I-94 East - West Corridor

PRELIMINARY ENGINEERING

&

OPERATIONAL REVIEW

INTERSTATE ACCESS JUSTIFICATION REPORT

Hawley Road Interchange

Project ID 1060-27-00

Milwaukee County

September 25, 2015

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SUMMARY

This report provides background and justification for the proposed access revisions at the I-94 and Hawley Road Interchange in Milwaukee, Wisconsin. This report has been prepared in accordance with the Interstate System Access Informational Guide published by the U.S. Department of Transportation, Federal Highway Administration (August 2010), as well as the Wisconsin Department of Transportation's Facilities Development Manual Procedure 7-45-1 (July 23, 2015).

The Wisconsin Department of Transportation is currently conducting a corridor study on Interstate 94 (I-94) East-West. The project will cover approximately 3.5 miles of I-94 between 70th Street and 16th Street in Milwaukee County. The overall project includes six existing interchanges (70th Street/68th Street, Hawley Road, Mitchell Boulevard, WIS 175/WIS 341/Miller Park Way, 35th Street, and 26th Street/St. Paul Avenue.) The I-94 East-West corridor study area is located in central Milwaukee County between downtown Milwaukee and the Zoo Interchange (currently under construction from WIS 100 to 70th Street). Traffic from around the region, state, and nation passes through this corridor, and there are many major institutions and tourist attractions that are close in proximity including the Veterans Administration complex, Miller Park (Milwaukee Brewers baseball stadium), Miller Coors Brewery, and the Menomonee Valley. **Exhibits 1** and **2** show maps of the project location, existing conditions and aerial photography of the project, including the Hawley Road Interchange area. This study has identified the current needs within the corridor as well as the needs to address future traffic projections.

The Hawley Road Interchange is a part of this corridor study which is discussed in this report for interstate access modification from a full to a partial interchange. As part of the National Environmental Policy Act (NEPA), a preferred alternative for the I-94 East-West Corridor Project was identified in February of 2015 (see **Appendix H** - Preferred Alternative Identification Tech Memo). The preferred alternative includes a partial interchange at Hawley Road. This report contains the required information to justify the proposed Hawley Road Interchange access modification. The other interchange modifications within the project corridor will be addressed in a separate report.

Modification of an existing full interchange to a partial interchange is very rare. The following summarizes the key factors that led to the need for a partial interchange at Hawley Road:

1) The mainline I-94 corridor requires expansion in order to adequately address current and future operational needs. With the expansion of the mainline, a full interchange at Hawley Road cannot be retained in a manner that provides acceptable design, safety and operations.

2) The interchange area to the west abuts a highly dense residential area. Shifting the interchange further west, or providing frontage or collector-distributor roads will create significant residential and community impacts. (See **Exhibit 1-3**).

3) The interchange area to the east abuts Spring Hill Cemetery and Beth Hamedrosh Hagodel Cemetery and is in close proximity to Calvary Cemetery and Wood National Cemetery, including the associated National Historic Landmark. **Exhibit 1-4** shows the cemeteries east of Hawley Road. A commitment has been made that no graves will be relocated as part of the project.

4) The adjacent interchanges (68th/70th to the west and Stadium/44th/46th to the east) are approximately 0.6 mile or less away. The adjacent interchanges are shown in **Exhibits 5-1** and **5-2**.

5) There is substantial public opposition to closing any existing access points. The City of West Allis and City of Milwaukee also oppose elimination of access at Hawley Road.
6) The Hawley Road Interchange serves the Veterans Affairs (VA) Medical Center which employs approximately 6,000 employees and serves over a million patients a year. By providing partial access, a majority of those traveling to the VA Medical Center will retain more efficient access.

7) The project includes a proposal to extend Washington Street, just south of the Hawley Road Interchange, to mitigate for the loss of access to and from the east and provide a more direct local-road connection between the 68th/70th St interchange and Hawley Road. (See **Exhibit 9-2**).

Policy Points: FHWA has eight policy points for proposals for changes in access to the Interstate Highway System. This report has been prepared in accordance with U.S. Department of Transportation, Federal Highway Administration, Interstate System Access Informational Guide, and Wisconsin Department of Transportation Facility Development Manual Procedure 7-45-1. Each of the eight policy points for the proposed I-94 / Hawley Road Interchange have been met as shown in the table below:

Policy Points	
Policy Point 1 Existing Network's Ability to Accommodate Traffic	The Hawley Road Interchange is not a new interchange. This project proposes to reconstruct and reconfigure the existing Hawley Road Interchange to improve the safety and efficiency of I-94, while balancing the environmental impacts and costs. The Hawley Road Interchange will be modified from a full to a partial interchange. With the additional lanes being added to the I-94 mainline to improve the traffic operations and safety, the ramps to and from the east cannot feasibly be reconstructed without impacting the graves in the cemeteries adjacent to the freeway. **Exhibits 3-1 through 3-3** and **4-1 through 4-3** show the existing and year 2040 no-build levels of service. In addition, the majority of the existing local road network surrounding the Hawley Road Interchange operates near or at capacity during the AM and PM peak periods. These roadways include 68th/70th Streets, Greenfield Avenue, National Avenue, and Bluemound Road. If the Hawley Road Interchange were to be eliminated, the associated demand would be diverted to the already stressed local street system, which would require a combination of roadway capacity-expansion (i.e. additional travel lanes) and intersection improvements at multiple locations in order to adequately service the diverted interchange demand. However, capacity-expansion and large-scale intersection improvements are unfeasible for the majority of the local road network as the surrounding area is densely populated, where these types of roadway improvements would have a significant cost and negatively impact a large number of homeowners and

businesses. Conversely, small-scale intersection improvements would not adequately handle all of the diverted demand associated with the full closure of the Hawley Road Interchange at acceptable levels of service.

Therefore, while the selection of a partial interchange at Hawley Road was not predicated by local road operations or a lack of feasible local roadway improvements, the retention of partial freeway access at Hawley Road represents a reasonable balance of freeway and local road needs.

Hawley Road Interchange

This existing interchange has a diagonal ramp like a typical diamond interchange in the southwest quadrant of the interchange, a half loop ramp in the southeast quadrant for the eastbound I-94 connections and partial cloverleaf ramps in the northwest quadrant for the westbound I-94 connections. This interchange is proposed to be reconstructed to a partial (half diamond) interchange with ramps to and from the west only.

The existing I-94 mainline west of the interchange and the ramps to and from the west operate at LOS E in both the AM and PM peak periods. The existing weave sections east of the interchange operate at LOS F in the eastbound direction in both the AM and PM peak periods and in the westbound direction in the AM peak while the PM peak operates at LOS E, requiring the need to add additional mainline lanes as described in more detail further in the report. Additional detail is provided in other locations in this report under **Policy Point 4**.

Adjacent Interchanges

68^{th} /70^{th} Street Interchange

This is the adjacent interchange to the west, consisting of a split diamond interchange between 70^{th} Street and 68^{th} Street. Frontage roads consisting of W. O'Connor Street on the north side and W. Kearney Street on the south side provide the connections between the east and west ramp intersections. This interchange is proposed to be reconstructed as a split diamond interchange in a similar configuration to the existing interchange. The existing interchange operates at LOS D except for the westbound exit ramp which operates at LOS E in both the AM and PM peak periods.

Mitchell Boulevard Interchange

This existing diamond interchange has three left side ramps (eastbound exit, eastbound entrance and westbound entrance) in the median between the eastbound and westbound I-94 roadways. The westbound exit ramp is a right side diagonal ramp. This interchange is proposed to be removed and replaced with right-side diamond type ramps embedded in the Stadium interchange, approximately one-half mile to the east. I-94 operates at LOS E in the AM and D in the PM peak within this interchange in both directions. These existing weaving segments east of

the interchange operate at LOS E in both directions in the AM peak and eastbound in the PM peak. The westbound operates at LOS D in the PM peak. The weaving segments to the west operate at LOS F in both directions in the AM peak and in the eastbound direction in the PM peak. The westbound weaving segment operates at LOS E in the PM peak.

Stadium Interchange

This existing interchange is a three level interchange with directional ramps serving all turning movements. Each direction has both right and left side exit and entrance ramps. This interchange is proposed to be reconstructed as a service interchange that will have free flow exit ramps from I-94 and traffic signal controlled intersections for the entrance ramps to I-94, and all ramps will be located on the right side. Service ramps to and from local streets (44th and 46th Streets) will be embedded and will replace the movements being removed from the Mitchell Boulevard Interchange. The weave sections on both sides of this interchange operate at LOS E in the AM and PM peak, except for the westbound in the PM peak which operates at LOS D west of the interchange.

Safety Analyses

The average total crash rate on I-94 within the Hawley Road Interchange area from 2005 to 2009 is 253.7 crashes per 100M VMT for eastbound and 200.3 crashes per 100M VMT for westbound, which is about 136% (westbound) to 198% (eastbound) greater than the statewide average total crash rate of 85 crashes per hundred million vehicle miles traveled. For more specific information on the crashes see the Crash Analysis Technical Memorandum in **Appendix D**.

From 2005 to 2009, there were 2,230 crashes (not including deer/other animal crashes) on the entire project corridor freeway and interchange entrance/exit ramps, or roughly 1.2 crashes per day. Crash rates eastbound and westbound between the Hawley Road exit and entrance ramps are on average at least 2 to 3 times higher than the statewide average for similar roadways. In the study area freeway system, the most common types of crashes were rear-end, single-vehicle run-off-the-road, and sideswipe. Major contributors to these types of crashes are congestion and the sub-standard ramp geometry and spacing.

Conclusion

The Hawley Road Interchange along with the I-94 mainline requires improvements to safely and efficiently accommodate the network's ability to move the traffic that is projected to use this corridor in the design year of 2040. The reconstruction and reconfiguration of the Hawley Road Interchange as discussed above will provide for safer and more efficient operations for through traffic and for traffic accessing the freeway in this area. As noted previously, elimination of the interchange would divert associated demand to the adjacent local road network, which would be unable to accommodate the additional demand at acceptable levels of service without significant roadway improvements. The improvements required are

	unfeasible due to the resulting impacts on the local neighborhoods and businesses. The widening of the freeway is needed to accommodate the projected traffic volumes at an acceptable LOS. The reconstruction/reconfiguration of the Hawley Road Interchange is necessary to allow this widening of the interstate. Improved ramp spacing along I-94 will provide an improved level of service and safety. The crash rate within this interchange is close to three times the statewide average for urban interstates. The need for the project is discussed further in the **NEED** section.
Policy Point 2 Transportation System Management	The Hawley Road Interchange is not a new interchange in this corridor. This project proposes to reconstruct and reconfigure the existing Hawley Road Interchange with modifications to improve the safety and efficiency of the operations in the corridor. Although numerous Transportation System Management (TSM) applications are proposed to be incorporated as part of this project, TSM applications alone cannot resolve the need to modify this interchange. Transportation System Management features are to be included in the design of the preferred alternative for the corridor project. These include Ramp Metering, Ramp Gates, Closed Circuit Cameras, Variable Message Signs, and Traffic Detectors under this preferred alternative. The specific features used for the Hawley Interchange will be determined during final design but will likely include ramp metering, a closed circuit camera and ramp gates. The use of these measures at the Hawley Road Interchange and throughout the corridor will not eliminate the need to modify the existing interchange from a full to a partial. **Conclusion** Transportation System Management measures have been investigated. These measures are to be incorporated into this proposed design alternative; however, these measures alone cannot provide an acceptable level of service in the design year or eliminate the need to modify the existing interchanges as proposed.
Policy Point 3 Safety Impacts and Operational Analysis	The Hawley Road Interchange is not a new interchange in this corridor. This project proposes to reconstruct and reconfigure the existing Hawley Road Interchange to operate more safely and efficiently. The proposed design will address the current freeway operational issues with revisions to the corridor to improve roadway geometrics, freeway operations, ramp capacity, and ramp/mainline merges/diverges. Traffic analysis (HCM and Paramics) and safety analysis (ISATe) that have been completed as part of the corridor study show that the proposed design will substantially improve existing conditions. **Hawley Road Interchange** This interchange is proposed to be reconstructed as a partial (half diamond) interchange with ramps to and from the west only in order to improve freeway operations and reduce environmental impacts through the very tight cemetery section. The modified interchange will provide adequate acceleration and deceleration distances for merging and diverging to the mainline. Also, it will provide acceptable levels of service through the cemetery section with the elimination of vehicle weaving. Auxiliary lanes will be included on the mainline between the Hawley Road ramps and the 68th Street ramps. The proposed Hawley

Road Interchange configuration is shown on **Exhibit 6-2**.

Adjacent Interchanges

68th / 70th Street Interchange

This interchange is proposed to be reconstructed as a split diamond interchange in the same configuration as the existing interchange. The frontage roads of W. O'Connor Street on the north side and W. Kearney Street on the south side will continue to provide the connections between the east and west ramp intersections. The proposed 68th/70th Street Interchange configuration is shown on **Exhibit 6-1.**

Stadium Interchange

With the relocation of the ramps from Mitchell Boulevard to the Stadium Interchange, this becomes the adjacent interchange to the east. The Stadium Interchange is proposed to be reconstructed as a service interchange with free flow ramps for the movements exiting I-94 and traffic signal controlled intersections at the entrance ramp terminals. It will be a four level interchange, including the embedded interchange to 44th and 46th Streets that replace the access that currently exists at Mitchell Boulevard. With the embedded interchange within the Stadium Interchange, sufficient distances can be provided for the merging and diverging maneuvers between each of the stadium and relocated local service ramps and the partial interchange ramps at Hawley Road. The modified configuration also replaces the left side ramps with right side ramps, eliminating the two-sided weave maneuvers that exist between the existing Hawley Road, Mitchell Boulevard and Stadium interchange ramps. The proposed Stadium interchange configuration with the embedded local street connections is shown on **Exhibit 6-3**.

Conclusion

The Hawley Road interchange modifications have been developed to improve the safety and efficiency of traffic operations associated with the preferred alternative within the area of influence. There are no additional access points being added to the interstate as part of this improvement. Analysis of the access modification considered the impacts to the I-94 freeway corridor, adjacent interchanges at 68th Street/70th Street and WIS 175/341, and the surrounding local street network. The modification of the Hawley Road Interchange will not have an adverse effect on the safety or operations of the I-94 corridor near Hawley Road, or the adjacent local street network, based on the design year traffic forecast.

The reconfiguration of the Hawley Road Interchange will eliminate the weaving movements between it and the Stadium Interchange. The added auxiliary lanes will help improve weaving operations between Hawley Road and 68th Street. There are proposed local street improvements adjacent to the interchanges and between the interchanges where necessary to accommodate the projected design year traffic. The improvements between the interchanges will help drivers that currently use the interchange, but will have to use one of the adjacent interchanges in the future to access I-94. Informational and trailblazing signage will be provided on the local street network to direct drivers between adjacent interchanges and Hawley Road.

Policy Point 4
Local Road Access

The Hawley Road Interchange is proposed to be a partial (half) interchange serving traffic to and from the west. The existing interchange at Hawley Road is a full interchange. When the freeway is reconstructed with the additional lanes, it is not feasible to provide the ramps to and from the east without impacting graves. The complete removal of access at this location will impact the residents and businesses in the area, however local street improvements are proposed to mitigate the partial loss of access. The EIS for the project defines the need for the partial interchange with respect to impacts to the adjacent properties as do further sections of this report.

A full interchange cannot be provided without unacceptable impacts either to the cemeteries to the east, or to the dense residential area to the west.

A half interchange at Hawley Road is needed because of the constraint posed by the cemeteries east of Hawley Road combined with extensive public and local government input indicating that removing the entire Hawley Road interchange would have a socioeconomic impact on businesses and residents that currently use the Hawley Road interchange. In addition, a partial access will help serve local destinations such as the Hunger Task Force, a local food bank, and the VA Medical Center.

The land surrounding I-94 is fully developed. Removal of the Hawley Road Interchange completely would require widening of local streets and intersections between the interchanges to accommodate this change in traffic patterns. This widening would impact the business and residential properties along those streets, leading to unacceptable impacts. The local officials and residents were strongly opposed to the removal of any existing interchange within this corridor.

As part of the NEPA process, an alternative that would allow for full access at the Hawley Road Interchange was fully analyzed. This alternative, which would have required a double deck structure through the cemetery section of the corridor, was eliminated due to the high level of impacts and very high cost. For the year 2040, the intersections along Bluemound Road may increase by approximately 6,000 to 8,500 vehicles per average weekday (AWDT). Wisconsin Avenue intersections may increase by approximately 5,000-6,000 vehicles per average weekday. National Avenue intersections may increase by 8,000 vehicles per average weekday. The design for the I-94 East/West Corridor Project is intended to meet or exceed current interstate standards wherever feasible. However, it is acknowledged that there will be exceptions to standards in some locations to minimize impacts to the surrounding development and environmental/cultural resources.

Conclusion

The partial interchange at Hawley Road will provide a balance between addressing long-term mobility needs and safety concerns while minimizing impacts to existing development and environmental resources to the maximum extent practical. Due to the cemeteries proximity east of Hawley Road, a full access interchange will have

	unacceptable impacts. The partial interchange will provide some access to the area businesses and organizations that rely on this access for their operations. A new local road extension of Washington Street between 68th Street and Hawley Road will be added to provide for improved access to Hawley Road from the 68th/70th Street Interchange (See **Exhibit 9-2**). The proposed signing will direct drivers to the adjacent interchanges for the access that will be removed from the Hawley Road Interchange. The proposed local road improvements included will help the operations of these traffic movements.
Policy Point 5 Regional Transportation Plans	The proposed I-94 E-W project is included in the current SEWRPC Long-Range Transportation Plan (2035 Regional Land Use and Transportation Plan). The Preliminary Engineering phase of this project is in the TIP. The Modernization Alternatives proposed conform to SEWRPC's 2035 regional transportation plan. The 2035 regional transportation plan includes the half interchange at Hawley Road under the At-grade alternative (preferred alternative). **Conclusion** The project, which includes the modification of the Hawley Road Interchange, is consistent with local and regional land use plans and as such, also conforms with fiscal constraint and air quality requirements. The next phase of the project is not included in the recently approved 2015-2018 SEWRPC TIP because funding has not yet been allocated to the project for this biennium. Funding for final design activities is being pursued and will be obtained, with inclusion in the TIP, prior to the signing of the ROD. The ROD is currently scheduled for spring of 2016.
Policy Point 6 Multiple Interchange Additions	No additional interchanges are proposed to be added as part of this project and none are proposed to be added in the future. With the tight interchange spacing, it is not feasible to add any interchanges in this corridor, nor does the regional plan include any additional interchanges within this corridor. The design team looked at trying to reduce the number of interchanges in this area, but other than relocating or modifying the design to improve existing access points, were not able to eliminate any interchanges due to unacceptable operations, local opposition and environmental justice considerations. **Conclusion** This area is fully developed with closely spaced interchanges. No additional interchanges are proposed to be added as part of this project and none are proposed to be added in the future.

Policy Point 7 Appropriate Coordination	The I-94 East-West Project team has demonstrated appropriate coordination through its significant public involvement and outreach. The development of the I-94 East-West has included substantial public outreach. This has included coordination with those impacted by the change in access as well as those who would have been impacted by a full access alternative. Through this coordination, this project and all of its alternatives have been developed in an orderly and coordinated manner to serve the public. The project team has had several meetings with the stakeholders for the area of the cemeteries and the historic properties that are impacted by the change in access at Hawley Road. Also, meetings were held with the City of West Allis, City of Milwaukee, Village of West Milwaukee and the City of Wauwatosa to agree on improvements to the local streets to mitigate the change in access proposed at Hawley Road. **Conclusion** No new interchanges are proposed on I-94 and the area is fully developed. The project team has had extensive coordination with local officials and stakeholders throughout the project's area of influence. The proposed Hawley Road Interchange modifications provide a balance between providing for the needs expressed by the stakeholders and reducing the impacts to the surrounding properties.
Policy Point 8 Environmental Planning	The I-94 East-West Corridor Study Draft EIS was approved and signed by FHWA and WisDOT on November 4, 2014. A Notice of Availability for the Draft EIS appeared in the Federal Register on November 14, 2014, beginning the comment period that was extended to end on January 27, 2015. Public Hearings for the project were held on December 3rd and 4th, 2014. The preferred alternative was announced on February 17, 2015. Following the end of the public comment period, FHWA and WisDOT are preparing a Final EIS, slated for approval in November 2015. An engineering and operational acceptance is being sought through this report prior to approval of the FEIS, with a Record of Decision anticipated in the spring of 2016. Final approval will be requested after the ROD has been approved. **Conclusion** The design of the Hawley Road Interchange modifications have been developed to improve the traffic operations on the I-94 mainline as well as the entering and exiting traffic movements from the interchanges. The development of the proposed modifications has taken place in conjunction with the NEPA process. The proposed interchange modifications and local street/intersection improvements to mitigate the change in access are covered under this EIS.

Methodology

The Highway Capacity Manual (HCM) method analysis was conducted using Highway Capacity Software (HCS2010) for the existing and proposed freeway and ramp terminal alternatives along the corridor. The Highway Capacity Manual (HCM) method analysis was conducted for the traffic signal and stop sign controlled crossroad ramp terminals using Synchro version 8. The results of these analyses were used to screen alternatives as it relates to freeway operations and to come to the conclusion that capacity

expansion from 6 to 8 lanes was needed throughout the corridor. This need for capacity expansion throughout the corridor influences the interchange modifications needed and has a profound impact on the need for the modification of the Hawley Road Interchange.

Microsimulation analysis was conducted using Paramics. Microsimulation provides a stochastic analysis of traffic operations with a systems approach that considers the operations of the adjacent components. The study team coordinated with the Southeast Wisconsin Regional Planning Commission (SEWRPC) to develop the traffic projections that were used in the traffic analyses in which the design was based on. See **Appendix I**, Paramics Calibration Memo for information on how Paramics was used on this project study.

A safety analysis was conducted for the existing and proposed freeway mainline and ramp alternatives using the Highway Safety Manual (HSM) methods with the Enhanced Interchange Safety Analysis Tool (ISATe). Using this spreadsheet tool, a comparison was made between the predicted frequency of crashes for each alternative considered.

Alternatives

For the I-94 mainline in the influence area of the Hawley Interchange, the alternatives analyzed in detail were a double deck section with four lanes plus auxiliary lanes in each direction and the at-grade alternative with four lanes in each direction. The alternatives studied for the Hawley Road Interchange included a full interchange with the double deck mainline section, no interchange and a partial interchange with the at-grade mainline section. The partial interchange is a half diamond with ramps to and from the west. On the east segment the alternatives considered realigning the freeway to flatten the reverse horizontal curvature and maintaining the horizontal alignment similar to the existing with widened shoulders in spot locations to improve the sight distance. For more information on the alternatives for the west segment and the Hawley Road Interchange refer to the **ALTERNATIVES** section of this report. These alternatives were presented at the local officials, public informational meetings and a public hearing. Input from these meetings, the hearing, engineering analyses and consideration of the impacts to the surrounding businesses, organizations and residents were used to identify the preferred alternative for this area of I-94.

Conclusion

The preferred alternative proposed for the Hawley Road Interchange meets the eight policy points for access to the interstate. The 8-Lane At-grade alternative with a partial (half diamond) interchange at Hawley Road (access to and from the west) was identified as the preferred alternative for the west segment of the I-94 East-West Corridor project. The interchange configurations for the Hawley Road and adjacent interchanges of the preferred alternative are shown in **Table 1.** These interchange modifications best fit the purpose and need of the project while minimizing the impacts and optimizing operations within the project constraints. This alternative will provide a balance of improved operations with an acceptable level of impacts and cost.

