ENVIRONMENTAL EVALUATION OF FACILITIES DEVELOPMENT ACTIONS

Wisconsin Department of Transportation
DT2094 8/2005

Project ID	Funding Source	Federal Number
1001-07-00	☐ State Only ☒ Federal	
Project Name (Highway, Airport, Rail Line)		Project Termini
IH 39/90		Illinois State Line to USH 12/18
Section	County	Estimated Project Cost (Include R/W Acquisition)
	Rock and Dane Counties	$420 million

It is determined, after review of the comments from the public, and coordination with other agencies, that this action would not significantly affect the quality of the human environment. This document is a

☐ Finding of No Significant Impact (FONSI).

☒ Environmental Assessment (EA) No Significant Impacts Indicated by Initial Assessment

☐ Environmental Assessment (EA) EIS Required

☐ Environmental Report (2-ER)

(Signature) (Date)

(Title)

(Signature) (Date)

(Title)

(Signature) (Date)
☐ Region, ☐ Aeronautics,
☐ Transit, Local Roads, Rails & Harbors

(Director, Bureau of Equity & Environmental Services) (Date)

(☐FHWA, ☐ FAA, ☐ FTA, ☐ FRA) (Date)

[redacted] 6/20/08
(Signature) (Date)
Project Manager
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[redacted] 06/23/2008
(Signature) (Date)
SW Region Planning Chief.
(Title)

(Signature) (Date)
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for (Director, Bureau of Equity & Environmental Services) 10 July 2008 (Date)
[redacted] 7/29/2008
(☒FHWA, ☐ FAA, ☐ FTA, ☐ FRA) (Date)

1) Description of Proposed Action (Attach project location map and other appropriate graphics).

The proposed project is located in Dane and Rock Counties in South-Central Wisconsin along Interstate Highway (IH) 39/90. The project begins at the Illinois State Line in Rock County, Wisconsin and continues north to, and including, the USH 12/18 interchange and its east, west, and north approach roadways in Dane County near Madison, Wisconsin. The project is approximately 45.5 miles long. A Project Location Map is shown in Figure 1-1 (page 1A).

The proposed improvement for IH 39/90 involves reconstructing the existing 4-lane divided interstate highway and adding an additional lane in each direction to create a 6-lane divided highway. Minor slope grading will be involved to update the clear zone area to current design standards. The proposed interstate highway will typically consist of three 12-foot travel lanes with 12-foot inside and outside shoulders in each direction separated by a variable width median. A median barrier will be constructed in those areas where the resultant median width would be less than 60 feet (inside edge to inside edge of driving lanes). See Exhibit A-1-4 in Appendix A for interstate roadway typical sections.

The general concept is to utilize the existing interstate highway right of way to the extent practical. Existing right of way varies along the IH 39/90 corridor between 230 and 650 feet wide. From the Illinois State line to north of the STH 26 interchange at Janesville, the additional interstate lanes are proposed to be added

in the current median area, and no additional right of way would be required for the mainline reconstruction.

From north of Janesville to the USH 12/18 interchange at Madison, the additional interstate lanes are proposed to be added in the current median areas where the current median is wider than 84-feet (edge to edge of driving lanes). If the current median width is 84-feet or less, it is proposed to place the additional interstate lane along the outside edge of the current roadway. Some additional right of way acquisition in the range of 0 to 20 feet would be required for the mainline reconstruction in these outside widening areas. No additional right of way would be required for the mainline reconstruction in the median widening areas. Existing beam guard will be analyzed during design to determine the cost effectiveness of removal vs. constructing safe clear/recovery zones.

Staging during construction would likely consist of bridge widening and use of permanent and temporary roadway to enable four lanes of traffic to safely operate on one side of the interstate while the other side is to be reconstructed, particularly at the Rock River. It is proposed to reconstruct each side of the interstate with full depth pavement for the three travel lanes, plus full depth pavement for the outside shoulder to allow four lanes of traffic to operate safely on one side of the interstate during the construction period. After the first side is reconstructed, then traffic would be shifted to the new pavement while the remaining side is reconstructed. The intent is to maintain all access during construction, including emergency vehicles. Details of this plan will be worked out in the Transportation Management Plan (TMP). The full-depth pavement on the shoulder would allow future conversion of the shoulder to a travel lane for added capacity and to maintain a Level of Service C on the interstate in future years (2035+) should travel volumes warrant an increase to eight lanes. Environmental impacts and costs associated with an auxiliary lane in each direction are considered in this Environmental Assessment.

Additionally, the 11 interchanges within the corridor will be reconstructed to update ramp configurations to current design standards, and to provide multilane divided roadways and bridges between ramp terminals on the connecting side road. Typical sections for interchange exit and entrance ramps will include 15-foot travel lanes, a 4-foot inside shoulder (3-foot paved), and an 8-foot outside shoulder (5-foot) paved.

Interchanges at CTH S, Avalon Road (STH 11 bypass), and CTH N are currently full diamond configurations, and the interchange at USH 51 is a trumpet configuration. These interchanges will be reconstructed to maintain their existing configurations, but will have improvements in ramp configurations and side road bridge crossings. Minor amounts of new right of way will be required at these interchange locations.

The current interchange at STH 11 is a full cloverleaf, and the interchanges at both STH 59 and at USH 51/STH 73 are partial cloverleafs. These interchanges are proposed to be reconstructed and modified from their current configurations to full diamond configurations to meet the area need and current design standards. New right of way will be required for the construction of the diamond ramps in those quadrants where no ramps presently exist.

The STH 26 and USH 14 interchanges at Janesville are located within about one-half mile of each other. These two interchanges are proposed to be reconstructed and connected to each other with a collector-distributor (C-D) road system to improve their operational safety. No new right of way will be required at the USH 14 interchange, and minor amounts of new right of way will be required at the STH 26 interchange.

The interchange at IH 43 is currently a full cloverleaf. This interchange was originally built in the 1960's as a service interchange to then State Highway 15 connecting the cities of Beloit and Milwaukee. Currently, this interchange operates as a system interchange between two high volume interstate highways, IH 43 and IH 39/90. It is proposed to reconstruct this interchange as a high speed free-flow systems interchange that connects IH 43 and IH 39/90 along with a slower-speed diamond service interchange that connects the interstate highways with State Highway 81 and local access to the City of Beloit. New right of way will be required for the reconstruction of this interchange.

The interchange at USH 12/18 is currently a partial cloverleaf. One of primary geometric deficiencies is the left hand off ramp for the northbound to westbound driver. It is proposed to reconstruct this interchange by putting the northbound and southbound interstate lanes in the current median area, and then utilizing the current lane footprints to create a collector-distributor (C-D) road system for southbound vehicles, and a right-hand exit ramp for northbound vehicles. The reconstruction limits will extend about one-half mile or more to the east, west, and north to fully transition the travel lanes in all directions. A minor amount of new right of way will be required at this interchange location.

At the State Line, the proposed action will incorporate lane continuity through the Illinois 75 interchange. Further, cost and design will be coordinated with the Illinois DOT.

2. Purpose and need of proposed action. Include description of existing facilities, abutting facilities, and how the action links into the overall transportation system. When appropriate, show that commitment for future work is not being made without evaluation, and that viable alternatives in a larger framework are not being unduly foreclosed.

The purpose of the proposed IH 39/90 improvements is to meet current design standards, improve overall safety, accommodate future traffic with an acceptable level of service (LOS), and to replace aging pavements and structures. The IH 39/90 corridor was built in the early 1960's. Currently, safety issues, design and pavement deficiencies, and traffic congestion require full reconstruction and redesign.

The project would neither necessitate nor foreclose future transportation improvements within the study area. It is consistent with local and regional transportation and land use planning objectives. The project would provide a safe and efficient transportation system in the IH 39/90 corridor to serve existing and future traffic demand while minimizing disturbance to the natural and built environment.

The following sections explain the need for the project.

2.1 Route Importance/System Linkage

IH 39/90 is a route of national, state, regional, and local importance. The route is included in the National Highway System (NHS) and is part of Interstate Highway and Defense System that was funded beginning in 1956. Interstate 90 is the longest, most northern, east-to-west interstate highway in the United States. Starting in Seattle, Washington and ending at Logan International Airport in Boston, Massachusetts, this coast to coast route is 3,020 miles long. IH 90 serves such northern cities as Seattle, Chicago, Cleveland, Buffalo, Albany and Boston.

IH 90 is one of the most important transportation corridors in Wisconsin, and is an integral part of the national interstate system. In 1992, IH 39 was added to the IH 90 designation in Wisconsin from the Illinois State line to eastbound STH 29 near Wausau. This designation created the largest triple concurrency of interstate highway (IH 39/90/94) in the country.

IH 39/90 is identified as a Backbone route by the Wisconsin Department of Transportation's (WisDOT) *Corridors 2020* Transportation Plan (Figure 2-1) and as a Principal Highway in the Blackhawk Corridor in *Connections 2030*. It serves as an important regional, state, and national link for business, industry and agriculture. It provides direct system access to several interstates, Backbone routes, and other highways of local and regional importance. These include:

- IH 43 – (*Corridors 2020* Backbone route) connects IH 39/90 with the Milwaukee metropolitan area
- STH 81 – (*Corridors 2020* Connector route) connects Beloit with IH 39/90 and IH 43
- CTH S -- (local and regional importance) connects Beloit and rural community with IH 39/90
- STH 11 bypass (Avalon Road) – connects Janesville industrial area with IH 39/90
- STH 11 – (*Corridors 2020* Connector route) connects Janesville with IH 39/90 (this is also important because it can serve as an alternate route during construction of IH 39/90)
- USH 14 – connects Janesville with IH 39/90 (this is also important because it can serve as an alternate

route during construction of IH 39/90)
- STH 26 -- (*Corridors 2020* Connector route) connects Janesville, Milton, Fort Atkinson, Jefferson, IH 94, Watertown, and Fox River Valley communities with IH 39/90
- STH 59 -- (local and regional importance) connects Edgerton, Newville, Whitewater, and Milton with IH 39/90
- USH 51 -- (local and regional importance) connects Edgerton and Stoughton with IH 39/90
- STH 73 -- (local and regional importance) connects Fort Atkinson with IH 39/90
- CTH N -- (local and regional importance) connects Stoughton with IH 39/90
- USH 12/18 -- (*Corridors 2020* Backbone and Connector route) connects Madison and surrounding communities with IH 39/90

IH 39/90 within the project corridor provides direct interstate access to the cities of Beloit, Janesville, and Madison. Outside of the project area, IH 39/90 connects to other main interstates and major highways making it an important route in connecting various major cities, including:

- Chicago, IL
- Milwaukee, WI
- Minneapolis, MN
- Green Bay, WI
- Eau Claire, WI

IH 39/90 is one of the largest gateways to Wisconsin's northwoods, a tourism mecca for both in-state and out-of-state tourists. Within the corridor area, IH 39/90 passes through Dane and Rock Counties, where tourism generated over $1.4 billion in revenues in 2006. North of the project area, the IH 39/90 corridor leads tourists to the Wisconsin Dells area which provides major year round recreational opportunities, and is a significant economic generator for Wisconsin.

The IH 39/90 corridor is a federal truck route, with about 30 percent of its total traffic volume consisting of heavy trucks. Truck route designation increases the importance of the route operating safely and efficiently. The high volume of trucks compared to statewide and nationwide averages signifies the importance of the route in movement of goods throughout the state and to other outside national destinations.

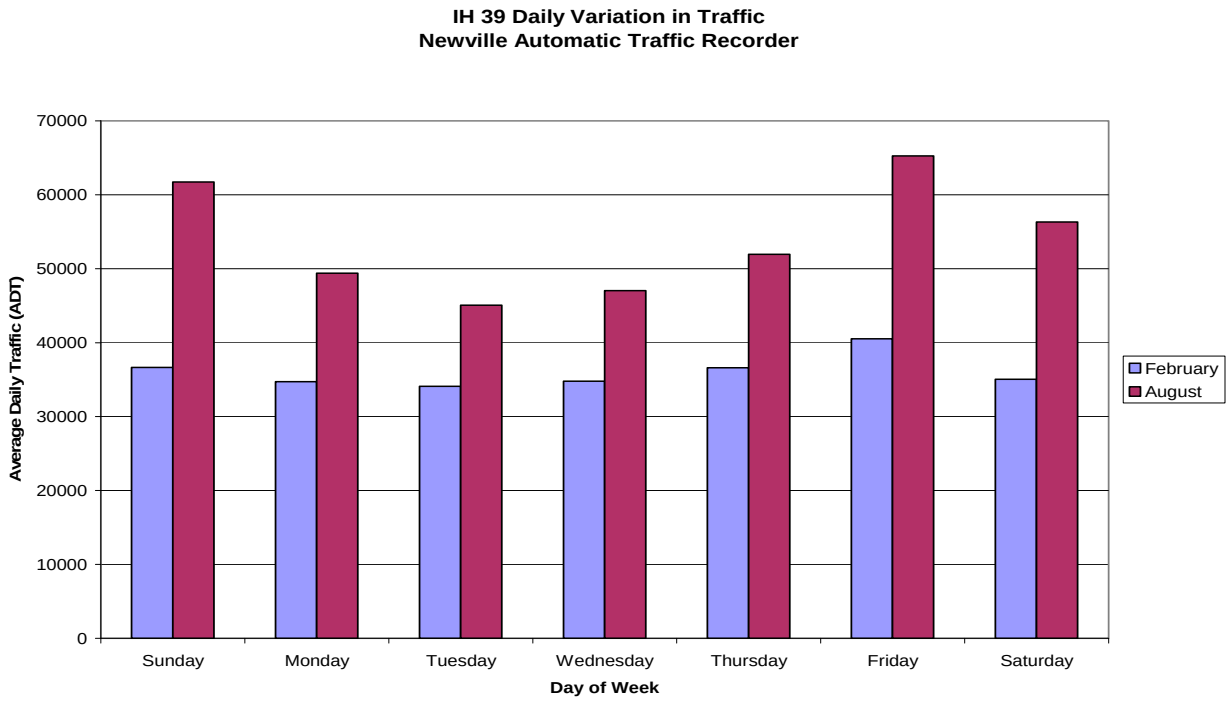
IH 39/90 serves as an important regional and local commuter route. Substantial traffic generators along the corridor include recreational, commercial, and industrial facilities in the Beloit, Janesville, and Madison areas. The route also provides local mobility (or ease of travel) for residents in communities along the corridor.

