



IMPACT ANALYSIS METHODOLOGY

As part of the Environmental Review Process for

US 51 (Stoughton Road)
Terminal Drive/Voges Road to WIS 19
Dane County, WI
WisDOT Project I.D. 5410-05-00



U.S. Department of Transportation
Federal Highway Administration



Wisconsin Department of
Transportation

Version #1 – October 2008

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Revision History

This Impact Analysis Methodology (IAM) is intended to be a dynamic document that will be available to stakeholders and updated as appropriate throughout the duration of the project. Below is a record of substantive changes made to this document.

The Lead Agencies will make the IAM available to other agencies and the public who have expressed an interest in the project. The IAM will be revised when there have been substantive changes in the activities or actions described in the plan. Revisions and changes to the IAM will be communicated to agencies in a timely manner and shared with the public through availability at public information meetings and posting on the project website.

Impact Analysis Methodology Version	Date of Change	Revision Description
Version #2	April, 2009	Minor edits made to the original IAM that was circulated for review in October 2008.
Version #3	July, 2012	The IAM was revised to reflect minor updates to laws, regulations and guidelines where needed, and to reflect minor updates to impact analysis methodologies for some environmental factors. Project background information was also updated to explain the delay in the EIS process, and the project I.D. was changed to 5410-05-00 (the previous I.D. was 5411-02-03).
Version #4	October, 2012	Revisions made to IAM Sections 9, 12, 14, and 15 per comments from the U.S. Army Corps of Engineers (USACE).
Version #5	September, 2016	Revisions made to IAM Sections 1, 2, 4, 5, 9, 10, 12, 13, 14, 15 and 17 to reference updated regulations and guidance.

Section 1: Introduction

1.1 Purpose of Impact Analysis Methodology

Section 139 of Title 23 of the United States Code (USC) requires Lead Agencies for proposed federally funded transportation projects to determine the appropriate methodology and level of detail for analyzing impacts of these proposed transportation projects in collaboration with other state and local agencies. The Federal Highway Administration (FHWA) and the Wisconsin Department of Transportation (WisDOT) are Joint Lead Agencies for the US 51 Stoughton Road Study. Other federal, state and local agencies that are involved in the study process are designated as Cooperating or Participating Agencies. The Cooperating and Participating Agencies, and their roles, are identified in the Coordination Plan for Agency and Public Involvement for this project.

This Impact Analysis Methodology Report contains three sections: the first section, laws, regulations and guidelines; the second section, general methodologies commonly used on proposed WisDOT transportation projects to define, identify, and determine potential impacts to the resource; and the third section, project specific methodologies.

Consensus on the methodology is not required, but the Joint Lead Agencies must consider the views of the Cooperating and Participating agencies with relevant interests before making a decision on a particular methodology. Well-documented, widely accepted methodologies, such as those for noise impact assessment and evaluation of impacts under Section 106 of the National Historic Preservation Act, would require minimal collaboration. If a Cooperating or Participating agency has concerns about the proposed methodology for a particular environmental factor, the agency should describe its preferred methodology and why it is recommended.

The purpose of the IAM Report is to communicate and document the Joint Lead Agencies' 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 approximate 11-mile Stoughton Road corridor extends from Terminal Drive/Voges Road in the Village of McFarland to WIS 19 in the Village of DeForest (see map on page 4). The initial *Stoughton Road Needs Assessment* completed in June 2003 determined existing conditions and how future traffic volumes would impact traffic flow and safety. It evaluated future land use, population growth, projected traffic volumes, existing and future traffic operations, crash data, existing/desired bicycle and pedestrian facilities, transit, and other factors. The needs assessment identified numerous deficiencies that contribute to congestion and safety concerns, a poor operational level of service, traffic diversion to local streets, and insufficient facilities for bicycle and pedestrian travel at many locations. The needs assessment also included extensive community outreach and participation.

Based on the results of the 2003 Needs Assessment, WisDOT initiated the EIS (Environmental Impact Statement) phase to further define project purpose and need, and to develop a preliminary range of improvement alternatives. A Notice of Intent to prepare an EIS was published in the Federal Register in May, 2006. As the study progressed, it became apparent that the type and cost of the improvements being considered would meet the definition of a Major Project¹ requiring approval by the Legislative Transportation Projects Commission (TPC)². Therefore, the EIS phase was suspended in summer, 2010 pending transition into the Major Projects process. Work done in the preliminary EIS phase was

¹ Major projects are those that have a total cost of more than \$30 million and that would involve: (1) Constructing a new highway 2.5 miles or more in length; (2) Reconstructing/reconditioning an existing highway by relocating 2.5 miles or more of the existing highway, or adding one or more lanes 5 miles or more in length to the existing highway; or (3) Improving to freeway standards 10 miles or more of an existing divided highway having 2 or more lanes in either direction (Section 84.013, Wisconsin Statutes).