Table 1

LOCATION	EXISTING INTERCHANGES	PROPOSED INTERCHANGES
68th – 70th Street	Split Diamond with slip ramps to and from local roads on west side (**Exhibit 2-1**)	Split Diamond with slip ramps connecting to the frontage roads on west side and standard ramps with auxiliary lanes on the east side (**Exhibit 6-1**)
Hawley Road	Parclo WB/Diamond EB (**Exhibit 2-1**)	Partial (half) Diamond to and from the west (**Exhibit 6-2**)
Mitchell Boulevard	Modified Diamond – 3 left side ramps & one right side ramp (**Exhibits 2-1** and **2-2**)	Removed and replaced with the embedded interchange within the Stadium Interchange ½ mile east
Embedded Interchange within Stadium Interchange	Does not currently exist	Half Diamond at 44th Street to/from the west and a new local road (46th St) to/from the east (**Exhibit 6-3**)
Stadium Interchange – WIS 175/WIS 341	Directional Interchange (3 level with left side ramps) (**Exhibit 2-2**)	Service interchange with free-flow exits and signal controlled entrances (**Exhibit 6-3**)

INTRODUCTION

The Wisconsin Department of Transportation is currently conducting a corridor study on Interstate 94 (I-94) East-West. The I-94 East-West Corridor study area is located in central Milwaukee County between downtown Milwaukee and the Zoo Interchange (Project immediately west of this project, currently under construction from WIS 100 to 70th Street). This study has identified the current needs for the Hawley Road Interchange and the I-94 East-West corridor as well as needs to address future traffic projections in the design year 2040. This report contains the required information to justify the Hawley Road Interchange access modification. A separate Interstate Access Justification Report will cover the other interchanges located within the corridor.

Project Location

The I-94 East-West Corridor study area includes 3.5 miles of the Interstate 94 (I-94) freeway from 70th Street (west terminus) to 16th Street (east terminus). The Hawley Road Interchange is located approximately 0.75 mile from the west limit of this project. The location map is shown on **Exhibit 1-1**. The Hawley Road area of influence consists of 70th Street on the west to WIS 175/341 on the east, and Greenfield / National Avenue on the south to Bluemound Road/Wisconsin Avenue on the north. Additional arterials located within the influence area include 68th Street, S. 60th Street/Hawley Road, and Miller Park Way. Several other north-south and east-west local roads exist in between these major arterials. This corridor is within the limits of the City of Milwaukee. The City of West Allis, City of Wauwatosa, and Village of West Milwaukee are located nearby. Land use from 70th Street to the

Hawley Road Interchange is generally residential with some commercial, institutional, and utility uses present. From the Hawley Road Interchange to Yount Drive, land use is mainly institutional with the exception of residences in the Story Hill neighborhood and commercial and residential uses along Hawley Road. For more detailed land use information, refer to the **Existing Conditions section, Existing Land Use** of this report. The aerial photography mapping of existing I-94 mainline and interchanges within the project's area of influence are shown in **Exhibits 2-1, 2-2** and **2-3**.

Factors Used to Define the Area of Influence

Interchange Spacing

The adjacent 70th/68th interchange is located 3275' to the west of the Hawley Road Interchange. The adjacent Mitchell Boulevard Interchange is located 2100' to the east of the Hawley Road Interchange. The Stadium Interchange is located 4550' to the east of the Hawley Road Interchange. Diverted traffic from the modified Hawley Road Interchange is anticipated to go to these interchanges due to their close proximity to the Hawley Road Interchange, thus establishing 70th/68th and the Stadium interchanges as the west and east area of influence limits.

Signal/Stop Sign Locations

The 70th/68th split diamond interchange is signal controlled. The Hawley Road Interchange has a signal controlled intersection for the westbound ramps, a stop sign controlled intersection for the eastbound exit ramp, and a free flow right turn and a left turn lane in the median for the eastbound entrance ramp. The Mitchell Boulevard Interchange is stop controlled for all ramp movements.

Anticipated Traffic Impacts

As previously noted, traffic diverted from the modified partial Hawley Road Interchange is anticipated to utilize either the 68th/70th Street or Stadium interchanges to access I-94 due to their proximity to Hawley Road. Connections between these interchanges are provided locally using either US 18 (Bluemound Road) to the north or WIS 59 (Greenfield Avenue/National Avenue) to the south. A comparison of design year (2040) forecasts shows anticipated increases of 1,500 to 2,500 vehicles per average weekday (AWDT) diverted to both US 18 and WIS 59 between 76th Street and Hawley Road due to the proposed change in freeway access.

An additional 1,500 vehicles per average weekday are anticipated to divert to the 68th St/70th Street Interchange due to the removal of freeway access from Hawley Road to and from the east under the preferred alternative in the design year. Similarly, an additional 3,000 vehicles per average weekday in the design year are anticipated to divert to the Stadium interchange (more specifically the S-E and E-S ramp movements) due to the removal of freeway access from Hawley Road to and from the east under the preferred alternative. It should be noted that some of the anticipated 3,000 diverted vehicles per average weekday may likely alter their route due to the capacity constraint through the cemetery section.

Anticipated Land Use Changes

The At-grade alternative with the partial interchange at Hawley Road will convert 9 acres of land to new highway right-of-way. The right-of-way acquired would be from residential, commercial, institutional,

and utility land uses. The Washington Street extension proposed for mitigation for the loss of access at Hawley Road, would require approximately 12 acres of new right-of-way. An additional 1 acre of right-of-way would be required as part of the improvements at the Miller Park Way/National Avenue intersection.

Background

I-94 project corridor (70th Street to 16th Street)

The I-94 East-West Freeway is one of the busiest routes in southeast Wisconsin. It serves as a vital link to downtown Milwaukee and the western suburbs, and is part of a major east-west Interstate route serving national, regional, and local traffic for trips within and through the study area. The overall existing project area includes six interchanges on I-94 (68th & 70th Street, Hawley Road, Mitchell Boulevard, WIS 175/WIS 341(Miller Park Way), 35th Street, and 25th/26th/28th Street). The WIS 175/341 (previously US 41) route was originally slated to be part of a larger freeway system that was never fully constructed. This segment of I-94 was originally constructed in 1963 and has since had three resurfacing projects completed in the mid-1970s, the late 1990s, and again in 2011-2012. This segment of roadway is at the end of its useful life cycle with the last rehabilitation project completed in 2012. The last rehabilitation project is estimated to only hold up until around year 2020.

In 1966, the Southeastern Wisconsin Regional Planning Commission (SEWRPC) completed a regional transportation system plan for the year 1990. The original transportation plan recommended several new freeway links, many of which were never constructed.

In 1991, WisDOT began analyzing long-term improvements to the following three I-94 system interchanges in Milwaukee County: the Zoo Interchange, the Stadium Interchange, and the Marquette Interchange. By 1995, the three interchange studies merged into one study, the I-94 East-West study, which evaluated 10 highway and transit alternatives, including light rail transit and bus options, in the I-94 East-West Corridor.

WisDOT, in collaboration with FHWA and the Federal Transit Administration (FTA), completed a Draft Environmental Impact Statement (Draft EIS)/Major Investment Study (MIS) for the original I-94 East-West Corridor study in October 1996. The Draft EIS/MIS project termini were Interstate 794 (I-794) and the I-94/Wisconsin State Highway 16 (WIS 16) Interchange in Waukesha County. WisDOT developed a draft Locally Preferred Alternative (LPA) that included all the transportation components of the Draft EIS/MIS.

With the development of the draft LPA, the MIS process was completed for the I-94 East-West Corridor in Milwaukee and Waukesha counties. On June 26, 2000, FHWA published a *Federal Register* notice terminating the environmental process at the Draft EIS/MIS phase and announced that WisDOT, FTA, and FHWA would not complete a corridor-wide Final EIS and Record of Decision (ROD). In addition, FHWA indicated that it was unlikely that the various components of the LPA would proceed on the same schedule, but the information from the Draft EIS/MIS could lead to the initiation of environmental analysis for individual components of the LPA. WisDOT and FHWA have since advanced two elements of the previous LPA: the Marquette Interchange (reconstruction completed in 2008) and the Zoo Interchange (construction began in 2013). The other elements of the LPA have not been implemented.

In 2003, SEWRPC completed a regional freeway system planning study, *A Regional Freeway System Reconstruction Plan for Southeastern Wisconsin*, at the request of WisDOT. The study:

- Identified segments of the freeway system that would require reconstruction within the next 30 years and recommended how to rebuild various freeway segments
- Discussed whether the freeway segments should be rebuilt in kind, with minor redesign, with substantial redesign, or with additional traffic lanes
- Recommended reconstructing I-94 with eight travel lanes (four in each direction), new pavement with full shoulders, new bridges with additional vertical clearance, improved entrance ramps for better operations, and improved vertical alignment (fewer dips and rises in the road) to accommodate safer stopping sight distances
- Recommended reconstructing the Stadium Interchange as a service interchange

In 2006, SEWRPC completed its most recent regional transportation system plan, *A Regional Transportation System Plan for Southeastern Wisconsin: 2035—SEWRPC Planning Report No. 49* (SEWRPC 2006a). The plan:

- Recognizes that 127 miles of freeway widening proposed in the plan, and in particular the 19 miles of widening in the City of Milwaukee (including I-94 between the Zoo and Marquette interchanges), will undergo preliminary engineering and environmental documentation by WisDOT
- Acknowledges during the environmental documentation process, alternatives will be considered, including rebuild-as-is, various options of rebuilding to modern design standards, compromises to rebuilding to modern design standards, rebuilding with additional lanes, and rebuilding with the existing number of lanes
- Acknowledges that only at the conclusion of preliminary engineering would WisDOT and FHWA determine how the freeway would be reconstructed

In fall 2011, Wisconsin's Transportation Projects Commission approved the I-94 corridor for study. FHWA published a Notice of Intent to prepare an EIS for the I-94 East-West Corridor in the *Federal Register* on May 18, 2012.

WisDOT studied the closure of the Hawley Road Interchange as part of the at-grade alternative; however based on strong local agency and public input and the consideration of community and environmental impacts, developed another alternative that would provide partial access.

Purpose

The purpose of the project is to address the deteriorated condition of I-94, obsolete roadway and bridge design, existing and future traffic demand, and high crash rates. The Hawley Road Interchange reconstruction would accomplish the following:

- Maintain a key link in the local, state, and national transportation network.
- Address the obsolete design of I-94 to improve safety and decrease crashes.
- Replace deteriorating pavement.
- Accommodate existing and future traffic volumes at an acceptable level of service.

The project would neither require nor preclude other future transportation improvements identified in the regional transportation plan. The project would provide a safer and more efficient transportation system in the I-94 East-West Corridor while minimizing impacts to the natural, cultural, and built environment to the extent feasible and practicable.

METHODOLOGY

WisDOT and FHWA developed and evaluated a wide range of alternatives for this project. The alternatives that were retained for detailed study (Double Deck and 8 lanes at grade with no, half and full Hawley Road Interchange) would improve I-94 over the existing condition. All of the alternatives would address the deteriorated condition of I-94, obsolete roadway and bridge design, existing and future traffic demand, and high crash rates.

Identification of a preferred alternative was based on resource agency input, local government input, public input, cost, impacts to the human/natural environment, and input from the public, state and federal resource agencies, cooperating and participating agencies, and local officials. Identification of a preferred alternative was also performed in accordance with the Clean Water Act's Section 404 (b)(1), Sections 106 and 110 of the National Historic Preservation Act as amended, and the U.S. DOT's Section 4(f) law. Consultation under Section 106 and Section 110 has been ongoing and will be completed before the Record of Decision is approved.

Freeway Analysis

Highway Capacity Manual (HCM) freeway analysis was conducted using 2010 Highway Capacity Software (HCS2010) for the existing and proposed freeway and ramp terminals within the Hawley Road corridor segment. The threshold values for the density for each of the levels of service from A to F are given in **Table 2.**

Table 2

Level of Service	Freeway Density	Ramp Density	Weaving Density Freeway	Weaving Density CD Road
A	≤ 11	0 – 10	0 – 10	0 – 12
B	> 11 - 18	>10 – 20	>10 – 20	>12 – 24
C	>18 – 26	>20 - 28	>20 - 28	>24 - 32
D	>26 - 35	>28 - 35	>28 - 35	>32 - 36
E	>35 - 45	>35	>35	>36
F	>45 or V/C >1	Exceeds Capacity	Exceeds Capacity	Exceeds Capacity

Paramics was used to analyze the existing and future operations of the I-94 corridor as a whole, including the Hawley Road area. Specific to the Hawley Road area, Paramics microsimulation was used to analyze the existing complex weave operations along I-94 between 68th/70th Street and Mitchell Boulevard, in both the AM and PM peak periods. Future Paramics analysis of the Hawley Road area focused on operations between 68th/70th Street and the Stadium interchange, including AM and PM peak hour operations through the cemetery section. Paramics uses micro-simulation to provide a stochastic analysis of traffic operations with a systems approach that considers the operations of the adjacent components. FHWA conducted a peer review of the existing Paramics models and calibration documentation developed for this project in order to verify the operational conclusions associated with these analyses. The memo that describes the existing Paramics model calibration and the FHWA review is included in **Appendix I**.

ISATe was used to analyze the magnitude of crashes for comparison between the existing configuration and alternative configurations studied for Hawley Road.

Intersection Analysis

The Highway Capacity Manual (HCM) method analysis was conducted for the traffic signal at the loop ramp Hawley Road intersection and stop sign controlled crossroad ramp terminal intersections on Hawley Road at the eastbound ramp using Synchro version 8. The thresholds for the seconds of delay for each of the levels of service from A to F are given in **Table 3.**

Table 3

Level of Service	Signalized Delay (sec.)	Unsignalized Delay (sec.)
A	≤ 10	0 – 10
B	> 10 - 20	>10 – 15
C	>20 – 35	>15 - 25
D	>35 - 55	>25 - 35
E	>55 - 80	>35 - 50
F	>80	>50

After evaluating project purpose and need, cost, impacts to the human/natural environment, and public and agency comments received throughout the NEPA process and in direct response to the DEIS, WisDOT has identified the At-grade alternative with the half interchange at Hawley Road in the west segment as the preferred alternative.

EXISTING CONDITIONS

The aerial photography mapping of the Hawley Road area of influence is shown in **Exhibits 2-1, 2-2** and **2-3**.

This segment of I-94 was completed in 1963. Over the years, the concrete pavement has become worn and cracked. WisDOT resurfaced I-94 in the mid-1970s, late 1990s, and again in 2011–2012, which temporarily returned smooth riding surfaces to the roadway, but did not address the cracks in the concrete or the voids in the gravel base under the pavement. In addition to the physical condition, there are other substandard design elements within the Hawley Road Interchange influence area, such as the inadequate ramp spacing between Hawley Road and its adjacent interchanges at 68th/70th Street and Mitchell Boulevard, and the left and right - hand entrance and exit ramps at Mitchell Boulevard, which are contrary to driver expectations and result in major safety and operational problems, such as traffic weaving and congestion. The condition of the bridges at Hawley Road have deteriorated over the years due to age, greater volumes and heavier than expected traffic, road salt, freeze thaw cycles, and water entering cracks in the bridges. At some locations within the Hawley Road Interchange influence area, bridge clearances are below current accepted vertical clearance standards.

Demographics

Population in Milwaukee County and the Village of West Milwaukee grew slightly between 2000 and 2010, while the cities of Milwaukee, Wauwatosa, and West Allis, as well as the study area declined up to 2.6 percent over the same period. According to 2010 census data: the City of Milwaukee has a population of 594,833; Milwaukee County has a population of 947,735; the City of Wauwatosa has a population of 46,396; and the City of West Allis has a population of 60,411.

The two census tracts closest to the Hawley Road Interchange south of I-94 have a combined minority population of 42%, with 22 to 23% of families living below the poverty levels (2008-2012 American Community Survey 5-year estimates).

Milwaukee County is expected to add 33,500 jobs between 2010 and 2050, a 5.8 percent increase. Milwaukee County is expected to continue to be an employment hub for southeast Wisconsin, and employment is expected to remain steady. In 2010, about 94,000 people were employed within the I-94 East-West Corridor study area.

Traffic analysis zones for the base year from the selected travel demand forecasting model were provided by SEWRPC and are included in **Exhibit 10**.

Existing Land Use

Existing land use in the I-94 East-West Corridor generally consists of high density urban development, including commercial, residential, institutional, industrial, parks, transportation, and utilities. The Hawley Road Interchange is within the limits of the City of Milwaukee. The City of West Allis, City of Wauwatosa, and Village of West Milwaukee are located nearby, and within or near the area of influence.

Land use in the area of the Hawley Road Interchange maintains an urban character but is decidedly different east and west of Hawley Road. Land use in the segment from 70th Street to the Hawley Road Interchange is generally single family residential, with some commercial, institutional, and utility uses present. East of the Hawley Road Interchange to Yount Drive, land use is mainly institutional (cemeteries/VA Campus/Miller Park[Milwaukee Brewers Baseball Stadium]) with the exception of residences in the Story Hill neighborhood, north of I-94 and commercial and residential uses at Hawley Road.

North of I-94 between 70th Street and 68th Street, O'Connor Street serves as a frontage road to I-94. The Girl Scouts of Southeastern Wisconsin headquarters and the Girl Scouts' Milwaukee Service and Resource Center is located at 70th Street and an electrical substation is located between 69th and 68th streets. Between 68th Street and Hawley Road, a utility corridor consisting of overhead electrical transmission lines and towers is adjacent to and north of I-94. North of the utility corridor is a high-density, single-family residential neighborhood, interspersed with some multifamily residential units, some commercial businesses, a school, and park.

68th Street and Hawley Road are two major arterials that connect I-94 to the City of Wauwatosa, located mainly north of Bluemound Road. Bluemound Road (roughly 0.4 mile north of I-94) is generally an east-west commercial corridor between 66th Street and Hawley Road.

Between Hawley Road and Mitchell Boulevard, there are three cemeteries adjacent to I-94 on both sides of I-94: Beth Hamedrosh Hagodel Cemetery, Wood National Cemetery, and Spring Hill Cemetery. On the north side of I-94, the Beth Hamedrosh Hagodel Cemetery is adjacent to I-94 from Dana Court to a point roughly 650 feet to the east. The northern portion of the Wood National Cemetery is directly east of the Beth Hamedrosh Hagodel Cemetery to the Zablocki Drive bridge. North of the cemeteries is a utility corridor consisting of overhead electrical transmission lines and towers, and to the north of the utility corridor is Calvary Cemetery, which extends to Bluemound Road. Mitchell Boulevard Park is east of the cemeteries between Bluemound Road and I-94. South of I-94, Spring Hill Cemetery and Wood National Cemetery are adjacent to I-94. Anshai Lebowitz Cemetery is south of Spring Hill Cemetery.

Wood National Cemetery is part of the VA Campus, which covers 125 acres, mainly south of I-94 to National Avenue. Along with Wood National Cemetery, the VA Campus includes a VA medical center, regional office, and benefits center, amongst other uses. What is now the VA Campus was established in the 1860s as the Northwestern Branch, National Home for Disabled Volunteer Soldiers. A cluster of older buildings, some dating to the 19th century, and the cemetery are a National Historic Landmark (NHL). Another NHL, the Soldiers' Home Reef NHL is also located on the VA Campus. The VA noted that many of its 6,000 employees, as well as some of the one million patients per year, use the Hawley Road Interchange to access its campus. All of the ambulance providers that access the VA Medical Center by freeway use the Hawley Road Interchange.

The land use on the south side of I-94 between 70th Street and the Hawley Road Interchange is mainly single-family residential with some multifamily units along with a school, commercial, and recreational uses. The Hank Aaron State Trail (HAST) is roughly 0.4 mile south of I-94.

Additionally, there is a single-family residence, cemetery maintenance business, and Monreal's Encore Gentlemen's Club on Dana Court in the northeast quadrant of the Hawley Road Interchange, while the Hunger Task Force of Milwaukee is located on Hawley Court in the southeast quadrant of the Hawley Road Interchange. According to the Hunger Task Force, it is located here because it is a central location in the Milwaukee area and has very convenient freeway access.

From Mitchell Boulevard to Yount Drive the land use is dominated by Miller Park, a stadium for Major League Baseball's Milwaukee Brewers, south of I-94, and the Story Hill residential neighborhood to the north. Also, between Mitchell Boulevard and Yount Drive, the electrical transmission line corridor crosses from the north side to the south side of I-94.

70th Street, Hawley Road/60th Street and Miller Park Way are three major arterials that connect I-94 to the City of West Allis and the Village of West Milwaukee. The land uses adjacent to the proposed Washington Street extension, a mitigation route for the closing of the east side of the Hawley Road ramps, are a mixture of industrial, commercial, and office complexes separated by large parking areas. The area also contains WisDOT's Southeast Region Service Facility. A residential area is located south of the proposed extension, immediately north of Mineral Street between 63rd and 60th Streets. These residential streets terminate a block north of Mineral Street. North of the proposed extension is the Hank Aaron State Trail (HAST). The area surrounding the 70th Street/Greenfield Avenue intersection generally consists of commercial land uses, including a bank and a retail/office complex. There is a high density residential senior living facility (apartments) in the southwest quadrant of the intersection. The National Avenue/Greenfield Avenue intersection also consists mainly of commercial/retail uses. A church is located on the west end of the intersection. The Miller Park Way/National Avenue intersection is surrounded by a variety of land uses. The VA Campus, including the Soldiers' Home NHL and Historic District is located in the northwest quadrant, while a large industrial facility, Joy Global, is located in the northeast quadrant. South of National Avenue is a dense commercial/retail corridor.

Existing Roadway Network

The aerial photography mapping of the corridor is shown on **Exhibits 2-1, 2-2** and **2-3**.

I-94 is the major east west roadway in the corridor and is part of the National Highway System. I-94 is a designated federal and state "long truck route," allowing longer commercial vehicles to use the freeway. Additionally, I-94 is a designated "backbone" route in WisDOT's Connections 2030 Long-Range Multimodal Transportation Plan. On an average day, I-94 carries between 146,700 and 150,700 vehicles (ADT) between the 68th/70th Street and Stadium interchanges.

A parallel arterial route, US 18 (Bluemound Road) is located to the north of I-94. US 18 carries average annual daily traffic volumes (AADT) varying from 7,500 to 12,200 vehicles per day between 68th Street and WIS 175. US 18 has a very dense spacing of access points that affect the through traffic, as there are intersections with every cross street, including three signalized intersections between 68th Street and WIS 175. The block spacing is in the range of 300 to 400 feet for most of this area. There are many closely spaced residential and commercial driveways as well.

A second, parallel east-west arterial route, WIS 59 (Greenfield Avenue/National Avenue) is located to the south of I-94. Greenfield Avenue is designated as WIS 59 from the west end of the study area up to the intersection with National Avenue. At the intersection of Greenfield Avenue and National Avenue, WIS 59 switches to National Avenue through the east end of the study area. On average, WIS 59 carries daily traffic volumes varying from 11,800 to 15,800 vehicles per day (AADT). WIS 59 has many closely spaced access points similar to US 18, including eight signalized intersections between 70th Street and WIS 175.

The general roadway characteristics for these parallel routes are shown in **Table 4**.

Table 4

Roadway	Existing AADT	Functional Class	No. of Lanes	Access Control
US 18	7,500 to 12,200	Arterial	2 to 4	None
WIS 59	11,800 to 15,800	Arterial	2 to 4	None

There are a number of north-south cross streets located within the Hawley Rd area of influence that provide access to and from the I-94 EW corridor, including 68th Street, 70th Street, Hawley Road, Mitchell Boulevard, and WIS 175.

On the west end of the study area, 68th Street provides freeway access for cross streets located north of I-94, including US 18. However, 68th Street dead-ends south of I-94 in a residential area and does not intersect with WIS 59. 70th Street provides freeway access for cross streets located south of I-94, including WIS 59, but becomes a local roadway north of I-94. The intersection of 70th Street and US 18 is unsignalized and only allows right turns from 70th Street onto US 18 in either direction.

Located east of the 68th and 70th Streets, Hawley Road turns into 55th Street to the north providing an arterial connection to WIS 175. South of I-94, Hawley Road becomes 60th Street, which provides a connection to I-894 and I-43. On an average day, Hawley Road carries between 13,600 to 18,900 vehicles (AADT) within the area of influence. There are a number of local roadway access points along Hawley Road, including six signalized intersections between US 18 and WIS 59.

East of Hawley Road, Mitchell Boulevard provides freeway access to and from US 18 to the north. South of I-94, Mitchell Boulevard intersects with Selig Drive, which surrounds Miller Park and provides access to the various parking lots around the Stadium. There is also an unsignalized intersection located just south of the Mitchell Boulevard Interchange, which provides access to the VA Campus from the north and is heavily utilized by VA staff and visitors. On an average day, Mitchell Boulevard is utilized by about 1,800 vehicles (AADT). The intersection of Mitchell Boulevard and US 18 is signalized.