As an interstate and Backbone route, IH 39/90 must be able to carry heavy volumes of traffic while providing a high level of service. Increasing the mainline capacity and modernizing and reconfiguring interchanges on this segment of IH 39/90 between the Illinois State line and USH 12/18 is necessary to maintain a high level of service.

2.2 Traffic and Roadway Capacity

Existing traffic volumes are continually monitored on this IH 39/90 corridor by an automatic traffic recorder (ATR) at Newville, just south of the STH 59 interchange. The volume of traffic on this rural segment of IH 39/90 differs by month and day as shown on Table 2-1.

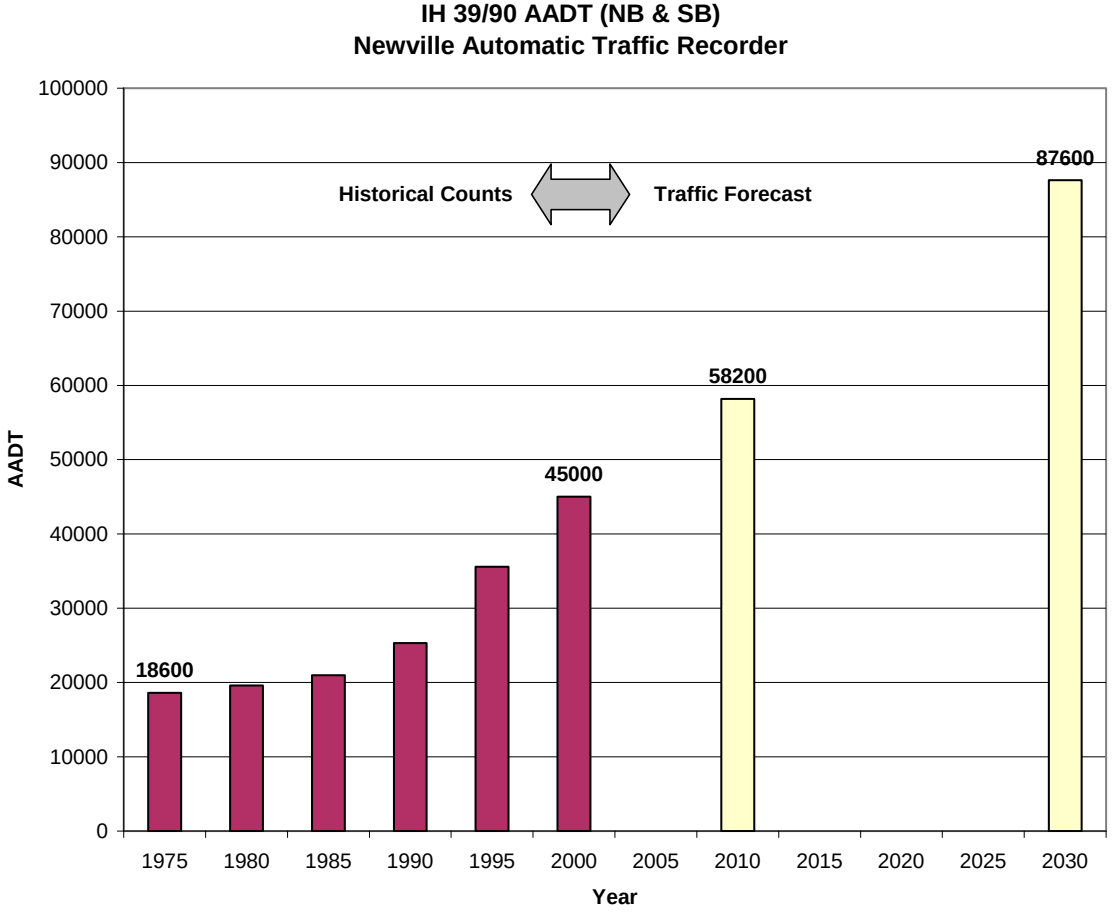
Table 2-1
IH 39/90 Daily Variation in Traffic



Also, interstate segments in developed areas such as Janesville and Beloit carry more volume than segments in undeveloped rural areas. Summer months and weekends have higher traffic volumes reflecting the importance of IH 39/90 to summer tourism travel.

Average annual daily traffic (AADT) was used as the basis for analysis of traffic for this project since it is consistent with accepted traffic procedures and there is a readily available data base. Table 2-2 details how traffic volumes have historically increased on the rural section of interstate highway at Newville, especially between 1990 and 2000. Note that the traffic volume on IH 39/90 at this location is one of the lower traffic volume sections in the project corridor.

Table 2-2
Average Annual Daily Traffic



Traffic in the corridor grew at an annual rate of 2.3 percent between the years of 1975 and 1990, and at an annual rate of 8.0 percent from 1990 to 2000, well over three times the rate traffic grew during the previous 15 years. Heavy trucks make up about 30 percent of the ADT.

The traffic volume projections for the design year 2030 were obtained from Rock and Dane County transportation planning models, which take into account anticipated land use and estimated travel patterns. The Rock County model was developed as part of this study. The Dane County model was obtained from the Dane County Metropolitan Planning Organization (MPO). Table 2-2 also shows the AADT projections for 2010 and 2030 at the Newville location. Appendix B contains the existing 2002 traffic volumes and the future traffic volumes for the No Build and the Build conditions for each segment of IH 39/90. These ADTs are also summarized in Table 2-3.

The volume of traffic a roadway carries is a gauge of how a roadway is being utilized. The roadway's level of service (LOS) is a more comprehensive indicator of how a roadway is performing. Table 2-3 summarizes the existing (2002), 2030 No Build and 2030 Build conditions for AADT and LOS for each segment of the corridor. The IH 39/90 No Build traffic volumes are lower than the Build traffic volumes in the design year. In the No Build condition, IH 39/90 is so congested that drivers choose alternate parallel routes, decreasing the volume on the interstate, increasing pressure on connector highways and local roads. The IH 39/90 Build condition traffic volumes reflect the projected demand of users on the interstate if the capacity constraints are ultimately removed.

Table 2-3
AADT and LOS for Existing and Design Year 2030

IH 39 / 90 Section	Year 2002		Year 2030					
	Existing		No Build (2 Lane)		Build (3 Lane)		Build (3 Lane + Auxiliary Lane)	
	AADT	LOS	AADT	LOS	AADT	LOS	AADT	LOS
State Line to IH 43	59,800	D	90,400	F	90,400	D	90,400	C
IH 43 to CTH S	51,000	C	71,000	D	77,100	C	77,100	N/A
CTH S to STH 11 Bypass	52,600	C	75,800	E	86,700	C	86,700	N/A
STH 11 Bypass to STH 11	55,000	C	77,400	E	91,100	D	91,100	C
STH 11 to USH 14	57,600	D	78,400	F	98,500	D	98,500	C
USH 14 to STH 26	51,000	C	76,400	F	97,300	D	97,300	C
STH 26 to STH 59	46,400	D	77,200	E	87,600	D	87,600	N/A
STH 59 to STH 73	45,400	C	79,200	F	85,200	C	85,200	N/A
STH 73 to USH 51	46,200	C	85,400	F	85,400	C	85,400	N/A
USH 51 to CTH N	43,400	C	80,400	F	80,400	C	80,400	N/A
CTH N to USH 12/18	46,600	D	85,800	F	85,800	C	85,800	N/A

N/A = No auxiliary lane desirable.

Level of service C indicates that the roadway is operating at or near the free-flow speed and minor incidents can be absorbed without traffic backups. Level of service D indicates that the roadway is operating slightly below the free-flow speed, but minor incidents will cause traffic backups. Level of service E indicates that the roadway is operating at capacity. The traffic stream offers no usable gaps to maneuver and any incident will cause extensive traffic backups. Level of service F describes breakdowns in traffic flow. Any maneuver, such as merging, weaving, or lane drop results in traffic backing up. It is desirable that a facility operates at LOS C in the design year.

Highways are typically designed for 20 years and, given the current year of 2008 and proposed construction no earlier than 2012 (dependent on project funding), forecast updates for 2035 are desirable. Straight-line forecasts were therefore made for 2035. The results, provided in Table 2-4, show LOS deteriorating further in 2035.

Table 2-4
AADT and LOS for Existing and Year 2035

IH 39 / 90 Section	Year 2002		Year 2035					
	Existing		No Build (2 Lane)		Build (3 Lane)		Build (3 Lane + Auxiliary Lane)	
	AADT	LOS	AADT	LOS	AADT	LOS	AADT	LOS
State Line to IH 43	59,800	D	95,900	F	95,900	D	95,900	C
IH 43 to CTH S	51,000	C	74,600	E	81,800	C	81,800	N/A
CTH S to STH 11 Bypass	52,600	C	80,000	E	92,800	C	92,800	N/A
STH 11 Bypass to STH 11	55,000	C	81,400	F	97,500	E	97,500	C
STH 11 to USH 14	57,600	D	82,100	F	105,800	E	105,800	C
USH 14 to STH 26	51,000	C	80,950	F	105,600	E	105,600	C
STH 26 to STH 59	46,400	D	82,700	F	95,000	D	95,000	N/A
STH 59 to STH 73	45,400	C	85,250	F	92,300	D	92,300	N/A
STH 73 to USH 51	46,200	C	92,400	F	92,400	D	92,400	N/A
USH 51 to CTH N	43,400	C	87,000	F	87,000	D	87,000	N/A
CTH N to USH 12/18	46,600	D	92,800	F	92,800	D	92,800	N/A

N/A = No auxiliary lane desirable.

As depicted on Tables 2-3 and 2-4, all segments of IH 39/90 will exceed the 60,000 AADT threshold for consideration of a six-lane facility by the design year 2030. Currently, segments in the corridor are operating at LOS C and LOS D. If no capacity improvements are made, the four-lane freeway (No Build condition) will operate at LOS E or LOS F in the design year, indicating breakdowns in traffic flow. In order to maintain acceptable operations on the interstate, a six-lane freeway (Build condition) is necessary. In some higher volume developed sections it may be necessary to construct an auxiliary lane in future years in order to achieve LOS C but that is not considered part of this project. With a six-lane freeway, IH 39/90 will operate at LOS C in the design year, or similar operations to the existing (2002) conditions.

2.3 Safety

There was an average of 608 crashes per year along the IH 39/90 corridor between the Illinois State line and Madison for the 6-year period of 2000 to 2005. Of these, 227 resulted in injuries and five in fatalities. Table 2-5 summarizes the 6-year average crash rates for each segment of IH 39/90.

Table 2-5
Crash Rate Summary

Segment	Segment Length (miles)	Interstate Type (rural or urban)	6-year Average	Statewide Average
State line to IH 43	**2.4**	**Rural**	***77***	**56**
IH 43 to CTH S	**2.3**	**Rural**	***68***	**56**
CTH S to STH 11 bypass	5.2	Rural	51	56
STH 11 bypass to STH 11	**2.5**	**Rural**	***69***	**56**
STH 11 to USH 14	3.2	Urban	56	101
USH 14 to STH 26	**0.8**	**Urban**	***170***	**101**
STH 26 to STH 59	**8.2**	**Rural**	***69***	**56**
STH 59 to STH 73	3.0	Rural	33	56
STH 73 to USH 51	3.7	Rural	49	56
USH 51 to CTH N	9.1	Rural	46	56
CTH N to USH 12/18	**5.1**	**Rural**	***80***	**56**
Entire Corridor	**45.5**	**Rural + Urban**	***61***	**56 (mostly rural)**

Rows in **BOLD** exceed the statewide average for crashes on rural/urban roadways.

Most crashes occur within interchanges, where weaving and merging movements for exiting or entering the interstate create traffic conflicts. Many crashes at interchanges involve fixed-object crashes, such as hitting bridges, parapets, or other barriers such as a guardrail. Statewide average crash rates are not available for interchanges, however the 11 interchanges within the corridor provide a baseline for comparison. Data from 2000 to 2005 shows the highest crash rate is at the USH 12/18 interchange (0.89 per million vehicles entering IH 39/90), and the lowest crash rate is at the STH 11 bypass (Avalon Road) interchange (0.34 per million vehicles entering IH 39/90).

2.4 Mainline Deficiencies

The horizontal alignment of IH 39/90 was evaluated by looking at the combination of existing curve radii and pavement superelevation to determine the existing design speed using current AASHTO standards. Design speed is defined as a speed determined for design and correlation of the physical features of a highway that influence vehicle operation. It is the maximum safe speed that can be maintained over a specified section of highway when conditions are favorable. This segment of IH 39/90 was designed and

constructed in the early 1960's. Since that time, design standards have been updated to allow facilities such as the interstate to operate more efficiently and safely. The posted speed limit for this segment of IH 39/90 is 65 mph.

There are 32 existing horizontal curves northbound on the 45-mile corridor. Based on existing (2008) design standards, eight of these curves have a design speed of 70 mph, seven have a design speed of 65 mph, and the remaining 17 have a design speed of 60 mph. No curve was found to have less than a 60 mph design speed rating. All of the northbound horizontal curves below 70 mph can be upgraded to 70 mph by increasing their superelevation rates.