² The Legislative Transportation Projects Commission (TPC) consists of the Governor who serves as Chair, 3 citizen members appointed by the Governor, 5 senators, 5 representatives, and the WisDOT Secretary (non-voting member). The TPC is responsible for evaluating the merits of candidate Major Projects and recommending them to the Governor and Legislature for statutory enumeration (authorization for construction).

documented in a *Traffic Safety and Needs Identification Analysis* (TSNIA) report pending restart of the EIS process.

The Stoughton Road project was approved by the TPC in November, 2011 as a Major Project “study candidate” and the EIS phase was resumed in spring, 2012.

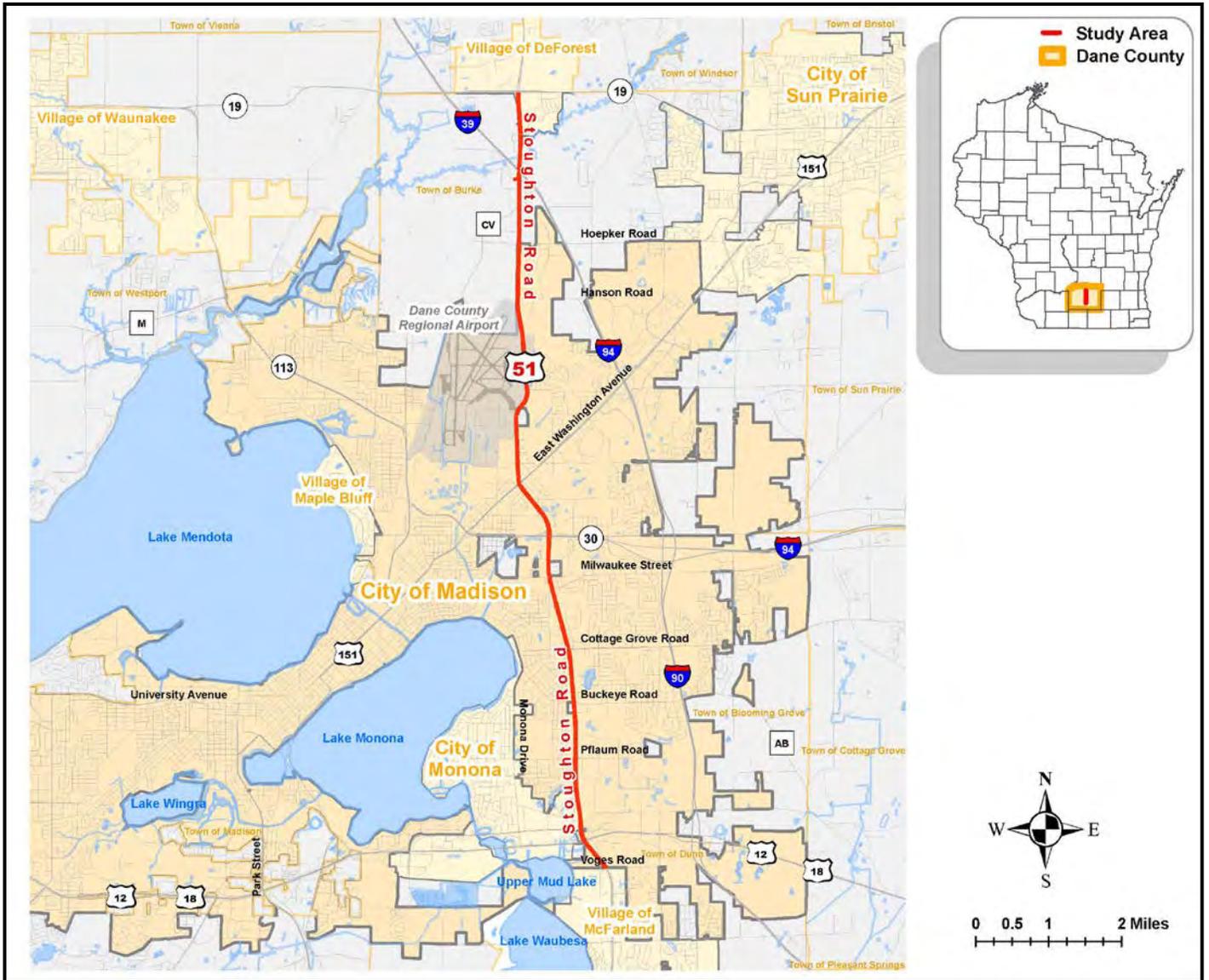
The purpose of the EIS phase is to identify and evaluate alternatives that will improve vehicular traffic flow and safety, and bicycle and pedestrian facilities in the Stoughton Road corridor. Alternatives that will be evaluated include the following:

- No Build — No improvements to existing roadway geometry or capacity.
- Alternative A — Reconstruct existing intersections to provide additional turning capacity and provide new or relocated frontage roads at select locations to enhance mobility.
- Alternative B — Convert existing intersections to grade separated interchanges at 4 locations and provide free-flow ramps to and from the west side of the existing USH 12/18 Beltline interchange.
- Alternative C — Convert existing intersections to grade separated interchanges at 6 locations and construct express lanes over the USH 12/18 Beltline and STH 30 to provide free flow movements for through traffic.
- Alternative D – A combination of the No Build and Alternatives A – C, implemented in phases to sections of the corridor with similar characteristics.

All of the build alternatives include enhanced bicycle and pedestrian travel in the US 51 (Stoughton Road) corridor.

An Environmental Impact Statement (EIS) is being prepared for the Stoughton Road 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).

1.3 Project Vicinity Map



Section 2: Socioeconomic Impact Methodology

2.1 Laws, Regulations and Guidelines

Socioeconomic impacts are evaluated in accordance with these key laws, regulations or guidelines:

- Federal Highway Administration (FHWA) Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987)
- WisDOT Facilities Development Manual (FDM) Chapter 25, *Socioeconomic Factors*
- Wisconsin State Statute §84.01(35)

2.2 General Methodology

Evaluation of social impacts includes applicable changes in neighborhoods or community cohesion; changes in travel patterns and accessibility; impacts on community facilities; impacts on traffic safety/public safety; and impacts on any special groups such as elderly, handicapped, minority, and transit-dependent persons. Evaluation of economic impacts includes cost estimates of the proposed action and its alternatives, effects on highway-dependent businesses and effects on existing and planned business development. Socioeconomic impacts that can be quantified based on available data will be presented as such in the EIS and other impacts will be discussed qualitatively.

2.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study. Data for the socioeconomic impact assessment will be obtained primarily from the 2010 US census data. 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

Business and residential impacts are evaluated in accordance with these key laws, regulations or guidelines:

- The *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* as amended (49 CFR Part 24)
- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987

3.2 General Methodology

Evaluation of business impacts includes an estimate of the number and types of businesses to be displaced, number of employees/jobs affected, any special characteristics, and availability of replacement business sites. Evaluation of residential impacts includes an estimate of the number of homes to be displaced including family characteristics; availability of comparable decent, safe, and sanitary housing in the area; any measures to be taken when replacement housing is insufficient; and identification of any special relocation needs. Depending on the number and types of businesses or homes displaced, a Conceptual Stage Relocation Plan may be prepared as part of the EIS. Impacts to businesses and homes due to changes in access during and after construction are also evaluated.

3.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study. A Conceptual Stage Relocation Plan will be prepared and included in the EIS.

Section 4: Environmental Justice Impact Methodology

4.1 Laws, Regulations and Guidelines

Environmental Justice impacts are evaluated in accordance with these key laws, regulations or guidelines:

- Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, 1994
- U.S. DOT Order on Environmental Justice, DOT Order 5610.2(a), 1997 and as updated (Federal Register Vol. 77, No. 91, May 10, 2012)
- FHWA Order T6640.23A, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, 2012
- Title VI of the federal Civil Rights Act, 42 USC Section 2000d
- WisDOT FDM Chapter 21-15-1, *Format and Content of Environmental Documents* (includes Environmental Justice as one of the factors to be considered when evaluating resource impacts)

4.2 General Methodology

The proposed action and its alternatives are evaluated to determine whether there would be disproportionately high and adverse impacts on minority and low income populations with respect to human health and the environment. Potential impact categories include air, noise, or water pollution; increased traffic congestion; changes in aesthetic value; disruption of community cohesion or economic vitality; changes in the availability of public and private facilities and services; adverse employment effects; and displacement of homes, businesses, or other facilities.

Consideration of Environmental Justice in transportation decision-making is based on the following principles listed in WisDOT FDM Chapter 21-15-1:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects on minority populations and low-income populations
- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

4.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study. The analysis will be based on income and race information from the 2010 US Census and the most recent American Community Survey. It will also be supplemented with information from local agencies/organizations and through public involvement and community outreach activities.