WIS 175 is located on the east end of the Hawley Road area of influence and forms the Stadium interchange with I-94 in the center of the overall corridor study area. WIS 175 is a grade-separated

divided roadway north of I-94 and for a portion south of I-94. South of the Canal Street Interchange, WIS 175 transitions to an at-grade, signalized corridor starting at the intersection with WIS 59. On an average day, between 60,600 and 68,500 vehicles (AADT) travel along WIS 175 from Wisconsin Avenue to WIS 59.

The general roadway characteristics for each north-south cross street is given in **Table 5**.

Table 5

Roadway (Location)	Over/Under I-94	Existing AADT	Functional Class	No. of Lanes	Access Control
70th Street (south of I-94)	Under	15,900	Collector	4	None
68th Street (north of I-94)	Under	6,600	Collector	2	None
Hawley Road	Under	13,600 to 18,900	Arterial	4	None
Mitchell Boulevard	Under	1,800	Collector	2 to 4*	None
WIS 175/341	Under/Over	60,600	Arterial	6	Full

* Drops to two lanes away from the interchange

In addition to the north-south crossing roadways that have interchanges with I-94, the following routes cross the interstate within the area of influence: 64th Street, Zablocki Drive, Yount Drive, and 44th Street. Each of these minor roadways primarily provides local/residential access. Zablocki Drive connects the Calvary Cemetery located north of I-94 to the Wood National Cemetery south of I-94. Yount Drive and 44th Street provide access to Selig Drive and the Miller Park area. The general roadway characteristics for each route are shown in **Table 6.**

Table 6

Roadway (Location)	Over/Under I-94	Existing AADT	Functional Class	No. of Lanes	Access Control
64th Street (south of I-94)	Under	790	Local	2	None
Zablocki Drive	Over	N/A	Private	2	None
Yount Drive	Under	N/A	Local	2	None
44th Street (north of I-94)	Under	400	Local	2	None

Alternative Travel Modes

Alternate travel modes are shown in **Exhibit 2-4**.

The Milwaukee County Transit System (MCTS) is the largest local transit operator in Wisconsin. MCTS provides transit services for all of Milwaukee County and paratransit services (Transit Plus) for the elderly, persons with disabilities, and people with conditions that prevent them from using MCTS buses. Freeway Flyer express service is available along the I-94 corridor and operate during weekday morning

and evening rush hours, providing service between park and ride lots and downtown Milwaukee. Service is also provided to special events such as Summerfest, other lakefront festivals, and the Wisconsin State Fair. MCTS bus routes along the local street network in the area of influence include:

- Route 64 – north-south under I-94 along Hawley Road
- Route 76 – north-south under I-94 along N. 68th Street and N. 70th Street
- Route 23 – east-west along W. National Avenue
- Gold Line Express Route – east-west along W. Wisconsin Avenue
- Blue Line Express Route – east-west along W. National Avenue

None of these local bus routes enter or exit the freeway at the Hawley Road Interchange and are not impacted by the proposed Hawley Road Interchange access modifications.

There are no park and ride lots in the I-94 East-West Corridor; however, a park-and-ride lot is located just west of the study area at 76th Street and I-94.

Other bus services utilizing I-94 through the project corridor include:

- Washington County Commuter Express which provides 8 weekday trips from West Bend to downtown Milwaukee and 10 trips from downtown Milwaukee to West Bend on I-94.
- Coach USA between Waukesha County and downtown Milwaukee.
- The Airport Express between Waukesha and downtown Milwaukee, General Mitchell International Airport, Chicago O'Hare International Airport, and Chicago Midway Airport.
- The University of Wisconsin–Whitewater route with service between Whitewater and downtown Milwaukee.
- The Megabus with service to destinations throughout the Midwest including two to three daily round trips between Minneapolis and Milwaukee.
- Greyhound Bus Lines between Green Bay and Milwaukee on US 45 and I-94, and between Milwaukee and Minneapolis.
- Lamers Bus Lines between Milwaukee and Wausau with stops in the Fox Valley area with one daily route between Milwaukee and Madison.
- Badger Bus between Madison and Milwaukee.

None of these bus services enter or exit the freeway at the Hawley Road Interchange, and are not impacted by proposed Hawley Road Interchange access changes.

General Mitchell International Airport, which serves national and international flights, is located approximately 12 miles from this project. It is served by the WIS 119 (Airport Spur) interchange.

The Port of Milwaukee which is about seven miles east and south of this project serves the Lake Express High Speed Ferry and freight vessels on the Great Lakes / St. Lawrence System.

The Oak Leaf Trail, Hank Aaron State Trail, and on-street routes serve bicyclists and pedestrians. These facilities are shown on **Exhibit 2-4**.

Adjacent Interchanges

Table 7 shows the locations and configurations of the existing Hawley Road Interchange and its adjacent interchanges. A location map is shown on **Exhibit 1-1**. The aerial photography mapping of the area with each of the interchanges identified is shown on **Exhibits 2-1** and **2-2.**

Table 7

Existing Interchange in the Area of Influence	Existing Interchanges Configuration/Geometry	Existing Features not meeting Design Standards
68th – 70th Street Split Diamond	Split Diamond with local road slip ramp connections on west side EB Exit - diamond slip ramp with taper exit terminal connection to the Kearney Frontage Road prior to the 70th St intersection EB Entrance – diamond ramp with taper entrance to I-94 WB Exit – diamond ramp with taper exit terminal from I-94 WB Entrance – Diamond slip ramp with taper entrance to I-94	Acceleration lanes/tapers on the entrance ramps too short Stopping Sight Distance Vertical Clearance
Hawley Road Parclo WB and Diamond/ half loop EB	Parclo WB/Diamond EB WB Exit – 25 mph loop ramp with parallel exit terminal WB Entrance – S-curve ramp outside of loop ramp with taper entrance terminal EB Exit – diagonal ramp with taper exit terminal EB Entrance – curved ramp with taper entrance terminal	Acceleration taper on entrances are too short Deceleration lane to loop ramp too short Stopping Sight Distance Vertical Clearance
Mitchell Boulevard	Modified Diamond – 3 left side ramps (EB exit, EB entrance, WB entrance) & one right side ramp (WB exit)	Left side ramps Stopping Sight Distance Vertical Clearance
Stadium Interchange – WIS 175/WIS 341	Directional Interchange (3 level with 4 left side and 4 right side exit to entrance ramps)	Left side exit/entrance ramps Ramp Design Speeds vary between 25 and 40 mph Vertical Clearance

The configuration of the freeway and interchanges located within the existing Hawley Road Interchange influence area is functionally deficient in many areas.

Six locations do not meet minimum standards for decision sight distance.

- The eastbound entrance to I-94 at 68th Street
- The westbound entrance to I-94 at 70th Street
- The eastbound entrance to I-94 at Hawley Road
- The westbound entrance to I-94 at Hawley Road
- The eastbound entrance to I-94 at Mitchell Boulevard
- The westbound entrance to I-94 at Mitchell Boulevard

Six locations have substandard shoulder widths. Table 8 lists the substandard shoulder widths locations.

Table 8
Segments of Existing I-94 with Substandard Shoulder Widths

Location	Minimum Recommended Width (feet)*	Inside Shoulder Width (feet)	Outside Shoulder Width (feet)
I-94 eastbound:			
70th Street to Hawley Road	12	2-12	10-12
Hawley Road to Mitchell Boulevard	12	2-3	6-12
Mitchell Boulevard to Stadium Interchange	12	2-4	10-12
I-94 westbound:			
Stadium Interchange to Mitchell Boulevard	12	2-6	10
Mitchell Blvd. to Hawley Road	12	2-4	2-12
Hawley Road to 70th Street	12	2-12	8-12

*12’ Desirable shoulder widths for interstates with 6 or more lanes and design hour truck volumes >250.

Thirteen bridges do not meet minimum vertical clearance standards. Table 9 lists the substandard locations and the minimum criteria.

Table 9
Bridges with Inadequate Vertical Clearance

Location	Minimum Vertical Clearance Criteria	Existing Vertical Clearance
Mainline I-94:		
Eastbound I-94 over Mitchell Boulevard	14 feet (over arterial)	12 feet, 6 inches
Westbound I-94 over Mitchell Boulevard	14 feet (over arterial)	12 feet, 8 inches
Stadium Interchange:		
Eastbound I-94 over northbound WIS 175/WIS 341	16 feet (over freeway)	14 feet, 5 inches

Table 9 - Continued

Location	Minimum Vertical Clearance Criteria	Existing Vertical Clearance
Westbound I-94 over northbound WIS 175/WIS 341	16 feet (over freeway)	13 feet, 10 inches
Southbound WIS 175 ramp to eastbound I-94 over westbound I-94	16 feet (over freeway)	13 feet, 11 inches
Southbound WIS 175 ramp to eastbound I-94 over westbound I-94 ramp to southbound Miller Park Way	16 feet (over freeway)	13 feet, 7 inches
Northbound Miller Park Way ramp to westbound I-94 over eastbound I-94	16 feet (over freeway)	14 feet, 4 inches
Southbound WIS 175 over northbound Miller Park Way to westbound I-94	16 feet (over freeway)	14 feet, 11 inches
Southbound WIS 175 /Miller Park Way over I-94	16 feet (over freeway)	14 feet, 5 inches
Westbound I-94 ramp to southbound Miller Park Way over eastbound I-94	16 feet (over freeway)	14 feet, 7 inches
WIS 175:		
Bluemound Road over WIS 175	16 feet (over freeway)	14 feet, 6 inches
Wisconsin Avenue over WIS 175	16 feet (over freeway)	15 feet, 6 inches
Wells Street over WIS 175	16 feet (over freeway)	14 feet, 7 inches

None of the interchanges meet design criteria for minimum spacing requirements between interchanges. WisDOT guidelines require 2 miles between interchanges in an urban setting, while AASHTO criterion require 1 mile minimum. Over the 1.5-mile segment of I-94 from the 70th Street Interchange to the Stadium interchange, there are four interchanges—an average of more than 2 per mile.

Nine locations do not meet minimum ramp spacing. Table 10 lists locations where the area of influence freeway system does not provide the minimum ramp spacing.

Table 10
Locations Where Minimum Ramp Spacing is Not Provided

Location	Minimum Ramp Spacing (feet)	Existing Spacing Between Ramps (feet)
I-94 eastbound entrance from 68th Street to Hawley Road	1,600	1,050
I-94 eastbound entrance from Hawley Road to Mitchell Boulevard	1,600	595
I-94 eastbound entrance from Mitchell Boulevard to Stadium Interchange	2,000	850
I-94 westbound entrance from Stadium Interchange to Mitchell Boulevard	2,000	605
I-94 westbound entrance from Hawley Road to 68th Street	1,600	1,000
Miller Park Way northbound entrance from Frederick Miller Way/Canal Street to Stadium Interchange	2,000	1,660
Miller Park Way southbound entrance from Stadium Interchange to Frederick Miller Way/Canal Street	2,000	1,660
WIS 175 northbound entrance from Stadium Interchange to Wisconsin Avenue	2,000	760
WIS 175 southbound entrance from Wisconsin Avenue to Stadium Interchange	2,000	650

Eight locations have left-hand entrance or exit ramps with short weave lengths.

- I-94 Eastbound
  - The right-hand entrance from Hawley Road to eastbound I-94 is approximately 0.1 mile to the left-hand Mitchell Boulevard exit.
- I-94 Westbound
  - The left-hand entrance from Mitchell Boulevard to westbound I-94 is approximately 0.3 mile from the right-hand exit to Hawley Road.
- Stadium Interchange
  - The left-hand entrance from Mitchell Boulevard to eastbound I-94 is approximately 0.15 mile to the right-hand exit to southbound Miller Park Way in the Stadium Interchange.
  - The left-hand entrance in the Stadium Interchange from northbound Miller Park Way to westbound I-94 is approximately 0.1 mile from the right-hand exit to Mitchell Boulevard.
  - The left-hand entrance in the Stadium Interchange from westbound I-94 to southbound Miller Park Way is approximately 0.3 mile to the right-hand exit to Frederick Miller Way/Canal Street.
  - The right-hand entrance from Frederick Miller Way/Canal Street to Miller Park Way northbound is approximately 0.3 mile to the left-hand exit to I-94 westbound in the Stadium Interchange.
  - The left-hand entrance in the Stadium Interchange from eastbound I-94 to northbound WIS 175 is approximately 0.15 mile to the right-hand Wisconsin Avenue exit.
  - The right-hand entrance from Wisconsin Avenue to WIS 175 southbound is approximately 0.1 mile to the left-hand I-94 eastbound exit in the Stadium Interchange.

Fourteen locations have substandard ramp taper rates. Table 11 lists locations with substandard ramp taper rates.

Table 11
Locations with Substandard Ramp Taper Rates

Location	Minimum Taper Rate Criteria	Existing Taper Rate
I-94 eastbound entrance from 68th Street	50:1	22.5:1
I-94 eastbound exit to Hawley Road	15:1	9:1
I-94 eastbound entrance from Hawley Road	50:1	46:1
I-94 eastbound entrance from Mitchell Boulevard	50:1	13:1
I-94 eastbound exit to southbound Miller Park Way	15:1	7.5:1
I-94 westbound exit to southbound Miller Park Way	15:1	7:1
I-94 westbound exit to Mitchell Boulevard	15:1	12:1
I-94 westbound entrance from Mitchell Boulevard	50:1	22.5:1
I-94 westbound entrance from Hawley Road	50:1	34:1
I-94 westbound exit to 68th Street	15:1	10:1
I-94 westbound entrance from 70th Street	50:1	22.5:1
WIS 341 northbound entrance from I-94 westbound	50:1	32:1
WIS 341 northbound exit to Wisconsin Avenue	15:1	3:1
WIS 175 southbound entrance from Wisconsin Avenue	50:1	10:1

Eight entrance/exit ramps have inadequate acceleration/deceleration lengths. **Table 12** lists entrance and exit ramps that have inadequate acceleration and deceleration lengths based on AASHTO freeway design criteria.

Table 12
Ramps with Inadequate Acceleration or Deceleration Lanes

Location	Minimum Lane Length Needed (feet)	Actual Acceleration/ Deceleration Lane Length (feet)
I-94 eastbound entrance from 68th Street	960	550
I-94 eastbound entrance from Hawley Road	670	415
I-94 eastbound exit to Mitchell Boulevard	380	330
I-94 eastbound exit to Miller Park Way	350	160
I-94 westbound exit to Miller Park Way	410	300
I-94 westbound entrance from Mitchell Boulevard	960	575
I-94 westbound exit to Hawley Road	430	260
I-94 westbound entrance from Hawley Road	670	350

Existing Data

Analyses of the operations for the existing conditions were conducted using balanced year 2009 AM and PM Peak Hour traffic volumes and existing geometrics. Year 2009 was selected as the base for existing year traffic analysis because it was the most recent year without significant freeway construction going on in the area that impacted the traffic volumes on the I-94 corridor and its interchanges. Existing traffic volumes were collected from Automatic Traffic Recorders (ATRs), coverage counts and intersection turning counts. These volumes are within 0.2% of the K200 volumes on I-94. As such, K200 design hour volumes and LOS D threshold was agreed to between WisDOT and FHWA because of the highly developed urban area and unique large traffic generators in the area. Use of these traffic volumes was documented in the memorandum *DHV & LOS for I-94 East-West Stadium Interchange Study* and approved by FHWA on September 20, 2012, found in **Appendix C**.

For use with the HCS 2010 analysis, the peak hour factor used for the existing analysis was 0.96. Level terrain was assumed throughout the study area. The I-94 mainline operating speed utilized for existing analysis was 55 mph. Peak hour traffic volumes, percentage of heavy vehicles and number of lanes for each basic freeway segment are shown in **Table 13. Tables 14** and **15** include the input information for ramp and weaving segment analyses.

Paramics microsimulation analysis of the existing conditions included the AM peak period (6:30-9:00AM) and PM peak period (2:00-6:30PM). As part of the existing Paramics model development, an aerial origin-destination survey was conducted for the AM and PM peak hours for use in the development of hourly, calibrated trip pairs within the existing Paramics models. Additionally, in order to calibrate the models to existing (2009) conditions, hourly traffic volumes and 15-minute speeds at select locations were used as the measures of effectiveness (MOEs) by which to calibrate the existing Paramics models to WisDOT standards.

As part of the calibration effort, 2009 hourly target volumes were developed for the corridor for all freeway mainlines, and ramps. This volume data set was developed based on a combination of corridor detector data and the balanced 2009 AM and PM peak hour traffic volumes previously mentioned. Additionally, average 2009, 15-minute speed data was collected for the corridor at 18 locations (nine per direction of I-94). This speed data was collected based on corridor detector data as well.

Specific details related to the volume and speed data collection and development effort is included in the "Existing Conditions – Calibration Memo", found in **Appendix I**. In addition, this memo includes the target volume and speed data used for calibration.

Crash data was obtained from the University of Wisconsin Traffic Operations and Safety Laboratory for the period from 2005 through 2009. The statewide average total crash rate for Large Urban Freeways is 85 crashes per hundred million vehicle miles traveled (100MVMT).

Operational Performance

Existing Freeway Analysis – HCS 2010

Analyses of the freeway operations for the existing conditions were conducted using balanced year 2009 AM and PM peak hour traffic volumes and existing geometrics using HCS 2010. The peak hour factor used for the existing analysis was 0.96. Level terrain and a posted mainline speed of 55 mph were used for the HCS analysis. Peak hour traffic volumes, percent of heavy vehicles and number of lanes for each basic freeway segment are shown in **Table 13. Tables 14** and **15** have the input information for ramp and weaving segment analyses.

Table 13

Existing Basic Freeway Segment Input Information			Peak Hour Volume (vph)		% HV		No. of
Route	From	To	AM	PM	AM	PM	Lanes
I-94 EB	70th St Exit Ramp	68th St Entr Ramp	5030	4900	9	5	3
I-94 EB	68th St Entr Ramp	Hawley Rd Exit Ramp	5640	5460	9	5	3
I-94 EB	Hawley Rd Exit Ramp	Hawley Rd Entr Ramp	5430	5050	9	5	3
I-94 EB	Mitchell Blvd Exit Ramp	Mitchell Blvd Entr Ramp	5630	5240	9	5	3
I-94 WB	S-W Ramp	Mitchell Blvd Entr Ramp	5450	4910	7	4	3
I-94 WB	Hawley Rd Exit Ramp	Hawley Rd Entr Ramp	5210	4970	7	4	3
I-94 WB	Hawley Rd Entr Ramp	68th St Exit Ramp	5760	5500	7	4	3
I-94 WB	68th St Exit Ramp	70th St Entr Ramp	5140	5070	7	4	3

Table 14

Existing Ramp Input Information			Speed MPH	Accel/ Decel (feet)	Peak Hour Ramp Volume (vph)		% HV		No. Lanes
Route	Cross Road	Side			AM	PM	AM	PM	
I-94 EB	68th St Entr	Right	35	355	610	560	9	5	1
I-94 EB	Hawley Rd Exit	Right	35	230	210	410	9	5	1
I-94 EB	Stadium (W-S)	Right	35	195	620	570	9	5	1
I-94 WB	Stadium (S-W)	Left	35	955	650	750	7	4	1
I-94 WB	Hawley Rd Entr	Right	35	235	550	530	7	4	1
I-94 WB	68th St Exit	Right	35	130	620	430	7	4	1

Table 15

Existing Weaving Input Information			Weave Length (feet)	%HV		Peak Hour Volume (vph)							
						Main Line		Ramp-Ramp		ML-Ramp		Ramp-ML	
Route	Weaving Segment			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-94 EB	Hawley Rd Entr	Mitchell Blvd Exit	580	9	5	5270	4995	10	5	160	55	360	245
I-94 EB	Mitchell Blvd Entr	W-N	730	9	5	5165	4570	25	10	465	670	65	200
I-94 WB	N-W	Mitchell Blvd Exit	325	7	4	4910	4365	10	55	90	35	540	545
I-94 WB	Mitchell Blvd Entr	Hawley Rd Exit	1290	7	4	5175	4585	15	5	275	325	35	385

On I-94, the existing HCS 2010 analyses show level of service (LOS) E on the freeway segments west of the Hawley Road Interchange in both the eastbound and westbound directions for both the AM and PM peak periods. The freeway segments between the exit and entrance ramps of 68th/70th Streets, Hawley Road and Mitchell Boulevard operate at LOS D and E. There are weave segments on the freeway just east of the Hawley Road Interchange in both directions. The eastbound weave segment is 580 feet long

and operates at LOS F in both the AM and PM peak periods. The westbound weave segment is 1290 feet long and operates at LOS F in the AM and LOS E in the PM peak period. Both of these are two-sided weaves between the left-side ramps at Mitchell Boulevard and the right-side ramps at Hawley Road. The density values and LOS for each of the mainline freeway segments is shown in **Table 16. Tables 17** and **18** have the density values and LOS for each of the ramp terminals and weaving segments analyzed.

Table 16

Existing Basic Freeway Segment Level of Service			AM		PM	
Route	From	To	LOS	Density (pcphpl)	LOS	Density (pcphpl)
I-94 EB	70th St Exit	68th St Entr	D	33.2	D	31.7
I-94 EB	68th St Entr	Hawley Rd Exit	E	38.2	E	35.7
I-94 EB	Hawley Rd Exit	Hawley Rd Entr	E	36.3	D	32.7
I-94 EB	Mitchell Blvd Exit	Mitchell Blvd Entr	E	38.2	D	34.0
I-94 WB	S-W Ramp	Mitchell Blvd Entr	E	36.0	D	31.6
I-94 WB	Hawley Rd Exit	Hawley Rd Entr	D	34.1	D	32.0
I-94 WB	Hawley Rd Entr	68th St Exit	E	38.9	E	35.8
I-94 WB	68th St Exit	70th St Entr	D	33.6	D	32.7

Table 17

Existing Ramp Terminals Level of Service			AM		PM	
Route	Cross Road	Type	LOS	Density (pcphpl)	LOS	Density (pcphpl)
I-94 EB	68th St	Merge	D	33.2	D	31.6
I-94 EB	Hawley Rd	Diverge	E	47.1	E	44.0
I-94 EB	Stadium (W-S)	Diverge	D	29.1	C	27.3
I-94 WB	Stadium (S-W)	Merge	C	24.4	C	22.2
I-94 WB	Hawley Rd	Merge	E	40.2	E	35.7
I-94 WB	68th St	Diverge	E	48.7	E	45.6

Table 18

Existing Weaving Segment Level of Service			AM		PM	
Route	From	To	LOS	Density (pcphpl)	LOS	Density (pcphpl)
I-94 EB	Hawley Rd Entr	Mitchell Blvd Exit	F	N/A	F	N/A
I-94 EB	Mitchell Blvd Entr	W-N	E	40.1	E	39.0
I-94 WB	N-W	Mitchell Blvd Exit	E	39.0	D	33.6
I-94 WB	Mitchell Blvd Entr	Hawley Rd Exit	F	N/A	E	40.9

The existing peak hour traffic volumes and levels of service for the freeway and ramps are shown on the schematic diagram of the facility on **Exhibit 3**.

Existing Freeway Analysis – Paramics

Existing AM and PM peak hour LOS is not reported based on Paramics model outputs, as there is no direct correlation between the inherent assumptions included in the Highway Capacity Manual methodology and Paramics modeling. As such, visual observations and resulting speeds are primarily utilized to convey model operations.

The existing AM peak period Paramics model reveals slow speeds and associated congestion throughout the duration of the AM peak hour (7-8AM) in the Hawley Road area, which matches the HCS 2010 analysis results. Congestion and slow speeds on I-94 EB form near 68th Street due to the short entrance ramp taper length. These issues continue as traffic travels east and encounters the right-hand Hawley Road entrance ramp in conjunction with the left-hand Mitchell Boulevard exit ramp. Additional downstream operational issues at the Stadium Interchange reflect upstream through Mitchell Boulevard and impacts I-94 EB traffic near Hawley Road as well. The I-94 WB freeway in the Hawley Road area operates similarly where slower speeds and congestion forms between Hawley Road and Mitchell Boulevard, primarily due to the presence of the left-hand entrance ramp from Mitchell Boulevard. Additionally, downstream congestion from the Zoo Interchange impacts upstream operations near the 68th/70th Street Interchange.