There are 27 existing horizontal curves southbound on the 45-mile corridor. Based on existing (2008) design standards, seven of these curves have a design speed of 70 mph, three have a design speed of 65 mph, and 17 have a design speed of 60 mph. No curve was found to have less than a 60 mph design speed rating. All the southbound horizontal curves below 70 mph, except one, can be upgraded to 70 mph by increasing their superelevation rates. The one exception is a 65 mph (design speed and posted speed) mainline curve located at the south end of the USH 12/18 interchange. Achieving a 70 mph design speed on this curve, in conformance with the current six percent maximum superelevation standard, would require a new alignment with a greater radius curve.

Speed ratings for each vertical curve were derived based on the WisDOT Facilities Development Manual design standards. In the southbound direction, out of a total of 122 vertical curves, only two sag curves were rated at a design speed lower than the 65 mph posted speed. Similarly, in the northbound direction only two sag curves were found to be rated less than the 65 mph posted speed. The vertical curves for both the northbound and southbound directions are located at the Rock River crossing and between CTH M and Manogue Road in Rock County. The substandard sag curves were found to have a 55 mph design speed rating.

The existing vertical profile on this segment of the interstate exceed the design standard of three percent at two locations on the northbound lanes. The substandard vertical grades are both in a downhill direction, and therefore do not affect slow down in operating speeds of vehicles. One is located at the Rock River crossing (3.4 percent) and the other is between CTH M and Manogue Road (4.0 percent) in Rock County.

While not substandard, there also exist five northbound locations and two southbound locations that contain up to ¾ mile long uphill grades (2-3 percent) that slow down the operating speed of heavy trucks by 10 mph or more. The two southbound locations are between Church Road and CTH A in Dane County and at the Rock River crossing in Rock County. The five northbound locations are between CTH BB and CTH AB, the approach to the northbound weigh station, between CTH B and East Church Road, just south of East Church Road, and near CTH A, all in Dane County.

Due to the high volume of truck traffic on this highway, interstate design standards require a 12-foot wide outside or right shoulder rather than the current 10-foot width.

The existing pavement from the Illinois State line to the Rock River was constructed in 1983-84 as 10 inches of continuous reinforced concrete pavement (CRCP). This segment of interstate pavement was resurfaced in 2004 with a 3.5-inch hot mix asphalt (HMA), demonstrating that it has already outlived its initial construction service life of 20 years.

The use of CRCP in Wisconsin, and in most other states, is no longer preferred because of the higher cost of steel reinforcement, and because past history is showing the condition of the pavement tends to deteriorate at a faster rate than other types of concrete pavement choices. To add a new lane to the existing lanes in this segment would require the continued use of CRCP, and would require the new pavement being on a separate maintenance cycle than the adjacent existing lanes. This would result in frequent traffic control scenarios, and associated traffic slowdowns, being necessary along the interstate

during maintenance cycles.

The existing pavement from the Rock River north to Madison was constructed in 1989 to 1990 as 11 inches of jointed reinforced concrete pavement (JRCP). This segment of interstate is showing significant signs of deterioration and is approaching the end of its initial construction service life. With a HMA resurfacing in the next few years, this reconstruction project could be delayed for about eight years, fitting in well with the anticipated funding schedule for this project. Similar to the Illinois State line to Rock River segment, total reconstruction and pavement replacement becomes more cost effective because reconstruction will put the entire roadway pavement structure on the same maintenance cycle. With the resurfacing alternatives, two of the three lanes in either direction would be on a different maintenance cycle than the new lanes. A life-cycle cost analysis showed an approximate $30 million cost saving by reconstructing versus resurfacing.

2.5 Bridge Deficiencies

There are 90 bridges along this highway either carrying IH 39/90 over or under side roads, waterways, and railroads. Similar to the highway itself, all outside or right shoulder widths on the bridges do not meet the current 12-foot WisDOT standard. Bridge deck replacements for 26 bridges located in Rock County were completed in 2004. Of the remaining bridges, two bridges over the Rock River do not meet minimum clear roadway width standards of 38 feet for a 4-lane divided roadway, and two bridges over STH 26 do not meet desirable clear roadway width standards of 40 feet for a 4-lane divided roadway, though they do meet the minimum standards.

2.6 Interchange Deficiencies

Appendix E, Exhibits E-1 through E-10, show interchange deficiencies for each of the eleven interchanges in the IH 39/90 corridor. These interchanges in the IH 39/90 corridor were designed and constructed in the early 1960s. Since that time, design standards have been updated to allow facilities such as the interstate to operate more efficiently and safely. Most all of the interchanges were designed with a maximum horizontal curve superelevation rate of eight percent. Current standards for Wisconsin require no more than six percent superelevation. As a result, many of the ramp curve radii are too small by current WisDOT standards. In addition, since the initial interstate design, on and off ramp terminal configurations have changed considerably to provide safer exiting and merging movements. Consequently, nearly all the acceleration and deceleration distances currently provided at the interchange ramps are shorter than current design standards. Table 2-6 illustrates some of the more severe substandard ramp terminals.

Most interchanges have a single lane bridge between ramp terminals on the connecting side road. Current and long-term functionality of the connecting side roads indicate a need for multilane divided roadway and bridges between the ramp terminals to safely accommodate traffic volumes and turning movements.

Table 2-6 below provides directions in eastbound (eb) and westbound (wb) directions. IH 90 is an eastbound-westbound route that extends across the United States. However, IH 39 is a northbound-southbound route having dual designation with IH 90 in the project area. For purposes of discussion, IH 90 designation takes precedence, and eastbound-westbound directions are used to the extent possible herein. On a map, therefore, directions called out as eastbound will appear southbound and directions called out as westbound will appear northbound.

Table 2-6
Interchange Ramp Designs

Interchange Location	Existing Ramp Acceleration/Deceleration Distances	Current Design Standards

IH 43	wb and eb exits: 250' wb/sb entrance: 500'	530' Recommend parallel entrance. If tapered, L=1,200'
CTH S	All ramps: 250'	530'
STH 11	nb exit: 350' sb exit: 250' sb entrance: 469'	530' 530' Recommend parallel entrance. If tapered, L=1,200'
USH 14	nb exit: 300' and non-linear due to being located on mainline curve. sb exit: 250'	Recommend parallel entrance. If tapered, L=1,200' 530'
	nb entrance: 600' and tapered sb entrance: 350' and tapered	Parallel entrance with L=600'. If tapered, L=1,200'
STH 26	nb exit: 217'	530'
STH 59	nb exit: 525' sb exit: 250' nb entrance: Tapered with L=864' sb entrance: Tapered with L=936'	530' 530' 1,200' if tapered 1,200' if tapered
USH 51/STH 73	nb exit: 525' sb exit: 525' nb entrance: 900' tapered sb entrance: 900' tapered	530' 530' 1,200' if tapered 1,200' if tapered
USH 51	sb exit: 480' sb entrance to USH 51: 509' tapered nb entrance: 650' tapered sb exit from USH 51: 250' sb entrance to IH 39: 1,050'	530' 1,200' if tapered 1,200' if tapered 530' 1,200' if tapered
CTH N	nb exit: 480' sb exit: 480' nb entrance: 1,050' tapered sb entrance: 1,050 tapered	530' 530' 1,200' if tapered 1,200' if tapered

Following is a brief summary of geometric deficiencies at each of the 11 interchange locations.

IH 43 Interchange

This interchange is currently a full cloverleaf configuration that provides access to IH 43 and STH 81. The interchange was originally built in the 1960s as a service interchange to then STH 15 connecting the cities of Beloit and Milwaukee. During the mid 1970's, STH 15 was upgraded to a four-lane freeway, and in the mid 1980's, STH 15 had its designation changed to IH 43. As a result, this interchange, which was once a service interchange, currently operates as a system interchange between two high volume interstate highways, IH 39/90 and IH 43, and provides local access to the city of Beloit via STH 81.

The primary deficiency at this interchange is that the two heaviest traffic volumes, northbound IH 39/90 to eastbound IH 43 and westbound IH 43 to southbound IH 39/90, are served by single lane, low speed ramps that do not provide sufficient capacity for the traffic volumes. In addition, the four existing loop ramps have a design speed of 30 mph and should be replaced with higher speed (60 mph) directional or semi-directional ramps. The traffic weaving areas, between the IH 39/90 on and off ramps, have insufficient length for safe lane changes.

A secondary deficiency at this interchange is that drivers headed westbound on IH 43 have the perception that the high speed interstate continues into Beloit, whereas once west of the interchange the freeway becomes a state highway (STH 81) with side road access. A disproportionately high number of crashes, mostly sideswipes and rear-end collisions, result at the first set of signals just west of IH 39/90 because of this problem of perception. Conceptually, this interchange needs to emphasize that interstate-to-interstate connections are the dominant movements.

CTH S (Shopiere Road) Interchange

The two-lane bridge carrying Shopiere Road over the interstate does not meet current width requirements. This interchange is currently a diamond configuration that provides local access to CTH S, also known as Shopiere Road. As previously mentioned, the ramp pavement superelevation rates and ramp terminal acceleration/deceleration lengths at this interchange are substandard. The existing parapet and railings on the narrow bridge over the interstate create safety concerns due to sight distances at the ramp terminals. In addition, the southbound on ramp contains a substandard horizontal curve radius. Current WisDOT standards call for Shopiere Road to be divided at the interchange to prevent wrong way left turns onto the exit ramps.

STH 11 (Avalon Road) Interchange

The bridge carrying Avalon Road over the interstate does not meet width requirements for a future rural four lane divided roadway structure. This interchange is currently a diamond configuration that provides access to State Highway 11 to the west and Avalon Road to the east. The interchange was constructed in 1989, so it is fairly new. This interchange meets current design standards, with the exception of the ramp taper rate at the two off ramps.

STH 11 (E. Racine Street) Interchange

The bridge carrying E. Racine Street over the interstate does not meet current width requirements. This interchange is currently a full cloverleaf configuration that provides access to STH 11 and Bus. 14 to the east and local access to the City of Janesville to the west via E. Racine Street. The ramp pavement superelevation rates and ramp terminal acceleration/deceleration lengths at this interchange are substandard. The four loop ramps have horizontal curves that provide for a 25 mph design speed that is lower than the current 30 mph minimum standard. The existing traffic weaving areas, between the IH 39/90 on and off loop ramps, are approximately 500’ long, which is insufficient for vehicle acceleration onto IH 39/90. The at grade intersection of STH 11 and Midland Road is only 350’ east of a ramp taper which is lower than the current 1,000’ minimum WisDOT standard.

USH 14 Interchange

The bridge carrying USH 14 over the interstate does not meet current width requirements. This interchange is currently a partial cloverleaf configuration that provides access to STH 14 and the City of Janesville. The ramp pavement superelevation and ramp terminal acceleration/deceleration lengths at this interchange are substandard. The loop ramp in the southwest quadrant functions at a design speed of 25 mph which is less than the current 30 mph minimum standard. The two at grade intersections, Pontiac Drive and Deerfield Drive, on opposite sides of the interchange, are spaced less than the minimum design standard (250’) to the ramp tapers resulting in operational deficiencies on USH 14.

STH 26 Interchange

The bridge carrying STH 26 over the interstate does not meet current width requirements. This interchange is currently a partial cloverleaf configuration that provides access to STH 26 and the City of Janesville. This interchange is located ½ mile north of the USH 14 interchange, which is less than the standard urban interstate two-mile interchange spacing. Consequently, the distances on IH 39/90 between successive (merge/diverge) on and off ramps for the two interchanges are not long enough. In addition, the distance between successive ramps within the STH 26 interchange is too short. As traffic demand from Janesville and on IH 39/90 increases, the merging and weaving movements will reduce the level of service on IH

39/90. WisDOT has recently constructed auxiliary lanes on IH 39/90, between on and off ramps, to improve traffic flow. Both loop ramps have substandard radii, design speed, and superelevation.

STH 59 Interchange

The bridge carrying STH 59 over the interstate does not meet current width requirements. This interchange is currently a partial cloverleaf configuration that provides access to STH 59. Acceleration and deceleration distances for merging and exiting traffic to and from IH 39/90 are substandard. Both loop ramps have substandard radii, design speed, and superelevation. Directly across from the east ramp terminal is a commercial driveway for a fast food restaurant. This interchange configuration causes directional confusion to both travelers on STH 59 and customers from the restaurant needing to get back on the interstate. STH 59 is an undivided roadway and therefore does not provide protection against wrong way left turns onto the off ramps.

USH 51/STH 73 Interchange

The bridge carrying USH 51/STH 73 over the interstate does not meet current width requirements. This interchange is currently a partial cloverleaf configuration that provides access to USH 51 to the west and STH 73 to the east. Acceleration and deceleration distances for merging and exiting traffic to and from IH 39/90 are substandard. Both loop ramps have substandard radii, design speed, and superelevation. The USH 51/STH 73 crossroad is an undivided roadway and therefore does not provided protection against wrong way left turns onto the off ramps.

USH 51 Interchange

The bridge carrying USH 51 over the interstate does not meet current width requirements. This interchange is currently a trumpet configuration (three-leg) that provides access to USH 51. Acceleration and deceleration distances for merging and exiting traffic to and from IH 39/90 are substandard. The single loop ramp has substandard radii, design speed, and superelevation. The CTH A at grade intersection is located approximately 500’ from the end of the ramp tapers which does not meet the minimum intersection spacing of 1000’.

CTH N Interchange

The bridge carrying CTH N over the interstate does not meet current width requirements. This interchange is currently a diamond configuration that provides access to CTH N. Acceleration and deceleration distances for merging and exiting traffic to and from IH 39/90 are substandard. The CTH N crossroad is an undivided roadway and therefore does not provide protection against wrong way left turns onto the off ramps.