Section 5: Indirect and Cumulative Effects Methodology

5.1 Laws, Regulations and Guidelines

Indirect and cumulative effects are evaluated in accordance with these key laws, regulations or guidelines:

- Council on Environmental Quality (CEQ) publication, *Considering Cumulative Effects under the National Environmental Policy Act*, 1997
- FHWA position paper, *Secondary and Cumulative Impact Assessment in the Highway Development Process*, 1992
- National Cooperative Research Program (NCHRP) Report 466, *Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects*, 2002
- WisDOT *Guidance for Conducting an Indirect Effects Analysis*, November 2014
- WisDOT *Guidance for Conducting a Cumulative Effects Analysis*, November 2007
- 40 CFR, Chapter 1, Section 230.11(g)(h); Protection of Environment, Environmental Protection Agency, *Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material*
- 33 CFR, Part 230, Section 320.4(a)(1); Navigation and Navigable Waters, General Regulatory Policies, *General Policies for Evaluating Permit Applications*

Indirect and cumulative effects are defined as follows:

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 non-Federal) 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 effects analysis methodology includes the following key components:

- Determine the study area boundaries
- Inventory the study area and notable features such as land use/development trends, demographics and natural resources including aquatic ecosystems
- Identify impact-causing activities of the proposed project alternatives
- Identify the potentially significant indirect effects
- Analyze indirect effects, describe their significance for the project alternatives and evaluate assumptions
- Assess consequences and identify mitigation measures
- The analysis is supported by input/information from local officials, agencies, and community outreach activities.

The cumulative effects analysis methodology includes the following key components:

- Identify the significant issues associated with the proposed action and define the assessment
- Establish geographic scope for the analysis
- Establish future timeframe for analysis
- Identify other actions affecting the resources, ecosystems (including aquatic ecosystems) and human communities of concern
- Characterize resources identified in terms of their response to change and capacity to withstand stress
- Characterize the stresses affecting the resources and their relationship to regulatory thresholds

- Define a baseline condition for the resources
- Identify the important cause and effect relationships between human activities and resources
- Determine the magnitude and significance of cumulative effects
- Modify or add alternatives to mitigate significant cumulative effects
- Monitor the cumulative effects of the selected alternative and adapt management
- The analysis is supported by input/information from local officials, agencies, and community outreach activities.

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 and has been used in many environmental impact studies in Wisconsin. 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 broader context of other activities that have occurred in the past, as well as those that may be reasonably foreseen in the future. The EIS will include an estimation of potential cumulative effects of the alternatives based on the direct and indirect effects.

Section 6: Agricultural Impact Methodology

6.1 Laws, Regulations and Guidelines

Agricultural impacts are evaluated in accordance with these key laws, regulations or guidelines:

- Farmland Protection Policy Act of 1981 (7 USC 4201-4209)
- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- WisDOT FDM Chapter 24, Section 10, *Agricultural Lands*
- Chapter 32.035, Wisconsin Statutes, *Agricultural Impact Statement*

6.2 General Methodology

To the extent practicable, the proposed transportation action and its alternatives are developed to minimize impacts on farmland and maximize compatibility with state and local farmland programs and policies. Agricultural impacts are quantified and reported to the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP). Based on the extent of the impacts, DATCP will determine whether an Agricultural Impact Statement is required. If needed, a Farmland Conversion Impact Rating form would also be prepared and coordinated with the USDA Natural Resource Conservation Service (NRCS).

6.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study. There is minimal agricultural land in the area of potential effect for the alternatives. Land that is currently being farmed is not zoned for agricultural use. At this time, an Agricultural Impact Statement is not anticipated to be required.

Section 7: Air Quality Impact Methodology

7.1 Laws, Regulations and Guidelines

Air Quality impacts are evaluated in accordance with these key laws, regulations or guidelines:

- Clean Air Act as amended (42 USC 7401)
- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- *Determining Conformity of Federal Actions to State or Federal Implementation Plans* (40 CFR, Part 93), EPA
- *Transportation Conformity Guidance for Qualitative hot-spot Analyses in PM_{2.5} and PM₁₀ Non-attainment and Maintenance Areas*, March 2006, EPA and FHWA
- FHWA air quality conformance guidance (23 CFR 450)
- FHWA *Interim Guidance on Air Toxics Analysis in NEPA Documents*, 2006 (updated in September, 2009)
- Wisconsin State Implementation Plan

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. Applicable transportation improvements are evaluated for ozone, carbon monoxide, mobile source air toxics and particulate matter in accordance with established air quality assessment techniques.

The build alternatives are screened to determine whether project level evaluation of Carbon Monoxide (CO) emissions is required. The first screening step utilizes the indirect source permit exemption criteria previously established by DNR in Wisconsin Administrative Code Chapter NR 411, *Construction and Operation Permits for Indirect Sources*. Although NR 411 was suspended by the Wisconsin Legislature in March 2012 (based on DNR's determination that automobile CO emissions have decreased dramatically and therefore Wisconsin no longer exceeds the CO NAAQS) WisDOT in consultation with FHWA, has elected to continue using the following exemption criteria as a screening tool for WisDOT projects:

- For highway projects located outside the metropolitan counties* any new road segment or intersection leg that will carry less than 4 lanes of traffic or any modified road segment or intersection that will have less than 2 additional lanes of traffic within 10 years after construction.