Figure 1 shows a screen capture from the existing AM peak period Paramics model in the Hawley Road area, which represents average operations at approximately 7:30AM. **Table 19** that follows shows the AM peak period Paramics model speeds for roadway sections located within the Hawley Road area of influence.

Figure 1

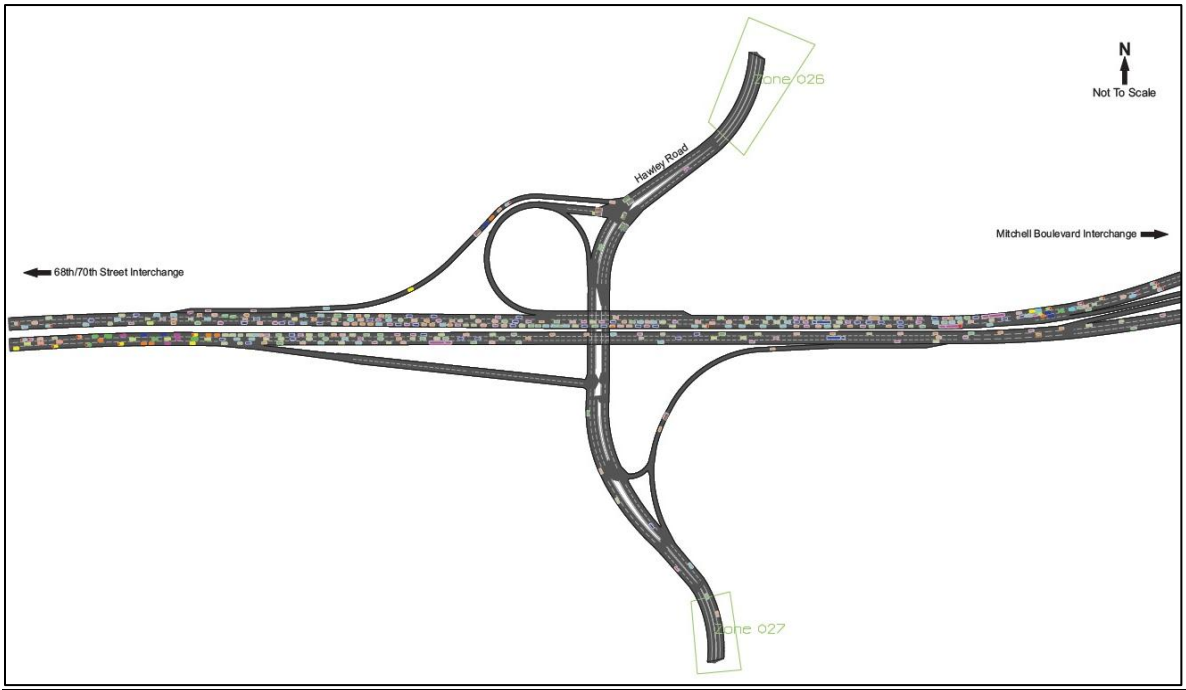


Table 19

Existing AM Model Results Summary (Paramics)		AM Peak Hour Modeled Speeds (mph)				
Route	Roadway Section	7:00-7:15	7:15-7:30	7:30-7:45	7:45-8:00	Average Hour
I-94 EB	West of 70th St Exit Ramp	41	35	23	22	30
I-94 EB	70th St Exit Ramp to 68th St Entr Ramp	32	26	20	20	25
I-94 EB	68th St Entr Ramp to Hawley Rd Exit Ramp	28	21	23	20	23
I-94 EB	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	36	27	31	26	30
I-94 EB	Hawley Rd Entr Ramp to Mitchell Blvd Exit Ramp	33	28	34	26	30
I-94 WB	Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	45	45	39	40	42
I-94 WB	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	36	27	31	26	30
I-94 WB	Hawley Rd Entr Ramp to 68th St Exit Ramp	50	47	51	50	50
I-94 WB	68th St Exit Ramp to 70th St Entr Ramp	48	48	49	48	48
I-94 WB	West of 70th St Entr Ramp	57	52	46	44	50

Existing PM peak model operations along I-94 EB show fairly consistent speeds and operations within the Hawley Road area, primarily due to the fact that I-94 EB demands during the PM peak period are generally lower than the AM peak period. I-94 WB operations during the PM peak period are significantly impacted by the consecutive left-hand entrance ramps from the Stadium and Mitchell interchanges upstream of the Hawley Road area. The resulting slower speeds and congestion that forms near these left-hand ramps consequently meters the demand downstream through Hawley Road and 68th /70th Street, which results in somewhat slower, but still consistent speeds.

Figure 2 below shows a screen capture from the existing PM peak period Paramics model in the Hawley Road area, which represents average operations at approximately 4:30PM. **Table 20** that follows shows the PM peak period Paramics model speeds for roadway sections located within the Hawley Road area of influence.

Figure 2

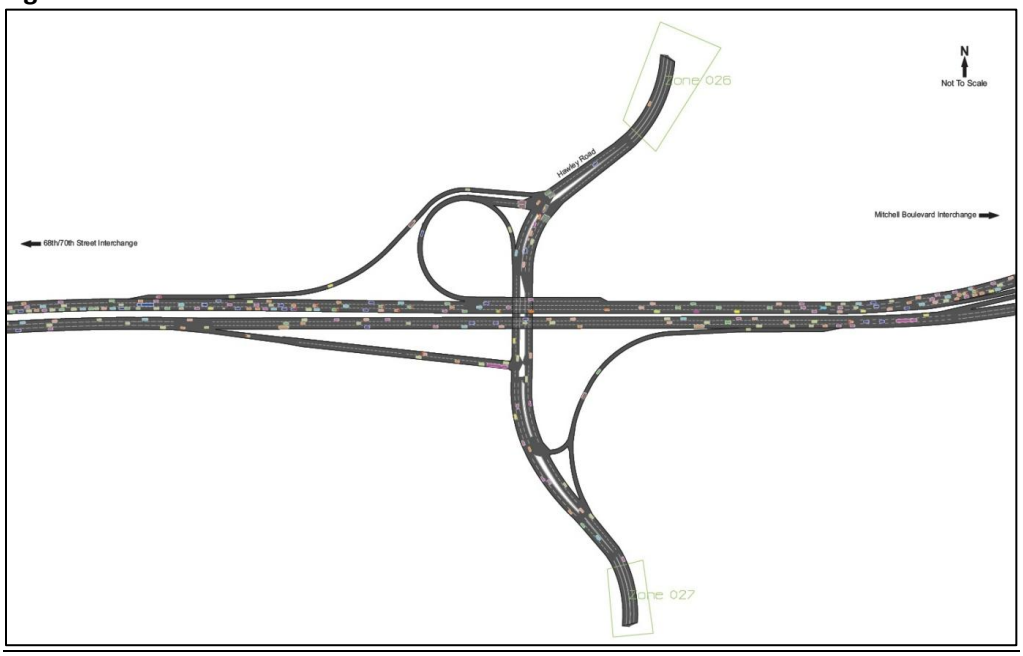


Table 20

Existing PM Model Results Summary (Paramics)		PM Peak Hour Modeled Speeds (mph)				
Route	Roadway Section	4:00-4:15	4:15-4:30	4:30-4:45	4:45-5:00	Average Hour
I-94 EB	West of 70th St Exit Ramp	59	58	58	59	59
I-94 EB	70th St Exit Ramp to 68th St Entr Ramp	55	54	55	54	55
I-94 EB	68th St Entr Ramp to Hawley Rd Exit Ramp	58	58	58	58	58
I-94 EB	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	56	51	55	53	54
I-94 EB	Hawley Rd Entr Ramp to Mitchell Blvd Exit Ramp	54	44	55	54	52
I-94 WB	Mitchell Blvd Entr Ramp to Hawley Rd Exit Ramp	39	39	39	39	39
I-94 WB	Hawley Rd Exit Ramp to Hawley Rd Entr Ramp	56	51	55	53	54
I-94 WB	Hawley Rd Entr Ramp to 68th St Exit Ramp	55	58	57	53	56
I-94 WB	68th St Exit Ramp to 70th St Entr Ramp	46	49	48	45	47
I-94 WB	West of 70th St Entr Ramp	51	57	50	40	50

Intersection Analysis

The results of the intersection analyses are shown in the tables in this section. More detail is provided in the discussion for **Policy Point 1**.

Hawley Road Interchange

The existing interchange has a diagonal exit ramp and curved entrance ramp on the south side for the eastbound I-94 connection and partial cloverleaf ramps on the north side for the westbound I-94 connection, with the westbound exit ramp being a loop. The eastbound ramp terminals are unsignalized and the westbound ramp terminal intersection on Hawley road is traffic signal controlled. A summary of the levels of service from the Synchro analysis for all of the movements are in **Table 21**. The Hawley Road EB exit ramp operates at LOS F in the PM peak period. This is a stop controlled intersection with significant cross-street through traffic. The analysis does not take into account gaps created at the signalized intersection of the WB ramp terminal. Queues do not impact I-94 mainline operations and safety.

Table 21 Peak Hour Traffic Volume (vph), Level of Service, Delay (seconds)

Intersection	Peak Hour	EB			WB			NB			SB			Inter-section
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Hawley Rd EB Exit	AM	70 C 20.8	- - -	140 B 10.9	- - -	- - -	- - -	- - -	650 N/A	- - -	- - -	460 N/A	- - -	Stop Control
	PM	155 F 71.5	- - -	255 B 13.2	- - -	- - -	- - -	- - -	560 N/A	- - -	- - -	835 N/A	- - -	Stop Control
Hawley Rd WB Ramps	AM	130 B 17.0	- - -	160 B 16.7	- - -	- - -	- - -	330 A 9.1	390 A 5.4	- - -	- - -	300 A 5.2	220 A 0.4	A 7.6
	PM	135 B 17.0	- - -	195 B 16.8	- - -	- - -	- - -	275 B 12.3	440 A 5.5	- - -	- - -	640 A 5.9	255 A 0.4	A 7.9

68th /70th Street Interchange

The existing interchange is a split diamond from 68th Street to 70th Street. Frontage roads consisting of W. O'Connor Street on the north side and W. Kearney Street on the south side provide the connections between the east side and west side ramps with the eastbound exit and westbound entrance ramps connecting with these frontage roads. All four of the intersections are traffic signal controlled. A summary of the levels of service from the Synchro analysis for all of the movements are in **Table 22**. The EB through in the PM peak period operates at LOS E. This EB approach will have some delays that exceed one minute and queues may fluctuate from cycle to cycle. The 95th percentile queues do not back up to the 70th Street ramp intersection. These queues are on the frontage road and do not impact mainline operations or safety.

Table 22 Peak Hour Traffic Volume (vph), Level of Service, Delay (seconds)

Intersection	Peak Hour	EB			WB			NB			SB			Inter-section
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
68th St EB Ramp	AM	215 B 18.8	380 D 47.0	25 B 16.3	- - -	- - -	- - -	- - -	145 C 25.1	70 - -	155 B 12.6	120 A 11.1	- - -	C 29.1
	PM	370 C 26.0	375 E 61.0	55 D 49.9	- - -	- - -	- - -	- - -	75 C 20.5	45 - -	185 A 9.2	230 B 10.5	- - -	D 36.8
68th St WB Ramp	AM	- - -	- - -	- - -	50 - -	415 C 25.4	140 - -	90 A 8.2	275 A 8.0	- - -	- - -	225 B 13.1	320 B 12.1	B 17.6
	PM	- - -	- - -	- - -	110 - -	605 C 20.9	290 - -	20 A 4.4	425 A 4.7	- - -	- - -	300 B 13.3	255 B 12.1	B 13.1
70th St EB Ramp	AM	30 - -	395 C 21.6	280 B 19.1	- - -	- - -	- - -	- - -	380 B 16.6	185 B 11.8	40 - -	340 A 1.2	- - -	B 14.2
	PM	140 - -	415 C 21.2	355 B 18.6	- - -	- - -	- - -	- - -	605 C 31.1	360 B 13.8	30 - -	340 A 1.0	- - -	B 19.1
70th St WB Ramp	AM	- - -	- - -	- - -	270 - -	505 A 9.8	45 - -	250 A 2.0	155 A 1.6	- - -	- - -	110 C 20.4	115 B 18.1	A 9.0
	PM	- - -	- - -	- - -	285 - -	510 B 10.8	90 - -	520 B 10.5	230 A 3.4	- - -	- - -	85 C 22.7	75 B 18.2	B 11.3

Mitchell Boulevard Interchange

The existing interchange is a diamond with three left side ramps (EB Exit, EB Entrance, and WB Entrance) within the median. The westbound exit ramp is a right side diagonal ramp like a typical diamond. The intersections of the ramps with Mitchell Boulevard are stop sign controlled. A summary of the levels of

service from the Synchro analysis for all of the movements are in **Table 23**. The Mitchell Blvd EB exit ramps operate at LOS E in the PM peak period. The peak hour volumes are relatively low and the operations do not impact mainline operations or safety.

Table 23 Peak Hour Traffic Volume (vph), Level of Service, Delay (seconds)

Intersection	Peak Hour	EB			WB			NB			SB			Inter-section
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Mitchell Blvd EB Ramps	**AM**	15 B 10.9	5 - -	150 B 10.9	- - -	- - -	- - -	20 A 0.2	25 - -	40 - -	50 A 0.3	200 - -	30 - -	Stop Control
	PM	40 E 40.7	5 - -	15 E 40.7	- - -	- - -	- - -	320 A 6.4	170 - -	155 - -	50 A 3.4	80 - -	70 - -	Stop Control
Mitchell Blvd WB Exit Ramp	**AM**	- - -	- - -	- - -	80 B 10.4	- - -	20 A 9.7	- - -	40 - -	- - -	- - -	200 - -	- - -	Stop Control
	PM	- - -	- - -	- - -	40 B 10.9	- - -	50 B 10.1	- - -	210 - -	- - -	- - -	160 - -	- - -	Stop Control

Local Road Intersections

Six, key, signalized local road intersections were analyzed within the Hawley Road area of influence to determine existing operations. AM and PM peak hour operations based on Synchro analysis are summarized in **Table 24** below.

Table 24

Intersection	Peak Hour	Level of Service (LOS) by Movement												Overall Int LOS
		Eastbound			Westbound			Northbound			Southbound			
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
US 18 and Hawley Road	AM	C	C	B	B	C		C	C		B	D		C
	PM	C	C	C	B	D		C	B		B	C		C
US 18 and 68th Street	AM	B	B		C	B		D	C		C	C		B
	PM	B	A		B	B		D	C		C	D		B
WIS 59 (National Avenue) and WIS 341 (MPW)	AM	E	D		F	E	D	F	F	C	F	D	C	E
	PM	E	D		F	E	D	E	D	C	F	F	C	F
WIS 59 (National Avenue) and Hawley Road	AM	C	C		D	C		A			C	C		B
	PM	C	B		C	F		C			A	F		E
WIS 59 (Greenfield Avenue) and National Avenue	AM	D	D		D	D		B	E		A	B		D
	PM	C	F		D	E		C	E		A	F		F
WIS 59 (Greenfield Avenue) and 70th Street	AM	A	B		B	B	B	C	C	C	D	C		C
	PM	B	B		B	C	B	D	C	C	C	C		C

As shown in **Table 24** above, operations generally degrade from the AM peak hour to the PM peak hour, primarily along WIS 59 (National Avenue). Several intersections along National Avenue exhibit poor (LOS E) or failing (LOS F) movements and overall operations. The worst intersection operations during both peak hours occur at WIS 59 (National Avenue) and WIS 341 (Miller Park Way), which is a heavily utilized access point to the Stadium interchange and the I-94 EW corridor.

Existing Safety Conditions

The average total crash rate on I-94 within the Hawley Road Interchange area of influence from 2005 to 2009 is 253.7 crashes /100M VMT for eastbound and 200.3 crashes/100M VMT for westbound. This is about 136% (westbound) to 198% (eastbound) greater than the statewide average total crash rate. The breakdown of freeway mainline crashes by severity is shown in **Table 25**.

Table 25

Segment	Number of Crashes			Total
	Property Damage	Injury	Fatal	
I-94 EB 68th Street to Hawley Road	30	15	0	45
I-94 EB Hawley Road Exit to Entrance Ramps	70	25	0	95
I-94 EB Hawley Road to Mitchell Boulevard	12	6	0	18
I-94 WB Mitchell to Hawley Road Exit	17	7	0	24
I-94 WB Hawley Road Exit to Entrance Ramps	57	18	0	75
I-94 WB Hawley Road Entrance to 68th St Exit	26	12	0	38
Hawley Road EB Entrance Ramp	1	3	0	4
Hawley Road WB Exit Ramp	5	0	0	5
Hawley Road WB Entrance Ramp	3	4	0	7
Hawley Road EB Exit Ramp	0	0	0	0

For more detail on the crashes within the corridor, see the Crash Analysis Technical Memorandum, which is included as **Appendix D**.

The existing corridor was also analyzed using the ISATe tool to predict the frequency of crashes to compare among the alternatives and to the existing crash data collected. The technical memorandum that summarized this analysis is included as **Appendix E**.

Existing Environmental Constraints

The Northwestern Branch, National Home for Disabled Volunteer Soldiers National Historic Landmark and Historic District (Soldiers' Home NHL and Historic District) is located adjacent to both sides of I-94 west of Miller Park. The Soldiers' Home was established in 1865 to care for Civil War veterans. West of the Soldiers' Home NHL and Historic District are two cemeteries adjacent to both sides of I-94. At the outset of the project it was determined that no graves would be moved as part of this project. 40 graves were relocated as part of the original I-94 construction in 1963. Hundreds of more graves would need to be relocated in order to provide for a full to partially full roadway section meeting standards on existing grade. An alternative that would allow for full access at the Hawley Road Interchange without the relocation of graves was analyzed. This alternative, which would have required a double deck structure

through the cemetery section of the corridor, was eliminated to due to indirect impacts to the cemeteries and the Soldiers' Home NHL from the visual impacts of an elevated interstate.

The interchange area to the west abuts a highly dense residential area. Shifting the interchange further west, or providing a full interchange with a loop ramp in the southwest quadrant will create significant residential and community impacts. (See **Exhibit 1-3**).

East of the Stadium Interchange is a crossing of the Menomonee River. This is not a new crossing as I-94 already crosses the river.

The Story Hill Neighborhood is located directly north of Miller Park and south of Wisconsin Avenue. Story Hill was developed in the 1920's. The houses in the neighborhood consist of ornate early 20th-century houses, predominantly made of brick. The Story Hill Nos. 2 & 3 Residential Historic Districts are found directly south of the original Story Hill Subdivision, which was platted on the 9th of May 1911 and determined eligible for the National Register on the 18th of April 2013. The subject district is framed by W. Bluemound Road on the north, N. Story Parkway on the east and south, and Mitchell Boulevard Park on the west.

NEED

While the need to reconfigure the Hawley Road Interchange is primarily for geometrics and safety, a combination of the following factors demonstrates the need for the transportation improvements in the Hawley Road Interchange influence area:

- **System linkage and route importance**
- **High crash rates (Safety)**
- **Existing freeway conditions and deficiencies**
- **Existing and future traffic volumes**

System linkage and route importance

I-94 is a major east-west freeway link across the northern United States and is part of the National Highway System. It is also a federal and state "long truck route" and a backbone route in WisDOT's Connections 2030 Long-Range Multimodal Transportation Plan. I-94 within the Hawley Road Interchange influence area is a critical link in Milwaukee County's freeway system. In addition to serving long distance travelers and regional and national freight movement, the study-area freeway system is an important commuter route for many of the employees who work in Milwaukee County. The Hawley Road Interchange provides a connection to the following local destinations:

- Downtown West Allis
- Renaissance Place Office Complex
- Several businesses in the area including Hunger Task Force (a food distribution center to a network of food pantries, homeless shelters, and soup kitchens)
- Village of West Milwaukee
- City of Milwaukee

- City of Wauwatosa
- Veterans Affairs (VA) campus, including the Northwestern Branch, National Home for Disabled Volunteer Soldiers National Historic Landmark (NHL) and Clement J. Zablocki VA Medical Center

A half interchange at Hawley Road is needed because of the constraint posed by the cemeteries east of Hawley Road and a dense residential neighborhood to the west, combined with extensive public and local government input indicating that removing the entire Hawley Road interchange would have a socioeconomic impact on businesses and residents that currently use the Hawley Road Interchange. The project includes a proposed extension of Washington Street in the City of West Allis, just south of the Hawley Road Interchange to help mitigate for the loss of access to and from the east and to provide a more direct local-road connection between the 68th/70th Street Interchange and Hawley Road.

Safety

From 2005 to 2009, there were 2,230 crashes (not including deer/other animal crashes) on the entire project corridor freeway and interchange entrance/exit ramps, or roughly 1.2 crashes per day. Crash rates eastbound and westbound between the Hawley Road exit and entrance ramps are on average at least 2 to 3 times higher than the statewide average for similar roadways. In the study area freeway system, the most common types of crashes were rear-end, single-vehicle run-off-the-road, and sideswipe. A major contributor to these types of crashes are congestion and the sub-standard ramp geometry and spacing.

Existing Freeway Conditions and Deficiencies

Since WisDOT constructed the Hawley Road Interchange in the early 1960s, the original concrete pavement has worn and cracked. The condition of the Hawley Road bridges has deteriorated over the years due to age, heavier than expected traffic, road salt, freeze-thaw cycles, and water entering cracks in the bridges. The decision sight distance is substandard for the eastbound and westbound entrances to I-94 at Hawley Road. The shoulder widths on I-94 from 70th Street to Hawley Road range in width from 2-12 feet, and from Hawley Road to Mitchell Boulevard range from 2-3 feet. The minimum spacing requirements between the adjacent interchanges and Hawley Road are not met. The ramp spacing from 68th Street to Hawley Road and from Hawley Road to Mitchell Boulevard are below the minimum spacing. The left-hand entrance ramps from Mitchell Boulevard to westbound I-94 is approximately 0.3 mile from the right-hand exit ramp to Hawley Road. The eastbound entrance and exit ramps to/from Hawley Road and westbound entrance from Hawley Road have substandard ramp taper rates. The eastbound entrance from Hawley Road and westbound entrance and exit from/to Hawley Road have inadequate acceleration/deceleration lengths. Additionally, the horizontal and vertical alignments are substandard within the area of influence.

Existing and future traffic volumes

The segment of I-94 between the 68th/70th Street and Stadium Interchanges currently carries between 146,700 and 150,700 vehicles on an average day (ADT). Currently, during the heaviest traffic periods, level of service on I-94 ranges between level of service C and level of service F. From 68th Street to Hawley Road, I-94 operates at a level of service D and E. From Hawley Road to Mitchell Boulevard, I-94 is a level of service E and F. By 2040 (the project's design year), average daily traffic volumes on I-94 within the Hawley Road influence area are expected to rise to approximately 165,000 vehicles per day (AADT) under the no build alternative, which represents a 12 percent increase over the current conditions. By 2040, I-94 would generally operate at level of service D to F during the morning peak

period and at level of service E to F in the evening peak period under the existing conditions. The increased traffic volumes and reduced levels of service will very likely increase the number of crashes in the future.

ALTERNATIVES

There were over 100 alternatives developed and evaluated for the I-94 East-West Corridor study project. The build alternatives were based on the SEWRPC's Regional Transportation Plan and various forms of public and agency involvement, and with thorough consideration of adjacent development, socioeconomic factors, and environmental constraints and included:

- No-build alternative
- Region-wide public transit and TDM elements
- Region-wide TSM elements
- Build alternatives

For design and presentation to the public the project was broken into east and west segments. The Hawley Road Interchange is in the west segment that includes the area from 70th Street at the west end east to Yount Drive. The West Segment and Hawley Road No-build and build alternatives, Transportation Demand Management and Transportation System Management studied are described below.

No-build Alternative

A no-build alternative was considered and used for comparative purposes. The no-build would consist of maintaining the existing six-lane freeway and Hawley Road full-access interchange as it is today. The left side ramps in the Mitchell Boulevard and Stadium Interchanges would remain. The weave sections between Hawley Road and Mitchell Boulevard would not be improved. The No-build alternative does not include any safety improvements, capacity improvements, or pavement replacement. Only maintenance and minor improvements would be performed.

