

IMPACT ANALYSIS METHODOLOGY

As part of the Environmental Review Process for

I-43 North-South Freeway Corridor Study
(Silver Spring Drive – WIS 60)
Milwaukee and Ozaukee Counties, WI
WisDOT Project I.D. 1229-04-01



U.S. Department of Transportation
Federal Highway Administration



Wisconsin Department of Transportation

Previous Version—September, 2012
Revision #1—November 2012

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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.

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
Revision #1	November, 2012	<p>Item 11.2 under Wetlands Impact Methodology has been revised to provide more specific information on inter-agency procedures for wetland compensatory mitigation.</p> <p>Item 11.3 under Wetlands Impact Methodology has been revised to include information on Advance Identification (ADID) wetlands per comments from USACE and EPA.</p> <p>An Agricultural Impact Methodology (Section 15) has been added per comments from DATCP.</p> <p>Items 18.2 and 18.3 under Contaminated Sites Impact Methodology have been revised to reflect internal edits and to clarify the area encompassed by the hazardous materials investigation.</p>

Section 1: Introduction

1.1 Purpose of Impact Analysis Methodology

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.

23 U.S.C. 139 requires Lead Agencies for proposed federally funded transportation projects to determine the appropriate methodology and level of detail for analyzing² impacts in collaboration with Cooperating and Participating Agencies. Consensus on the methodology² is not required, but the Lead Agency 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 methodology discussion for each resource known or believed to be located in the project study area is broken into three subsections. The first subsection identifies the laws, regulations and guidelines applicable to the particular resource. The second subsection discusses the general methodologies commonly used on proposed Wisconsin Department of Transportation (WisDOT) projects to define, identify, and determine potential impacts to the resource. The third subsection discusses any project-specific methodologies to further refine work completed under the general methodologies.

1.2 Project Background

The Federal Highway Administration (FHWA) and WisDOT will prepare an Environmental Impact Statement (EIS) for the I-43 North-South Freeway Corridor Study in Milwaukee and Ozaukee counties. See location map in Section 1.3. The study area includes approximately 14 miles of the I-43 freeway from Silver Spring Drive in the City of Glendale (south limit) to WIS 60 in the Village of Grafton (north limit). Existing service interchanges in the I-43 corridor include Silver Spring Drive, Good Hope Road, WIS 100/Brown Deer Road, Port Washington Road, WIS 167/Mequon Road, County C, and WIS 60. A possible new service interchange at Highland Road in the City of Mequon is also being considered.

The freeway system in the study area provides a critical interstate link for commerce, tourism and commuters in the southeast region of Wisconsin and the Milwaukee Metropolitan area. This segment of I-43 has high traffic volumes and outdated freeway mainline and interchange design. Improvements are being proposed to accommodate existing and future traffic demand, improve traffic flow and operations, and to address safety concerns.

¹ The congressional Conference Report accompanying the 2005 Federal transportation bill, *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU) states: "Collaboration means a cooperative and interactive process. It is not necessary for the Lead Agency to reach consensus with the Participating agencies on these issues; the Lead Agency must work cooperatively with the Participating agencies and consider their views, but the Lead Agency remains responsible for decision making." FHWA's NEPA regulations (23 CFR 771) require that those Federal agencies with jurisdiction by law (permitting or land transfer authority) be invited to be Cooperating Agencies for an EIS. SAFETEA-LU created a new Participating Agency category for the EIS process. Participating Agencies are Federal and non-Federal governmental agencies that may have an interest in the project because of their jurisdictional authority, special expertise and/or statewide interest.

² The methodology used by the Lead Agency must be consistent with any methodology established by statute or regulation under the authority of another Federal agency.

The 2035 Regional Transportation System Plan (Planning Report No. 49, Southeastern Wisconsin Regional Planning Commission, June 2006) calls for widening and/or other improvements to provide additional capacity in the I-43 corridor through Milwaukee and Ozaukee Counties.