USH 12/18 (West Beltline) Interchange

The bridge carrying the West Beltline over the interstate does not meet current width requirements. This interchange is currently a semi-direct, partial cloverleaf configuration that provides access to USH 12/18. The west leg of this interchange serves USH 12/18 (west beltline), a major traffic corridor leading into and around the City of Madison. As a result, the heaviest traffic movements at this interchange are to and from the west beltline. One of the primary geometric deficiencies is the left hand off ramp for the northbound to westbound driver. Research has shown that the left hand exits are contrary to driver expectations and less safe than the conventional right hand exits. Similarly, because the southbound off ramp is at the end of approximately 40 miles of the outside mainline through lane, drivers tend to make sudden lane changes in the area of the lane drop. Finally, there is insufficient merge distance and substandard sight distance at the right point where the westbound to northbound ramp converges with the eastbound to northbound ramp. Acceleration and deceleration distances at the ramp terminals are substandard.

3. Summary of the alternatives considered and if they are not proposed for adoption, why not. (Identify which, if any, of the alternatives is the preferred alternative.)

This section is separated into two parts. Section 3.1, discusses the summary of alternatives considered for the mainline of IH 39/90. Section 3.2 discusses the summary of alternatives considered for each of the 11

interchanges within the IH 39/90 study limits.

3.1 IH 39/90 Mainline

The purpose of the proposed IH 39/90 improvements is to meet current design standards, improve overall safety, accommodate future traffic with an acceptable level of service (LOS), and to replace aging pavements and structures on a corridor having national, state, regional, and local importance. An alternative that satisfies the project purpose should reduce congestion and travel time, enhance safety, provide an adequate level of service for forecast traffic volumes, support local community needs and interests, replace aging pavement and structures, and accommodate regional and national transportation needs of those communities along IH 39/90.

Two mainline alternatives were considered in order to continue providing safe and efficient transportation through the corridor, a No Build Alternative and a Build Alternative with three options. The Build Alternative with three options was developed to meet the purpose and need of the project. A primary consideration included in the development of the Build Alternative was the need to maintain four lanes of traffic during construction. Also considered in the development of the Build Alternative was the need to upgrade the "clear zone" area to reduce the amount of guardrail needed throughout the corridor. The alternatives brought forward in the analysis are:

1. No Build Alternative
2. Transportation Demand Management Alternative
3. Transportation System Management Alternative
4. Build Alternative, with Options:
    i. Outside Travel Lane Option
    ii. Inside Travel Lane Option
    iii. Reconstruction Option

No Build Alternative

The No Build Alternative does not meet the purpose and need requirements of this project. IH 39/90 was originally built as a four-lane divided freeway in the 1960's. Since that time, the average daily traffic volumes (ADT) have increased in the rural area from 18,600 vehicles in 1975 to 45,000 vehicles in 2002, or about 4.7 percent per year. About 30 percent of these vehicles consist of heavy trucks. Traffic volumes are higher in urban segments of IH 39/90, and they are higher on weekends.

Under the No Build Alternative the freeway would continue to receive regular bridge and roadway maintenance, though no improvements would be conducted. The No Build Alternative would not improve the highway's ability to handle increasing volumes. According to traffic studies, the existing freeway would achieve LOS of F by 2030, with substantial backups along the freeway and overloading of other roadways in the area.

Over the past 45 years, design standards have been updated to allow facilities such as the interstate to operate more efficiently and safely. The existing IH 39/90 interstate mainline now has some geometric deficiencies as a result of the updated design standards. Along the route, 17 northbound horizontal curves and 17 southbound horizontal curves were rated at design speeds less than the posted 65 mph speed. The No Build Alternative does nothing to correct these deficiencies.

Existing longitudinal grades on this segment of the interstate exceed the design standard of three percent at two locations on the northbound lanes. The high volume of truck traffic on this interstate requires a 12-foot wide outside or right shoulder rather than the current 10-foot width. The bridges along this highway either carrying IH 39/90 over or under side roads, waterways, and railroads are substandard design, all outside shoulder widths on the bridges do not meet the current 12-foot WisDOT standard. The No Build Alternative does not correct these deficiencies.

The No Build Alternative has fewer environmental impacts but would not be consistent with the *Corridors 2020* plan and its intended highway function as a Backbone route of national, regional, state, and local importance. Although the No Build Alternative does not meet the purpose and need and does not improve the highway's safety or LOS, this alternative was carried forward as a detailed study alternative to serve as a baseline for comparison to the Build Alternative's three options and for evaluation of their environmental impacts.

Transportation Demand Management Alternative

The Transportation Demand Management Alternative attempts to reduce the number of auto trips in the corridor through increased transit ridership. Van Galder Bus Company currently operates 14 daily trips from Janesville to Madison and 22 daily trips from Madison to Janesville. Service is also offered from Madison/Janesville to the following destinations in Illinois: South Beloit, Rockford, Downtown Chicago, O'Hare airport, and Midway airport.

In addition to these regional transit options, the Cities of Madison, Janesville, and Beloit operate local bus routes. Madison Metro operates an extensive bus service within the City of Madison. Service is offered seven days a week and on holidays. Weekday buses start as early as 5:00 AM and run as late as 1:00 AM. On the weekends, service typically operates from approximately 7:00 AM until 11:00 PM.

The Janesville Transit System (JTS) offers regular bus service Monday through Saturday on six routes inside Janesville and the Beloit-Janesville Express that operates weekdays between the two cities. Bus service hours are from 6:15 AM – 10:15 PM Monday through Friday and from 8:45 AM – 6:15 PM on Saturdays. The Beloit-Janesville Express (BJE) route provides 12 weekday round trips between the two cities. The Beloit Transit System (BTS) also offers regular bus service Monday through Saturday on 5 routes inside Beloit. Hours of operation are from 6:00 AM – 5:30 PM Monday through Friday and from 9:00 AM – 4:00 PM on Saturdays.

Although improvements and/or expansions to the bus services currently in the corridor would be beneficial to the traveling public, they would not address the need to correct the operational, geometric, and aging pavement and structure deficiencies on existing IH 39/90. For these reasons, the Transportation Demand Management Alternative was not carried forward to the detailed study stage.

Transportation System Management Alternative

The Transportation System Management Alternative attempts to maximize the efficiency of the highway system to help alleviate or postpone the need to expand capacity. Transportation System Management (TSM) measures are designed to improve traffic flow and safety. Examples of TSM measures for the IH 39/90 corridor include improving intersection capacity, widening shoulders, adding traffic signals, and a variety of Intelligent Transportation Systems (ITS) measures such as ramp metering, variable message signs, closed-circuit cameras that post images of traffic conditions, crash investigation sites, and enhanced freeway patrols.

The Transportation System Management Alternative will not, by itself, meet the purpose and need for the project, and fully address the operational, geometric, and aging pavement and structure deficiencies on existing IH 39/90. For these reasons, the Transportation System Management Alternative, by itself, was not carried forward to the detailed study stage. The preferred alternative may include TSM elements, and the environmental impacts and costs associated with ITS elements are considered in this Environmental Assessment.

Build Alternative

The Build Alternative improves the ability of the roadway to meet traffic demands safely and efficiently by improving the existing roadway and connections to it. This alternative meets the purpose and need requirements of this project while minimizing impacts to the natural and human environment. In each of its three options, it addresses capacity and level of service, corrects geometric and operational problems associated with safety, replaces aging pavement and structures, and will provide system continuity and

roadway function consistent with a Backbone route of national, regional, state, and local importance. The Build Alternative was evaluated in this report on environmental factors, right of way required, and construction cost.

Three options to the Build Alternative were considered. The Outside Travel Lane Option added a new travel lane in each direction along the outside (right shoulder) edge, and included resurfacing the existing interstate lanes. The Inside Travel Lane Option also added a new travel lane in each direction, but along the inner median edge, and included 12-foot travel lanes. The Reconstruction Option consisted of total reconstruction of the existing interstate lanes while at the same time adding a third lane in each direction.

All three options ultimately provide similar capacity, LOS, and safety. All three options may include ITS elements. Exact ITS technologies will be studied and determined during the design phase, and may include measures such as ramp metering, detection, incident management, signal improvements, surveillance, traffic flow management, and traveler information. During design, alternative routes for interstate traffic will be studied for possible improvements needed to handle diversion of traffic during construction and incident management.

After evaluating engineering and environmental factors for the Build alternative along the mainline, and careful consideration of comments from various agencies, affected communities and property owners, the Reconstruction Option of the Build Alternative is recommended. The Outside Travel Lane and Inside Travel Lane Options would meet the purpose and need criteria, and would have a lower initial cost than the Preferred Build Alternative. A present worth life-cycle cost analysis showed the Reconstruction Option to have about a $30 million cost savings over the Travel Lane Options. In addition, the Travel Lane Options would require more frequent maintenance cycles on the interstate lanes, resulting in additional costs and frequent traffic control concerns. For these reasons, the Travel Lane Options were dismissed from further consideration. The Preferred Build Alternative is shown on Exhibit C-1 in Appendix C.

Preferred Build Alternative: The preferred Build Alternative consists of the removal and reconstruction of the existing freeway lanes with the addition of a third lane during reconstruction to create a 6-lane divided highway. Minor slope grading will be involved to update the clear zone area to current design standards. The proposed interstate highway will typically consist of three 12-foot travel lanes with 12-foot inside and outside shoulders in each direction separated by a variable width median. A median barrier will be constructed in those areas where the median width will be less than 60 feet (inside edge to inside edge of driving lanes). See Exhibit A-1 in Appendix A for interstate roadway typical sections.

It is proposed to reconstruct each side of the interstate with full depth pavement for the three travel lanes, plus full depth pavement for the outside shoulder to allow four lanes of traffic to operate safely on one side of the interstate during the construction period. The intent is to maintain all access during construction, including emergency vehicles. Details of this plan will be worked out in the Transportation Management Plan (TMP). The full-depth pavement on the shoulder would allow future conversion of the shoulder to a travel lane for added capacity and to maintain a Level of Service C on the interstate in future years (2035+) should travel volumes warrant an increase to eight lanes.

The general concept for the Preferred Build Alternative is to stay within the existing interstate highway right of way to the extent practical. Existing right of way varies along the IH 39/90 corridor between 230 and 650 feet. From the Illinois State Line to north of the STH 26 interchange at Janesville, the additional interstate lanes are proposed to be added in the current median area, and no additional right of way would be required for the mainline reconstruction. This placement was the most cost effective for this segment, and was supported by the cities, townships, and property owners along the corridor and preserved farmland. This placement was also supported by the fact that 28 bridges south of Janesville had been redecked and widened to the inside in 2001 and 2002, thus there will be no cost of improvement to these bridges if the third lane was added to the inside.

From north of Janesville to the USH 12/18 interchange at Madison, the additional interstate lanes are

proposed to be added in the current median areas in which the current median is wider than 84 feet (edge to edge total width of driving lanes). If the current median is 84 feet or less, it is proposed to place the additional interstate lane along the outside edge of the current roadway. This minimizes the use of median barriers which become necessary for safety should the median width narrow to less than 60 feet. Some additional right of way in the range of 0 to 20 feet on each side would be required for the mainline reconstruction in these outside widening areas. No additional right of way would be required for the mainline reconstruction in the median widening areas.

The preservation of the median area, and the elimination of the need for median barriers when practical, was supported by Dane County and cities and townships along this segment of IH 39/90 north of Janesville. The preserving of the median area has the advantage of maintaining a green space for surface water runoff and visual appearance, as well as for future transportation uses. In addition, the Dane County Highway Department stated a significantly higher maintenance cost for maintaining a barrier median area versus a grassed area. The advantage with the reconstruction alternative is that the ultimate location for lane placement can be adjusted slightly. In areas where the median is currently greater than 60 feet wide, the entire alignment can shift toward the median to reduce the amount of additional right of way required, still without necessitating a median barrier. If the freeway was only resurfaced and the additional lane was added to the outside, more right of way would have to be purchased to construct the third lane.

The general concept for staging during construction is to perform work necessary to widen bridges, and to use a combination of permanent and temporary roadway to enable four lanes of traffic to safely operate on one side of the interstate while the other side is reconstructed. After the initial side is reconstructed, then traffic would be shifted to the new pavement while the second side is reconstructed. The intent is to maintain all access during construction, including emergency vehicles. Details of this plan will be worked out in the Transportation Management Plan (TMP). Plans for management of stormwater and erosion control during and after construction will be developed during the design phase of the project.

Interstate bridges from the Illinois State Line to north of the STH 26 interchange at Janesville were re-decked and widened sufficiently into the median area to handle 4 lanes of traffic during 2004-5. A construction staging scenario in this area could consist of adding 28 feet of permanent and temporary roadway to one side of the freeway in the median area in order to handle four lanes of traffic (two in each direction) during construction. This would free up the other side for total reconstruction. The first side to be reconstructed would have three 12-foot travel lanes, plus a full depth 12-foot shoulder to function as a fourth travel lane during reconstruction of the second side. The full depth pavement on the shoulder also allows a future conversion of the shoulder to a travel or auxiliary lane for added capacity on the interstate in future years should travel volumes warrant it.

From north of Janesville to the USH 12/18 interchange at Madison, a construction staging scenario could include bridge work and widening as an initial phase of construction. Adding 28 feet of permanent and temporary roadway to one side of the freeway, either the median area or adjacent to the outside lanes, could then occur to handle four lanes of traffic (two in each direction) during construction. Again, this would free up the other side for total reconstruction. The typical section, including a full depth pavement on the shoulder, would be similar to that described above. More detailed traffic control and staging plans will be prepared during final design phases of this project and funding availability for project segments is known..

The Reconstruction Option of the Build Alternative addresses the aging pavement condition in the corridor, as identified in the purpose and need. The increased pavement service life will decrease the need for frequent traffic control along the interstate.