The no-build alternative would not meet the purpose and need of the project. The no-build would result in poor levels of service for the traveling public and crash rates would be expected to increase as the level of congestion increases. While the No-build alternative did not meet the purpose and need for the project, it did serve as a baseline for a comparison of impacts related to the build alternatives. See **Exhibit 4** for the no-build traffic operations.

Transportation Demand Management

The SEWRPC traffic forecasts used for this project reflect predicted growth patterns, numbers and types of trips made, routes taken, travel times, and other factors such as transit use. In its recommendations for providing additional highway capacity, the regional transportation plan recommended and incorporated the following:

An intermediate growth scenario for the region and community land use planning that promotes compact development/redevelopment in areas that can use existing or expanded municipal sewer and water, and where higher-density development can be served by transit, bicycle, and pedestrian facilities.

A 100 percent increase in public transit in terms of revenue-transit vehicle miles was modeled. The increase in public transit includes the development of rapid and express transit systems and substantial expansion of local bus systems where development density is sufficient to generate ridership. Even with a 100% increase in public transit use, the I-94 roadway would still operate significantly over capacity at a LOS range from C to F. Congestion related crashes would continue to exist.

A Transportation Demand Management Alternative, on its own, will not meet the purpose and need of this project without other improvements.

Transportation System Management

The design team considered the use of ITS, both under the no-build alternative and with other roadway improvements consisting of:

Ramp metering - The ramp metering scheme included in the design of this facility is consistent with the metering criteria in the *Wisconsin Statewide Freeway Ramp Metering and Control Guidebook*.

Ramp gates will be included in the project consistent with WisDOT policy. These ramp gates allow emergency responders to quickly close ramps in the event of an incident on the freeway.

Permanent closed circuit cameras will be used at various locations along the corridor to assist WisDOT in the operations of the system. When an incident occurs they will allow the operators at the Statewide Traffic operations Center to observe the actual traffic operations allowing for quicker clearing of incidents and displaying of messages on dynamic signs and via media traffic condition reports. Cameras will be installed to allow operators to see all of the interchanges.

Variable message boards will be used at various locations along the corridor to assist WisDOT in providing information to the driving public about traffic conditions and incidents. The variable message signs (VMS) can advise drivers of other routes to take in the event of congestion or incidents to help them avoid long delays

Traffic detectors will be included to collect travel speed and traffic volume information to aid operators and law enforcement officials in maintaining the operation of the system with respect to message signs, media reports and ramp metering systems.

The 2003 regional freeway system plan studied high-occupancy vehicle (HOV) and high-occupancy toll (HOT) lanes but did not recommend them in the regional freeway reconstruction plan for several reasons. The Draft EIS/MIS prepared for the 1996 I-94 East-West study considered HOV lanes and they received little to no support. Further, implementing barrier-separated HOV and HOT lanes would require significant additional right-of-way and would substantially increase freeway system reconstruction costs compared to adding regular freeway lanes (see **Appendix G** of SEWRPC's 2035 regional transportation plan). The SEWRPC's build traffic forecasts include TSM strategies as part of the base-line assumptions.

Build Alternatives

The west segment of the study area is I-94 from 70th Street to Yount Drive, just west of the Stadium Interchange. This segment includes the existing 68th/70th Street, Hawley Road, and Mitchell Boulevard service interchanges. All alternatives were developed to avoid direct impacts to the cemeteries (Beth Hamedrosh Hagodel Cemetery, Spring Hill Cemetery, and Wood National Cemetery) adjacent to I-94 and directly east of Hawley Road in this segment.

A key decision made during this study was whether to improve the level of service on I-94 by adding a fourth through-lane in each direction or reconstructing it as a 6-lane freeway. During the initial alternatives screening phase, both options were considered with the Hawley Road Interchange.

The 6-lane alternatives would be narrower, allowing for a full Hawley Road Interchange. In the cemetery segment, having 8 lanes would require either: (1) 2-foot shoulders and 11-foot-wide lanes and either no Hawley Road Interchange or a partial (half) interchange, or (2) a double deck with one set of freeway lanes on top of the other with a full Hawley Road Interchange, which is more costly than the typical arrangement of freeway lanes next to each other at ground level. The reason for no interchange or a partial interchange is that with the 8-lane at-grade mainline alternative any ramps constructed east of Hawley Road would impact the cemeteries and result in the relocation of graves or would have unacceptable residential relocations.

Hawley Road Full Access

6-lane At-grade Alternative

The 6-lane Modernization alternatives would have greater congestion on I-94, interchange ramps, and weave segments, and therefore a lower level of service compared to the 8-lane alternatives. The 6-lane Modernization alternatives between 70th Street and the Stadium interchange would experience level of service E or F in the design year peak hour within the influence area, see **Table 26.** WisDOT and FHWA decided to eliminate the 6-lane Modernization alternatives from consideration because they would not meet the project's purpose and need related to providing level of service D or better traffic operations in the 2040 design year.

Table 26
Areas of I-94 that Would not Meet Level of Service D under 6-lane Modernization

Location	Level of Service during Morning Peak Hour, year 2040	Level of Service during Afternoon Peak Hour, year 2040
I-94 eastbound, between Hawley Road exit ramp and 70th Street entrance ramp[1]	**E**	**F**
I-94 eastbound between 70th Street entrance ramp and ramps to Stadium Interchange (at Mitchell Boulevard)	D	**E**
I-94 westbound near Hawley Road entrance ramp	E	**E**
I-94 westbound exit ramp to Hawley Road	D	**E**

8 Lane At-grade (8LAG)

The Full Access Scenario at the Hawley Road Interchange under the 8LAG Alternative would retain full range of motion (i.e. access to the freeway to/from I-94 EB and WB) via a partial cloverleaf interchange on the west side of the roadway. Loop ramps would provide access to the east and from the west, where the I-94 EB exit and I-94 WB entrance ramps would be shifted outside of the loop ramps to provide the remaining freeway access. Under this alignment, eastbound I-94 through the cemetery

[1] The 70th Street entrance ramp is "downstream" of the Hawley Road exit ramp under the modernization alternatives because a C-D road would be built.

segment would operate at level of service E, and an initial design of a loop ramp in the southwest quadrant suggests an additional 30 to 50 residences would be displaced.

The 8LAG Full Access Scenario was eliminated from consideration by the study team early in the alternative development process due to the extensive level of impacts related to the partial cloverleaf design. Any ramps east of Hawley Road would impact the cemeteries and result in the relocation of graves and right-of-way purchase from the cemeteries. Due to these impacts, with consideration of other specifics related to full access (i.e. operational, design limitations, etc.), WisDOT does not consider the Full Access Scenario a reasonable or environmentally acceptable alternative for the Hawley Road Interchange under the 8LAG Alternative.

Double Deck Alternative (All Up or Partial Down)

The Double Deck alternative would reconstruct I-94 to 8 travel lanes (4 in each direction). A Double Deck (the freeway lanes would be stacked with one set of freeway lanes elevated over the other) would be constructed in the area between the cemeteries to avoid direct impacts to the cemeteries. The transition back to side-by-side freeway lanes would occur at about 64th Street, just west of the Hawley Road Interchange on the west and Yount Drive, just west of the Stadium Interchange on the east.

All I-94 lanes would be 12-feet-wide under this alternative. The shoulder widths would vary slightly in this segment as there is not enough available right-of-way near the cemeteries to provide full shoulder width. The shoulder widths would be 12-feet for the eastbound traffic on the upper deck and 10-feet for the westbound traffic on the lower deck. East and west of the cemeteries, the freeway would have standard 12-foot lanes and full shoulders in both directions. The 10-foot shoulder widths would be a balance between the safety needs of the project and limited impacts to the cemeteries.

This alternative would reconstruct the 68th/70th Street and Hawley Road as full interchanges with collector-distributor (C-D) roads added connecting the interchanges. The C-D roads would eliminate weaving on I-94 between 68th Street and Hawley Road, improving safety and traffic operations on I-94, while still providing direct access to and from I-94. The 68th/70th Street and Hawley Road Interchanges would be reconstructed with a configuration similar to that of the existing interchanges. Existing structures at these interchanges would be replaced with higher vertical clearance and additional widths to accommodate the additional lane of traffic in each direction, wider shoulders and C-D roadways.

All four ramps at the Hawley Road Interchange would remain with the Double Deck alternative. Ramps at the Mitchell Boulevard Interchange would be removed and replaced by a new interchange imbedded within the Stadium Interchange.

The Double Deck alternative would have two design options, “all up” or “partially down.” Under the all up option the top level of the freeway (eastbound roadway) would be about 30 feet above the existing freeway elevation. The bottom level (westbound roadway) would be at about the same elevation as the existing freeway. Under the partially down option the top level of the freeway (eastbound roadway) would be about 22 to 24 feet above the existing freeway. The bottom level (westbound roadway) would be about 6 to 8 feet below the existing freeway elevation.

Under both options, the construction footprint would generally be the same. Eastbound I-94 would transition to the top level, while westbound I-94 would be on the bottom level. For westbound traffic (on the lower level), there would be 4 freeway lanes and 1 auxiliary lane. The westbound auxiliary lane would serve vehicles entering and exiting I-94 between the Stadium Interchange and the Hawley Road and 68th/70th Street Interchanges C-D Roadway. The eastbound Hawley Road entrance ramp would also be located on the lower level running parallel to, but counter-directional to the westbound traffic. For eastbound traffic (upper level), there would be 4 freeway lanes and 1 auxiliary lane. The eastbound

auxiliary lane would serve vehicles entering and exiting I-94 between the 68th/70th Streets, Hawley Road Interchanges C-D Roadway and the Stadium Interchange.

There would be 2 business displacements and 10 residential displacements under the Double Deck alternative. The all up option would cost $295 million to construct, while the partially down option would cost $320 to $345 million to construct.

The Section 106 consulting parties generally oppose the Double Deck alternative because it would have an Adverse Effect on Calvary Cemetery, Soldiers' Home National Historic District, and Story Hill Residential Historic District. In addition, The City of Milwaukee also opposes this alternative. After evaluating project purpose and need, cost, impacts to the human/natural environment, and public and agency comments received throughout the NEPA process and in direct response to the DEIS, the Double Deck alternative was eliminated.

Hawley Road Partial Access

8-lane At-grade Alternative

The At-grade alternative would reconstruct I-94 to 8 travel lanes (4 in each direction) at essentially the same elevation as the existing freeway. To avoid encroachment on the cemeteries, the reconstructed freeway mainline would have less than 12-foot driving lanes and narrow shoulders in the approximate 2,000-foot segment between the adjacent cemeteries (Hawley Road to Zablocki Drive). Lane widths would be as narrow as 11 feet for a short distance. The lanes would transition from 12 feet to 11 feet for several hundred feet east and west of the 11-foot-lane segment. The shoulder widths would vary in this segment as the available right-of-way varies (with the shoulders being as narrow as 2 feet). East and west of the cemeteries, the freeway would have standard 12-foot lanes and full shoulders. Dynamic traffic management tools to warn drivers of closed lanes in the narrow segment, advance warning signs alerting drivers to the narrow lanes and narrow shoulders, and other tools like reflectors on the center median barrier wall and the outside barrier wall would likely be implemented to make the narrow lane/narrow shoulder segment operate as safe as possible.

The 68th/70th Street Interchange would be reconstructed in its current configuration (a split diamond interchange). Entrance and exit ramps would be longer than the existing ramps to provide more room for traffic entering and exiting the freeway, improving safety and traffic operations. 64th Street would continue to pass under I-94. The 68th/70th Street and 64th Street grade separation structures over I-94 will be similar to existing with increased vertical clearance and widening to provide for eight travel lanes and full shoulder widths meeting standards.

There would be a partial (half) interchange at Hawley Road with the At-grade alternative. The partial interchange would have an entrance ramp to westbound I-94 and an exit ramp from eastbound I-94 to Hawley Road. There would be no westbound exit ramp or eastbound entrance ramp as part of the half interchange at Hawley Road alternative. The reason a full interchange cannot be provided under this alternative is because any ramps east of Hawley Road would impact the cemeteries and result in the relocation of graves and right-of-way purchase from the cemeteries.

As part of the At-grade alternative with a half interchange at Hawley Road (preferred alternative) in the west segment, WisDOT would construct some off-interstate improvements to mitigate the traffic impacts of partially closing the Hawley Road Interchange. These improvements are extending Washington Street to make it easier for drivers in the Hawley Road corridor to access the 68th/70th

Street Interchange with I-94 and improvements at three local road intersections to improve local road operations under the partial closure of the Hawley Road Interchange.

Existing Washington Street is about one-half mile south of I-94 and currently intersects with 70th Street on the west and dead ends a few blocks to the east. It provides access to several businesses. A new Washington Street alignment would be constructed to provide a connection between 70th Street and Hawley Road/60th Street. The existing portion of Washington Street would remain, but a new roadway alignment to the north of existing Washington Street would be constructed to provide the most efficient connection between 70th Street and Hawley Road/60th Street while minimizing impacts to existing businesses. Connecting 70th Street to Hawley Road/60th Street via Washington Street would provide convenient access to and from Hawley Road with the 68th/70th Street Interchange for traffic that would no longer be able to enter I-94 eastbound or exit I-94 westbound at Hawley Road. See **Exhibit 9-2** for the Washington Street extension.

The partial interchange option at Hawley Road was included because of the constraint posed by the cemeteries east of Hawley Road combined with extensive public and local government input stating the removal of the entire Hawley Road Interchange would have a socioeconomic impact on businesses and residents that currently use the Hawley Road Interchange. The VA Campus would also be impacted by significantly reduced access to and from its site, of which most traffic coming to or leaving the campus from the western direction use the Hawley Road Interchange. The Hawley Road grade separation structure will be constructed east of the existing structure with increased vertical clearance.

The freeway entrance and exit ramps at the Mitchell Boulevard Interchange would be removed. Having entrance and exit ramps in the narrow cemetery area creates congestion and there is no space to physically locate the ramps without impacting the cemeteries or having very short and unsafe merge distances on the interstate. The Mitchell Boulevard Interchange would be replaced by a new local road interchange embedded within the Stadium Interchange.

There would be two business and five residential displacements under the partial interchange at Hawley Road. The At-grade alternative would cost about $125 million (2014 dollars) with the partial interchange at Hawley Road.

Hawley Road No Access

8-lane At-grade Alternative

The No Access Scenario would completely eliminate the existing freeway access at Hawley Road. The existing roadway would be slightly re-aligned to the east under I-94 in order to reduce the existing deficiencies related to the existing substandard horizontal curvature. All vacated land previously utilized for the existing interchange would be available for redevelopment.

The removal of the Hawley Road Interchange under the 8LAG Alternative has been shown at various stakeholder and agency meetings since its inception at the beginning of the study phase. However, the study team has found that the No Access Scenario under the 8LAG Alternative is a contentious topic that has generated significant stakeholder opposition. The United States Department of Veterans' Affairs (VA) expressed particular concern about the possibility of the Hawley Road Interchange closing. The VA noted that many of its 6,000 employees, as well as some of the one million patients per year, use the Hawley Road Interchange to access its campus. All of the ambulance providers that access the VA Medical Center by freeway use the Hawley Road Interchange. The half interchange at Hawley Road, with ramps to and from the west, would address the VA's concern regarding access.

There would be one business displacement and four residential displacements under the No Hawley Road Interchange option. The At-grade alternative would cost about $115 million (2014 dollars) to construct with no Hawley interchange.

Preferred Alternative

The Preferred West Segment alternative is the 8-lane At-grade and Partial Access Hawley Road Interchange. The *I-94 East-West Corridor Preferred Alternative Identification Technical Memorandum* in **Appendix H** provides supporting documentation that established the basis for the recommendation of the preferred alternative.

FUTURE YEAR TRAFFIC

Year 2040 no build and build traffic forecasts were used to analyze the traffic operations of the no build and build alternatives considered for implementation. Average weekday daily traffic (AWDT) and peak hour forecasts were provided by SEWRPC. As noted previously, K200 volumes were agreed to between WisDOT and FHWA for use as the design hour volume due to the highly developed urban area and unique large traffic generators in the area. The basis for the design year traffic projections used for this project and the approval on September 20, 2012 by FHWA are documented in the memo on DHV and LOS, found in **Appendix C**.

In general, the design year (2040) no build forecast assumes existing freeway capacity and local road access with no changes in vertical or horizontal geometry. Planned long-term improvements to the adjacent local road network are assumed to have been implemented in accordance with SEWRPC's regional transportation plan by 2040. Specific to Hawley Road, the interchange retains full freeway access. The design year build forecast assumes additional freeway capacity and modified local road access associated with the preferred alternative. The preferred alternative forecast additionally assumes existing local road capacities for the parallel roadways of Greenfield Avenue and National Avenue within the I-94 EW Study limits. Specific to Hawley Road, the interchange has been modified to accommodate partial access to and from the west.

Overall, design year average weekday daily and peak hour freeway demand is greater for the preferred alternative than for the no build forecast. This is directly attributable to the additional freeway capacity provided by the preferred alternative in comparison to the no build alternative. Vehicle trips that shifted from the freeway to the local road network under the no build forecast, due to a lack of available freeway capacity, shift back to the I-94 corridor under the preferred alternative.

Table 27 includes a comparison of the no build and build (preferred alternative) design year average weekday daily (AWDT) and peak hour forecasts for I-94 at the cemetery section (located between the Hawley Road and Mitchell Boulevard Interchanges).

Table 27

Alternative (at Cemetery Section)	2-Way Roadway Volumes			Difference Relative to No Build		
	Daily (AWDT)	AM Peak	PM Peak	Daily (AWDT)	AM Peak	PM Peak
No Build	176,000	12,450	12,450	-	-	-
Preferred	189,000	13,950	14,800	13,000	1,500	2,350

No-Build Conditions-HCS 2010 Analysis

The No-Build HCS 2010 analyses were conducted using the projected design year (2040) AM and PM peak hour no build traffic volumes and the existing geometric conditions. The peak hour factor used for the no-build analysis was 0.97. Level terrain and a mainline free flow speed of 55 mph were used for the HCS analysis. Peak hour traffic volumes, percent of heavy vehicles and number of lanes for each basic freeway segment are shown in **Table 28. Tables 29** and **30** have the input information for ramp and weaving segment analyses.

Table 28

No Build Basic Freeway Segment Input Information			Peak Hour Volume (vph)		% HV		No. of
Route	From	To	AM	PM	AM	PM	Lanes
I-94 EB	70th St Exit Ramp	68th St Entr Ramp	5500	6200	9.0	5.0	3
I-94 EB	68th St Entr Ramp	Hawley Rd Exit Ramp	5900	6600	9.0	5.0	3
I-94 EB	Hawley Rd Exit Ramp	Mitchell Blvd Exit Ramp	5700	6000	9.0	5.0	3
I-94 EB	Mitchell Blvd Exit Ramp	Mitchell Blvd Entr Ramp	6200	6400	9.0	5.0	3
I-94 WB	S-W Ramp	Mitchell Blvd Entr Ramp	6000	5900	7.0	4.0	3
I-94 WB	Hawley Rd Exit Ramp	Hawley Rd Entr Ramp	5950	5750	7.0	4.0	3
I-94 WB	Hawley Rd Entr Ramp	68th St Exit Ramp	6650	6250	7.0	4.0	3
I-94 WB	68th St Exit Ramp	70th St Entr Ramp	6350	5650	7.0	4.0	3

Table 29

No Build Ramp Input Information			Speed MPH	Accel/ Decel (feet)	Peak Hour Volume (vph)		% HV		No. Lanes
Route	Cross Road	Side			AM	PM	AM	PM	
I-94 EB	68th St Entr	Right	35	355	400	400	9	5	1
I-94 EB	Hawley Rd Exit	Right	35	230	200	600	9	5	1
I-94 EB	Stadium (W-S)	Right	35	195	500	800	9	5	1
I-94 WB	Stadium (S-W)	Left	35	955	800	700	7	4	1
I-94 WB	Hawley Rd Entr	Right	35	235	700	500	7	4	1
I-94 WB	68th St Exit	Right	35	130	300	600	7	4	1

Table 30

No Build Weave Input Information			Weave Length (feet)	%HV		Peak Hour Volume (vph)							
						Main Line		Ramp-Ramp		ML-Ramp		Ramp-ML	
Route	Weaving Segment			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-94 EB	Hawley Rd Entr	Mitchell Blvd Exit	580	9	5	5515	5910	15	10	185	90	685	490
I-94 EB	Mitchell Blvd Entr	W-N	730	9	5	5030	5015	30	15	1170	1385	70	285
I-94 WB	N-W	Mitchell Blvd Exit	325	7	4	5115	4910	15	10	85	90	885	990
I-94 WB	Mitchell Blvd Entr	Hawley Rd Exit	1290	7	4	5915	5705	15	5	85	195	35	45

The 2040 no-build HCS 2010 analysis showed levels of service along I-94 ranging from LOS C to LOS F. I-94 mainline would operate at LOS E or F on most segments in the design year if no improvement were made to this facility. The LOS for the freeway segments are shown in **Table 31**. The ramp and weaving segments are shown in **Tables 32** and **33**.

Table 31

No Build Basic Freeway Segment Level of Service			AM		PM	
Route	From	To	LOS	Density (pcphpl)	LOS	Density (pcphpl)
I-94 EB	70th St Exit	68th St Entr	E	36.4	E	42.5
I-94 EB	68th St Entr	Hawley Rd Exit	E	40.4	F	48.2
I-94 EB	Hawley Rd Exit	Hawley Rd Entr	E	38.3	E	40.2
I-94 EB	Mitchell Blvd Exit	Mitchell Blvd Exit	E	44.1	F	45.2
I-94 WB	S-W	Mitchell Blvd Entr	E	40.8	E	38.9
I-94 WB	Hawley Rd Exit	Hawley Rd Entr	E	40.3	E	37.4
I-94 WB	Hawley Rd Entr	68th St Exit	F	50.2	E	42.8
I-94 WB	68th St Exit	70th St Entr	F	45.4	E	36.5

Table 32

No Build Ramp Segment Level of Service			AM		PM	
Route	Cross Road	Type	LOS	Density (pcphpl)	LOS	Density (pcphpl)
I-94 EB	68th St	Merge	D	33.6	F	36.4
I-94 EB	Hawley Rd	Diverge	E	41.4	F	44.7
I-94 EB	Stadium (W-S)	Diverge	D	30.6	D	33.1
I-94 WB	Stadium (S-W)	Merge	C	26.9	C	25.7
I-94 WB	Hawley Rd	Merge	F	40.9	E	41.6
I-94 WB	68th St	Diverge	F	58.0	E	48.4

Table 33

No Build Weaving Segment Level of Service			AM		PM	
Route	From	To	LOS	Density (pcphpl)	LOS	Density (pcphpl)
I-94 EB	Hawley Rd Entr	Mitchell Blvd Exit	F	N/A	F	N/A
I-94 EB	Mitchell Blvd Entr	W-N	E	50.1	E	56.6
I-94 WB	N-W	Mitchell Blvd Exit	E	45.7	E	44.7
I-94 WB	Mitchell Blvd Entr	Hawley Rd Exit	F	N/A	F	N/A

While the No-Build alternative would include continued maintenance of the I-94 corridor facility, it would not address the purpose and need of the project. As traffic volumes increase, an increase in congestion and crashes can be expected if there is no improvement to the facility.

The No-Build alternative is not considered a reasonable course of action, but is retained as a basis for comparison to the Build Alternative.

The No-Build peak hour traffic volumes and levels of service for the freeway and ramps are shown on schematic diagrams in **Exhibits 4-1** and **4-2**.

ALTERNATIVES ANALYSIS

Conformance with Transportation Plans

The information in this section applies to all of the alternatives studied.

A Regional Transportation System Plan for Southeastern Wisconsin: 2035—SEWRPC Planning Report No. 49

SEWRPC's regional transportation plan is based on population, household, employment growth, and other data from the regional land use plan. The transportation system plan forecasts traffic growth and transportation demand in the region. It also analyzes the ability of existing transportation facilities to address forecasted traffic demand and meet air-quality conformity requirements. SEWRPC's regional traffic model has been in place for more than 40 years and determines future traffic demand. SEWRPC updates the model regularly to reflect changing trends. A transportation project must be listed in the

regional transportation plan before it can be constructed. However, inclusion in the plan does not mean the project will ultimately be constructed.

