Project ID 1020-09-01
IH 94
Menomonie – Eau Claire Road
Dunn County

IH 94 and USH 12/STH 29
Interstate Access Modification Report

PREPARED FOR:
Wisconsin Department of Transportation – NW Region
718 W. Clairemont Avenue
Eau Claire, WI 54701-5108
Phone: (715) 836-2891

PREPARED BY:
KL Engineering, Inc.
5950 Seminole Centre Court, Suite 200
Madison, WI 53711-5023
Phone: (608) 663-1218

Approval by Region Planning Chief

Thomas J. Beekman — Date: 6-1-15

Approval by WisDOT Bureau of Project Development

Don Greuel, P.E. Project Services Chief — Date

Approval by FHWA

Name — Date

Table of Contents

Page

Appendices:

List of Tables

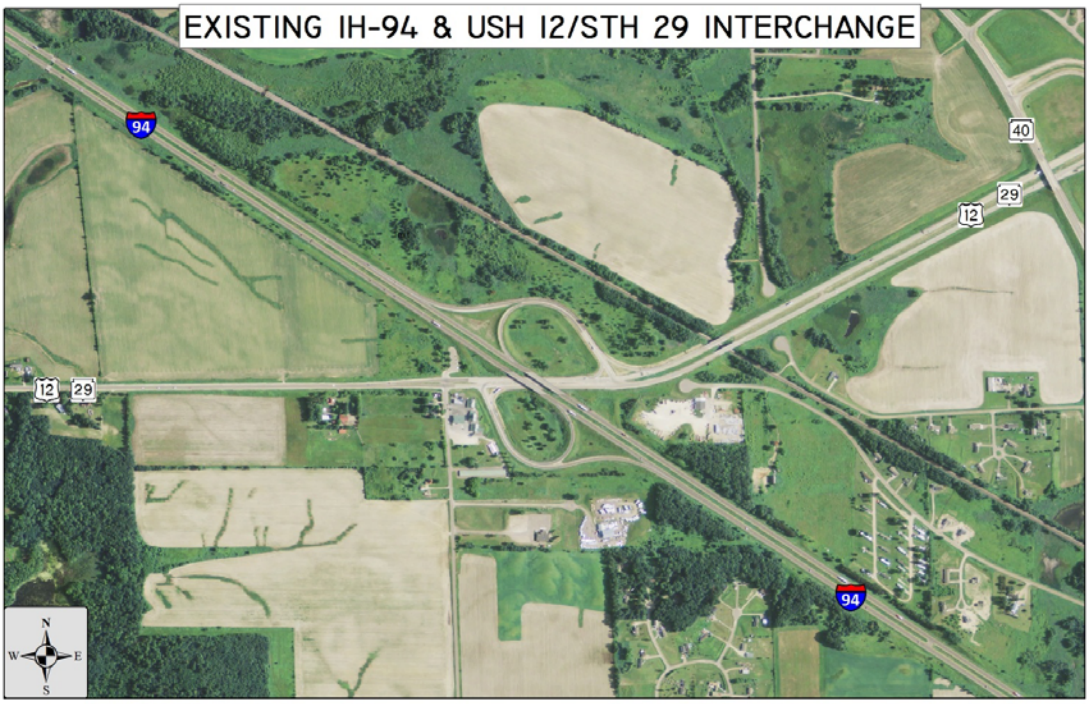
Page

PROJECT BACKGROUND

This Interchange Access Modification Report (IAMR) is a request for approval of access modifications for Wisconsin Department of Transportation (WisDOT) Project ID 1020-09-01, Interstate Highway (IH) 94 and United States Highway (USH) 12/State Truck Highway (STH) 29 interchange, in accordance with the procedure set forth in the WisDOT *Facilities Development Manual* (FDM) 7-45-1. According to this section, "An Interstate Access Modification Report must be prepared and submitted as part of the Interstate System Access Change Request for all new points of access or revisions which involve interchange configuration".

This project includes the preliminary design of a new interchange and a completed Environmental Assessment (EA), but will not include final design or funding for construction. The result of this project is to set aside the right of way for a future interchange in accordance with Wisconsin State Statute 84.295. The proposed interchange will provide a full freeway-type connection between IH 94 and STH 29. STH 29 is currently designated as a freeway within the WisDOT Northwest Region from IH 94 east to STH 13 (84 miles), extending eventually to USH 41 in Green Bay (200 total miles). Previous studies of this location included a Backbone Interchange Needs & Improvement Study completed in 2007 with the purpose of prioritizing future interchange improvement projects.