The reconstruction alternative also allows for less right of way acquisition and less environmental impacts than widening on the outside. In concept, the removal of the existing lanes allows reconstruction to take place on a slightly revised alignment. This will permit the flexibility to maximize use of the existing interstate right of way while minimizing use of median barrier.

Other Alternatives: No other alternatives were considered. New alignments would produce significant impacts in developed, developing, and rural areas at significant financial cost. Using the current alignment is the only reasonable Build Alternative for this project.

3.2 IH 39/90 Interchanges

The 11 interchanges in the corridor, with the exception of STH 11 bypass (Avalon Road), were designed and constructed in the early 1960's. Since that time, interchange design standards have been updated, and on and off ramp configurations have been modified to provide safer exiting and merging movements. Consequently, almost all of the acceleration and deceleration lane distances provided at the existing interchange ramps are shorter than current design standards.

Most interchanges have a single lane in each direction between ramp terminals on the connecting side road. Current and long term functionality of the connection side roads indicate a need for multilane divided roadway and bridges between ramp terminals to safely accommodate traffic volumes and turning movements. All eleven interchanges in the IH 39/90 corridor are proposed for reconstruction due to the need to update ramp configurations and, in most locations, the need to provide multilane divided roadways and bridges between ramp terminals on the connecting side roads.

A ***No Build Alternative*** was included in the analysis of each interchange. Under this alternative, each interchange would continue to receive regular bridge and roadway maintenance, though no improvement would be conducted. The interchange No Build Alternative does not solve any of the interchange geometric or operational deficiencies, replace aging pavement and structures, or meet local community needs. The interchange No Build Alternative does not meet the purpose and need nor do they improve the highway's safety or LOS.

Most of the interchanges could be improved under the Build Alternative. Each interchange alternative was evaluated using a matrix that considers operational factors, safety, environmental impact, implementation, and cost. This evaluation matrix is included in Appendix D.

The following sections discuss the Build Alternative(s) for each interchange and outline the reasons for the preferred interchange alternatives. The preferred Build Alternatives for each interchange were selected after evaluating engineering and environmental factors for interchange alternatives (see Appendix D), and careful consideration of comments from various agencies, affected communities and property owners.

IH 43/STH 81

This interchange was originally designed and constructed to function as a service interchange connecting what was then State Highway 15 to IH 90. Over the years, State Highway 15 was upgraded to a four-lane freeway and had its designation changed to Interstate Highway 43. As a result, this interchange currently operates as a system interchange between two high volume interstate highways, IH 39/90 and IH 43, and also provides local access to the city of Beloit via STH 81.

Conceptually, design of this interchange needs to emphasize that interstate-to-interstate connections are the dominant movements and they need to be accomplished by right-hand exit and entrances. Proposed design speeds for free flow interstate-to-interstate system interchange connections are 60 mph. Since westbound to northbound and its reverse movement are both relatively low in volume, it may be possible to save substantial right of way in the northeast quadrant by using a lower design speed. Two Build Alternatives were evaluated for this interchange:

Alternative 1 -- Free Flow
Alternative 2 -- Free Flow with Diamond

Both Build Alternatives improve existing operational conditions by eliminating weaving movements and providing right-hand acceleration and deceleration lanes of sufficient lengths for the interstate-to-interstate connections. Exhibit E-1 in Appendix E shows the interchange deficiencies and the two Build Alternatives

considered for this interchange.

Preferred Interchange Alternative – Alternative 2 -- Free Flow with Diamond*:* The Free Flow with Diamond Alternative (Figure 3-1) provides for high-speed 60 mph directional connections for interstate-to-interstate movements. Slower speed connections to STH 81 and the City of Beloit are provided by a diamond interchange. This alternative allows drivers who mistakenly exit IH 39/90 to re-enter IH 39/90 or enter IH 43, and provides a backup interchange for the directional ramps in the event of an incident or construction. The Free Flow with Diamond Alternative provides a greater distance between the west diamond ramp terminal and the first side road, Freeman Parkway. This alternative is considered to be preferable because it provides better traffic flow and roadway design, requires less right of way, and is less costly.

Other Alternatives: Alternative 1 provides free-flow traffic movements for all connections. Interstate-to-interstate connections are made by high-speed directional ramps, and STH 81 connections utilize a semi-directional ramp and a tight loop ramp. This alternative provides less distance between the west ramp terminal and the first side road, Freeman Parkway. This alternative is more costly, requires more right of way and scored lower on the interchange evaluation matrix (Appendix D).

CTH S (Shopiere Road)

Only one Build Alternative was evaluated for this interchange. Due to the rural nature and lower traffic volumes of this interchange, a diamond configuration is the only reasonable alternative for the interchange. Exhibit E-2 in Appendix E shows the interchange deficiencies and the alternative considered for this interchange.

Preferred Interchange Alternative -- Diamond: The Diamond Alternative for this interchange (Figure 3-2) has a design speed of 40 mph on the ramps. The preferred alternative includes reconstructing CTH S as a divided four-lane roadway in the interchange area. The preferred alternative provides sufficient acceleration and deceleration lengths for interstate exit and entrance ramps. CTH S will be divided and ramp alignments will be offset to prevent wrong-way entrances onto the interstate. The narrow bridge on CTH S over IH 39/90 will be updated. The southbound exit ramp terminal at CTH S will provide sufficient sight distance. Despite these improvements, existing access points along CTH S will remain less than 1,000 feet from exit ramp terminals, both west and east of IH 39/90. This alternative does have a higher score on the interchange evaluation matrix than the No Build Alternative (Appendix D).

STH 11 (Bypass) (Avalon Road)

Only one Build Alternative was evaluated for this interchange. The interchange was constructed in 1989 and meets current design standards, with the exception of the ramp taper rate at the two off ramps. Additionally, there is a need to provide a multilane divided roadway and bridges between the ramp terminals. Due to the rural nature of this interchange, a diamond configuration is the only reasonable alternative for the interchange. Exhibit E-3 in Appendix E shows the interchange deficiencies and the alternative considered for this interchange.

Preferred Interchange Alternative -- Diamond: The Diamond Alternative for this interchange (Figure 3-3) provides sufficient acceleration and deceleration lengths for interstate exit and entrance ramps. It includes reconstructing STH 11 Bypass/Avalon Road as a divided four-lane roadway, and ramp alignments will be offset to prevent wrong-way entrances onto the interstate. This alternative is consistent with anticipated growth in the immediate area and does not preclude any options under current study determining the need for connecting the STH 11 Bypass from Janesville to I-43. That study, known as the *US 14/WIS 11 Corridor Study*, extends from just west of Janesville east to the I-43/US 14 interchange ramp. Alternatives for the Corridor Study are currently being evaluated. In addition, this alternative has a higher score on the interchange evaluation matrix than the No Build Alternative (Appendix D).

STH 11 (Racine Street)

Two Build Alternatives were evaluated for this interchange:

Alternative 1 -- Cloverleaf
Alternative 2 -- Diamond

Both Build Alternatives provide sufficient acceleration and deceleration lengths for interstate exit and entrance ramps. Importantly, weaving sections are eliminated from the interstate through movement. Exhibit E-4 in Appendix E shows the interchange deficiencies and the two alternatives considered for this interchange.

***Preferred Interchange Alternative – Alternative 2 -- Diamond**:* The preferred alternative is Alternative 2, a diamond interchange configuration (Figure 3-4). This alternative does not provide free-flow movements in any direction to Racine Street, with the exception of northbound IH-39 to eastbound STH 11. Alternative 2 also corrects an access spacing deficiency between the IH 39/90 exit terminal and Midland Road along eastbound STH 11. This alternative is considered preferable because it removes high speed free-flow ramps in close proximity to local urban signalized intersections, provides a more conventional type diamond configuration, provides better traffic flow overall, allows adjacent local road connections to remain open, requires less right of way, and is less costly.

***Other Alternatives**:* Alternative 1 provides a full cloverleaf interchange that utilizes a collector-distributor roadway (Exhibit E-4, Appendix E). The tight loop ramps have a design speed of 30 mph while three of the outer connection ramps have design speeds of 50 mph and one has a design speed of at least 40 mph. The City of Janesville has expanded its municipal boundaries east of the interstate, and this interchange location no longer needs higher speed exit ramps because of the surrounding development and signalized intersections along STH 11 (Racine Street) that have occurred since its initial construction. Alternative 1 does not rectify the access spacing deficiency between the IH 39/90 exit terminal and Midland Road along eastbound STH 11. This alternative is more costly, requires more right of way, and scored lower on the interchange evaluation matrix (Appendix D).

USH 14 & STH 26

The USH 14 and STH 26 interchanges are situated very close together, posing potential problems that are best considered simultaneously. Three Build Alternative were evaluated for this interchange:

Alternative 1 – Partial Cloverleaf at USH 14 and STH 26
Alternative 2 – Diamond at STH 26 and USH 14
Alternative 3 – Partial Cloverleaf at STH 26 and Diamond at USH 14 with Collector-Distributor (CD) Road Connecting Interchanges

All three alternatives allow all acceleration and deceleration lengths to be designed to current standards and ease traffic flow from the interstate system to the connector routes. All three alternatives propose construction of a new underpass bridge and roadway connecting Pontiac Drive (west of the STH 26 interchange) and existing development with Deerfield Drive and future development. The proposed roadway (Ryan Road) is a 4-lane undivided urban roadway with bike lanes in each direction and 5-foot sidewalks on both sides of the roadway. Traffic projections indicate that about 10,000 AADT would utilize this connection by 2030, thereby reducing a similar amount of vehicles needing to go through the interchanges on STH 26 or USH 14. In 2004, auxiliary lanes were added to northbound and southbound lanes between USH 14 and STH 26. Exhibit E-5 in Appendix E shows the interchange deficiencies and the alternatives considered for this interchange.

***Preferred Interchange Alternative – Alternative 3 -- Partial Cloverleaf/Diamond with CD Road**:* The preferred alternative is Alternative 3 (Figure 3-5). This alternative provides a CD roadway – similar to a frontage road – between the two interchanges for slower speed local traffic to enter and exit the interstate. The local traffic volumes for USH 14 and STH 26 are estimated to be about 30,000 AADT by the design year 2030. STH 26 is a Connector Route on WisDOT's *Corridors 2020* plan, and is currently under design for improvement as a four lane divided freeway/expressway between Janesville and Watertown. The preferred interchange alternative for STH 26 maintains the partial cloverleaf loop ramps, and free flow

condition, for the heavier southbound STH 26 to southbound IH 39/90 and northbound STH 26 to northbound IH 39/90 movements. USH 14 would be reconstructed to a diamond configuration for better signalization and traffic flow. STH 26 is proposed as a 6-lane divided urban roadway (3 in each direction separated by a 30-foot raised median), with a 10-foot combination pedestrian/bicycle path along the east side of the road. This alternative is considered preferable because of the three alternatives it manages traffic flow best.

***Other Alternatives**:* Alternative 1 utilizes partial cloverleaf configurations for both the USH 14 and STH 26 interchanges (Exhibit E-5, Appendix E). This proposed alternative is essentially the existing system designed to current standards, adding needed turning movements at ramp terminals adjacent to USH 14 and STH 26 to ease traffic flow. This alternative does not manage traffic flow as well as the preferred alternative and requires additional right of way. This alternative scored lower on the interchange evaluation matrix (Appendix D).

Alternative 2 utilizes a diamond configuration for both the USH 14 and STH 26 interchanges (Exhibit E-5, Appendix E). This alternative allows southbound IH 39/90 traffic to exit to USH 14, a traffic movement that currently is not served. This alternative does not manage traffic flow as well as the preferred alternative due to the close spacing of the two interchanges, and presents potential weaving conflicts between entrance and exit ramps. This alternative scored lower on the interchange evaluation matrix (Appendix D).

STH 59

Three Build Alternative were evaluated for this interchange:

Alternative 1 – Partial cloverleaf
Alternative 2 – Diamond ramps west side and partial cloverleaf east side
Alternative 3 – Diamond with roundabout ramp terminals

Each alternative allows all acceleration and deceleration lengths to be designed to current standards. For Alternatives 1 and 2, STH 59 would be reconstructed as a four-lane divided roadway in the area of the interchange. Alternative 3, because of the use of roundabout ramp terminals, allows STH 59 to remain as a two-lane rural highway, and allows a two-lane structure crossing the interstate to be on a straight alignment rather than on a curve. Exhibit E-6 in Appendix E shows the interchange deficiencies and the alternatives considered for this interchange.

***Preferred Interchange Alternative – Alternative 3 – Diamond with Roundabout Ramp Terminals**:* The preferred alternative is Alternative 3, a diamond with roundabout ramp terminals (Figure 3-6). The diamond configuration addresses the existing high speed southbound IH 39/90 exiting vehicles going into a low speed sharp STH 59 loop ramp. The diamond configuration also eliminates the confusing northbound STH 59 to northbound IH 39/90 movement. The use of roundabout ramp terminals allows for STH 59 to remain as a two-lane rural highway, and allows the interchange structure to be constructed on a straight alignment rather than on a curve, all resulting in cost savings. This alternative also realigns the intersection of STH 59 and Goede Road to provide better spacing between the intersection and the northbound exit ramp terminal. The diamond configuration allows WisDOT to construct a future park and ride lot in the excess right of way in the southeast quadrant. A park and ride lot at this location is compatible with WisDOT's long range plans. Alternative 3 is considered preferable because it provides better traffic flow, has better design characteristics, costs less, and allows space for a future park and ride lot.

***Other Alternatives**:* Alternative 1 is a partial cloverleaf configuration that essentially replaces the existing facility, but is designed to current standards (Exhibit E-6, Appendix E). This alternative is more costly and does not resolve the STH 59 northbound to IH 39/90 northbound driver perception concern for location of an entrance ramp opposite a frontage road. This alternative scored lower on the interchange evaluation matrix (Appendix D) than the preferred alternative.