The 2035 regional transportation system plan incorporates the findings of SEWRPC's 2003 *A Regional Freeway System Reconstruction Plan for Southeastern Wisconsin* (SEWRPC 2003). The 2003 regional freeway system plan includes the following traffic operations information for the I-94 East-West Corridor:

- The study area does not serve substantial through-vehicle travel. SEWRPC defines through-vehicle travel as travel with neither end of the vehicle trip located within the county within which the freeway segment is located (Milwaukee County). SEWRPC's 2020 traffic projections show the I-94 East-West Corridor as carrying modest volumes of through traffic.
- The segment of I-94 serves substantial inter-county traffic. SEWRPC defines inter-county traffic as travel with one end of the vehicle trip located within the county within which the freeway segment is located.
- The segment of I-94 potentially needs additional freeway traffic lanes.
- Based, in part, on the traffic operations information, the 2003 regional freeway system plan includes the following conceptual improvement recommendations for the I-94 East-West Corridor:
    - Reconstruct I-94 with considerations for the following: expand from 6 to 8 travel lanes, new pavement with full shoulders, new bridges with additional vertical clearance, improve entrance ramps for better operations, and improve vertical alignment (fewer dips and rises in the road) to accommodate safer stopping sight distances.
    - Reconstruct I-94/WIS 341/Miller Park Way Interchange (Stadium Interchange) as a service interchange. I-94/US41/Miller Park Way has been recently redesignated as I-94/WIS175/WIS341/ Miller Park Way. US41 has been changed to I-41 and has been rerouted along I-894 and USH 45 rather than new WIS175/WIS341.
    - Add auxiliary lanes between interchanges.
    - Reconstruct Mitchell Boulevard Interchange to a modified half diamond.
    - Improve the WIS 175/Bluemound Road/Wisconsin Avenue/Wells Street Interchange so that right turns are free-flow movements and left turns are controlled by single-point signals and reconstruct WIS 175 largely as-is.

<u>2013–2016 Transportation Improvement Program for Southeastern Wisconsin (October 2012, amended October 2013)</u>

SEWRPC is the federally designated metropolitan planning organization that ensures air quality conformity in the seven-county southeastern Wisconsin region. In accordance with the 1990 Clean Air Act Amendments, proposed highway improvements must be included in an approved Transportation Improvement Program (TIP) and the adopted regional transportation system plan to be in conformance with the State Implementation Plan (SIP) for air quality.

The I-94 East-West Corridor is included in the 2013–2016 TIP as Project Number 18: "Preliminary Engineering for Reconstruction of I-94 from 70th Street to 25th Street in the City of Milwaukee." In October 2013, SEWRPC amended the TIP to reflect the updated eastern limit of the project at 16th Street, rather than 25th Street. The next phase of the project is not included in the recently approved 2015-2018 SEWRPC TIP because funding has not yet been allocated to the project for this biennium. Funding for final design activities is being pursued and will be obtained, with inclusion in the TIP, prior to the signing of the ROD. The ROD is currently scheduled for spring of 2016.The FHWA and Federal Transit Administration (FTA) determined that the SEWRPC 2035 Regional Transportation Plan as updated by SEWRPC Memorandum *Review, Update and Reaffirmation of the Year 2035 Regional*

Transportation Plan in 2014 and *Year 2015–2018 Transportation Improvement Program* to be in conformance with the transportation planning requirements of Titles 23 and 49 USC, the Clean Air Act Amendments, and related regulation in June 2015.

On October 18, 2012, FHWA and the FTA determined that the 2035 regional transportation plan is in conformance with the SIP. FHWA and FTA also approved the regional emissions analysis prepared for the 2035 regional transportation system plan, which the 2013–2016 TIP serves to implement.

Compliance with Policies and Engineering Standards

The design for the I-94 East/West Corridor Project is intended to meet or exceed current interstate standards where feasible. However, it is acknowledged that there will be exceptions to standards in some locations to minimize impacts to the surrounding development and environmental/cultural resources. These exceptions to standards will be documented in the final Exceptions to Standards Report to be submitted for review and approval by WisDOT and FHWA later in the design process. The anticipated exceptions to standards for the preferred alternative are discussed in this section. For more detail on these and exceptions for other alternatives see the Exceptions to Standards memo in **Appendix F**.

The following are areas where exceptions are anticipated to be necessary to avoid excessive impacts:

I-94 Between the Hawley Road Interchange and Zablocki Drive (just east of Hawley Road)

At its narrowest point, roughly 110 feet would be available for the construction footprint of I-94 between the cemeteries. Lane widths would be as narrow as 11 feet for a short distance (**Figure 3**). For the At-grade alternative with a partial interchange at Hawley Road, eastbound and westbound traffic would travel in 11-foot lanes for roughly 30 feet in each direction. The lanes would transition from 12 feet to 11 feet for several hundred feet east and west of the 11-foot-lane segment. For eastbound traffic, the adjacent transitions from 12- to 11-foot lanes would be roughly 780 feet to the west and 800 feet to the east of the short section of 11-foot lanes. For westbound traffic, the transition from 12 to 11-foot lanes would be roughly 580 feet to the west of the short section of 11-foot lanes and 890 feet to the east.

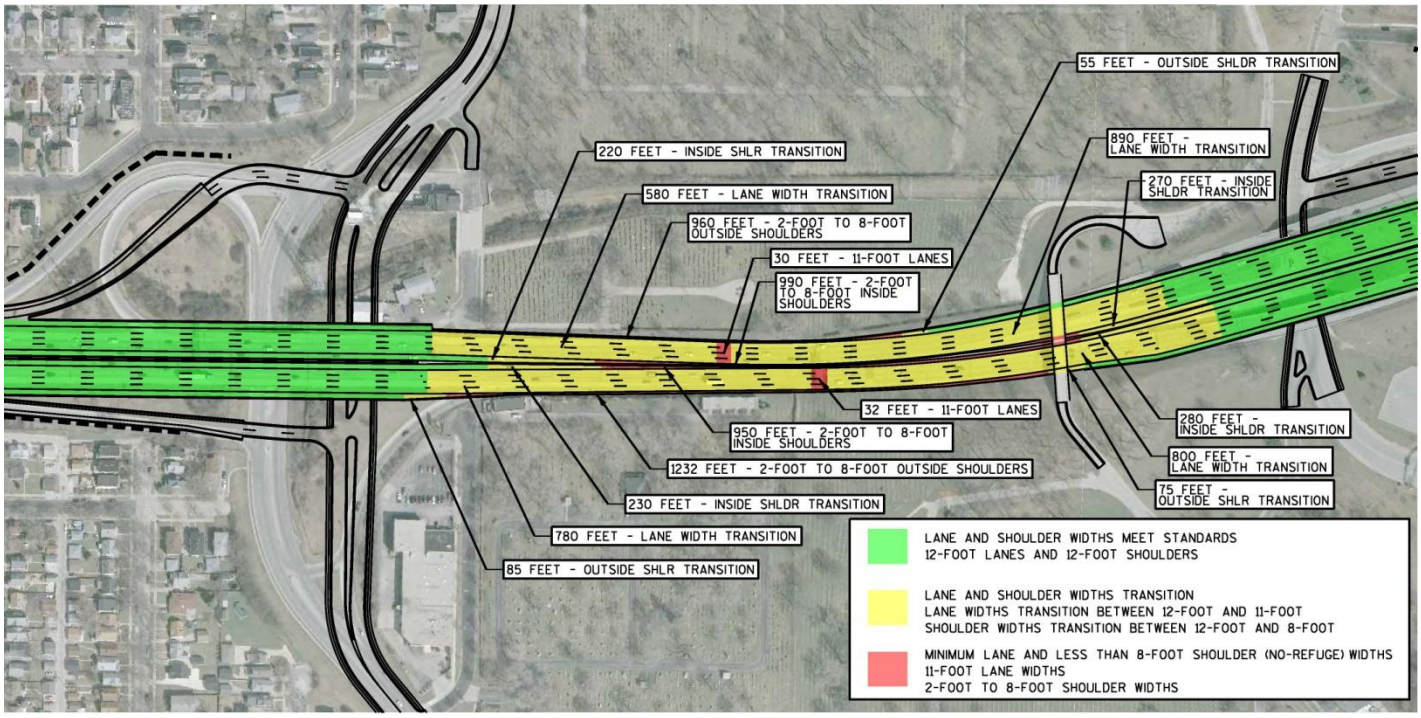
The shoulder widths would vary in this segment as the available right-of-way available varies (the shoulder widths would be as narrow as 2 feet). For eastbound traffic, the outside shoulder width would transition from 12-foot to 8-foot for 85 feet and then would consist of a shoulder width of between 2- and 8-foot for the next 1,230 feet. The outside shoulder width would transition from 8-foot to 12-foot over the next 75 feet. The eastbound inside shoulder would transition from 12- to 8-foot for 230 feet and then would consist of a shoulder width between 2- and 8-foot for the next 950 feet. The inside shoulder width would transition from 8-foot to 12-foot over the next 280 feet.

For westbound traffic, the outside shoulder would transition from 12-foot to 8-foot for 55 feet and then would consist of a shoulder width of between 2- and 8-foot for the next 960 feet before transitioning immediately back to 12-feet. The westbound inside shoulder would transition from 12- to 8-foot for 270 feet and then would consist of a shoulder width between 2- and 8-foot for the next 990 feet. The inside shoulder width would transition from 8-foot to 12-foot over the next 220 feet.

To summarize, for eastbound traffic, there would be less than 12-foot lanes for about 1,600 feet, less than 12-foot inside shoulder for 1,460 feet, and less than 12-foot outside shoulder for 1,390 feet. For westbound traffic, there would be less than 12-foot lanes for about 1,500 feet, less than 12-foot inside

shoulder for 1,480 feet, and less than 12-foot outside shoulder for 1,010 feet. **Figure 3** provides a visual summary of the distances described in this section.

Figure 3



Stopping Sight Distance (SSD)

Roadway barrier as a SSD sight obstruction along the inside (left) shoulder of the horizontal curves on I-94 EB from 850’ east of Hawley Road to 1250’ east of Hawley Road and along the outside (right) shoulder of the horizontal curves on I-94 WB from Zablocki Drive to about 600’ west of Zablocki Drive.

Environmental Impacts

This project is in a developed urban area with no natural areas. There are few environmental impacts in the west segment of the I-94 corridor. The preferred alternative may impact 0.3 acre of wetland. There will be two business and five residential displacements under the half interchange at Hawley Road option. The area residents, local officials Wood National Cemetery, Hunger Task Force and VA Center all expressed concern over the loss of access at Hawley Road. They felt that complete elimination of this access would be a significant impact to the area.

Safety

The corridor was analyzed with the ISATe spreadsheet tool to predict the frequency of crashes on the alternatives considered. The ISATe analysis showed that the preferred alternative would provide a 20.7% reduction in severe crashes on the freeway over the no-build alternative. This analysis showed a

bigger reduction in freeway crashes under the alternative that eliminated the Hawley Road Interchange completely, however there would be more traffic diverted to the city streets where the crash rate is higher than on the freeway. The team also looked at the increase in crashes on the city streets due to the increased diversion. The result including the city street crashes showed a 20.6% reduction in crashes for the partial interchange compared to no interchange at Hawley Road. The technical memorandum that summarized this analysis is included as **Appendix E**.

Table 34A shows the average predicted crashes per year over the 20 year design period from 2021 through 2040 on the freeway and the ramps. The average daily traffic volume (AWDT) projected to be on this segment of freeway varies between these alternatives due to difference in access at Hawley Road. The increase in crashes on the routes that the traffic is diverted to was estimated from the existing crash rates and the diverted average daily traffic volume (AWDT). This was added to the freeway crashes to get a more complete comparison. While we see some increases in surface street crashes as a result in the reduction of access at Hawley Road, we will have a larger decrease in crashes on the interstate; thus resulting in a net benefit.

Table 34A Average frequency of crashes per year on freeway and ramps

Scenario	Fatal	Injury			PDO		KI		Total	
	K	A	B	C	Crashes	Reduction (No./%)	Crashes	Reduction (No./%)	Crashes	Reduction (No./%)
RIK– BASE CASE	0.3	0.9	5.4	18.0	58.5	-- --	24.6	-- --	83.1	-- --
No Hawley	0.2	0.6	3.8	13.5	41.2	17.4 29.7%	18.1	6.5 26.4%	59.3	23.8 28.6%
Half Hawley	0.2	0.6	4.3	14.4	44.4	14.2 24.2%	19.5	5.1 20.7%	63.9	19.2 23.1%

Table 34B Increased Surface Street Crashes due to diverted traffic

Scenario	Fatal	Injury			PDO	KI	Total
	K	A	B	C			
No Hawley	0.1	0.8	5.1	11.1	17.1	26.5	34.2
Half Hawley	0.1	0.3	2.1	4.5	10.8	7.0	17.8

Table 34C Total Average Crashes per Year on the freeway and diversion to Surface Streets

Scenario	Fatal	Injury			PDO	KI	Total
	K	A	B	C			
No Hawley	0.3	1.4	8.9	24.6	58.3	35.2	93.5
Half Hawley	0.3	0.9	6.4	18.9	55.2	26.5	81.7

Road Safety Audit

A planning stage Road Safety Audit (RSA) was conducted for this project in May of 2013. The alternatives have been revised and new alternatives have been developed since the RSA was conducted so specific changes recommended no longer apply. The points made have been considered in the new alternatives that have been developed. This RSA report has these main issues:

Close interchange spacing along IH-94

Maintaining all existing interchanges would result in six interchanges within the 3.5 mile corridor. Maintaining all of these interchanges with the tight weave areas will lead to more crashes as traffic volumes increase. The current design replaces the Mitchell Boulevard Interchange with an embedded interchange in the Stadium interchange.

Limited Stopping Sight Distance on Ramps

When ramps are placed on structure they may encounter limited stopping sight distance. This increases the risk of rear-end crashes on these ramps. Curves are being flattened where feasible. Barrier height will be selected with sight distance in mind.

Grades

The interaction of the horizontal and vertical alignments poses a potential human factors issue related to misinterpreting the severity of curvature when a horizontal curve is on a crest vertical curve or at the bottom of a long downgrade. Flatter curves are included in the proposed alignments to provide increased sight distance wherever feasible.

Safety Improvements in the Proposed Design

The proposed design will address the existing safety issues with the following revisions to the corridor and the interchange at Hawley Road:

- Provide auxiliary lanes between the Hawley Road and 68th Street interchange ramps.
- Eliminate the tight loop ramp with short deceleration distance at the Hawley Road westbound exit ramp.
- Provide traffic signals to control traffic at the crossroad ramp terminal intersections where warranted.
- Remove the left side ramps and replace them with right side ramps conforming to driver expectations. This will eliminate the two-sided weave maneuvers between Hawley Road and Mitchell Boulevard.
- Provide an embedded service interchange within the Stadium Interchange rather than having the close spacing between the existing Stadium Interchange and the Mitchell Boulevard Interchange.
- Increase the I-94 mainline and Hawley Road intersection capacity as a measure to reduce the number of crashes due to congested conditions on the freeway and at Hawley Road.
- Increase acceleration and deceleration distances at the entrance and exit ramps to provide safer and more efficient merging and diverging operations.

- Less congested conditions will help emergency responders arrive more quickly when a crash does occur.
- The access to the VA for emergency vehicles at Hawley Road and the expanded Washington Street extension will help with public safety issues.

The proposed design for the preferred alternative is shown on **Exhibits 5-1** and **5-2**. The spacing of the access points is improved from the existing condition with the distances shown on these exhibits. The design of Hawley Road Interchange is shown on **Exhibit 6-2**, and the designs of the adjacent interchanges are shown on **Exhibits 6-1** and **6-3**. The signing plan for the proposed design is shown on **Exhibits 8-1** and **8-2**. **Table 35** shows the proposed spacing of the ramp terminals on I-94 in the area of the Hawley Road Interchange along with the standard spacing between each ramp.

Table 35 Proposed Ramp Spacing

Route	From	To	Proposed	Required	Auxiliary Lane*
I-94 EB	68th Street Entrance	Hawley Road Exit	1048’	1600'	Yes
I-94 EB	Hawley Road Exit	Stadium Exit	3470’	1000'	No
I-94 EB	Stadium Exit	44th Street Exit	1295’	1000'	No
I-94 WB	44th Street Entrance	Stadium Entrance	1280'	1000'	No
I-94 WB	Stadium Entrance	Hawley Road Entrance	3465’	1000'	No
I-94 WB	Hawley Road Entrance	68th Street Exit	910'	1600'	Yes

* AASHTO recommends the inclusion of an auxiliary lane when ramp spacing s 1500’ or less.

Operational Performance

The preferred alternative HCS 2010 analyses were conducted using the projected build design year (2040) AM and PM peak hour traffic volumes and the proposed design geometrics. The peak hour factor used for the build alternative analysis was 0.97. Level terrain and a mainline operating speed of 55 mph were used for the HCS analysis. Peak hour traffic volumes, percent of heavy vehicles and number of lanes input for each freeway segment are shown in **Table 36**. The input information for the ramp and weaving segments are shown in **Tables 37** and **38**.

Table 36

Preferred Alternative Basic Freeway Segment Input Information			Peak Hour Volume (vph)		% HV		No. of
Route	From	To	AM	PM	AM	PM	Lanes
I-94 EB	70th St Exit Ramp	68th St Entr Ramp	6500	7350	9.0	5.0	4
I-94 EB	Hawley Rd Exit Ramp	Narrow Width Section	6950	7650	9.0	5.0	4
I-94 EB	Narrow Width Section	Full Width Section	6950	7650	9.0	5.0	4
I-94 EB	Full Width Section	W-N W-S Exit	6950	7650	9.0	5.0	4
I-94 WB	N-W S-W Entr	Narrow Width Section	7000	7150	7.0	4.0	4
I-94 WB	Narrow Width Section	Full Width Section	7000	7150	7.0	4.0	4
I-94 WB	Full Width Section	Hawley Rd Entr Ramp	7000	7150	7.0	4.0	4
I-94 WB	68th St Exit Ramp	70th St Entr Ramp	6950	6550	7.0	4.0	4

Table 37

Preferred Alternative Ramp Input Information			Speed MPH	Accel/ Decel (feet)	Peak Hour Volume (vph)		% HV		No. Lanes
Route	Cross Road	Side			AM	PM	AM	PM	
I-94 EB	W-N, W-S Stadium	Right	45	925	1700	2250	9	5	2
I-94 EB	44th St	Right	35	795	100	100	7	3	2
I-94 WB	44th St	Right	35	960	100	100	7	4	1
I-94 WB	N-W, S-W Stadium	Right	45	1235	1800	1700	7	4	1

Table 38

Preferred Alternative Weaving Input Information			Weave Length (feet)	%HV		Peak Hour Volume (vph)							
						Main Line		Ramp-Ramp		ML-Ramp		Ramp-ML	
Route	Weaving Segment			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-94 EB	68th St Entr	Hawley Rd Exit	809	9	5	6250	6950	50	50	250	400	700	700
I-94 WB	Hawley Rd Entr	68th St Exit	701	7	4	6300	6000	50	50	700	1150	650	550

The proposed design for the preferred alternative is shown on **Exhibits 5-1** and **5-2**. **Exhibit 6-2** shows the proposed Hawley Road Interchange and **Exhibits 6-1** and **6-3** show the adjacent proposed interchanges. The projected 2040 AM and PM peak traffic volumes and the levels of service from the HCS 2010 analyses are shown on **Exhibits 7-1** and **7-2**.

The preferred alternative was analyzed in HCS 2010 and the density and LOS values are shown in **Table 39** for freeway segments, **Table 40** for ramp segments, and **Table 41** for weaving segments. The Level of Service varies from LOS C to LOS D on the I-94 freeway segments for this alternative. The narrow freeway section will operate at LOS D.

Table 39

Preferred Alternative Basic Freeway Segment Level of Service			AM		PM	
Route	From	To	LOS	Density (pcphpl)	LOS	Density (pcphpl)
I-94 EB	70th St Exit Ramp	68th St Entr Ramp	D	27.7	D	31.9
I-94 EB	Hawley Rd Exit Ramp	Narrow Width Section	D	30.3	D	33.9
I-94 EB	Narrow Width Section	Full Width Section	D	30.3	D	33.9
I-94 EB	Full Width Section	W-N W-S Exit	D	30.3	D	33.9
I-94 WB	N-W S-W Entr	Narrow Width Section	D	30.2	D	30.5
I-94 WB	Narrow Width Section	Full Width Section	D	30.2	D	30.5
I-94 WB	Full Width Section	Hawley Rd Entr Ramp	D	30.2	D	30.5
I-94 WB	68th St Exit Ramp	70th St Entr Ramp	D	29.9	D	27.1

Table 40

Preferred Alternative Ramp Segment Level of Service			AM		PM	
Route	Cross Road	Type	LOS	Density (pcphpl)	LOS	Density (pcphpl)
I-94 EB	W-N, W-S Stadium	Diverge	B	16.0	C	20.8
I-94 EB	44th St	Diverge	A	9.2	A	9.4
I-94 WB	44th St	Merge	B	17.2	B	17.8
I-94 WB	N-W, S-W Stadium	Merge	D	29.1	D	28.7

Table 41

Preferred Alternative Weaving Segments Level of Service			AM		PM	
Route	From	To	LOS	Density (pcphpl)	LOS	Density (pcphpl)
I-94 EB	68th St Entr	Hawley Rd Exit	D	30.6	D	34.6
I-94 WB	Hawley Rd Entr	68th St Exit	D	34.0	D	34.9

Freeway Analysis - Paramics

The preferred alternative was also analyzed using microsimulation in Paramics. The Paramics model of the preferred alternative indicates acceptable operations for the design year and associated forecast.

Observation of the future AM peak period model revealed no significant areas of concern in terms of slow speeds or related congestion. I-94 EB through the cemetery section operated slightly under the posted speed limit (55 mph), but again there were no residual or upstream impacts of these slightly slower speeds. **Table 42** below shows the AM peak period Paramics model speeds for roadway sections located within the Hawley Road Interchange area of influence.

Table 42

Preferred Alt AM Model Results Summary (Paramics)		AM Peak Hour Modeled Speeds (mph)				
Route	Roadway Section	7:00-7:15	7:15-7:30	7:30-7:45	7:45-8:00	Average Hour
I-94 EB	West of 70th St Exit Ramp	61	61	61	61	61
I-94 EB	70th St Exit Ramp to 68th St Entr Ramp	56	56	57	56	56
I-94 EB	68th St Entr Ramp to Hawley Rd Exit Ramp	59	59	59	58	59
I-94 EB	Hawley Rd Exit Ramp to Stadium Int Exit Ramp	54	53	54	52	53
I-94 WB	Stadium Int Entr Ramp to Hawley Rd Entr Ramp	56	56	55	55	56
I-94 WB	Hawley Rd Entr Ramp to 68th St Exit Ramp	58	58	58	57	58
I-94 WB	68th St Exit Ramp to 70th St Entr Ramp	57	56	56	57	57
I-94 WB	West of 70th St Entr Ramp	57	56	57	55	56

Observation of the PM peak period Paramics model revealed one segment in the PM peak hour that indicated slightly lower speeds than expected, but not to unacceptable levels. The following section summarizes the cause of the reduced speeds observed in the model. **Table 43** below shows the PM peak period Paramics model speeds for roadway sections located within the Hawley Road Interchange area of influence.

Table 43

Preferred Alt PM Model Results Summary (Paramics)		PM Peak Hour Modeled Speeds (mph)				
Route	Roadway Section	4:00-4:15	4:15-4:30	4:30-4:45	4:45-5:00	Average Hour
I-94 EB	West of 70th St Exit Ramp	60	59	58	59	59
I-94 EB	70th St Exit Ramp to 68th St Entr Ramp	54	53	53	53	53
I-94 EB	68th St Entr Ramp to Hawley Rd Exit Ramp	56	55	54	53	55
I-94 EB	Hawley Rd Exit Ramp to Stadium Int Exit Ramp	53	53	53	53	53
I-94 WB	Stadium Int Entr Ramp to Hawley Rd Entr Ramp	56	56	56	56	56
I-94 WB	Hawley Rd Entr Ramp to 68th St Exit Ramp	57	58	58	58	58
I-94 WB	68th St Exit Ramp to 70th St Entr Ramp	57	57	57	57	57
I-94 WB	West of 70th St Entr Ramp	57	58	57	58	58

The preferred alternative segment between Hawley Road and the Stadium Interchange features two items that contribute to reduced speeds; 1) a four lane EB cross-section with sub-standard lane widths and shoulders, and 2) all traffic exiting the I-94 corridor to head north on WIS 175 (W-N ramp) or south on WIS 341 (W-S ramp) need to be in the right-most general purpose lane upstream of the Stadium Interchange.