Project Location: The Wisconsin Department of Transportation (WisDOT) is undertaking the right of way mapping project of IH 94 and USH 12/STH 29 interchange in Dunn County. IH 94 is the northern-most east-west highway stretching 1,582 miles from Billings, Montana, to Sarnia, Michigan. To the west of the interchange, USH 12/STH 29 is a rural, two-lane highway until the two highways diverge in the City of Menomonie. To the east of the interchange, STH 29 is a four-lane, divided expressway, with an adjacent interchange to STH 40 approximately 0.75 miles from the westbound ramp terminal intersection. The interchange is located in the town of Elk Mound and is located 6.8 miles east of the Menomonie city limits (CTH B). An exhibit of the existing partial cloverleaf interchange configuration is shown below. Project location maps are included in Appendix A.

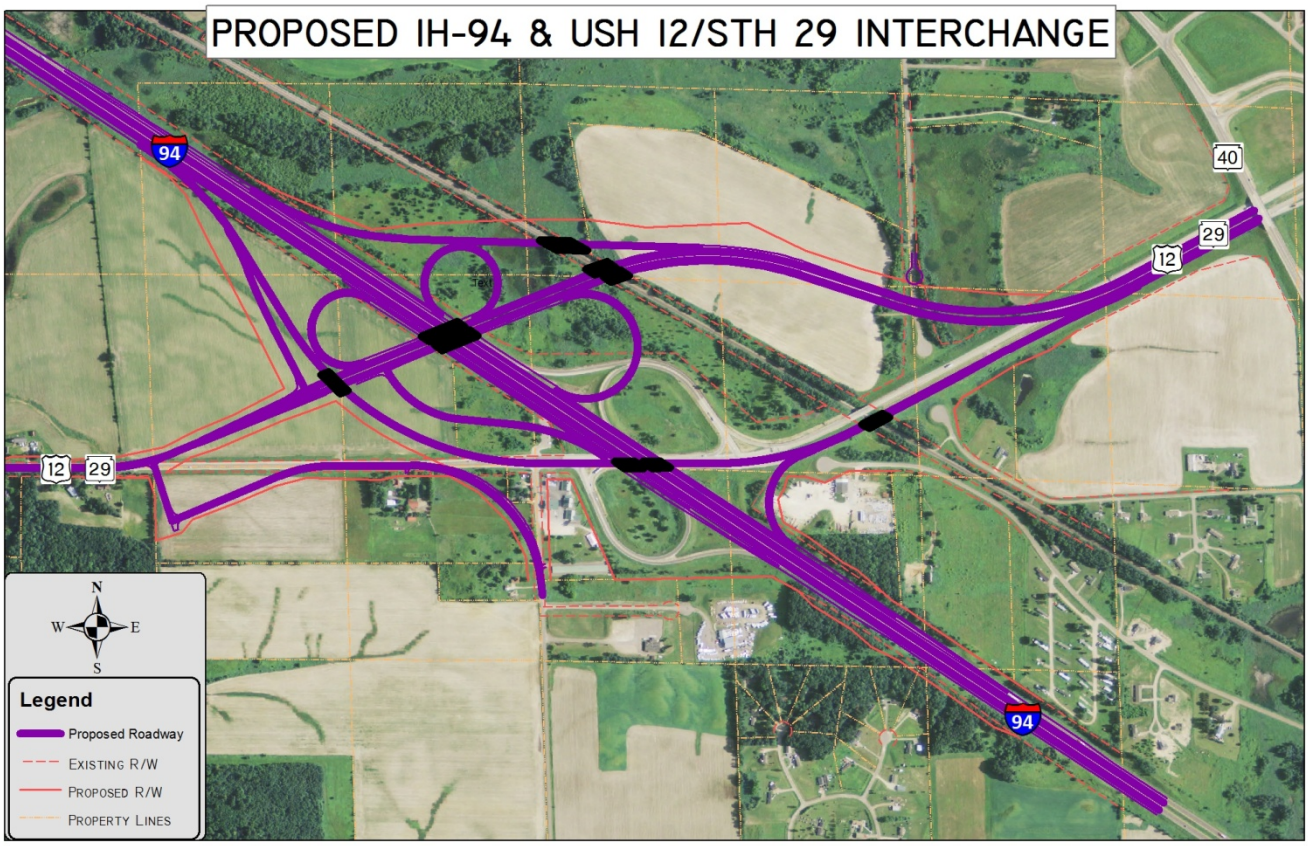


Proposed Interchange Description: In accordance with FHWA directives, the proposed interchange will provide a high speed freeway-to-freeway type connection. The high speed interchange accommodates the ongoing incremental conversion of STH 29 to a freeway through USH 41 in Green Bay.