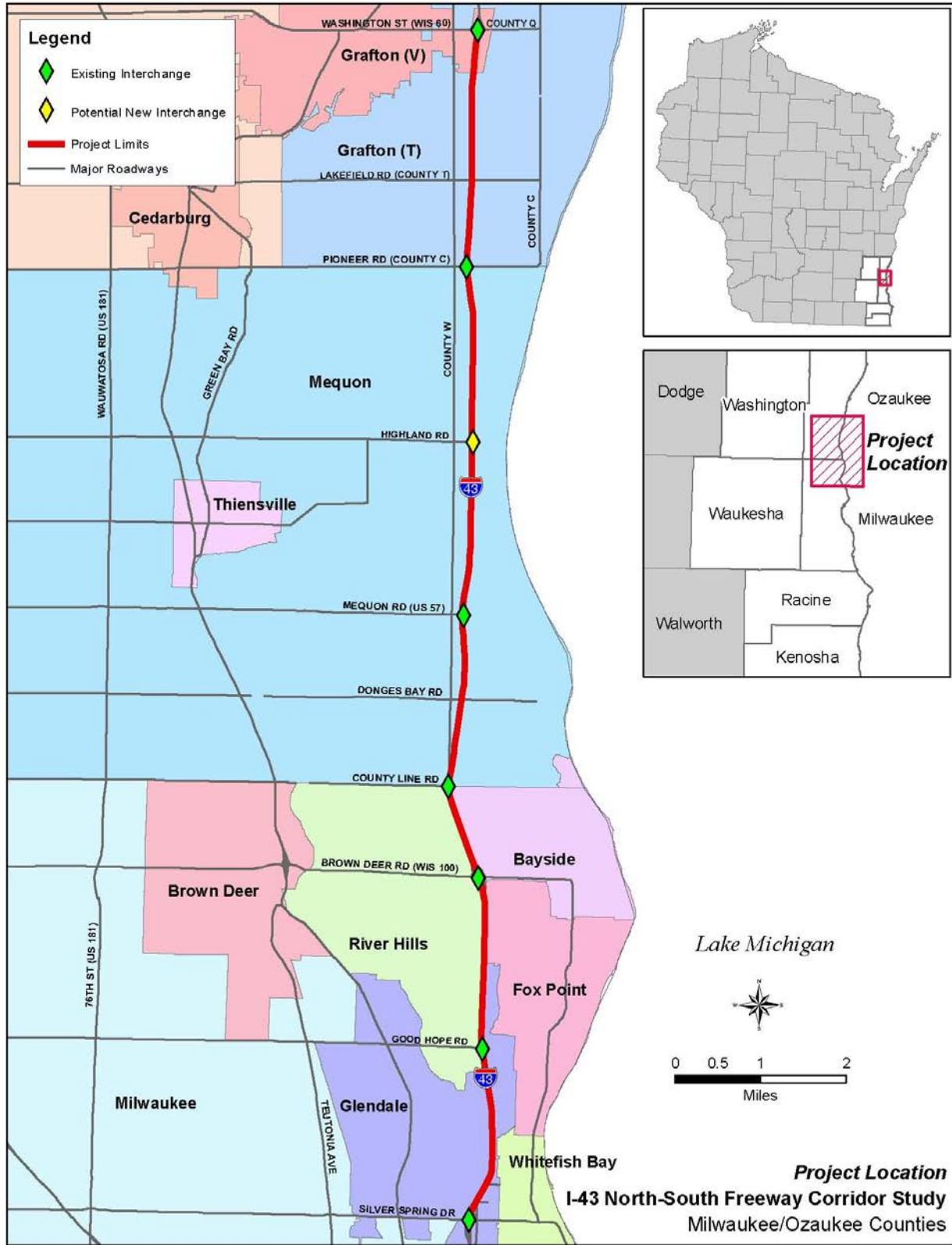
In November 2011, under Wisconsin's legislative process for major highway projects³, the Transportation Projects Commission (TPC)⁴ approved moving ahead with the environmental study phase for this project so it can be considered for future funding enumeration.