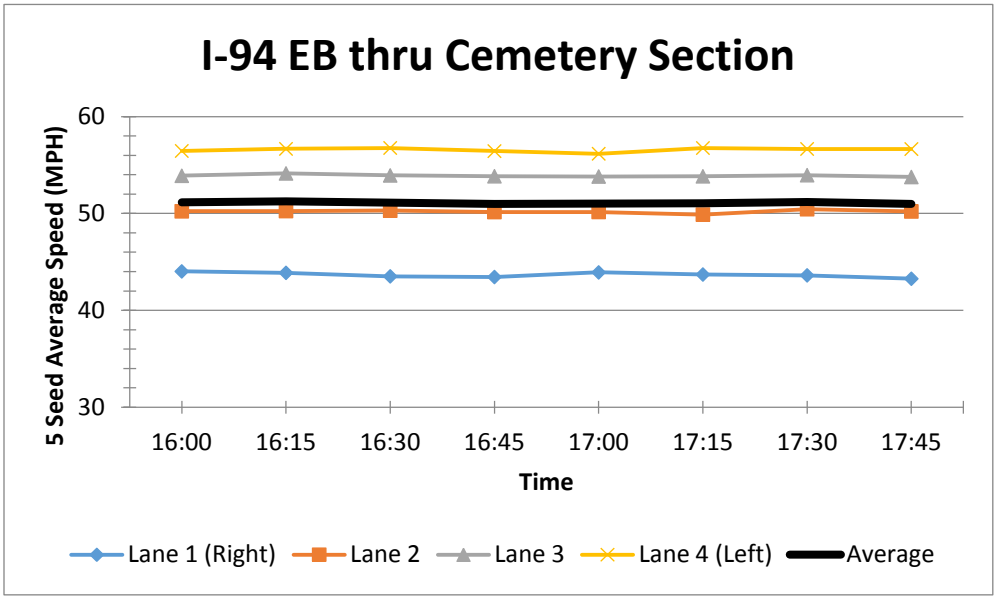
The design year PM peak hour forecast indicates that roughly 30% of the I-94 eastbound approach demand will exit the I-94 eastbound mainline via the W-N or W-S ramps at the Stadium Interchange. The result is a heavy utilization of the right-most lane by a combination of exiting and I-94 eastbound thru traffic. **Figure 4** below shows an example of the right-lane utilization from the PM peak period Paramics model.

Figure 4 - PM Peak Period Paramics Model: Right-Lane Utilization

As a result of the heavy right lane utilization, the I-94 eastbound mainline overall speeds between Hawley Rd and the Stadium Interchange are impacted due to the friction effect of right lane operations on the median and left lanes. This results in some sporadic congestion that is localized to the cemetery section.

Despite the operational effect of the right lane utilization, the other general purpose lanes and overall segment speeds through the cemetery section are consistent throughout the PM peak period, as indicated in **Figure 5**. The consistency in speeds at this location is an indication of stable flow and reliable operations overall.

Figure 5 - PM Peak Period Paramics Model: I-94 Eastbound thru Cemetery Section Speeds



The designs of the interchanges are based on the typical AM and PM peak hours. Although the design is not based on the projected traffic volume during a period of Brewer game arrival or departure, consideration has been given to special events at Miller Park. The design team has been coordinating with the Miller Park Stadium Board to ensure that event traffic can be accommodated with reasonable delay. The current traffic control plan for Brewer games at Miller Park includes police directing traffic in and out of the parking areas at game times. The design team has coordinated with the traffic engineer representing the Stadium Board. Limited analysis has been completed to evaluate the traffic conditions for the egress from Miller Park for an afternoon game and ingress for an evening game event on a weekday. The summary of these analyses are in **Appendix J**.

Local Road Intersections

Under the preferred alternative utilizing the 2040 build peak hour traffic volume forecasts, six existing key signalized local road intersections were analyzed within the Hawley Road Interchange area of influence to determine future operations. The future analysis assumed optimal signal timings and included proposed local road improvements for some of these intersections, as noted below. The future AM and PM peak hour traffic signal operations based on Synchro analysis are summarized in **Table 44**

- US 18 and Hawley Road – no improvements
- US 18 and 68th Street – no improvements
- WIS 59 (National Avenue) and WIS 341 (Miller Park Way) – provide dual NBL turn lanes, rebuild traffic signal
- WIS 59 (National Avenue) and Hawley Road – no improvements
- WIS 59 (Greenfield Avenue) and National Avenue – provide dedicated shared left/thru and exclusive right turn lanes for NB/SB approaches, eliminate EB/WB split phase, add protected EBL/WBL turn phases, rebuild traffic signal
- WIS 59 (Greenfield Avenue) and 70th Street – extend SBL turn lane, eliminate protected WBL turn phase, add protected SBL turn phase

Table 44

Intersection	Peak Hour	Level of Service (LOS) by Movement												Overall Int LOS
		Eastbound			Westbound			Northbound			Southbound			
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
US 18 and Hawley Road	AM	B	C	C	B	B		B	B		B	A		B
	PM	C	C	C	C	D		B	B		D	A		C
US 18 and 68th Street	AM	B	C		B	C		C	C		B	A		B
	PM	B	C		B	C		C	D		C	A		C
WIS 59 (National Avenue and WIS 341 (MPW)	AM	F	D		E	F	D	D	D	A	F	C	A	D
	PM	F	D		E	D	D	D	F	A	F	D	A	E
WIS 59 (National Avenue) and Hawley Road	AM	C	B		C	C		A			D	D		B
	PM	C	B		B	B		B			D	D		C
WIS 59 (Greenfield Avenue) and National Avenue	AM	D	A		D	C		D	C		C	C		C
	PM	B	A		D	D		E	C		D	C		C
WIS 59 (Greenfield Avenue) and 70th Street	AM	B	A		B	C	B	B	C	B	D	B		C
	PM	B	A		A	A	A	C	C	C	C	C		B

As shown in **Table 44** above, operations are generally acceptable at most intersections during the future AM and PM peak hours. Only two intersections exhibit turning movements with poor (LOS E) or failing (LOS F) operations. Similar to existing operations, the worst intersection operations during both peak hours occur at WIS 59 (National Avenue) and WIS 175 (Miller Park Way), which is anticipated to continue as a heavily utilized access point to the Stadium interchange and the I-94 EW corridor. Additional intersection improvements were considered by the design team and discussed with the local officials. The local officials were opposed to the impacts caused by the additional improvements required to get the higher levels of service.

The proposed lane configurations for the north (I-94 WB entrance ramp) and south (I-94 EB exit ramp) Hawley Road Interchange ramp terminals are similar to the existing configuration. These intersections are show on **Exhibit 6-1**. Hawley Road would remain as a four-lane facility with a single NBL turn lane at the north ramp terminal. The EB approach at the south ramp terminal would provide exclusive EBL and

EBR turn lanes. It should be noted that the analysis assumes the installation of a traffic signal for the south ramp terminal. However, a traffic signal warrant analysis has not yet been formally completed.

Table 45 below shows the design year peak hour operations for the 8LAG Partial Access Scenario at the Hawley Road Interchange ramp terminals. These intersections are projected to operate at LOS A or B. The intersection projected peak hour traffic volumes, LOS and queue lengths are shown in **Appendix B**.

Table 45: 8LAG Partial Access Scenario - Design Year LOS for Hawley Road Ramp Terminals

Intersection	Peak Hour	Level of Service (LOS) by Movement												Overall Int LOS
		Eastbound			Westbound			Northbound			Southbound			
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Hawley Road and I-94 WB Entrance Ramp	AM	-	-	-	-	-	-	A	A	-	-	A	A	A
	PM	-	-	-	-	-	-	A	A	-	-	A	A	A
Hawley Road and I-94 EB Exit Ramp	AM	A	-	A	-	-	-	-	A	-	-	A	-	A
	PM	B	-	B	-	-	-	-	A	-	-	A	-	A

Coordination

Wisconsin Department of Transportation (WisDOT) offered numerous opportunities for citizens, Native American tribes, local governments, and state and federal review agencies to be involved in the Draft Environmental Impact Statement (EIS) process including input into proposed access modifications at the Hawley Road interchange. In addition, study team members attended numerous meetings initiated by local officials and citizens. The public involvement process was open to all residents and population groups in the study area and did not exclude any persons due to income, race, national origin, sex, age, religion, or handicap.

Public input was divided on the At-grade and Double Deck alternatives. In general, those who live near the freeway and have commented on the project support the At-grade alternative. Residents and businesses that use the Hawley Road Interchange have expressed concern about the additional time and indirection that would be caused by completely or partially removing the Hawley Road Interchange under the At-grade alternative. The next closest interchange would be the 68th Street/70th Street Interchange, about 8 blocks west of Hawley Road. In general, those who do not live near the freeway support the Double Deck alternative because it would reduce traffic congestion and increase safety.

Extensive coordination has taken place with the local officials including the City of West Allis to develop the improvement on Washington Street to mitigate the reduction in access at the Hawley Road Interchange. The West Allis Common Council passed a Memorandum of Understanding (MOU) between the City and WisDOT accepting jurisdiction of the new local street connection with the design, real estate acquisition and construction that is proposed to be completed by WiSDOT. The MOU between the City and WisDOT can be found in **Appendix K**. In addition, the team has coordinated with West Allis to develop acceptable improvements to the identified intersections in **Policy Point 4** without expanding the roadway, as requested by the City.

Public Involvement Meetings (PIM) and State Fair

Five public involvement meetings were held during identification and evaluation of project purpose and need factors, development and refinement of the alternatives, and evaluation of impacts. In addition to the public involvement meetings, the study team participated in several neighborhood meetings, Community Advisory Committee and Technical Advisory Committee meetings, Agency Coordination meetings, and several other meetings to discuss the project and gain public feedback. Section 5 of the Draft EIS provides a detailed account of the project's public and agency coordination.

Support for improvements included addressing safety and traffic flow concerns, modernizing the freeway, adding travel lanes, and incorporating transit. Concerns included access changes, specifically at Hawley Road, property acquisition, adding travel lanes, creating more noise in adjacent neighborhoods, changing views from properties adjacent to I-94, affecting the cemeteries, adding more traffic to the local street network, and cost.

Public comments received from the public meeting attendees were most often from people living and working along the I-94 East-West corridor. General themes of the comments from the PIM's are listed below.

- The majority of the adjacent neighbors who provided comment oppose the Double Deck alternative. There is strong opposition due to altered views in the neighborhoods, the National Historic Landmark, the cemeteries, and opposition due to the Double Deck alternative resulting in fewer views of the Hunger Task Force billboard.
- The At-grade alternative is preferred by many locals because it does not modify the view or raise the freeway. The lesser order of magnitude of the freeway expansion is also frequently mentioned by those in favor of at-grade.
- Many residents and businesses were opposed to limiting access at Hawley Road. Most did not state a preference for either alternative but voiced strong opposition to changing access at Hawley Road.
- PIM comments from drivers with a daily commute generally prefer the Double Deck alternative for reasons pertaining to safety and congestion.

The I-94 East-West project team staffed a project information booth at the 2013 and 2014 Wisconsin State Fair. The booth included project related exhibits and provided the public with an opportunity to interact with the project team and address any comments or questions. Public comments received from the State Fair were primarily from individuals who drive the corridor but do not live adjacent to the freeway. The comments were overwhelmingly in favor of the Double Deck alternative, primarily due to the greater capacity. Those that supported the At-grade alternative typically mentioned cost considerations.

Public Hearing and Comment Period

Public Hearings for the project were conducted on December 3 and 4, 2014. The public, local officials, and government agencies were encouraged to provide comments regarding the project. The comment period was open until January 27, 2015.

During the comment period, WisDOT received numerous comments from cooperating and participating government agencies, local officials, interest groups, and the public. Comments varied and there was support for all alternatives. The most commonly heard comments were:

- Support of the at-grade alternative (for various reasons but cultural resource groups support this alternative due to less impact on historic properties, specifically the Soldiers' Home NHL and Historic District, than the Double Deck alternative)
- Maintain existing interchanges
- Support of a transit-focused alternative
- Supporters of the Hunger Task Force were against the Double Deck alternative but desired full access at the Hawley Road Interchange.
- Those with connections to the Beth Hamedrosh Hagodel Cemetery supported WisDOT for developing alternatives that did not impact the cemetery land or any graves
- Story Hill residents are generally against the Double Deck alternative and against a noise barrier near their neighborhood

City of West Allis

The City of West Allis is concerned about the elimination of access to the City, specifically at the Hawley Road and 68th/70th Street interchanges. In June 2013 the City of West Allis adopted a resolution opposing construction of alternatives that do not include access to both 70th/68th Street and Hawley Road. The city also feels that eliminating access at the Hawley Road Interchange would hinder economic development opportunities within the City, increase traffic on local City roads, and pose economic justice implications to minority residents attempting to reach employment elsewhere.

At the Public Hearing, the City of West Allis voiced support for the Double Deck alternative because it was the only alternative that maintained full access at Hawley Road. On December 9, 2014 the City of West Allis passed a resolution in support of the Double Deck alternative if the At-grade alternative cannot accommodate full access at the Hawley Road Interchange.

Village of West Milwaukee

On January 5, 2015 the Village of West Milwaukee passed a resolution supporting the Double Deck alternative if the At-grade alternative cannot accommodate full access at the Hawley Road Interchange. In addition, the Village opposed any alternative that creates additional traffic on Village roads and does not provide adequate future capacity on I-94.

City of Milwaukee

The City of Milwaukee opposes freeway lane expansion and any double-decking of lanes where the top level or deck is elevated. The City is concerned about substantial changes in existing local access, impacts of new or revised access points, residential impacts, and right-of-way acquisition with the loss of tax base. The City of Milwaukee also supports a consideration of mass transit traffic mitigation options, and retaining the 35th Street Interchange. At the Public Hearing the Mayor of Milwaukee provided public testimony in support of the At-grade alternative.

Section 106 Consulting Parties

WisDOT has met with Section 106 consulting parties on a monthly basis since July 2013 to discuss the project's impact on historic properties adjacent to I-94. The Section 106 consulting parties are concerned with the visual and noise impacts under both the At-grade and Double Deck alternatives, and most oppose the Double Deck alternative and support the At-grade alternative. Through consultation, the group determined that the Double Deck alternative would have an Adverse Effect on Calvary Cemetery and the Soldiers' Home NHL and Historic district and a potential Adverse Effect on Story Hill

Residential District 2 and 3. Most consulting parties agree that the At-grade alternative can be designed so that it has No Adverse Effect on any historic properties.

Milwaukee Brewers

The designs of the interchanges are based on the typical AM and PM peak hours. Although the LOS has not been determined during the Brewer game arrival or departure consideration has been given to special events at Miller Park. The design team has been coordinating with the Miller Park Stadium Board to ensure that event traffic can be accommodated with reasonable delay. Their goal is to accommodate the departure from the parking lots within 45 minutes after the Brewers' games. The current traffic control plan for Brewer games at Miller Park includes police directing traffic in and out of the parking areas at game times.

FUNDING PLAN

Funding for the project is anticipated to be a combination of State, Federal and Local Funding. The majority of the funding will be State funding for the Design, Real Estate, Utility and Construction of the project. Federal funds will be utilized during the Construction. Local funds will be minimal and only to cover Community Sensitive Solutions enhancements and in contract utility work.

As has been done on each project within the southeast Wisconsin freeway reconstruction program, WisDOT and FHWA will develop and implement a financial plan for the project.

POLICY POINTS

Policy Point 1 ***Existing Network's Ability to Accommodate Traffic***	*The need being addressed by the request cannot be adequately satisfied by existing interchanges to the interstate, and/or local roads and streets in the corridor can neither provide the necessary access, nor can they be reasonably improved (such as access control along surface streets, improving traffic control, modifying ramp terminals and intersections, adding turn bays or lengthening storage) to satisfactorily accommodate the design-year traffic demands.* The Hawley Road Interchange is not a new interchange, and this project is not adding a new interchange within the area of influence. This project proposes to reconstruct and reconfigure the existing interchange to improve the safety and efficiency of I-94, while minimizing impacts to the surrounding environment. The Hawley Road Interchange is proposed to be reduced from a full to a partial interchange. With the additional lanes needed to be added to the mainline in each direction to improve the operations and safety, the ramps to and from the east are not feasible to construct without impacting graves in the cemeteries adjacent to the freeway. The proposed interchange will accommodate the projected traffic volumes at an acceptable level of service. Modifications to the ramps and the ramp terminal intersections are described in **Policy Point 3**. Proposed local road changes are discussed in **Policy Point 4.** The existing

conditions on the corridor are shown on **Exhibits 2-1, 2-2** and **2-3.**

The local streets in the network that serve the traffic in the area of this interchange are currently operating close to or at capacity during the AM and PM peak periods. These roadways include 68th/70th Streets, Greenfield Avenue, National Avenue, and Bluemound Road. If the Hawley Road Interchange were to be entirely eliminated, the diverted demand from the interchange would shift to the local road network. Significant local road improvements (capacity expansion and/or intersection improvements) would be required in order to provide reasonable levels of service.

However, capacity-expansion and large-scale intersection improvements are unfeasible for the majority of the local road network as the surrounding area is densely populated, where these types of roadway improvements would have a significant cost and negatively impact a large number of homeowners and businesses. Conversely, small-scale intersection improvements would not adequately handle the all of the diverted demand associated with the full closure of the Hawley Road Interchange at acceptable levels of service.

Therefore, while the selection of a partial interchange at Hawley Road was not predicated by local road operations or a lack of feasible local roadway improvements, the retention of partial freeway access at Hawley Road represents a reasonable balance of freeway and local road needs.

As such, while the selection of a partial access interchange at Hawley Road was mainly influenced by freeway constraints, the impacts to the local street network under a partial access interchange represents a reasonable balanced of freeway and local road needs. The proposed partial interchange along with the proposed local street and intersection improvements are expected to adequately accommodate future traffic demand.

The HCS analysis input values and the resulting LOS values are shown on **Tables 5 through 7 and 8 through 10** respectively. The summary of the freeway and ramp traffic volumes and levels of service for the existing conditions are shown on **Exhibits 3-1** and **3-2.** The No Build traffic projections and level of service are shown on **Exhibits 4-1** and **4-2.** The levels of service and queue length information for the intersection analyses are shown in **Appendix B.**

Hawley Road Interchange

The existing interchange has a diagonal exit ramp like a typical diamond interchange in the southwest quadrant and a partial loop entrance ramp in the southeast quadrant with a free-flow right turn and a median left turn lane for the eastbound I-94 connections. On the north side of the interchange the ramps are in a typical partial cloverleaf configuration for the westbound I-94 connections with the westbound exit being a loop ramp.

The existing mainline west of the interchange operates at LOS E. The mainline

within the interchange operates at LOS D in the westbound and eastbound directions in the PM peak and LOS E in the eastbound AM peak. The ramps to and from the west operate at LOS E for both directions and time periods. The existing weaving segment east of the interchange is a two-sided weave to the left side ramps at Mitchell Boulevard that operate at LOS F in the westbound direction for both AM and PM peaks and also in the in the eastbound direction in the AM peak and operates at LOS E in the eastbound direction in the PM peak period.

The no build analyses show that with the peak hour traffic volumes projected for the design year, the LOS will drop to LOS E within the interchange for both directions and time periods. The westbound entrance and the mainline west of the interchange will operate at LOS F in the AM peak and LOS E in the PM peak. The eastbound mainline and exit ramp will operate at LOS E in the AM peak and LOS F in the PM peak. The two-sided weave segments east of the interchange will operate at LOS F in both directions for the AM and PM peak periods.

The existing eastbound ramp terminal intersections are unsignalized. The westbound ramp terminal intersection on Hawley Road is traffic signal controlled. The left turn movement on the eastbound exit ramp operates at LOS F while the other movements are at LOS B or C. The traffic signal controlled intersection at the westbound ramps operates well with all movements at LOS A or B. The intersection LOS and queue lengths are shown in **Tables B-3** and **B-4.**

This interchange is proposed to be reconstructed as a partial interchange (half diamond) with ramps to and from the west because it is not feasible to construct ramps to and from the east without impacting graves in the cemeteries along the freeway. More detail is included in **Policy Point 4.**

Adjacent Interchanges

<u>68th /70th Street Interchange</u>

This interchange is a split diamond from 70th Street to 68th Street. The frontage roads of W. O'Connor Street on the north side and W. Kearney Street on the south side provide the connections between the east and west ramp intersections. The ramps to and from the west are slip ramps connecting directly to the frontage roads, while the ramps to and from the east are diagonal ramps.

The existing I-94 mainline operates at LOS E on either side of this interchange and LOS D within the interchange where the traffic volumes are lower minus the ramp traffic. The westbound exit ramp operates at LOS E, while the other three ramps operate at LOS D.

The no build analyses show that the westbound mainline and ramps will drop to LOS F in the AM peak.

For the proposed interchange design, all four of the intersections have traffic signal control. The ramps to and from the west are slip ramps that connect directly to the frontage roads about 350 feet west of 70th Street.

The intersection of the eastbound ramps with 68th Street operates at LOS D in the PM peak and LOS C in the AM peak. The eastbound through movement operates at LOS E in the PM and LOS D in the AM peak. The other three intersections operate at LOS C or better for all movements. The LOS and queue lengths are shown in **Tables B-1** and **B-2.**

This interchange is proposed to be reconstructed to a split diamond in a similar configuration as the existing interchange.

Mitchell Boulevard Interchange

This is an existing diamond interchange that has three left side ramps in the median between the eastbound and westbound I-94 roadways, for the eastbound exit and entrance ramps, and the westbound entrance ramp. The westbound exit ramp is a normal right side diagonal ramp.

I-94 mainline between the ramps operates at LOS E in the AM peak and LOS D in the PM peak. This interchange is spaced very close to the adjacent interchanges with weaving segments on both sides. The weave to the west operates at LOS F eastbound in both the AM and PM peaks as well as westbound in the AM peak. The westbound PM peak operates at LOS E. The weave to the east operates at LOS E in the eastbound direction for AM and PM and LOS E in the AM and LOS D in the PM peaks for the westbound direction.

The no build analyses show that with the peak hour traffic volumes projected for the design year, the mainline within the interchange will operate at LOS F in the PM peak and LOS E in the AM peak in the eastbound direction. The westbound direction in this segment will operate at LOS E in both AM and PM peaks. The weave segment to the west will fall to LOS F in both directions for both the AM and PM peak periods. The weave segment to the east will operate at LOS E in both directions for both the AM and PM peak periods.

The exit ramps are stop sign controlled. Traffic volumes are very low at this interchange, except during events at Miller Park stadium (home of the Milwaukee Brewers major league baseball team). The stop sign controlled movements operate at LOS A or B. The stop controlled intersection LOS values are shown in **Appendix B** in **Table B-5.**

This interchange is proposed to be removed and replaced with diamond ramps embedded within the Stadium interchange, a ½ mile to the east.

Stadium Interchange

This interchange is a three level interchange with directional ramps serving all turning movements. Each direction has a combination of right and left side ramps.

The existing mainline operates at LOS D within the interchange in the east bound direction for both AM and PM peaks. The westbound operates at LOS D in the AM and LOS C in the PM peak. There are weaving segments on I-94 on either side of the interchange. The Weaving segments on the east side operate at LOS E in both

directions for AM and PM peaks. The weaving segments on the west side operate at LOS E for the eastbound direction for both the AM and PM peaks, while the westbound direction operates at LOS E in the AM and LOS D in the PM peak.

The no build analyses show that the mainline will operate at LOS D in the design year in both directions for both the AM and PM peak periods, however the weaving segments on both sides of this interchange will operate at LOS E in both directions for both AM and PM peak periods.

This interchange is proposed to be reconstructed as a service interchange that will have free flow exit ramps from I-94 and traffic signal controlled intersections for the entrance ramps.