* *The metropolitan counties are Brown, Calumet, Chippewa, Dane, Douglas, Eau Claire, Kenosha, La Crosse, Marathon, Milwaukee, Outagamie, Ozaukee, Racine, Rock, Sheboygan, St. Croix, Washington, Waukesha, and Winnebago.*

Any highway project that will meet the following criteria for location and traffic volumes within 10 years after construction or modification:

- Any new road segment or new intersection leg in a metropolitan county* that will have a peak hour volume of less than 1,200 vehicles per hour.
- Any new road segment or new intersection leg in a metropolitan county* that will have an increase in peak hour volume of less than 1,200 vehicles per hour.
- Any new road segment or new intersection leg outside a metropolitan county that will have a peak hour volume of less than 1,800 vehicles per hour.

Where there is a shift in one or more of the intersection approach legs, one of the following:

- The maximum shift in the nearest roadway edge toward any potential receptor within a new or modified intersection boundary will be less than 12 feet.

- Where the shift in the nearest roadway edge toward any potential receptor is 12 feet or more, each new road segment has no more than 2 approach lanes (not including exclusive turning lanes), and any potential receptor is located at more than 25 feet from the nearest roadway edge, a peak hour volume on each approach leg of less than 1,800 vehicles per hour.

Projects that meet the exemption criteria listed above do not require further evaluation for CO emissions.

For projects that do not meet the exemption criteria listed above, additional screening may be done by referencing past projects that represent a worst-case scenario compared to the currently proposed project and that did not exceed the CO NAAQS based on modeling results. If applicable past projects are found, the comparison would be described in the EIS and no further CO analysis would be required. If no applicable past projects are found, the worst case build alternative for the currently proposed project will be modeled using MOVES/CAL3QHC. The results of the modeling will be compared to the CO NAAQS and summarized in the EIS.

7.3 Project Specific Methodology

Dane County is in attainment for one-hour and 8-hour ozone standards and for particulate matter (PM_{2.5}) standards. Therefore neither an ozone analysis nor a (PM_{2.5}) hot-spot analysis is required for the Stoughton Road project. A qualitative mobile source air toxics (MSAT) analysis will be prepared in accordance with FHWA's *Interim Guidance on Air Toxics Analysis in NEPA Documents*.

Section 8: Traffic Noise Impact Methodology

8.1 Laws, Regulations and Guidelines

Highway noise impacts are evaluated in accordance with these key laws, regulations or guidelines:

- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- FHWA Federal Aid Policy Guide, *Procedures for Abatement of Highway Traffic Noise and Construction Noise* (23 CFR 772)
(Revised in July 2010)
- WisDOT FDM Chapter 23, *Noise*
(Revised in July 2011 to reflect FHWA's revised noise policy)
- Wisconsin Administrative Code Chapter TRANS 405, *Siting Noise Barriers*
(Serves as supplement to WisDOT's noise policy in FDM Chapter 23)

8.2 General Methodology

Transportation projects are evaluated for traffic noise impacts and abatement measures to help protect the public health and welfare, to provide 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. Noise impacts will be evaluated further to determine the reasonableness and feasibility of potential mitigation measures such as noise walls. If noise mitigation is determined reasonable, additional public involvement related to noise mitigation would be initiated in the project's design phase.

8.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study.

Section 9: Wetland Impact Methodology

9.1 Laws, Regulations and Guidelines

Wetland impacts are evaluated in accordance with these key laws, regulations or guidelines:

- Sections 401 and 404 of the *Clean Water Act* (33 USC 1251)
- Clean Water Act, 40 CFR Part 230, *Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material*
- Executive Order 11990, Protection of Wetlands (42 FR 26961)
- Compensatory Mitigation for Losses of Aquatic Resources (33 CFR Part 332)
- DOT Executive Order 5660.1A, Preservation of the Nation's Wetlands
- *Fish and Wildlife Coordination Act* as amended (16 USC 661-667)
- FHWA policy and procedures for evaluation and mitigation of adverse environmental impacts to wetlands and natural habitat (23 CFR 777)
- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- WisDOT FDM Chapter 24, Section 5, *Aquatic Systems*
- WisDOT *Wetland Mitigation Banking Technical Guideline* as amended, March 2002
- WisDOT/DNR Cooperative Agreement Amendment, *Compensatory Mitigation for Unavoidable Wetland Losses Resulting from State Transportation Activities*, 2014
(Note: The Cooperative Agreement Amendment is currently being revised)
- Corps of Engineers Wetlands Delineation Manual, January 1987
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), January 2012
- Final National Wetland Plant List, U.S. Army Corps of Engineers, Federal Register, Volume 77, Number 90, May 9, 2012; updated March 2014
- Field indicators of Hydric Soils in the United States published by NRCS (Version 7.0), 2010
- Guidance for Submitting Wetland Delineation Reports to the St. Paul District Army Corps of Engineers and the DNR, 2014