The EIS will discuss project purpose and need, alternatives considered (including a no build alternative), the affected environment, environmental consequences of the proposed action, and the results of coordination with agencies and the public. The EIS will also demonstrate compliance with applicable environmental laws and regulations and will be made available for public review.

³ 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).

⁴ 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).

1.3 Project Location Map



Section 2: General Economics Impact Methodology

2.1 Laws, Regulations and Guidelines

General economic impacts for transportation projects are evaluated in accordance with the following key guidance:

- FHWA's Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- WisDOT Facilities Development Manual Chapter 25, *Socioeconomic Factors*

2.2 General Methodology

Evaluation of economic impacts includes cost estimates of the proposed action and its alternatives; applicable effects on economic development trends and viability; effects on employment opportunities; effects on highway-dependent businesses; and effects on existing and planned business development. Economic 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 I-43 North-South Freeway Corridor Study. Data for the general economic impact assessment will be obtained primarily from the 2010 US Census with supplemental data from the Southeast Wisconsin Regional Planning Commission (SEWRPC), local and regional land use plans, comprehensive plans, development plans, and discussion with local officials.

Section 3: Business Impact Methodology

3.1 Laws, Regulations and Guidelines

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

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (42 USC 4601 as implemented through 49 CFR Part 24)
- FHWA's Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- WisDOT Facilities Development Manual Chapter 25, *Socioeconomic Factors*

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. Depending on the number and types of businesses displaced, a Conceptual Stage Relocation Plan may be prepared as part of the EIS. Impacts to businesses as a result of changes in access will also be evaluated. Depending on the type of highway facility being evaluated, changes in access could include relocating, combining, or eliminating existing driveways, restricting turning movements to and from adjacent properties due to median barriers, and modifying or closing existing intersections or interchanges.

3.3 Project Specific Methodology

No additional project specific methodology has been identified for the I-43 North-South Freeway Corridor Study.

Section 4: Community and Residential Impact Methodology

4.1 Laws, Regulations and Guidelines

Community and residential impacts for transportation projects are evaluated in accordance with the following key laws, regulations and guidance:

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (42 USC 4601 as implemented through 49 CFR Part 24)
- FHWA's Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- WisDOT Facilities Development Manual Chapter 25, *Socioeconomic Factors*

4.2 General Methodology

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 homes displaced, a Conceptual Stage Relocation Plan may be prepared as part of the EIS. Impacts to homes as a result of changes in access during and after construction are also evaluated.

Evaluation of community 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. 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.

4.3 Project Specific Methodology

No additional projects specific methodology has been identified for I-43 North-South Freeway Corridor Study.

Section 5: Indirect and Cumulative Effects Methodology

5.1 Laws, Regulations and Guidelines

Indirect and cumulative effects are evaluated in accordance with these key regulations and guidance:

- Council on Environmental Quality (CEQ) *Regulations for implementing the Procedural Provisions of the National Environmental Policy Act*, 40 CFR, Section 1507.2.
- Council on Environmental Quality (CEQ) publication, *Considering Cumulative Effects under the National Environmental Policy Act*, 1997
- FHWA's Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- FHWA Interim Guidance: *Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process*, January 31, 2003
- 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 2007
- 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 320, Section 320.4(a)(1); Navigation and Navigable Waters, General Regulatory Policies, *General Policies for Evaluating Permit Applications* (U.S. Army Corps of Engineers Regulatory Program)

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, Council on Environmental Quality regulations for implementing the National Environmental Policy Act).

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, Council on Environmental Quality regulations for implementing the National Environmental Policy Act).