Safety Analyses

The average total crash rate on I-94 between the Hawley Road Interchange exit ramps and entrance ramps from 2005 to 2009 is 253.7 crashes per 100M VMT for eastbound and 200.3 crashes per 100M VMT for westbound, which is about 136% (westbound) to 198% (eastbound) greater than the statewide average total crash rate. Some of the features of the existing facility that lead to safety issues are the short multilane weaving segments between the Hawley Road Interchange right-side ramps and the left-side Mitchell Boulevard Interchange ramps, the closely spaced ramps without auxiliary lanes, the short acceleration and deceleration distances at the Hawley Road and adjacent interchange ramps, and limited sight distance. For more specific information on the crashes see the Crash Analysis Technical Memorandum in **Appendix D.**

Conclusion

The Hawley Road Interchange in conjunction with the I-94 mainline require improvements to safely and efficiently accommodate the network's ability to move the traffic that is projected to be using this corridor in the design year of 2040. The reconstruction and reconfiguration of the Hawley Road Interchange as discussed above will provide for the safer and more efficient operation for through traffic and those accessing the freeway in this area. The widening of the freeway consisting of added mainline travel and auxiliary lanes is needed to accommodate the projected traffic volumes at an acceptable LOS and safety. The reconstruction/reconfiguration of the Hawley Road Interchange is necessary to allow room for this widening of the interstate. Improved ramp spacing along I-94 will provide an improved level of service and safety. The crash rate within this interchange is close to three times the statewide average for urban interstates. The need for the project and the interchange modifications are discussed further under the **NEED** section of this report.

Policy Point 2 ***Transportation System***	*The need being addressed by the request cannot be adequately satisfied by reasonable transportation system management (such as ramp metering, mass transit, and HOV facilities), geometric design, and alternative*

Management	*improvements to the Interstate without the proposed changes in access.* The Hawley Road area of influence consists of 70th and 68th Streets on the west to WIS 175/341 on the east, and Greenfield/National Avenue on the south to Bluemound/Wisconsin Avenue on the north. The Hawley Road Interchange is not a new interchange in this area. The project is proposing to reconstruct and reconfigure the Hawley Road and adjacent interchanges with modifications to improve the safety and operations in the corridor. The Hawley Road and adjacent interchanges must be reconfigured to accommodate the additional lanes needed and proposed on the I-94 mainline. Although numerous Transportation System Management (TSM) applications are proposed to be incorporated as part of this project, TSM alone cannot resolve the need to modify the interchanges as proposed. Existing ITS features are currently in place along this segment of I-94. Improved ITS and TMP improvements were studied (including a doubling of transit), however mainline and interchange improvements as proposed are still needed. To provide an acceptable LOS, Transportation System Management features are proposed to be included in the design of the preferred alternative. These include Ramp Metering, Ramp Gates, Closed Circuit Cameras, Variable Message Signs, and Traffic Detectors. These features alone being added to the existing facility will not meet the purpose and need of the project or eliminate the need to modify the existing interchanges as proposed with the preferred alternative. The SEWRPC's build traffic forecasts include TSM strategies as part of the base-line assumptions, including a doubling of transit use. Existing TSM applications currently in use that will be carried forward in the proposed design consist of ramp metering, providing driver information on changeable message signs, closed circuit cameras, traffic detectors, ramp gates, and encouraging the use of transit. The existing ramps have ramp meters that were installed under previous projects: 68th Street EB, Hawley Road EB and WB, Mitchell Boulevard EB and WB, Stadium N-E, S-E, N-W and S-W. The 70th Street WB ramp did not originally have a ramp meter, but had one added within one of the Zoo Interchange project's traffic mitigation which is currently under construction immediately to the west of this project. Wrong way driver detection has been installed on the eastbound exit ramp to Mitchell Boulevard consisting of wrong way signs with flashing LEDs to get the attention of and warn drivers that start to go on to the ramp in the wrong direction. Geometric improvement only alternatives, without increased lanes, were also analyzed and found not to adequately meet the project purpose and need. Multiple design alternatives for a full interchange at Hawley Road were analyzed, but found to have unacceptable environmental and public impacts and costs. All of the proposed alternatives would not preclude the implementation of more transit use, but would provide for improved operations for existing transit use and

	future transit growth. The following geometric design modifications are included in the proposed design to improve the safety and operations: • Auxiliary lanes added between Hawley Road and 68th Street • Improve the merging and diverging between Hawley Road and the Stadium Interchange. • Relocation of the Mitchell Boulevard Interchange to within the Stadium Interchange removing the left side / right side weaving maneuvers and substandard ramp spacing and ramp geometrics **Conclusion** Transportation System Management measures have been investigated. These measures are incorporated into the proposed design alternative. However, these measures alone were studied and will not provide an acceptable level of service in the design year or eliminate the need to modify the existing interchanges as proposed with the preferred alternative. The design of the preferred alternative does not preclude the future implementation of additional TSM measures.
Policy Point 3 ***Safety Impacts and Operational Analysis***	*An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis shall, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access. The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network. Requests for a proposed change in access must include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute and accommodate traffic on the interstate facility, ramps, intersection of ramps with crossroad, and local street network. Each request must also include a conceptual plan of the type and location of the signs proposed to support each design alternative.* The existing facility was completed in 1963 and does not conform to current design standards. This proposed project will not add any additional access points to the interstate, but will reconstruct and reconfigure the existing access points to operate more safely and efficiently. The proposed design will address the current safety issues with revisions to the corridor to improve roadway geometrics, freeway operations, ramp capacity, and ramp/mainline merge and diverge characteristics. Traffic analyses (HCM and

Paramics) and safety analyses (ISATe) show that the proposed design will substantially improve on existing conditions.

The improvements to I-94 in the preferred alternative include reconstruction to the proposed roadway cross section by providing four mainline travel lanes in each direction, including reconstruction with added improvements to the interchanges and auxiliary lanes where needed between interchanges. Alternatives providing geometric and operational improvements without added mainline traffic lanes were studied and found to not adequately meet the project's purpose and need.

The preferred alternative for I-94 in the influence area of the Hawley Road Interchange is shown on **Exhibits 5-1** and **5-2**. The proposed improvements for the adjacent interchanges are shown on **Exhibits 6-1 through 6-3**. The projected design year peak hour traffic volumes and levels of service are shown on **Exhibits 7-1** and **7-2**. **Tables 35 through 37** show HCS analysis input data and **Tables 38 through 40** show the level of service along with the density values for each segment of the freeway and ramps. **Appendix B** has the tables of the intersection analyses results.

Hawley Road Interchange

This interchange is proposed to be constructed as a partial (half diamond) interchange with ramps to and from the west. The ramps to and from the east cannot be constructed with adequate acceleration and deceleration lengths and auxiliary lanes connecting to the proposed I-94 cross section without impacting the cemeteries on both sides of the freeway. **Appendix F** has the explanation with more detailed information about why the partial interchange is justified including how the environmental process impacted its selection. Local street improvements to mitigate the change in access at the Hawley Road Interchange will be included in the I-94 E-W Corridor Project.

The proposed interchange along with the intersection lane configurations are shown on **Exhibit 6-2**. The local street improvements to mitigate the change in access at Hawley Road are shown on **Exhibits 9-1 through 9-5.**

The I-94 mainline will operate at LOS D through this area in both directions for both the AM and PM peak periods. The weave segment west of the interchange where the ramps connect to the mainline will also operate at LOS D.

The ramp intersections with Hawley Road will be traffic signal controlled. The intersection peak hour traffic volumes, LOS and queue lengths are shown in **Appendix B** on **Tables B-12** and **B-13.**

Adjacent Interchanges

68th / 70th Street Interchange

This interchange is proposed to be reconstructed as a split diamond in a similar configuration to the existing interchange. The frontage roads of W. O'Connor Street on the north side and W. Kearney Street on the south side will continue to provide the connection between the east and west ramp intersections. The ramps

to and from the west are slip ramps connecting directly to the frontage roads. The ramps to and from the east are diagonal ramps connecting directly to 68th Street. The construction of the ramps to and from the west will be included in the Zoo Interchange project that is currently being constructed immediately to the west of this project. The intersection of 70th Street and the eastbound exit ramp will have a northbound "look ahead" lane added to increase the storage for vehicles passing through the intersection to the left turn lane at the 68th Street westbound entrance ramp intersection. The westbound exit ramp will have one through lane and a right turn lane added at the 68th Street intersection.

The proposed interchange along with the intersection lane configuration improvements are shown on **Exhibit 6-1.**

Other alternatives were studied for the reconstruction of this interchange, including creating a single diamond interchange by combining the 68th and 70th Street corridors but were found to have considerable impacts to the environment and surrounding community. 70th street is continuous and serves the area to the south, while 68th Street serves the area to the north.

The I-94 mainline will operate at LOS D through this area in both directions for both the AM and PM peak periods. The eastbound weave segment east of the interchange where the ramps connect to the mainline will also operate at LOS D.

All four of the ramp intersections with 68th and 70th Streets will be traffic signal controlled. All movements will operate at LOS D or better except the eastbound through movement at 68th Street and its eastbound ramp, which will operate at LOS E in the PM peak. The intersection peak hour traffic volumes, LOS and queue lengths are shown in **Tables B-10 and B-11.**

Stadium Interchange

The Stadium Interchange is proposed to be reconstructed as a service interchange with free flow ramps for the movements exiting I-94 and traffic signal controlled intersections at the entrance ramp terminals. This will be a four level interchange, including the embedded interchange to 44th and 46th Streets which is the relocation of the Mitchell Boulevard Interchange. The top level will consist of the ramps that exit I-94 and enter WIS 175/341 north and south. The second level will be the WIS 175/WIS 341 mainline roadway with the ramp intersections that provide the entrance to I-94 east and west. The third level down is the I-94 mainline. The bottom level consists of the 44th and 46th Street ramp connections. The embedded interchange has diagonal ramps connecting I-94 to and from the west to 44th Street. 46th Street has ramps that combine with the Stadium Interchange ramps to and from the east.

The Mitchell Boulevard Interchange is proposed to be relocated to provide safer and more efficient operations between the existing tightly spaced Hawley Road and Mitchell Boulevard interchanges. The freeway entrance and exit ramps at the Mitchell Boulevard Interchange will be removed. Having entrance and exit ramps in the narrow cemetery area contributes to congestion and there is no space to physically locate the ramps without impacting the cemeteries or having very short and unsafe merge distances on the interstate. With the embedded interchange

within the Stadium Interchange, sufficient distances can be provided for the merging and diverging maneuvers between each of the stadium and relocated local service ramps and the partial interchange ramps at Hawley Road.

The proposed interchange along with the intersection lane configurations are shown on **Exhibit 6-3.**

The segment of I-94 west of the Stadium Interchange will operate at LOS D in both directions for both the AM and PM peak periods. The segment to the east will operate at LOS C.

The I-94 entrance ramps will have traffic signal controlled ramp terminal intersections with WIS 175/WIS 341 consisting of two-phase signal control. All movements at these intersections will operate at LOS C or better. The peak hour traffic volume, LOS and delay values as well as the queue lengths for these intersections are shown in **Appendix B** in **Tables B-15** and **B-16.**

The embedded interchange replaces the access that currently exists at the Mitchell Boulevard Interchange. There is very low demand for this access other than when events occur at Miller Park. The unsignalized intersection analyses shows that during the normal AM and PM peak periods these intersections will operate at LOS A. The peak hour traffic volumes, levels of service and delay values are shown in **Table B-14** in **Appendix B.**

Safety

The I-94 freeway mainline and ramp segments were analyzed using HSM methods using the ISATe tool. This analysis showed that the preferred alternative will provide a reduction in crashes of approximately 20% over the no-build alternative. Some features in the preferred alternative that will enhance the safety performance are increased mainline capacity, added auxiliary lanes between Hawley Road and 68th Street interchanges, elimination of the loop ramp with the short deceleration distance, increased spacing between ramps on I-94, addition of traffic signals at crossroad ramp terminals, and removal of the left-side ramps.

Signing

The proposed modifications to the Hawley Road and adjacent interchanges will allow better placement of informational signing to help unfamiliar drivers. The proposed guide signing plan is shown on **Exhibits 8-1** and **8-2**. Trail blazing signs will be provided to direct drivers to the access at adjacent interchanges.

Conclusion

The Hawley Road Interchange modifications have been developed in conjunction with the I-94 mainline preferred alternative to improve the safety and efficiency of the traffic operations within the area of influence. There are no additional access points being added to the interstate as part of this improvement. The reconfiguration of the Hawley Road Interchange will eliminate the weaving movements between it and the Stadium Interchange. The added auxiliary lanes will help the weaving between the Hawley Road and 68th Street interchanges.

	There are proposed local street improvements adjacent to the interchanges and between the interchanges where necessary to accommodate the projected design year traffic. The improvements between the interchanges will help drivers that currently use the interchange, but will have to use one of the adjacent interchanges in the future.
Policy Point 4 ***Local Road Access***	*The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access for managed lanes (e.g. transit vehicles, HOV's, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards.* The Hawley Road Interchange is proposed to be a partial (half diamond) interchange serving traffic to and from the west. The existing interchange at Hawley Road is a full interchange. The ramps to and from the east are not feasible to construct due to the constraints created by the location of the cemeteries and graves directly adjacent to the existing freeway as well as geometric and capacity improvements required to accommodate the projected design year traffic volume. The partial interchange is proposed to reduce the impacts to Wood National Cemetery and provide important access to and from I-94 to the west for the Hunger Task Force, Veteran's Administration Center as well as other area residential and commercial developments. The EIS for the project defines the need for the partial interchange with respect to impacts to the Wood National Cemetery Historic National Park. The land surrounding I-94 is fully developed. Removal of the Hawley Road Interchange completely would require widening of local streets and intersections between the interchanges to accommodate this change in traffic patterns. This widening would impact the business and residential properties along those streets, leading to unacceptable impacts. The local officials and residents were strongly opposed to the removal of any existing interchange within this corridor. The City of West Allis was opposed to the loss of access at Hawley Road and its impact to businesses in the area. Also, the United States Department of Veterans Affairs expressed particular concern about the possibility of no access at the Hawley Road Interchange. The VA noted that many of its 6000 employees and some of its one million patients a year use the Hawley Road Interchange. The half interchange at Hawley Road with ramps to and from the west would address the VA's concern regarding access. The following local street improvements have been identified and included within the FEIS as a result of the decision to remove the Hawley Road east side ramps: • Washington Street extension – includes some improvements on 70th Street at the new intersection • Greenfield/70th Street – new signals and lengthening of left turn lanes on the north leg • Greenfield/National/62nd - designation of left or left/thru lanes from

	right or right/thru lanes on all approaches with some minor impacts to parking • National Avenue –addition of a WB right turn lane into VA, addition of a 2nd WB thru lane from 47th to 49th. • National/Miller Park Way – addition of a 2nd left turn lane for NB Miller Park Way These improvements are shown on **Exhibits 9-1** through **9-5**. In addition to these local street improvements, traffic signal upgrades are proposed to be made to optimize the signal phasing and improve the operations of the intersections. The design for the I-94 East/West Corridor Project is intended to meet or exceed current interstate standards where feasible. However, it is acknowledged that there will be exceptions to standards in some locations needed to minimize impacts to the surrounding development and environmental/cultural resources. The exceptions to standards that are anticipated are summarized in the Compliance with Policies and Engineering Standards of this document. These exceptions to standards will be documented in the Exceptions to Standards Report to be submitted for review and approval by WisDOT and FHWA. For more detail on the exceptions to standards, including the exceptions that were identified for other alternatives, see the 13 Controlling Criteria Exceptions to Standards Memorandum on Remaining Alternatives Prior to Preferred Alternative Selection in **Appendix F.** **Conclusion** The partial interchange at Hawley Road will provide a balance between addressing long-term mobility needs and safety concerns while minimizing impacts to the existing development and environmental resources to the maximum extent practical. Due to the cemeteries proximity east of the Hawley Road Interchange, a full access interchange has unacceptable impacts. The access at Hawley Road cannot be completely removed because the local road system and the adjacent interchanges will not be able to accommodate the traffic due to the issues noted above. The partial interchange will provide some access to the area businesses and organizations that rely on this access for their operations. Proposed signing will direct drivers to the adjacent interchanges for the access that would no longer be provided at the Hawley Road Interchange. The local road improvements included will help the operations of these traffic movements.
Policy Point 5 ***Regional Transportation Plans***	*The proposal considers and is consistent with local and regional land use and transportation plans. Prior to receiving final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Improvement Program (STIP or TIP), and the Congestion Management Process within transportation management areas, as appropriate, and as specified in 23 CFR part 450 and the transportation conformity requirements of 40 CFR parts 51 and 93.* The proposed I-94 E-W project is included in the current SEWRPC Long-Range Transportation Plan (2035 Regional Land Use and Transportation Plan). The

	Preliminary Engineering phase of this project is in the TIP. The 2035 regional transportation system plan proposed modernization and limited expansion of the southeastern Wisconsin freeway system. A doubling of transit use was analyzed prior to analyzing capacity expansion as called for in the SEWRPC Plan. SEWRPC has amended the 2035 plan to reflect the partial interchange at Hawley Road and the embedded service interchange within the Stadium Interchange under the preferred alternative. The next phase of the project is not included in the recently approved 2015-2018 SEWRPC TIP because funding has not yet been allocated to the project for this biennium. Funding for final design activities is being pursued and will be obtained, with inclusion in the TIP, prior to the signing of the ROD. The ROD is currently scheduled for spring of 2016. The Modernization Alternatives conform to SEWRPC's 2035 regional transportation plan. The 2035 regional transportation plan includes the half interchange at Hawley Road under the At-grade alternative (preferred alternative). **Conclusion** The project, which includes the modification of the Hawley Road interchange, is consistent with local and regional land use plans and as such, also conforms with fiscal constraint and air quality requirements. The next phase(s) of the project will be included in the SEWRPC TIP prior to signing of the ROD. The next phase of the project is not included in the recently approved 2015-2018 SEWRPC TIP because funding has not yet been allocated to the project for this biennium. Funding for final design activities is being pursued and will be obtained, with inclusion in the TIP, prior to the signing of the ROD. The ROD is currently scheduled for spring of 2016. Funding for the next phase of the project will be included in the TIP prior to the signing of the ROD.
Policy Point 6 ***Multiple Interchange Additions***	*In corridors where the potential exists for future multiple interchange additions, a comprehensive corridor or network study must accompany all requests for new or revised access with recommendations that address all proposed and desired access within the context of a longer-range system or network plan.* The Hawley Road Interchange is not a new access point. No additional interchanges are proposed to be added as part of this project and none are proposed to be added for the future within the area of influence. The spacing of interchanges along this corridor is less than one mile. With the tight interchange spacing, it is not feasible to add any additional interchanges within this corridor. The Mitchell Boulevard Interchange will be replaced with an embedded interchange and two of the proposed ramps are combined with the Stadium Interchange ramps to reduce the number of access points entering the

	freeway. The regional plan does not include any additional interchanges within this influence area. The design team looked at trying to reduce the number of interchanges in the corridor, but other than relocating or modifying the design to improve on existing access points, were not able to eliminate any interchanges due to needed traffic operations, local opposition and environmental justice issues. The interchanges within this influence area are proposed to be modified to provide safer and more efficient operations as well as accommodating the additional mainline lanes that are included with this project. **Conclusion** This area is fully developed with closely spaced interchanges. No additional interchanges are proposed to be added as part of this project and none are proposed to be added in the future.
Policy Point 7 ***Appropriate Coordination***	*When a new or revised access point is due to a new, expanded, or substantial change in current or planned future development or land use, requests must demonstrate appropriate coordination has occurred between the development and any proposed transportation system improvements. The request must describe the commitments agreed upon to assure adequate collection and dispersion of the traffic resulting from the development with the adjoining local street network and interstate access point.* The I-94 East/West Project team has demonstrated appropriate coordination between the development and related transportation system improvements through its significant public involvement and outreach efforts with the City of Milwaukee, City of Wauwatosa, City of West Allis, Village of West Milwaukee, Milwaukee County, local business groups, individual businesses, community leaders, and residents in the area. The project team has had several meetings with the stakeholders in the area of the cemeteries and the historic properties that are impacted by the change in access at the Hawley Road Interchange. Also, meetings were held with the local officials to agree on improvements to the local streets to mitigate the change in access at Hawley Road. Extensive coordination has taken place with the City of West Allis to develop the improvement on Washington Street to mitigate the reduction in access at the Hawley Road Interchange. The West Allis Common Council passed a MOU between the City and WisDOT accepting jurisdiction of the new local street connection with the design, real estate acquisition and construction that is proposed to be completed by WiSDOT. In addition, the team coordinated with West Allis to develop acceptable improvements to the intersections without expanding the roadway, as requested by the City. The cities of Milwaukee and Wauwatosa are not open to expanding roadways/intersections to accommodate more traffic.

	The design team met with the Hunger Task Force, which expressed concern over their access to receive and deliver food to the area food pantries that they provide food to. The design team also had extensive coordination with the United States Department of Veterans' Affairs (VA), who expressed particular concern about the possibility of the Hawley Road Interchange closing. The VA noted that many of its 6,000 employees, as well as some of the one million patients per year, use the Hawley Road Interchange to access its campus. All of the ambulance providers that access the VA Medical Center by freeway use the Hawley Road Interchange. The VA has stated that closing the Mitchell Boulevard Interchange would not be as big of an issue as closing the Hawley Road Interchange. The half interchange at Hawley Road, with ramps to and from the west, would address the VA's concern regarding access. For the design of the Stadium Interchange, the project team has had several coordination meetings with area stakeholders including the stadium board and the Milwaukee Brewers, Menomonee Valley Partners, Hunger Task Force, and cultural resource groups. Through this coordination, this project and all of its alternatives have and will continue to be developed in an orderly and coordinated manner to serve the public. **Conclusion** No new interchanges are proposed on I-94 in this area and the area is fully developed. The project team has had extensive coordination with local officials and stakeholders throughout the project's area of influence. The proposed Hawley Road Interchange modifications provide a balance between providing for the needs expressed by the stakeholders and reducing the impacts to the surrounding properties.
Policy Point 8 ***Environmental Planning***	*The proposal can be expected to be included as an alternative in the required environmental evaluation, review and processing. The proposal should include supporting information and current status of the environmental processing.* The I-94 East-West Corridor Study Draft EIS was approved and signed by FHWA and WisDOT on November 4, 2014. A Notice of Availability for the Draft EIS appeared in the Federal Register on November 14, 2014, beginning the 60-day comment period that was slated to end on January 13, 2015. A two week extension of the comment period was requested and granted with the comment period for the I-94 East-West Corridor Study Draft EIS ending on January 27, 2015. Public Hearings for the project were held on December 3rd and 4th. The preferred alternative was announced on February 17, 2015. Following the end of the public comment period, FHWA and WisDOT are preparing a Final EIS, slated for approval in November 2015. This engineering and operational acceptance is being sought prior to approval of the FEIS. A Record of Decision is anticipated in the spring of 2016. Final approval will be requested after the ROD has been approved. Coordination meetings were held between the design team, WisDOT and FHWA

(Division and Headquarters) prior to the selection of the preferred alternative and Draft Environmental Impact Statement. The engineering and operational review and approval schedule has been coordinated with FHWA and will be completed prior to review and approval of the final environmental EIS.

Conclusion

The design of the Hawley Road Interchange modifications have been developed to improve the traffic operations of the I-94 mainline as well as the entering and exiting traffic movements. The development of the proposed modifications has taken place in conjunction with the NEPA process. All of the interchange modifications and the local street/intersection improvements to mitigate the change in access are covered in the EIS.

CONCLUSION

Identification of a preferred alternative was based on engineering and environmental factors and input from citizens, state and federal resource agencies, cooperating and participating agencies, and local officials.

The preferred alternative is the At-grade alternative with a partial interchange at Hawley Road (access to and from the west) for the west segment of the I-94 East-West Corridor project because it provides the best solution for addressing long-term mobility needs and safety concerns while minimizing impacts to existing development and environmental resources to the maximum extent practical.

The basis for identifying the At-grade alternative with a partial interchange at Hawley Road as the preferred alternative is as follows:

- Addresses existing and future traffic demand
- Addresses safety on I-94
- Has No Adverse Effect on historic properties
- Has Minimal impact to Section 4(f) properties.
- Has Less residential displacements
- Has Lower Construction Cost
- Is Constructible
- Included City of Milwaukee input
- Included Stakeholder and Public input

The Hawley Road partial interchange modifications are warranted and all of the policy points have been addressed.