The proposed design will reconfigure the existing partial cloverleaf interchange with two loop ramps to a semi-directional interchange with three loop ramps and a collector-distributor system. The current configuration has a total of four ramp roadways. The proposed configuration will increase the number of ramp roadways to eight.

Only eastbound IH 94 to westbound STH 29 will require any traffic control (stop control on the off ramp), the remaining movements will be free-flow. The proposed design will move the 850th Street south of USH 12/STH 29 to a new connection to the west.

More information on the proposed design will be provided in subsequent sections of this report. Exhibits of the proposed interchange alternative, maps showing the project area and preliminary level plan sheets are shown below and in Appendix D.



Construction Schedule: This is a right of way mapping project in order to map and preserve the area for future construction. The IH 94 and USH 12/STH 29 interchange construction is not currently scheduled for construction.

FHWA CRITERIA 1

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 desired 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.

General Discussion: The primary purpose of this project is to map and preserve the area needed for future reconstruction of the IH 94 and USH 12/STH 29 interchange. This interchange configuration addresses substandard geometric features with the current interchange and provides a freeway type connection with USH 12/STH 29 to the east.

IH 94 Mainline: IH 94 is a four-lane divided freeway with a posted speed limit of 65 mph. IH 94 is classified as an interstate highway and designated as a backbone highway in WisDOT's Corridors 2030 plan. K30 traffic volumes were used in this analysis. The 2014 forecasted traffic volumes were used for existing traffic. The existing/no build conditions of the freeway segments in each mainline direction adjacent to the study interchange are shown in Table 1.

Table 1 – Year 2014 Existing K-30 Freeway Operations

Existing	AADT	Design Hour Volume	Density (pc/mi/ln)	LOS
CTH EE to USH 12/STH 29	32,400	2,216	18.0	C
USH 12/STH 29 to CTH B	33,800	2,312	18.8	C

USH 12/STH 29 Interchange: West of IH 94, USH 12/STH 29 is a two-lane highway classified as a minor arterial with a posted speed limit of 55 mph; it is not a designated a backbone highway in the Corridors 2030 plan. East of IH 94, USH 12/STH 29 is an officially mapped freeway, classified as a principal arterial with a posted speed limit of 65 mph. It is designated a backbone highway. There are no access points between the interchange and the adjacent intersections. The IH 94 interchange with USH 12/STH 29 is a partial cloverleaf-type interchange with loop ramps. The anticipated no-build ramp merge and diverge operations during the 2014 AM and PM peak hours are given in Table 2.

Table 2 – Year 2014 Existing Ramp Merge and Diverge Operations during Peak Hours

Existing	AADT	Design Hour Volume	Density (pc/mi/ln)	LOS
IH 94 W of 12/29	33,800	2,312	--	--
EB Off Ramp	6,500	741	19.9	B
EB On Ramp	2,250	257	22.8	C
IH 94 E of 12/29	32,400	2,216	--	--
WB Off Ramp	2,050	234	18.9	B
WB On Ramp	5,900	673	25.4	C

See Appendix B for existing and future traffic volume data. See Appendix C for traffic analysis output data.

Construction History: The interchange was originally constructed in 1960. Rehabilitation and reconstruction projects have occurred in 1983, 1999, 2010. The northbound-to-eastbound and southbound-to-westbound off-ramps were reconstructed in 2003.