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 and cumulative effects analysis will be conducted using an expert panel approach. This approach is one of the forecasting tools described in NCHRP Report 466 and it has been used in many environmental impact studies in Wisconsin and nationwide, including recent projects on other portions of the southeast Wisconsin freeway system.

Section 6: Environmental Justice Impact Methodology

6.1 Laws, Regulations and Guidelines

Environmental justice impacts for transportation projects are evaluated in accordance with the following key Executive Order and guidance:

- Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, 1994
- FHWA *Guidance on Environmental Justice and NEPA*. Memorandum, December 16, 2011
- FHWA Order 6640.23A, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, June 14, 2012
- U.S. DOT Order 5610.2(a), *Final DOT Environmental Justice Order*, May 10, 2012
- WisDOT Facilities Development Manual 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)

6.2 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. 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. 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.

6.3 Project Specific Methodology

No additional project specific methodology has been identified for I-43 North-South Freeway Corridor Study.

Section 7: Historic Resources Impact Methodology

7.1 Laws, Regulations and Guidelines

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

- Sections 106 and 110 of the *National Historic Preservation Act* as amended (16 USC 470)
- 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, July 20, 2012)
- WisDOT Facilities Development Manual, Chapter 26, *Cultural Resource Preservation*

7.2 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), Native American Tribes, and other parties indicating an interest in the historic resources, and implementation of agreements reached to account for unavoidable adverse impacts.

7.3 Project Specific Methodology

A Phase 1 investigation will be done to determine whether there are any historically significant resources in the project's area of potential effect. The Phase 1 investigation will include a literature search to identify any properties or structures previously listed on the National Register of Historic Places and/or on state or local rosters; a reconnaissance survey of structures and properties in the project's area of potential effect; and Determinations of Eligibility to the National Register of Historic Places, if needed.

Section 8: Archaeological Resources Impact Methodology

8.1 Laws, Regulations and Guidelines

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

- Section 106 of the *National Historic Preservation Act* as amended (16 USC 470)
- 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, July 20, 2012)
- WisDOT Facilities Development Manual, Chapter 26, *Cultural Resource Preservation*

8.2 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.

8.3 Project Specific Methodology

A Phase 1 archaeological investigation will be done to determine whether there are any significant archaeological sites in the project's area of potential effect. The Phase 1 investigation includes a literature search to identify any previously recorded archaeological sites and a field survey conducted in accordance with established procedures developed jointly by WisDOT and the Wisconsin Historical Society.

Section 9: Section 4(f), 6(f) and Other Unique Lands Impact Methodology

9.1 Laws, Regulations and Guidelines

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 laws, regulations and guidance:

- 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, July 20, 2012)
- 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 Facilities Development Manual, Chapters 20, 21, and 26
- Other public use land funding programs such as those administered by DNR

It should be noted that 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.

9.2 General Methodology

The public use land impact evaluation includes an inventory of such resources in the project's area of potential 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 in accordance with 23 CFR 774 in terms of effects on the features, functions or attributes that qualify the property for Section 4(f) protection. The Lead Agencies 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.

9.3 Project Specific Methodology

No additional project specific methodology has been identified for the I-43 North-South Freeway Corridor Study.

Section 10: Aesthetics Impact Methodology

10.1 Laws, Regulations and Guidelines

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

- FHWA's Technical Advisory T6640.8A, *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 Facilities Development Manual, Chapter 27, Section 10, *Visual Impact Assessment*

10.2 General Methodology

The visual impact assessment includes identifying the visual character of the project corridor, characterizing the visual quality of the viewshed, identifying and quantifying viewer groups to the extent practicable, describing the visual change that will occur because of the proposed transportation improvements, qualitatively characterizing the change, and developing measures to mitigate adverse visual effects where a sensitive visual impact has been identified. Mitigation measures could include landscaping and aesthetic treatments on roadway components such as retaining wall, bridge abutments, and sidewalks.