9.2 General Methodology

Depending on the type of transportation improvements being proposed, the construction time frame, and the extent of wetland resources in the project's area of potential effect, preliminary wetland boundaries are established using existing information such as the Wisconsin Wetland Inventory maps produced by the Wisconsin DNR, farmed wetland maps produced by the USDA Natural Resources Conservation Service, statewide, regional or local GIS data, and field inspection. If more precise wetland boundaries are required, more detailed wetland boundary determinations or delineations would be conducted in accordance with the interagency *Corps of Engineers Wetland Delineation Manual (1987 Manual)*, subsequent guidance such as *the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Version 2.0), August 2010, and the Final National Wetland Plant List published by the USACE in May 2012.

Transportation improvement alternatives are developed to reduce wetland impacts to the extent practicable through a sequence of avoiding wetlands where possible, minimizing impacts to wetlands that cannot be avoided and mitigating unavoidable wetland loss through various compensation measures as specified in WisDOT's *Wetland Mitigation Banking Technical Guideline*, and in the USACE regulations, *Compensatory Mitigation for Losses of Aquatic Resources* (33 CFR Part 332). Wetland compensation includes evaluation of on-/near-site replacement wetlands and use of an established wetland mitigation bank when on-/near-site replacement wetlands are not feasible or practicable. All unavoidable wetland loss would be fully compensated in terms of amount affected, type, and functional values.

9.3 Project Specific Methodology

Preliminary wetland boundaries for the Stoughton Road Corridor Study were initially determined in 2006 in consultation with DNR. Due to the length of time that has passed, and the need for more precise boundaries to assess wetland impacts for purposes of the EIS, updated wetland delineations are being conducted in accordance with the USACE publications/guidance noted in Section 9.2. The wetland delineation report will be used to present information on affected wetland types, functions and value in the Stoughton Road EIS. The wetland delineation report will also be made available to interested agencies.

Section 10: Water Resource/Floodplain Impact Methodology

10.1 Laws, Regulations and Guidelines

Water Resource and floodplain impacts are evaluated in accordance with these key laws, regulations or guidelines:

- 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 Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- WisDOT 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*
- WisDOT/DNR 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*.
- Section 10 of the Rivers and Harbors Act (33 USC 401 et seq.)
- Compensatory Mitigation Rule requirements (33 CFR 332)

10.2 General Methodology

Transportation alternatives involving water resources and floodplain impacts are developed to minimize adverse impacts to water quality, floodplains and stream hydraulics to the extent practicable. Measures to minimize adverse effects include using sound erosion control and stormwater management practices, and sizing new and replacement structures to reduce 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.

The extent to which erosion control and storm water management measures are proposed in the EIS depends on the type of transportation improvements being proposed, the construction time frame, and the extent of water and floodplain resources in the project's area of effect. A planning level project generally includes conceptual Best Management Practices (BMPs). Other projects may require more specific erosion control and storm water management commitments.

10.3 Project Specific Methodology

A conceptual stormwater management plan will be developed for purposes of the Stoughton Road Corridor Study. The conceptual plan will include the approximate type, size, and location of best management practices (BMPs) to control post-construction discharge rates, and a preliminary assessment of total suspended solids (TSS) removal in accordance with TRANS 401. A final stormwater management plan will be developed in a future design phase when more detailed information is available with respect to drainage and other factors.

No new waterway crossings are anticipated; existing bridges and culverts may be lengthened or widened. A hydraulic analysis will be completed in a future design phase.

Section 11: Upland Habitat/Wildlife Impact Methodology

11.1 Laws, Regulations and Guidelines

Upland habitat/wildlife impacts are evaluated in accordance with these key laws, regulations or guidelines:

- Fish and Wildlife Coordination Act as amended (16 USC 661-667)
- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- WisDOT FDM Chapter 24, *Land and Water Resource Impacts*
- FHWA *Guidelines for Consideration of Highway Project Impacts on Fish and Wildlife Resources*, 1989

11.2 General Methodology

Upland habitat includes non-wetland areas that have vegetative cover suitable for supporting wildlife. Such areas include woodlands/shrub thickets, fallow fields, fence lines, and remnant prairies dominated by grasses and forbs. WisDOT coordinates with DNR, other agencies, and regional planning commissions as appropriate to obtain information on the quality and classification of wildlife habitat in the project's area of potential effect.