Geometric Deficiencies: According to the Backbone Interchange Needs & Improvement Study of this interchange completed in 2007:

> *This interchange has four major geometric deficiencies. The acceleration lengths for both the westbound and eastbound entrance ramps allow entering traffic to only attain a speed that is more than 10 mph lower than the 70 mph design speed of IH 94. The intersection sight distance at the eastbound ramp terminal looking to the right is 6 seconds because of the bridge pier obstruction. Also, 300 feet west of the eastbound ramp terminal is the USH 12/STH 29 and 850th Street (Frontier Road) intersection. The bridges on IH 94 over USH 12/STH 29 are carrying three full-width travel lanes with a clear bridge width of only 39 feet. Several geometric deficiencies exist related to superelevation on the ramps, and vertical and lateral clearance under the bridges.*

Conclusions: This interchange serves as a connector between two backbone highways in the Corridors 2030 plan. While the operational aspects of the interchange meet current standards for level of service, providing a system to system-type interchange between the STH 29 and IH 94 is desired. The proposed alternative officially maps the real estate required to construct a system to system interchange with free flow movements between IH 94 and USH 12/STH 29 east of the interchange, addresses current substandard geometrics, increases safety, and minimizes impacts to the traveling public during construction.

FHWA CRITERIA 2

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 improvements to the Interstate without the proposed change in access.

Alternatives Considered: Three interchange reconstruction alternatives were considered as part of the current mapping project including the no-build alternative. Two build alternatives were essentially the same configuration, but in two different locations within the footprint of the interchange. The two configuration alternatives that were analyzed are described as follows.

1. No-Build – This alternative maintained the existing ramp geometry and lane configurations. This alternative was eliminated from consideration due to the lack of free flow movements between IH 94 and USH 12/STH 29 east of IH 94.
2. Northern alternative Semi-Directional Interchange – This alternative is shown to accommodate the operational demand of the 2034 forecasted peak hour traffic volumes. The proposed interchange geometry and operations included:

    - Eastbound IH 94
        - Free-flow connection to USH 12/STH 29 eastbound via directional ramp
        - Free-flow connection to USH 12/STH 29 westbound via directional ramp; then stop controlled approach with USH 12/STH 29 westbound
    - Westbound IH 94 Collector-Distributor System
        - Free-flow connection to USH 12/STH 29 eastbound via directional ramp
        - Free-flow connection to USH 12/STH 29 westbound via 30 mph loop ramp
    - Eastbound USH 12/STH 29
        - Free-flow connection to IH 94 eastbound via directional ramp
        - Free-flow connection to IH 94 westbound C-D system via 35 mph loop ramp
    - Westbound USH 12/STH 29
        - Free-flow connection to IH 94 westbound via directional ramp
        - Free-flow connection to IH 94 eastbound C-D system via 30 mph loop ramp

Conclusions: The geometric characteristics of the alternatives were determined based on the operational needs of the interchange. The semi-directional interchange was selected for several reasons, including prioritization of predominant movements, improved safety, lower vehicle delay, and constructability. Refer to the Criteria 3 section for more detail.

Note that the WisDOT Traffic Operations Improvement Plan (TOIP) does not include ramp metering or High Occupancy Vehicle (HOV) facilities for the IH 94 corridor. The addition of these facilities would not eliminate the need for this project.

See Appendix B for existing and future traffic volume data. See Appendix C for traffic analysis output data. See Appendix G for a technical memo summarizing the interchange location alternatives analysis.

FHWA CRITERIA 3

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 the either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the safety 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.

Safety on the Existing Facility: The crash data provided by WisDOT includes crashes from 2009 through 2013 that occurred on the Interstate and State Trunk Highway System. The database includes crashes involving $1,000 or more damage to any one vehicle, an injury or fatality, and $200 or more in damage to government property such as traffic signs or guard rail. The *2009 Wisconsin Traffic Crash Facts* publication gives the following definitions for injury severity:

- Fatal Injury (*K* injury) - an injury received in a traffic crash that results in death within thirty days of the crash.
- Incapacitating Injury (*A* injury) - an injury other than fatal, that prevents walking, driving or performing other activities that were performed before the crash.
- Non-incapacitating Injury (*B* injury) - an injury, other than fatal or incapacitating, that is evident at the scene. Evidence includes known symptoms.
- Possible Injury (*C* injury) - any injury that is not evident at the scene but that is claimed by the individual or suspected by the law enforcement officer.

The IH 94 corridor was analyzed from 1,500 ft upstream of the diverge gore and ending 1,500 ft downstream of the merge gore for each mainline direction. Upstream and downstream interchange analysis was not required since the proposed project will not result in a change to the adjacent access points. The USH 12/STH 29 ramp terminals were analyzed.

During the period from 2009 to 2013, there were 43 reported crashes along the corridors. The yearly crash total in the project area ranged from 3 to 16 with an average of 8.4 crashes per year.