Alternative 2 combines a diamond configuration for southbound interstate traffic and a partial cloverleaf

configuration for the northbound interstate traffic (Exhibit E-6, Appendix E). This alternative addresses the current west side interchange ramp concerns, but not the east side concerns. This alternative is more costly, does not improve traffic flow, and scored lower on the interchange evaluation matrix (Appendix D) than the Preferred Alternative.

USH 51/STH 73

Two Build Alternatives were evaluated for this interchange:

Alternative 1 – Partial cloverleaf
Alternative 2 -- Diamond

Both Build Alternatives allow all acceleration and deceleration lengths to be designed to current standards. The southbound IH 39/90 to southbound USH 51 off ramp will be moved northward, improving the separation distance of the ramp and Albion Road along USH 51 by nearly 400 feet. In addition, USH 51 and STH 73 would be reconstructed as a four-lane divided roadway in the area of the interchange. The ramps would be designed with offset alignments to prevent wrong-way entrances onto IH 39/90. Exhibit E-7 in Appendix E shows the interchange deficiencies and the alternatives considered for this interchange.

***Preferred Interchange Alternative – Alternative 2 -- Diamond**:* The preferred alternative is Alternative 2, a diamond interchange configuration (Figure 3-7). This configuration provides proper access spacing between exit terminals and adjacent intersections along USH 51 and STH 73. It also provides a right-hand turning movement for trucks leaving the truck stop in the adjacent southwest quadrant to enter southbound IH 39/90. This alternative is considered preferable because it uses less right of way, lessens wetland impacts, is more easily implemented, and is less costly.

***Other Alternatives**:* Alternative 1 utilizes a partial cloverleaf configuration with a realigned frontage road along northbound IH 39/90 and STH 73 that provides 1,000 feet of space between the northbound exit terminal and the intersection of STH 73 and the frontage road (Exhibit E-7, Appendix E). However, the intersection of Albion Road and USH 51 is less than 1,000 feet from the southbound IH 39/90 exit terminal. This alternative maintains the existing left-hand turning maneuver for northbound USH 51 vehicles to southbound IH 39/90. This alternative is more costly and scored lower on the interchange evaluation matrix (Appendix D).

USH 51

Only one Build Alternative was evaluated for this interchange. A large wetland to the east of the existing interchange limits possible changes. There are no roadways east of the interstate that require an easterly extension of USH 51. Exhibit E-8 in Appendix E shows the interchange deficiencies and the alternative for this interchange.

***Preferred Interchange Alternative -- Trumpet**:* The preferred alternative utilizes the current trumpet configuration but updates the design to current geometric standards, including design speeds of 60 mph adjacent to IH 39/90 ramp terminals and 50 mph adjacent to USH 51 ramp terminals (Figure 3-8). The tight loop ramp would have a design speed of 30 mph. Signing on the interstate for this interchange would also be improved. This is necessary because drivers regularly exit at this interchange, mistakenly assuming the interchange provides access to northbound and southbound USH 51.

The Preferred Alternative allows all acceleration and deceleration lengths to be designed to current standards. This alternative does have a higher score on the interchange evaluation matrix than the No Build Alternative (Appendix D).

CTH N

Only one Build Alternative was evaluated for this interchange. Due to the rural nature of this interchange, a diamond configuration is the only reasonable alternative for the interchange. Exhibit E-9 in Appendix E shows the interchange deficiencies and the alternative for this interchange.

Preferred Interchange Alternative -- Diamond*:* The preferred alternative utilizes the current diamond configuration (Figure 3-9). The preferred alternative allows all acceleration and deceleration lengths to be designed to current standards. In addition, CTH N would be reconstructed as a four-lane divided roadway in the area of the interchange to accommodate future growth, particularly growth in the Stoughton area to the south. The ramps will be designed with offset alignments to help in preventing wrong-way entrances onto IH 39/90. The nearest access driveway on CTH N will remain within 1,000 feet of the southbound exit terminal. This alternative does have a higher score on the interchange evaluation matrix than the No Build Alternative (Appendix D).

USH 12/18 (West Beltline)

Four Build Alternative were evaluated for this interchange:

Alternative 1 – Existing footprint but relocate southbound lanes to median and use existing southbound lanes as collector-distributor road

Alternative 2 – Same as Alternative 1, and move northbound lanes to median and use existing northbound lanes as right-hand exit ramp to Cambridge and Madison (eliminates left-hand exit to Madison)

Alternative 3 – Same as Alternative 2, and move eastbound USH 12/18 lanes to median and create right-hand exit to IH 39/90 for eastbound USH 12/18 vehicles

Alternative 4 -- Free Flow

This interchange is currently a semi-direct, partial cloverleaf configuration. Alternatives 1, 2 and 3 are sequentially phased variations of the existing configuration that maximize the use of the existing lanes and footprint of the interchange. Each provides an additional level of improvement that addresses the deficiencies at this location. Alternative 4 is a modification of the existing interchange to provide high speed free-flow movements in all directions. Exhibit E-10 in Appendix E shows the interchange deficiencies and the alternatives considered for this interchange.

Preferred Interchange Alternative – Alternative 3 – Partial Cloverleaf with Directional Ramps*:* The preferred alternative is Alternative 3. This alternative moves the IH 39/90 southbound lanes to the median area. It uses the existing southbound lane footprint to create a collector-distributor (C-D) roadway for southbound exit and entrance ramps, including the tight loop ramps (Figure 3-10). The southbound IH 39/90 exit ramp to westbound USH 12/18 would be realigned slightly to allow a design speed of 60 mph. The merge distance for the USH 12/18 eastbound and westbound to northbound IH-39 ramps would be lengthened.

The northbound IH 39/90 lanes would be relocated and reconstructed parallel to the southbound lanes in the median and separated by a barrier. The existing northbound lane footprint would then be used as a right-hand exit for northbound IH 39/90 vehicles to either eastbound (Cambridge) or westbound (Madison) USH 12/18. This eliminates the current left-hand exit for northbound IH 39/90 vehicles into Madison.

The eastbound USH 12/18 lanes would be relocated and reconstructed parallel to the existing westbound USH 12/18 lanes. The existing eastbound USH 12/18 lane footprint would then be used as a right-hand exit for eastbound USH12/18 vehicles that want to exit to IH 39/90 either in the northbound or southbound direction.

This alternative is considered preferable because it provides the best combination of capacity, traffic flow, and roadway design. It maximizes the use of the existing USH 12/18 interchange footprint and minimizes environmental impacts, particularly wetland impact. It is easily implemented and has a reasonable cost for the benefits it provides.

Other Alternatives*:* Alternative 1 is similar to the preferred alternative, except that the northbound IH 39/90 lanes would not be reconstructed (Exhibit E-10, Appendix E). The IH 39/90 northbound auxiliary lane would be lengthened to improve traffic merging movements. This alternative was not selected because it does not

address all the deficiencies at this location, particularly the northbound IH 39/90 to westbound USH 12/18 left-hand exit.

Alternative 2 is also similar to the preferred alternative with the exception that the eastbound USH 12/18 lanes would not be relocated (Exhibit E-10, Appendix E). This alternative was not selected because the relocation of the eastbound USH 12/18 lanes, while not needed immediately, will be required by the design year 2030, and it would be preferable to widen and construct structures to accommodate this future relocation now.

Alternative 4 reconstructs the interchange as a high-speed free-flow interchange (Exhibit E-10, Appendix E). The only ramp to remain in its existing condition is the tight loop ramp that serves traffic from westbound USH 12/18 to southbound IH 39/90. Northbound IH 39/90 lanes would be reconstructed parallel to the southbound lanes with a barrier median. Mainline USH 12/18 would remain on its existing alignment. This alternative was not selected as it would require more right of way, would impact more wetlands, would be difficult to implement, and scored relatively lower on the interchange evaluation matrix (Appendix D).

4. In general terms, briefly discuss the construction and operational energy requirements and conservation potential of the various alternatives under consideration. Indicate whether the savings in operational energy are greater than the energy required to construct the facility.

   Energy requirements for construction of the Preferred Alternative would be greater than those required for the No Build Alternative. Operational energy requirements for the Preferred Alternatives would be less than those required for the No Build Alternative. Over the design life of the facility, savings in operational energy would be greater than the energy required to construct the facility.

5. Describe existing land use (Attach land use maps if available).

   a. Land use in immediate area.

      The majority of the 45-mile corridor is adjacent to farmland or open space. As the corridor passes through the cities of Madison, Janesville, and Beloit, commercial and industrial land uses are common. In Madison, there is some residential development in the southwest quadrant of the I-39/90 and USH14/18/151 interchange, and the corridor passes through several miles of residential development in Janesville, between the USH 14/26 and USH 11 interchanges. Most development along the rest of the corridor in Janesville is commercial or industrial. In Beloit, most development adjacent to the corridor is commercial, with some industrial on the southeast quadrant of the I-43 interchange. See also Tables 6-1, 6-2, and 6-3, below.

   b. Land use in area surrounding project area.

      The most prevalent land use in the area surrounding the immediate project area is farmland and open space. Developed areas in the cities of Madison, Janesville, and Beloit contain residential, commercial, and industrial development. See also Tables 6-1, 6-2, and 6-3 below.

6. Briefly identify adopted plans for the area and discuss whether the proposed action is compatible with the plan. (For example, the following may be considered: Regional Planning Commission Plans, Transportation Improvement Program, State Transportation Improvement Plan, Local zoning and land use plans, DOT Storm Water Management Plans, others.)

   The Preferred Build Alternative is compatible with currently adopted plans for the area The plans are summarized below.

Table 6-1
Summary of Town Land Use Plans

Town	Year Land Use/Zoning Adopted/ Amended	Approximate % of Town designated for long-term ag. preservation	Agricultural or rural planning/zoning category	Density policy in agricultural or rural area	Notes
Dane County					
Summary:	All towns are under county A-1 Exclusive Agricultural zoning, and allow a density of 1 dwelling unit (d.u.) per 35 acres (ac) of land owned as the basis for controlling the number of new dwelling units. Each town's density policies have small differences that result in variations in the actual density allowed. Most towns try to limit new non-farm development to areas with soils that are not suitable for farming.				
Town of Albion	1999	85%	Agricultural Preservation Land Use District	1 d.u. per 35 ac	Areas designated as appropriate for future development include land within the Lake Koshkonong limited sewer service area, rural residential areas between Goede Road and IH 39/90 and north of the City of Edgerton, and a planned recreational district between the Interstate and Lake Koshkonong. The Town is updating their Plan as part of the Southeast Dane County Comprehensive Planning process.
Town of Blooming Grove	2000	20%	Agricultural Preservation Land Use District	1 d.u. per 35 ac	The Town designates a small percentage of its land for agricultural preservation. All land in the Town is subject to Madison's extraterritorial jurisdiction. The Town is updating its Plan as part of the Southeast Dane County Comprehensive Planning process.
Town of Christiana	2003	100%	Agricultural Preservation Land Use District	1 d.u. per 35 ac	The Town plans no areas for more intensive development.
Town of Pleasant Springs	2003	90%	Agricultural Preservation Land Use District	1 d.u. per 35 ac	Most land along I-39/90 is designated for agricultural preservation, except for some land around the County N interchange planned for commercial use. The Town is updating their Plan as part of the Southeast Dane County Comprehensive Planning process.
Rock County					
Summary:	Each town in Rock County has their own zoning. All towns have at least three different agricultural zoning categories. The majority of each town is under A-1 zoning, which essentially allows 1 dwelling unit/35 acres. The towns commonly limit non-farm development to areas with soils that are poor for farming.				

Town	Year Land Use/Zoning Adopted/ Amended	Approximate % of Town designated for long-term ag. preservation	Agricultural or rural planning/zoning category	Density policy in agricultural or rural area	Notes
Town of Fulton	2000	80%	A-1 Ag. Dist.	1 d.u. per 35 ac	Some new rural residential development planned east of IH 39/90, near Newville. Commercial highway interchange uses designated for all quadrants of WIS 59 interchange.
Town of Harmony	1998	80%	A-1 Ag. Dist.	1 d.u. per 35 ac	The Town has designated some rural residential growth areas, which are mainly around existing rural subdivisions. Janesville has annexed significant portions of land in the southwest corner of the Town. Town is looking to work with the County on updating to Smart Growth standards.
Town of Janesville	1997	60%	A-1 Exclusive Ag. Dist.	1 d.u. per 35 ac	Town has a large amount of rural residential development, particularly adjacent to the west side of the City.
Town of La Prairie	2003	95%	A-1 Exclusive Ag. Dist. (see note)	1 d.u. per 50 ac	La Prairie is extremely committed to preserving agricultural land. The Town recently created a new category, "A-4 Agricultural," to replace A-1 Agricultural, which essentially raises allowable density to 1 dwelling unit per 50 acres. No non-agricultural uses are planned in the town.
Town of Milton	2001	80%	A-1 Ag. Dist.	1 d.u. per 35 ac	Designated transition areas near Milton and Lake Koshkonong.
Town of Turtle	1998	70%	A-1 Ag. Dist.	1 d.u. per 35 ac	Designated areas for more intensive regional commercial uses around the Shopiere Road interchange, with mixed use indicated south of the interchange.