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 possible 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 highway right-of-way, using location, design and construction techniques to minimize habitat impacts, and re-establishment of vegetated areas through landscaping will adequately mitigate the loss of upland wildlife habitat.

11.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study. Due to the urban nature of the Stoughton Road Corridor, there is minimal upland habitat present.

Section 12: Threatened and Endangered Species Impact Methodology

12.1 Laws, Regulations and Guidelines

Threatened and endangered species impacts are evaluated in accordance with these key laws, regulations or guidelines:

- Endangered Species Act of 1973 (7 USC 136; 16 USC 1531)
- Migratory Bird Treaty Act (16 USC 661)
- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- FHWA 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 FDM Chapter 24, *Land and Water Resources*
- U.S. Army Corps of Engineers Regulations for Processing Department of the Army Permits (33 CFR, Part 325); regulations include consideration of threatened and endangered species.
- Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c)

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 effect. The presence or absence determination is made in consultation with DNR and the U.S. Fish and Wildlife Service and may include field inventories by qualified resource biologists.

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, consultation would occur under Section 7 of the Endangered Species Act. FHWA is the lead agency for Section 7 consultation, in cooperation with WisDOT. Consultation would involve applicable agencies including the U.S. Fish and Wildlife Service, USACE, and DNR.

For state listed species, WisDOT would 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 Stoughton Road Corridor Study.

Section 13: Section 4(f), 6(f) and Other Unique Lands Impact Methodology

13.1 Laws, Regulations and Guidelines

Impacts to public use lands (existing and planned public parks, recreation areas, wildlife and waterfowl refuges, other public-use lands and historic sites) are evaluated in accordance with these key laws, regulations or guidelines:

- Section 4(f) of the U.S. DOT Act (23 USC 138; 49 USC 303)
- 23 CFR 774, FHWA's regulations for implementing Section 4(f) requirements for parks, recreation areas, wildlife and waterfowl refuges and historic sites.
- FHWA Section 4(f) Policy Paper (Federal Register, July 20, 2012)
- FHWA Technical Advisory T6640.8A, *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)
- Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act) as amended (16 USC 777)
- Pittman-Robertson Wildlife Restoration Act (16 USC 669)
- WisDOT FDM Chapter 21, *Environmental Documents, Reports and Permits*, and Chapter 26, **Cultural Resource Preservation**
- Other public use land funding programs such as those administered by the National Park Service, **NRCS** and DNR.

Section 4(f) of the U.S. DOT Act applies only to the actions of agencies within the U.S. Department of Transportation including FHWA. While other agencies may have an interest in Section 4(f), FHWA is responsible for applicability determinations, evaluations, findings and overall compliance.

13.2 General Methodology

The public use land impact evaluation includes an inventory of such resources in the transportation project's area of effect, a description of the resources including existing and planned use, funding sources, and jurisdictional agencies. The transportation improvements are located and designed to avoid or minimize impacts to public use land to the extent practicable. Where such resources cannot be avoided, impacts would be analyzed by the amount of land required from the resource and any constructive use impacts such as increased traffic noise, changes in the visual setting, or other impacts that would adversely affect the public use land. WisDOT would coordinate with the jurisdictional agencies to obtain information on resource use, funding and management, and to obtain input on potential effects and possible mitigation measures.

13.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study.

Section 14: Historic Resources Impact Methodology

14.1 Laws, Regulations and Guidelines

Historic resource impacts for transportation projects are evaluated in accordance with the following key regulations and guidance:

- Sections 106 and 110 of the National Historic Preservation Act as amended (16 USC 470)
- Section 106 regulations (36 CFR Part 800)
- FHWA Technical Advisory T6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents, 1987
- 23 CFR 774, FHWA regulations for implementing Section 4(f) requirements for parks, recreation areas, wildlife and waterfowl refuges and historic sites
- WisDOT Facilities Development Manual, Chapter 26, Cultural Resource Preservation
- U.S. Army Corps of Engineers Regulations for Processing Department of the Army Permits (33 CFR, Part 325); Appendix C of the regulations includes procedures for protection of historic properties

14.2 General Methodology

Impact evaluation includes identification of historic resources in the project's area of potential effect by a qualified historian, evaluation of the resources to determine eligibility to the National Register of Historic Places, assessment of effects to determine whether an adverse effect will occur, consultation with the State Historic Preservation Officer (SHPO), Indian Tribes, and other parties indicating an interest in the historic resources, and implementation of agreements reached to account for unavoidable adverse impacts.