10.3 Project Specific Methodology

Tools for assessing visual impacts will include computer generated photo simulations to depict changes in visual characteristics for the build alternatives that would cause the most change to the visual setting. No additional project specific methodology has been identified for the I-43 North-South Freeway Corridor Study.

Section 11: Wetlands Impact Methodology

11.1 Laws, Regulations and Guidelines

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

- Section 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, 1977 (42 FR 26961)
- U.S. EPA and USACE joint rule on Compensatory Mitigation for Losses of Aquatic Resources (33 CFR Parts 325 and 332; and 40 CFR Part 230)
- 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 Facilities Development Manual 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*, 2001 (Note: The Cooperative Agreement is currently being revised)
- Final National Wetland Plant List, U.S. Army Corps of Engineers, Federal Register, Vol. 77, No. 90, May 9, 2012.

11.2 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 Midwest Supplement for wetland delineations, 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. Wetland compensatory mitigation procedures and sequencing will conform to the U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA) joint rule on *Compensatory Mitigation for Losses of Aquatic Resources* (33 CFR Parts 325 and 332; and 40 CFR Part 230 – dated April 10, 2008). Compensatory mitigation will be consistent with amendments to the Cooperative Agreement between DNR and WisDOT on compensatory mitigation for unavoidable wetland losses (July, 2012), and the *WisDOT Interagency*

Coordination Agreement and Wetland Mitigation Banking Technical Guidelines with DNR, USACE, EPA, U.S. Fish and Wildlife Service (USFWS) and FHWA (March 2002).

11.3 Project Specific Methodology

Some wetlands in the area of potential effect for the build alternatives are located within primary environmental corridors (Silver Spring Drive interchange area and between Highland Road and County C/Pioneer Road). Wetlands within primary environmental corridors are part of EPA's Wetlands Advance Identification Program (ADID wetlands) developed under Section 404 of the Clean Water Act and administered in cooperation with the USACE, SEWRPC, and DNR. ADID wetlands are generally considered to be unsuitable for discharge of dredged or fill material. If impacts to wetlands (including ADID wetlands) are unavoidable, WisDOT will implement the wetland compensatory mitigation procedures discussed in Section 11.2.

Section 12: Water Resources Impact Methodology

12.1 Laws, Regulations and Guidelines

Water resource and floodplain impacts are evaluated in accordance with the following key laws, regulations or guidelines:

- Clean Water Act (33 USC 1251) including Section 303(d), impaired waters
- Executive Order 11988, Floodplain Management, 1977 (42 FR 26951)
- DOT Executive Order 5650.2, Floodplain Management and Protection; Policies and Procedures (23 CFR 650)
- 23 U.S.C. 650 Subpart A, Location and Hydraulic Design of Encroachments on Floodplains, FHWA Policy Guide, December, 1994
- 23 U.S.C. 650 Subpart B, Erosion and Sediment Control on Highway Construction Projects, FHWA Policy Guide, December, 1994
- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- WisDOT Facilities Development Manual 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*

12.2 General Methodology

Transportation improvement alternatives involving stream crossings and floodplains are developed to minimize impacts to water quality, floodplain values and stream hydraulics to the extent practicable through use of sound erosion control and storm water management practices, and by sizing new and replacement structures to minimize floodplain encroachment and increases in the regional (100-year) floodplain elevation.

Impact evaluation includes assessment of existing conditions such as water quality, fishery resources, floodplain functions and values, potential adverse effects to these conditions, and proposed measures to minimize the adverse effects. The evaluation also includes discussions with local agencies that administer local floodplain and/or shoreland protection ordinances.

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 potential effect. A planning level project generally includes conceptual best management practices. Other projects may require more specific erosion control and storm water management commitments.