Table 6-2
Summary of City Land Use Plans

Municipality	Adopted Plans	Existing Land Uses in IH 39/90 Corridor	Planned Land Uses in IH 39/90 Corridor
Dane County			
Madison	City of Madison Peripheral Development Plan, 1990. City of Madison Marsh Road Neighborhood Plan, 1999.	Industrial and commercial development near the I-39/US 12-18 interchange.	The Marsh Neighborhood Plan for the southwest quadrant of the interchange shows industrial and residential development south of 12/18. The rest of the interchange area is also generally recommended for industrial and residential development.
Stoughton	City of Stoughton Master Plan, 1992.	The City does not plan to grow into the IH 39/90 corridor area within the planning period of their master plan. However, the Interstate is extremely important to the City's economic vitality.	
Rock County			
Milton	City of Milton Comprehensive Plan, 1999. Currently working on update.	The City's Comprehensive Plan does not show growth to the Interstate. However, access to the Interstate via WIS 26 is an important resource for the City.	
Edgerton	City of Edgerton Master Plan 1994. City of Edgerton Zoning Ordinance, 1999. Currently working on Smart Growth Comprehensive Plan.	The City does not plan to grow into the IH 39/90 corridor area in the time period of their plan. However, Interstate access is important to the City's economic vitality, particularly the business/industrial park on the City's northeast side.	
Janesville	City of Janesville Southeast Area Plan, 1987. City of Janesville Comprehensive Planning Program, 1982; City of Janesville Northeast Area Plan, 1999. Currently working on update to Southeast Area Plan. Comprehensive Plan update to start in 2006.	Land use is primarily commercial near the WIS 26 and USH 14 interchanges. Residential areas exist on either side of I-39/90 south of the USH 14 interchange. The area around the WIS 11 interchange has some existing industrial uses.	North of WIS 26 interchange, planned office and residential. Between WIS 26 and USH 14 interchanges, high-quality commercial. Surrounding the USH 11 interchange, primarily industrial.
Beloit	City of Beloit Comprehensive Plan, 1996. City of Beloit Zoning Ordinance.	Some commercial and rural residential development in the SW and NE quadrants of the Shopiere Road interchange (inn the Town of Turtle). The IH 43 interchange has existing industrial development in the SW quadrant and a commercial use (truck stop) in the NW quadrant. The SE quadrant is the Gateway Area, with industrial, commercial, and residential areas.	The Gateway development has commercial and industrial uses adjacent to the interchange, with multi-family residential. The northeast and northwest quadrants of the IH 43 interchange are planned for mostly future residential development.

Table 6-3
Summary of Planning Agency Plans

Agency	Plan	Recommendations/Programmed Improvements
Madison Area Metropolitan Planning Organization	Transportation Improvement Program for the Dane County Area 2008-2012	Asphalt overlay USH 12/18 to USH 51 east of Stoughton
Stateline Area Transportation Study	Stateline Area Bicycle and Pedestrian System Plan; Transportation Improvement Plan 2003-2008	Improved pedestrian and bicycle access over Interstate at Shopiere Road Asphalt overlay IH 39, USH 14 to State Line
WisDOT	US 14/WIS 11 Corridor Study	Improved mobility, access and safety on US 14/WIS 11 that meets the local and regional transportation needs of the corridor, including using portions of USH 14 and WIS 11 as alternate routes in the event of a closure or incident on IH 39/90.

7. Early coordination with Agencies.

a. Intra-Agency Coordination

i) Bureau of Aeronautics

☒ No - Coordination is not required. Project is not located within 2 miles (3.22 kilometers) of a public or military use airport, nor would the project change the horizontal or vertical alignment of a transportation facility located within 6.44 kilometers (4 miles) of a public use or military airport.

☐ Yes - Coordination has been completed and project effects have been addressed. Explain.

ii) Regional Office Real Estate Section

☒ No - Coordination is not required because no inhabited houses or active businesses will be acquired.

☐ Yes - Coordination has been completed. Project effects and relocation assistance have been addressed. Conceptual Stage Relocation Plan attached as Exhibit _____.

b. Interagency Coordination

STATE AGENCY	COORDINATION	COMMENTS
	Correspondence Attached Y/N	Explain or give results. If no correspondence is attached to this document, indicate when coordination with the agency was initiated and, if available, when coordination was completed.
Agriculture (DATCP)	Y	Coordination with DATCP is complete. See Appendix F, pages 14 and 36. An Agricultural Impact Statement was published 2/29/08. Concern about drainage impacts was the one most widely expressed by land owners. See summary of recommendations in Appendix G, pages 8-9.
Natural Resources (DNR)	Y	Air Management -- Screening review not necessary at this time. See Appendix F, page 1. Bureau of Endangered Resources -- NHI review letter 5/31/06. See Appendix F, pages 7-10. Southern District -- See Appendix F, pages 18-19, 24-35, and 39-43.
State Historical Society (SHS)	Y	In a letter dated 12/3/07, the Wisconsin Historical Society concluded that the proposed undertaking will result in no historic properties affected pursuant to 36 CFR 800.4(d)(1). See Appendix F, page 37.
Others:		
FEDERAL AGENCY		
Advisory Council on Historic Preservation (ACHP)	N	No coordination with ACHP required.
US Army Corps of Engineers (USACOE)	Y	E-mail from COE to FHWA on 02/02/06 asking for range of wetland and waterway impacts, and major issues on projects. Response e-mail to COE on 02/13/06. See Appendix F, pages 2-3. Information letter summarizing wetland, woodland, and stream impacts sent to COE on 06/15/06.
US Environmental Protection Agency (EPA)	Y	Information letter summarizing wetland, woodland, and stream impacts sent to EPA on 06/15/06. E-mail esponses received on 06/30/06 indicating no problems with an EA being prepared. See Appendix F, page 11. Email response received 07/12/06 providing tips for EA regarding responses to wetlands and water bodies. See Appendix F, page 12.
National Park Service (NPS)	No	No coordination with NPS required.
Natural Resource Conservation Service (NRCS)	Y	Farmland Conversion Impact Rating Form (Appendix F, page 13). Comments returned by NRCS 08/7/07 state there are no viable alternatives for the project, the provisions of the FPPA do not apply, and no further action is needed. See Appendix F, page 23.
US Coast Guard (USCG)	Yes	Letter dated 12/11/07 determines the project does not involve bridges over navigable waters of the US, and no USCG bridge permit is required. See Appendix F, page 38.
US Fish & Wildlife Service (FWS)	Yes	Letter dated 6/28/07 identifies a species of rattlesnake found in similar habitats in Rock County, the need to minimize impacts to migratory birds, the need to avoid and, where unavoidable, mitigate wetland impacts. See Appendix F, pages 20-22.
Other(Identify) Native American Tribes	Y	Letter received from: *Sac and Fox Nation of Missouri in Kansas and Nebraska on 03/17/06 indicating no objection regarding project. See Appendix F, page 4. *Ho Chunk Nation on 03/27/06 requesting to be kept informed of arch and historical studies. See Appendix F. page 5. *Sac & Fox Nation of the Mississippi and Iowa on 04/05/06 indicating no objection regarding project. See Appendix F, page 6.

c. Local Government Coordination

LOCAL UNIT OF GOVERNMENT	COORDINATION	COMMENTS
	Correspondence Attached Y/N	Explain or give results. If no correspondence is attached to this document, indicate when coordination with the agency was initiated and, if available, when coordination was completed.
Dane County	N	Local residents, business people, and government agencies were kept informed of the project through a policy/study committee and two Public Involvement Meetings during the course of the project.
Northern Rock County	N	Same as above
Southern Rock County	No	Same as above
City's and Townships in Dane & Rock Co nearby to IH 39/90 corridor	Y	Same as above Traffic Noise letters sent out 3/30/07. See Appendix F, pages 15-17.
Drainage Districts	Yes	Coordination letters sent out on 5/04/07 and no response was received. Further coordination will be conducted during final design.

ENVIRONMENTAL FACTORS	EFFECTS				
	Adverse	Benefit	None	*N/A	Comments
SOCIO-ECONOMIC FACTORS					
General Economics	☐	☒	☐		Generally positive effects.
Community & Residential	☐	☒	☐	☐	Generally positive effects.
Economic Development and Business	☐	☒	☐	☐	Generally positive effects.
Agriculture	☐	☐	☒	☐	Generally no effect.
Environmental Justice	☐	☐	☒	☐	Generally no effect.
NATURAL ENVIRONMENT FACTORS					
Wetlands	☒	☐	☐	☐	Adverse impacts minimal due to small takings. Impacts will be mitigated.
Streams & Floodplains	☒	☐	☐	☐	Adverse impacts minimal due to small takings.
Lakes or Other Open Water	☐	☐	☒	☐	
Upland Habitat	☒	☐	☐	☐	Adverse impacts minimal due to small takings.
Erosion Control	☒	☒	☐	☐	The adverse effect is increased erosion due to construction activities. The benefit is better erosion control devices that will be in place following construction.
Storm Water Management	☒	☒	☐	☐	The adverse effect is increased runoff from additional pavement. The benefit is that all stormwater runoff will be treated in conformance with permit requirements.
PHYSICAL ENVIRONMENT FACTORS					
Air Quality	☐	☐	☒		
Construction Stage Sound Quality	☒	☐	☐		Construction will be limited to certain time periods in urban areas along the route.
Traffic Noise	☒	☐	☐		Construction of noise barriers was investigated and will be considered for those areas that meet the criteria and cost effectiveness. As a result of investigations to date, only the City of Janesville, between STH 11 and USH 14, will be considered for noise barriers.
CULTURAL ENVIRONMENTAL FACTORS					
Section 4(f) and 6(f)	☐	☐	☐	☒	
Historic Resources	☐	☐	☒	☐	
Archaeological Resources	☐	☐	☒	☐	
Hazardous Substances or USTs	☒	☐	☐	☐	Further site investigation is required on 4 properties where petroleum contaminated soil or groundwater may be present. Follow-up with WDNR and DCOMM is required to update the status of ongoing site investigations on 2 properties where petroleum and methane gas

					contamination are suspected.
Aesthetics	☐	☐	☒		The project will have little effect on the visual character of the landscape since the improvements are generally contained with the existing highway right of way or adjacent to existing interstate corridor.
Coastal Zone	☐	☐	☐	☒	
Other	☐	☐	☐	☒	

* N/A – Blacked out cells in this column require a check in at least one of the other columns.

ENVIRONMENTAL COST MATRIX

Transportation Improvements

ENVIRONMENTAL ISSUE	UNIT MEASURE	ALTERNATIVES/SECTIONS					
		No Build	Build Inside Lanes	Build Outside Lanes	Recon-struction		
Project Length	Mi (Km)	44.5	44.5	44.5	44.5		
Cost $							
Construction	Million $	$0.00	$410.40	$445.80	$415.20		
Real Estate	Million $	$0.00	$6.20	$7.50	$6.70		
Total	Million $	$0.00	$416.60	$453.30	$421.90		
Land Conversions							
Total Area Converted to R/W	Acres (Hectares)	0	128.9 (52.3)	418.0 (169.3)	228.8 (92.7)		
Wetland Area Converted to R/W	Acres (Hectares)	0	12.1 (4.9)	16.8 (6.7)	14.2 (5.8)		
Upland Area Converted to R/W	Acres (Hectares)	0	18.8 (7.6)	31.0 (12.6)	22.8 (9.2)		
Other Area Converted to R/W	Acres (Hectares)	0	23 (9)	59 (24)	57 (23)		
Real Estate							
Number of Farms Affected	Number	0	25	212	128		
Total Area From Farm Operations Required	Acres (Hectares)	0	75 (30)	311 (126)	135 (55)		
AIS Required	Yes/No	No	No	Yes	Yes		
Farmland Rating	Score	N/A	N/A	N/A	N/A		
Total Buildings Required	Number	0	0	0	0		
Housing Units Required	Number	0	0	0	0		
Commercial Units Required	Number	0	0	0	0		
Other Buildings or Structures Required	Number (Type)	0	0	0	0		
Environmental Issues							
Flood Plain	Yes/No	No	No	No	No		
Stream Crossings	Number	10	10	10	10		
Endangered Species	Yes/No	No	No	No	No		
Historic Properties	Number	0	0	1	0		
Archeological Sites	Number	0	0	0	0		
106 MOA Required	Yes/No	No	No	No	No		
4(f) Evaluation Required	Yes/No	No	No	No	No		
Environ Justice At Issue	Yes/No	No	No	No	No		
Air Quality Permit	Yes/No	No	No	No	No		
Design Year Noise Sensitive Receptors	Number	941	1776	1776	1776		
No Impact	Number	19	36	36	36		
Impacted	Number	922	1740	1740	1740		
Exceed dBA Levels		922	1740	1740	1740		
Contaminated Sites	Number	0	6	6	6		

8) Describe how the project development process complied with Executive Order 12898 on Environmental Justice. (EO 12898 requires agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health and environmental effects on minority populations and low-income populations, including the interrelated social and economic effects. Include those covered by the Americans with Disabilities Act and the Age Discrimination Act.)

No disproportionately high or adverse effects are predicted from the proposed action.

a) Identify sources of data used to determine presence of minority populations and low-income populations.

☐ Windshield Survey
☐ WisDOT Real Estate
☐ Real Estate Company
Identify Real Estate Company
☐ Human Resource Agency
Identify Agency
☐ Survey Questionnaire
☒ US Census Data
☐ Door to Door
☒ Official Plan

Identify Plan, Approval Authority, and Date of Approval :City of Beloit Comprehensive Plan, 1996; City of Janesville Southeast Area Plan, 1987. City of Janesville Comprehensive Planning Program, 1982; City of Janesville Northeast Area Plan, 1999.

b) Indicate whether a minority population or a low-income population, including the elderly and the disabled, is in the project's area of influence.

i) The requirements of EO 12898 are met if both "No" boxes are checked below.

☐ No minority population is in the project's area of influence.

☐ No low-income population is in the project's area of influence.

ii) If either or both of the "Yes" boxes are checked, item c) below must be completed.

☒ Yes, a minority population is within the project's area of influence.

☒ Yes, a low-income population is within project's area of influence.

c) How was information on the proposed action communicated to the minority and/or low- income population(s)? Check all that apply.