FHWA is the lead federal agency for the Section 106 consultation process, in cooperation with WisDOT.

14.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study

Section 15: Archaeological Resources Impact Methodology

15.1 Laws, Regulations and Guidelines

Archaeological impacts for transportation projects are evaluated in accordance with the following key regulations and guidance:

- Section 106 of the National Historic Preservation Act as amended (16 USC 470)
- NPS regulations for curation of federally-owned and administered archaeological collections (36 CFR 79)
- NPS Secretary of the Interior' Archaeology and Historic Preservation Standards and Guidelines, as amended and updated
- FHWA Technical Advisory T6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents, 1987
- U.S. Army Corps of Engineers Regulations for Processing Department of the Army Permits (33 CFR, Part 325); Appendix C of the regulations includes procedures for protection of historic properties
- Chapter 157, Wisconsin Statutes, Disposition of Human Remains; Wis. Stat. §157.70 Burial Sites Preservation
- WisDOT' FDM, Chapter 26, Cultural Resource Preservation
- Guide for Public Archaeology in Wisconsin. The Wisconsin Archaeological Survey, August 2012.

15.2 General Methodology

Impact evaluation includes identification of archaeological resources in the project's area of potential effect which generally consists of existing and proposed right-of-way, temporary and permanent easements, equipment staging areas, and other land that would be disturbed by the project. Archaeological investigations are done by qualified archaeologists in accordance with established procedures developed jointly by WisDOT and the Wisconsin Historical Society.

When potentially significant archaeological sites are identified, there is further evaluation of the resources to determine eligibility to the National Register of Historic Places, assessment of effects to determine whether an adverse effect will occur, consultation with the SHPO, Native American Tribes and other parties indicating an interest in the archaeological resources, and implementation of agreements reached to account for unavoidable adverse impacts.

FHWA is the lead federal agency for the Section 106 consultation process, in cooperation with WisDOT.

15.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study

Section 16: Contaminated Sites Impact Methodology

16.1 Laws, Regulations and Guidelines

The impacts of potential environmental contaminants are evaluated in accordance with these key laws, regulations or guidelines:

- Resource Conservation and Recovery Act of 1976 as amended (42 USC 6901)
- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- WisDOT FDM, Chapter 21, Section 35, *Contaminated Site Assessments and Remediation*

16.2 General Methodology

The Phase 1 investigation for potentially contaminated sites uses field observations, interviews and records searches to identify sites that have a high likelihood for contamination. Phase 1 screening is performed for all alternatives carried forward in the environmental document. A Phase 2 investigation which includes subsurface testing is performed on sites located within the area of effect for the preferred alternative. Further investigation is performed when necessary after a preferred alternative is selected. WisDOT also evaluates existing highway structures that need to be replaced or rehabilitated as part of a proposed transportation improvement to determine whether any asbestos materials were used in the construction, renovation or rehabilitation of the structures.

16.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study.

Section 17: Aesthetic Impact Methodology

17.1 Laws, Regulations and Guidelines

Aesthetic (visual) impacts are evaluated in accordance with these key laws, regulations or guidelines:

- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- FHWA publication *Guidelines for the Visual Impact Assessment of Highway Projects (FHWA HEP015-029) – January 2015*
- WisDOT FDM Chapter 27, Section 10, Visual Impact Assessment

17.2 General Methodology

The purpose of the visual impact assessment is to preserve the visual character of the project corridor. This is accomplished by identifying the visual character of the project corridor, characterizing the visual quality of the area, and identifying and quantifying viewer groups to the extent practicable. The impact assessment also describes the visual change that will occur due to the proposed transportation improvements. Mitigation measures, where adverse visual effects are identified, could include landscaping and aesthetic treatments such as retaining walls, bridge abutments 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.

17.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study.

Section 18: Construction Impact Methodology

18.1 Laws, Regulations and Guidelines

Construction impacts are evaluated in accordance with these key laws, regulations or guidelines:

- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- FHWA *Work Zone Safety and Mobility Rule* (69 FR 54562), 2004

18.2 General Methodology for Construction Impacts

Discussion of construction related impacts may include access to facilities and services, emergency response, air quality (emissions and fugitive dust), noise, water quality (erosion and sedimentation), construction solid waste/hazardous waste, and vibration as applicable. Additional construction related information will include conceptual discussions about construction material sources (borrow sites), and major utility adjustments/associated impacts.

A transportation management plan (TMP) for work zones provides management strategies for work zone impacts and safety in all project development phases. Strategies 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. Preliminary information is developed in the project's planning phase with input from the public, local officials and other interests, and developed further in the engineering design phase.

18.3 Project Specific Methodology

No additional project specific methodology has been identified for the Stoughton Road Corridor Study.