Fixed object crashes were the most predominant crash pattern along the corridor, with 15 crashes (35 percent). Rollover crashes (16 percent), sideswipe-same direction (14 percent) and rear-end crashes (14 percent) were also noted in occurrence.

Table 3 summarizes crash data by crash severity and crash type for each intersection and interchange influence areas. The intersection crash rate is per million entering vehicles (MEV) and the freeway crash rate is per hundred million vehicle miles traveled (HMVMT).

Table 3 – Study Area Crash Summary

SEGMENT	TOTAL	FATAL	INJURY	PDO	CRASH RATE	ANGLE	REAR-END	HEAD-ON	SIDESWIPE-SAME DIR	SIDESWIPE-OPP DIR	FIXED OBJ.	OVERTURN	OTHER/ UNKNOWN
IH 94 Eastbound^	20	0	9	11	67.7	2	4	0	3	1	6	3	2
EB Ramps	6	0	0	0	---	0	2	0	2	0	1	0	1
IH 94 Westbound^	21	1	6	14	71.1	1	2	0	2	0	9	4	3
WB Ramps	8	0	0	0	---	0	0	0	0	0	4	2	2
IH 94 EB & USH 12/STH 29	6	0	0	0	0.21	1	1	0	2	0	0	2	0
IH 94 WB & USH 12/STH 29	7	0	0	0	0.31	1	0	0	0	0	4	1	1
USH 12/STH 29 between ramp terminals	1	0	0	0	---	0	0	0	1	0	0	0	0

^ Crashes along Mainline IH 94 between 1,500 upstream and downstream of gores (1.0 miles) and include associated ramp crashes.

1. IH 94 Eastbound Mainline - The section of IH 94 eastbound starting 1,500 ft upstream of the diverge gore and ending 1,500 ft downstream of the merge gore experienced 20 crashes during the study period. The majority of the crashes (6) were fixed-object crashes with drivers striking guardrails or running off the road. Most of the crashes occurred on the ramps.

2. IH 94 Westbound Mainline - The section of IH 94 westbound starting 1,500 ft upstream of the diverge gore and ending 1,500 ft downstream of the merge gore experienced 21 crashes during the study period. The majority of the crashes (9) were fixed-object crashes with drivers striking guardrails, traffic signs or running off the road. Most of the crashes occurred on the ramps or at the ramp terminal. The fatal crash involved a driver westbound on USH 12/STH 29 attempting to exit onto westbound IH 94, turning too sharply, and rolling over.

3. IH 94 EB & USH 12/STH 29 - This intersection was found to have a crash rate of 0.21 crashes per MEV. The six crashes at this intersection were a mix of sideswipe-same direction, rollover, angle, and rear-end crashes.

4. NB IH 94 and USH 12/STH 29 - This intersection was found to have a crash rate of 0.31 crashes per MEV. The most common type of crash at this intersection was with a fixed object (traffic signs and guardrails).

Safety Improvements to Proposed Design: The proposed design includes a collector-distributor system which reduces the number of access points for accelerating and decelerating vehicles on the mainline traffic stream. Substandard widths, acceleration/deceleration lanes and spacing between ramps will also be improved with the proposed design. This interchange design also reduces from three to one at-grade

intersections movements where vehicles must stop and cross conflicting traffic movements.

Mainline Operational Analysis: The Highway Capacity Software (HCS 2010) freeway analysis shows acceptable levels of service (LOS) for the projected 2034 traffic volumes obtained from the WisDOT Traffic Forecasting Section with the proposed improvements. Mainline IH 94 will operate at LOS B during the AM and PM peak hours with three lanes in each direction (see Table 4). Ramp merge and diverge areas operate at LOS B or better (see Table 5).

Table 4 – Year 2034 Build Freeway Operations during Peak Hours

Build	AADT	Design Hour Volume	Density (pc/mi/ln)	LOS
CTH EE to USH 12/STH 29	37,400	2,558	13.0	B
USH 12/STH 29 to CTH B	44,300	3,030	15.4	B

Table 5 – Year 2034 Build Ramp Merge and Diverge Operations during Peak Hours

Build	AADT	Design Hour Volume	Density (pc/mi/ln)	LOS
IH 94 W of 12/29	44,300	3,030	--	--
EB Off Ramp	8,600	980	11.1	A
EB On Ramp	2,900	331	17.3	B
IH 94 E of 12/29	37,400	2,558	--	--
WB Off Ramp	2,650	302	13.2	B
WB On Ramp	7,800	889	19.8	B