☐ Advertising
☐ Notices
☐ Public Service Announcements
☒ Other (Identify) City of Janesville website, WisDOT website
☐ Brochures
☐ Utility Bill Stuffers
☒ Direct Mailings
☒ Newsletter
☐ E-mail
☐ Key Person

d) Identify how input from the minority population and/or low-income population was obtained. Check all that apply.

☐ Mailed Survey
☒ Public Meeting
☐ Targeted Small Group Informational Meeting
☐ Other (Identify)
☐ Door-to-door interview
☐ Public Hearing
☐ Focus Group Research
☐ Key Person Interview
☒ Targeted Workshop/Conference

e) Indicate any special provisions, which were made to encourage participation from the minority population and/or low-income population(s)

☒ Interpreter
☐ Transportation Provided
☐ Other (Identify)
☐ Listening Aids
☐ Child Care Provided
☒ Accessibility for Elderly and Disabled
☐ Sign Language

9) Briefly summarize the status and results of public involvement. Briefly describe how the public involvement process complied with EO 12898 on Environmental Justice.

The newsletters for this project included notices of the public meetings and information about the Policy Committee. Included on the mailing list for the newsletters were special groups and agencies, including groups serving area seniors, veterans, and Dane County and Rock County Human Services.

The first set of Public Information Meetings was held to present to the public traffic trends and projections, crash information, third lane sections, noise impacts and potential mitigation measures, and interchange deficiency analysis and alternatives. A total of 70 people attended the meetings, which were held December 3, 2003 at Marshall Middle School in Janesville (27 attending), December 9 at the Town of Turtle Hall, east of Beloit (22 attending), and December 11 at the Veteran's Memorial Center in Edgerton (21 attending). In general, the comments received indicated that participants at all three meetings supported adding a third lane to the Interstate, and, when given a choice, would prefer to add the lane in the median to keep costs down and to avoid taking prime farmland and land near commercial areas. Attendees at the meeting in Janesville commented on noise problems, and were strongly in favor of adding noise walls.

The second set of Public Information Meetings was held on Monday, April 10, 2006 at the Town of Turtle Hall (25 attending); Wednesday, April 12, 2006 at the Edgerton Public Library (55 attending); and, on Wednesday, April 19, 2006 at Marshall Middle School in Janesville (175 attending). Special invitations were sent out to residents potentially impacted by traffic noise in the Janesville area inviting them to the Janesville meeting to discuss noise issues and potential noise barriers. Preferred alternatives for IH 39/90 mainline and its eleven interchanges were presented at all three informational meetings. In addition, noise impacts and barriers were discussed at the Janesville meeting. At the Janesville meeting, 107 residents submitted written comment forms supporting the City of Janesville passing a resolution supporting the construction of noise barriers for the portion of IH 39/90 between USH 14 and STH 11/Racine Street in Janesville as part of the IH 39/90 reconstruction project.

An Opportunity for a Public Hearing to comment on the Environmental Assessment and project will be offered to the general public in the summer of 2008.

a) Identify groups (e.g., elderly, handicapped), minority populations and low-income populations that participated in the public involvement process. This would include any organizations and special interest groups.

No groups identified with elderly, handicapped, minority, or low-income populations expressed special interest in the public involvement process.

The Township of La Prairie participated in study committee meetings, representing farmers from their area south of Janesville.

Local residents in the area of IH 39/90 between USH 14 and STH 11/Racine Street in Janesville participated in public information meetings to discuss noise abatement concerns for their area.

b) Describe, briefly, the issues, if any, identified by any groups, minority populations and/or low-income populations during the public involvement process.

Farmers in the southern half of Rock County expressed concern and interest for preserving farmland. They expressed a strong desire for WisDOT to use the existing median area first for adding additional lanes, and preserve the outside area for farming interests over the next 20 years. They also expressed a willingness to have a building setback requirement on their lands in order to ensure availability of vacant land adjacent to the interstate corridor or future adding of capacity lanes.

Local residents adjacent to the interstate corridor between USH 14 and STH 11/Racine Street in Janesville expressed high interest in having noise barriers constructed in their area. They felt walls should be constructed as soon as possible, and that walls should be constructed prior to road improvement work to alleviate noise levels during construction.

Dane County expressed the desire to preserve the existing median area of the interstate as green space to

eliminate future maintenance costs associated with median barriers. Also, the green space would provide an area for stormwater runoff, snow storage, and provide a space for future transportation needs within the IH 39/90 corridor.

No other special issues were identified by groups during the public involvement process.

c) Briefly describe how the issues identified above were addressed. Include a discussion of those that were avoided as well as those that were minimized and those that are to be mitigated. Include a brief discussion of proposed mitigation, if any.

Adding travel lanes to the inside of the corridor and taking as little additional right of way as possible would address concern about loss of farmland south of Janesville. This alternative is being moved forward.

Noise barriers, if they continue to be desirable in Janesville between USH 14 and USH 11/Racine Street, will move forward for WisDOT consideration upon passage of municipal resolution of support.

In Dane County, adding travel lanes to the outside of the existing lanes, or adding travel lanes to the inside when the median is wide enough to preclude the use of median barriers, would address concern about preserving the existing median area of the interstate as green space. This alternative is being moved forward to the extent practical.

TRAFFIC SUMMARY

	ALTERNATE	Preferred (Reconstruction)	Inside Lane	Outside Lane	
	SEGMENT TERMINI	all data summarized in Appendix B			
TRAFFIC VOLUMES Existing	ADT Yr. 2002				
Const. Year	ADT Yr. 2010				
Const. Plus 10 Years	ADT Yr. ____				
Design Year	ADT Yr. 2030				
	DHV Yr. 2030				
TRAFFIC FACTORS	K_{100} ($_{100/200}$, or %)	10.0	10.0	10.0	
	D (%)	60	60	60	
Design Year	T (% of ADT)	30	30	30	
	T (% of DHV)	30	30	30	
	Level of Service	See Chart p. 7 of 43	See Chart p. 7 of 43	See Chart p. 7 of 43	
SPEEDS Existing	Posted	65	65	65	
	Posted	65	65	65	
Design Year	Project Design Speed	70	70	70	
OTHER (Specify)	P (% of ADT)	14.5			
	K (% OF ADT)				

ADT = Average Daily Traffic
DHV = Design Hourly Volume
$K_{100/200}$ or % = K_{100} = Rural, K_{200} = Urban, % = ADT in DHV
D = % DHV in predominate direction of travel
T = Trucks
P = % ADT in peak hour
K_8 = % ADT occurring in the average of the 8 highest consecutive hours of traffic on an average day. (Only required when a carbon monoxide analysis must be performed per Wisconsin Administrative Code - Chapter NR 411.)

ENVIRONMENTAL ISSUES

Indicate whether the issue listed below is a concern for the proposed action or alternative. If the issue is a concern, explain how it is to be addressed or where it is addressed in this environmental document.

1) Would the proposed action stimulate substantial secondary environmental effects?

☒ No

☐ Yes - Explain or indicate where addressed.
Some secondary impacts resulting from this project can be expected, but they are not anticipated to be substantial. The primary secondary impact that could occur is the possible induced land use change that might result from the interstate capacity expansion and improvement. These land use changes would be most prevalent in the urban fringe areas of Beloit, Janesville, and Madison where sewer and water services are available for development purposes. In each of these urban areas, planning and public policy currently encourages growth not only in the immediate corridor area of the interstate, but also in many other parts of these communities. Development that might occur after the interstate improvement is generally consistent with the development envisioned by these communities in local plans prior to the improvement. Additionally, access to IH 39/90 is restricted to interchanges. This project does not create new access. The location and frequency of interchanges will remain the same after the proposed higway improvements are completed which can reasonably be expected to reduce to potential secondary impacts related to this project. A primary purpose for this project is to maintain an acceptable Level of Service (LOS) for the interstate. Currently, the interstate has a LOS C. By 2030, with the proposed improvements, the interstate will maintain a LOS C. Air quality throughout the corridor should be improved as the improvements will result in fewer stopping and starting of vehicles.

2) Would the creation of a new environmental effect result from this proposed action?

☒ No

☐ Yes - Explain or indicate where addressed.

3) Would the proposed action impact geographically scarce resources?

☒ No

☐ Yes - Explain or indicate where addressed.

4) Would the proposed action have a precedent-setting nature?

☒ No

☐ Yes - Explain or indicate where addressed.

5) Is the degree of controversy associated with the proposed action high?

☒ No

☐ Yes - Explain or indicate where addressed.

6) Would the proposed action have any conflicts with official agency plans or local, state, or national policies, including conflicts resulting from potential effects of transportation on land use and land use on transportation demand?

☒ No

☐ Yes - Explain or indicate where addressed.

7) Would the proposed action contribute to cumulative environmental impacts of repeated actions?

☐ No

☒ Yes - Explain or indicate where addressed.

The IH 39/90 expansion could generate land use impacts which could adversely affect farmland and farm operations in the region. The improved interstate and interchanges could attract business and residential development. The interstate improvements should reduce travel times between the major employment centers in the region, which could have the incremental affect of making certain areas more attractive for development.

ENVIRONMENTAL COMMITMENTS

Identify and describe any commitments made to protect the environment. Indicate when the commitment should be implemented and who in WisDOT would have jurisdiction to assure fulfillment for each commitment.

ATTACH THIS PAGE TO THE DESIGN STUDY REPORT

A. General Economics	No Commitments Needed	
B. Community & Residential	No Commitments Needed	
C. Commercial & Industrial	Not Applicable	
D. Agriculture	Commitments Made	Design will minimize or avoid farmland acquisition where possible by use of maximum slopes where feasible. Recommendations contained in the Agriculture Impact Statement (AIS) will be considered during design and construction, and implemented when practical.
E. Environmental Justice	No Commitments Needed	
F. Wetlands	Commitments Made	Section 404 permits -- both individual and general -- will be required for this project. For impacts that cannot be avoided, side slopes will be increased outside of the clear zone to minimize wetland impacts when possible, and excess soil that may be generated during construction will be disposed of at an upland location to be designated during final design. Compensation will be sought for unavoidable loss, with on-site replacement considered first, near-site or off-site replacement considered next, and a wetland mitigation bank used if necessary. A field survey and sediment sampling will be conducted to determine if habitat for the redfin shiner exists in the location of the pier and abutment widening at the Rock River crossing. For impacts along adjacent wetlands of Turtle and Spring Creeks, a field survey will be conducted to identify their potential to provide habitat for unspecified state or federally listed species.
G. Streams & Floodplains	Commitments Made	Crossings of waterways are all in existence today, but where widened or lengthened for this project they will be designed to allow continuity of riparian corridors under bridges to reduce potential species mortality.
H. Lakes or Other Open Water	Not Applicable	
I. Upland Habitat	Commitments Made	A field survey to determine if habitat exists and/or species are present for the eastern massasauga rattlesnake (Sistrurus catenatus catenatus) -- a federally listed species -- will be conducted within the Turtle Creek corridor. An update to the records search for

		threatened and endangered species is requested for a time lag of more than 12 months (post June 28, 2008) between plan completion and execution.
J. Erosion Control	Commitments Made	Standard erosion control practices will be implemented during construction. Clearing and grubbing activities will be limited to the proposed project corridor. Following construction, adjacent habitats will be reestablished to function similar to preconstruction conditions.
K. Storm Water Management	Commitments Made	WisDOT will coordinate with the cities of Madison, Janesville and Beloit as well as Dane County to ensure that their respective stormwater requirements are met. Stormwater detention/retention areas will be considered in the loop ramp areas of the interchanges to provide for management of stormwater. Stormwater will be analyzed in further detail, and a stormwater management plan will be developed.

L. Air Quality

☒ The project is exempt from permit requirements per Wisconsin Administrative Code – Chapter NR 411 criteria.

☐ A construction permit is required for this project and an application has been submitted to the Department of Natural Resources – Bureau of Air Management. Construction on the project will not begin until the Construction Permit has been issued. See the Air Quality Factor Sheet.

☐ A construction permit is required for this project and has been issued by the Department of Natural Resources – Bureau of Air Management. The Construction Permit Number is . See the Air Quality Factor Sheet.

M. Construction Stage Sound Quality

☐ No receptors are located in the project area. No impacts are anticipated from construction noise.

☒ To reduce the potential impact of Construction Noise, the special provisions for this project will require that motorized equipment shall be operated in compliance with all applicable local, state and federal laws and regulations relating to noise levels permissible within and adjacent to the project construction site. At a minimum, the special provisions will require that motorized construction equipment shall not be operated between TBD PM and TBD AM without prior written approval of the project engineer. All motorized construction equipment will be required to have mufflers constructed in accordance with the equipment manufacturer's specifications or a system of equivalent noise reducing capacity. It will also be required that mufflers and exhaust systems be maintained in good working order, free from leaks or holes. See Construction Stage Sound Quality Factor Sheet.

N. Traffic Noise	Commitments Made	Noise mitigation will be provided for residential neighborhoods in Janesville if the neighborhoods and the city indicate that it is desired.
O. Section 4(f) and 6(f)	Not Applicable	
P. Historic Resources	No Commitments Needed	
Q. Archaeological Resources	Not Applicable	
R. Hazardous Substances or USTs	Commitments Made	Additional site investigations are required on four properties where petroleum-contaminated soil or groundwater may be present. Follow up with WDNR and DCOMM will be completed to update the status of ongoing site investigations on two properties where petroleum contamination and methane gas/groundwater contamination are suspected. A "Notice to

		Contractor" special provision will be included for actions to be taken by the contractor during construction in the event that any hazardous materials are found during construction. Final design details will avoid locations of known contamination where feasible, and if unavoidable, specifications will require remediation in accordance with WisDOT standards.
S. Aesthetics	No Commitments Needed	
T. Coastal Zone	Not Applicable	
U. Other	Not Applicable	