12.3 Project Specific Methodology

A conceptual stormwater evaluation will be done for purposes of the I-43 North-South Freeway Corridor Study. The evaluation will include the following key elements:

Stormwater Quantity. This evaluation will determine approximate right-of-way needs for stormwater management by developing relationships between factors that affect stormwater runoff and the associated areas needed for best management practices (BMPs). These relationships will then be applied to drainage areas within the corridor to approximate the type and size of BMPs needed to control post-construction discharge rates.

Stormwater Quality. This evaluation will address stormwater quality in accordance with TRANS 401 criteria. Conceptual total suspended solids (TSS) removal rates for BMPs will be determined based on published data and in consultation with DNR. The TRANS 401 TSS removal standard for highway reconstruction projects is 40% on an average annual basis compared to no BMP controls.

Conceptual Stormwater Management Plan. A conceptual stormwater management plan will be prepared and summarized in the EIS. The conceptual plan will include information on existing drainage conditions, conceptual stormwater quantity and quality control measures, and preliminary locations for BMPs. 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 13: Upland Habitat Impact Methodology

13.1 Laws, Regulations and Guidelines

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

- *Fish and Wildlife Coordination Act* as amended (16 USC 661-667)
- FHWA policy, *Mitigation of 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 Facilities Development Manual Chapter 24, *Land and Water Resource Impacts*
- FHWA *Guidelines for Consideration of Highway Project Impacts on Fish and Wildlife Resources*, 1989

13.2 General Methodology

Upland habitat includes non-wetland areas in the project's area of potential effect 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. 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 help mitigate loss of upland wildlife habitat.

13.3 Project Specific Methodology

No additional project specific methodology has been identified for the I-43 North-South Freeway Corridor Study.

Section 14: Threatened and Endangered Resources Impact Methodology

14.1 Laws, Regulations and Guidelines

Threatened and endangered species impacts are evaluated in accordance with the following 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
- FHWA/USFWS guidance memo on Endangered Species Act consultation process, February 18, 2005
- 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 Chapter 24, *Land and Water Resources*

14.2 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 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, FHWA and WisDOT would proceed with consultation steps under Section 7 of the Endangered Species Act.

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 if needed to eliminate or reduce impacts.

14.3 Project Specific Methodology

No additional project specific methodology has been identified for the I-43 North-South Freeway Corridor Study.

Section 15: Agricultural Impact Methodology

15.1 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*

15.2 General Methodology

To the extent practicable, the proposed transportation action and its alternatives are developed to minimize farmland impacts and to 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).

15.3 Project Specific Methodology

No additional project specific methodology has been identified for the I-43 Corridor Study.

Section 16: Air Quality Impact Methodology

16.1 Laws, Regulations and Guidelines

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

- *Clean Air Act* as amended (42 USC 7401)
- *Determining Conformity of Federal Actions to State or Federal Implementation Plans* (40 CFR, Part 93), EPA
- FHWA air quality conformance guidance (23 CFR 450)
- *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 Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- FHWA *Interim Guidance on Air Toxics Analysis in NEPA Documents*, September, 2009
- Wisconsin State Implementation Plan

16.2 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.

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.

* *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.*

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.

16.3 Project Specific Methodology

EPA has re-designated the Milwaukee-Racine air quality area which includes Milwaukee and Ozaukee Counties, to attainment status for the 1997 8-hour ozone standard (Federal Register, Volume 77, No. 147, July 31, 2012).

Milwaukee County is currently designated as non-attainment for particulate matter (PM_{2.5}). EPA is proposing to determine that the Milwaukee-Racine air quality area has attained the 2006 (PM_{2.5}) air quality standard (Federal Register, Volume 77, No. 79, Tuesday, April 24, 2012). Ozaukee County is currently designated as being in attainment for particulate matter (PM_{2.5}).

