment.

16.2 General Methodology

The purpose of the visual impact assessment is to protect the visual character of the project corridor. This task is accomplished through identifying the visual character of the project corridor, characterizing the visual quality of the area, and identifying the groups viewing the project from the highway and of the highway. The impact assessment will also describe the visual change that will occur to the project corridor through the proposed transportation improvements. Mitigation will take place where adverse visual effects are identified. Mitigation measures could include landscaping and aesthetic treatments such as bridge abutments, retaining walls, and sidewalks in the project area.

It is WisDOT policy to use a "Community Sensitive Design" (CSD) approach to enhance excellence in transportation project development and resulting solutions. CSD is the art of creating public works projects that function safely and efficiently, and are pleasing to both the users and the neighboring communities.

Community Sensitive Design is a collaborative interdisciplinary approach that includes early involvement of all stakeholders to ensure that transportation projects not only provide safety and mobility, but are also in harmony with communities and the natural, social, economic, and cultural environments. This integration of projects into the community and environment requires careful planning and a variety of design, construction and safety standards must be met, along with environmental considerations. Design exceptions to standards may be used, where appropriate and necessary. These must be documented and approved, and must contain a thorough analysis of the consequences and tradeoffs involved.

16.3 Project Specific Methodology

No additional project specific methodology has been identified for the US 51 Corridor Study.

Section 17: Construction Impact Methodology (Transportation Management Plans)

17.1 Laws, Regulations, Guidelines, and Methodology

Key guidelines:

- FHWA's Technical Advisory 6640.8A.
- Guidance for Preparing and Processing Environmental and Section 4(f) Documents (October, 1987).

17.2 General Methodology

Construction Impacts

During the construction of the project, additional assessment of the following impacts may be conducted:

- Access to facilities and service.
- Emergency response services.
- Air quality (emissions and fugitive dust).
- Construction solid and hazardous waste.
- Economic impacts.
- Noise.
- Vibration.
- Water quality/erosion and sedimentation.

Transportation Management Plans for Work Zones

A transportation management plan (TMP) for work zones provides management strategies of work zone impacts and safety in all project development phases. Transportation management strategies for a work zone include temporary traffic control measures and devices, public information and outreach, and operational strategies such as travel demand management, signal retiming, and traffic incident management.

FHWA's TMP for work zones provides for systematic consideration and management of work zone impacts and safety in all project development phases. Preliminary information is developed in the project's planning phase with input from the public, local officials and other interests, and developed further in subsequent environmental assessment and engineering design phases.

A TMP helps to reduce traffic and mobility impacts, improve safety, and promote coordination within and around the work zone. The TMP must be developed to best serve the specific community, project, road users, businesses, and highway workers.

The (23CFR450) Rule updates and broadens the former regulation to address more of the current issues affecting work zone safety and mobility by:

- Fostering systematic assessment of the work zone impacts of road projects and development and implementation of transportation management strategies that help manage these impacts.
- Expanding thinking beyond the project work zone itself to address corridor, network, and regional issues while planning and designing road projects.
- Expanding work zone impacts management beyond traffic safety and control to address mobility in addition to safety and to address the broader concepts of transportation operations and public information.
- Advocating innovative thinking in work zone planning, design, and management to consider alternative/innovative design, construction, contracting, and transportation management strategies.

17.3 Project Specific Methodology

After a preferred alternative has been selected, construction impacts and traffic management strategies will be broadly addressed in the FEIS. This discussion will include the following:

- Probable construction staging of the preferred alternative.
- Probable traffic control concepts necessary during the construction of the preferred alternative, which also consider motor vehicle and worker safety.
- Traffic management measures available to help mitigate the effects of the construction staging.
- A discussion with local officials of these probable construction staging and traffic control measures.