The I-43 North-South Freeway project is included in a conforming regional transportation plan (2035 Regional Transportation System Plan for Southeastern Wisconsin). Therefore an ozone analysis is not required. The project is also included in an amendment to the 2011-2014 Transportation Improvement Program (TIP) for Southeastern Wisconsin (TIP No. 787: "Preliminary engineering for reconstruction of IH 43 from Silver Spring Dr. to STH 60 in Ozaukee and Milwaukee Counties (14.11 mi)". The TIP amendment was approved Resolution No. 2012-01 on January 19, 2012.

Projects in PM_{2.5} non-attainment areas require a qualitative hot-spot analysis if they are "projects of air quality concern" as defined in 40 CFR 93.123(b)(1). A hot-spot analysis is an estimation of future localized PM_{2.5} pollutant concentrations and a comparison of those concentrations to air quality standards. Transportation projects of air quality concern are those that would have a significant volume of diesel truck traffic or that would have intersection traffic operations at Level of Service (LOS) D or worse. Per FHWA and EPA transportation conformity guidance for qualitative hot-spot analyses, highways with greater than 125,000 annual average daily traffic (AADT) and 8% or more diesel truck traffic would be of air quality concern. Projected traffic for year 2040 in the I-43 project corridor is 120,500 AADT and the diesel truck traffic is expected to be less than 8% based on comparison to other freeways in the southeast region that have higher projected traffic volumes than I-43. Therefore a PM_{2.5} hot-spot analysis is not anticipated to be required at this time but will be reassessed as part of the environmental review process.

A qualitative Mobile Source Air Toxics (MSAT) analysis will be prepared in accordance with FHWA's February 2006 and September 2008 MSAT guidance. Per the MSAT guidance, a qualitative analysis is appropriate for Tier II projects (those with low potential for MSAT effects and design year traffic volumes less than 150,000 vehicles per day).

Section 17: Traffic Noise Impact Methodology

17.1 Laws, Regulations and Guidelines

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

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

17.2 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 current Traffic Noise Prediction Model (TNM)[®] 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 barriers. If noise mitigation is determined reasonable, additional public involvement related to noise mitigation would be initiated in the project's design phase. Noise analyses on Section 4(f) properties are conducted in consultation with FHWA.

17.3 Project Specific Methodology

Representative noise receptor sites along the project corridor that will potentially be affected by the build alternatives will be identified and existing sound levels will be field measured at these sites.

Section 18: Contaminated Sites Impact Methodology

18.1 Laws, Regulations and Guidelines

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

- *Resource Conservation and Recovery Act of 1976* as amended (42 USC 6901)
- National Emission Standard for Hazardous Air Pollutants of 1973 as amended (40 CFR Part 61)
- FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, 1987
- WisDOT Facilities Development Manual, Chapter 21, Section 35, *Contaminated Site Assessment and Remediation*

18.2 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 containing materials were used in the construction, renovation or rehabilitation of the highway structures.

Asbestos inspections on structures acquired for the project are conducted after acquisition has taken place.

18.3 Project Specific Methodology

A Phase 1 hazardous materials investigation will be conducted for the I-43 North-South Freeway Corridor Study. The investigation will encompass an approximate ¼ mile wide band centered on the I-43 freeway mainline, including Nicolet Road between Silver Spring Road and Good Hope Road, and Port Washington Road from Silver Spring Road to just north of the Milwaukee/Ozaukee County line. The investigation report will list parcels recommended for additional hazardous materials investigations. Additional Port Washington Road intersections in Ozaukee County will be investigated, depending on alternatives developed.

The investigation report will list parcels recommended for additional hazardous materials investigations. It will also note the potential for contaminated soils and groundwater, and identify the need for additional Phase 2 work.

Section 19: Construction Impact Methodology

19.1 Laws, Regulations and Guidelines

Construction impacts are evaluated in accordance with the following key 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*, Federal Register, Vol. 69, No. 174, September 9, 2004 (effective date October 12, 2007)

19.2 General Methodology

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.

19.3 Project Specific Methodology

No additional project specific methodology has been identified for the I-43 North-South Freeway Corridor Study.