Adjacent IH 94 Interchanges: The nearest crossroads to USH 12/STH 29 with interchanges along IH 94 are CTH B (6.4 miles west) and STH 312/CTH EE (6.9 miles east). No impacts or changes to the existing traffic patterns at the adjacent interchanges are expected as a result of the proposed revisions to the USH 12/STH 29 interchange as a part of the improvement project. No additional interchanges are proposed to be added between the CTH B and STH 312/CTH EE interchanges. The STH 40 interchange with USH 12/STH 29 is approximately 0.75 miles from the westbound ramp terminal intersection.

Conceptual Signing Description: The advanced and exit guide signs will be designed in accordance with the MUTCD and Wisconsin Supplement. The messages will be revised to match the proposed configuration of the USH 12/STH 29 interchange. All sign messages and locations will be reviewed and approved by the Wisconsin DOT NW Region. See Appendix D for a conceptual interchange signing exhibit.

Conclusions: The proposed partial cloverleaf interchange configuration with a collector-distributor system and free-flow connections will improve traffic operations and safety along both the mainline IH 94 and USH 12/STH 29 freeway corridors. See Appendix B for existing and future traffic volume data.

FHWA CRITERIA 4

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, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards.

Background: The existing interchange provides access to and from IH 94 onto USH 12/STH 29 in all directions. Access is currently provided via four separate direct merge- or diverge-type loop ramp connections.

USH 12/STH 29 is currently access-controlled with access allowed only at intersections east of the interchange.

There are no existing or proposed pedestrian facilities along USH 12/STH 29.

Conclusion: The proposed interchange improvements will maintain access to and from IH 94 onto USH 12/STH 29 in all directions. Access is proposed to be provided via six separate free-flow ramp connections and two at-grade connections. The proposed intersections will allow for access to be maintained in all directions.

The proposed ramp terminals will be located approximately 1480 ft from the USH 12/STH 40 interchange to the east and 1130 ft from 850th Street to the west. All existing access will be maintained with the proposed design; no additional access points will be added. All access points will connect to public facilities only.

The proposed interchange access will be designed to meet or exceed current interstate standards for federal-aid projects on the interstate system.

FHWA CRITERIA 5

The proposal considers and is consistent with local and regional land use and transportation plans. Prior to final approval, all request 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 a specified in 23 CFR part 450 and the transportation conformity requirements of 40 CFR parts 51 and 93.

Conclusion: The *Comprehensive Land Use Plan for the Town of Elk Mound*, adopted in 2004, details projects that would improve local and regional transportation operations and safety. No specific deficiencies or improvements are noted for USH 12/STH 29.

The IH 94 corridor expansion project, including the USH 12/STH 29 interchange, is included in the WisDOT Statewide Transportation Improvement Program (STIP). The USH 12/STH 29 interchange is not within a federal Transportation Management Area (TMA) nor within any Municipal Planning Organization boundary. The project is consistent with transportation goals identified by the West Central Wisconsin Regional Planning Commission.

See Appendix E for Regional Planning maps.

FHWA CRITERIA 6

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 of the proposed and desired access changes within the context of a longer-range system or network plan.

Conclusion: The nearest crossroads with interchanges along IH 94 are CTH B (6.4 miles west) and STH 312/CTH EE (6.9 miles east). No additional interchanges are proposed to be added between the CTH B and STH 312/CTH EE interchanges.

FHWA CRITERIA 7

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.

Conclusion: The proposed interchange reconstruction is not due to a new, expanded or substantial change in current or planned future development or land use and no new access will be provided with the improvements.

FHWA CRITERIA 8

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 process.

Conclusion: An Environmental Assessment (EA) for the project was completed and signed by FHWA on August 8, 2013. The purpose of the EA, consistent with Wisconsin State Statute 84.295 (10)(a), was to document the preservation of right-of-way in the corridor for (1) 8.5 miles of planned reconstruction of the IH 94 mainline in eastern Dunn County and (2) the reconstruction of USH 12/STH 29 Interchange at IH 94. This action will result in an official map under Wisconsin State Statute 84.295 (10)(a) , which allows the Department of Transportation to more adequately serve the present and anticipated future needs of highway travel in the corridor and prevent conflicting and costly economic development on lands needed for future highway ROW.

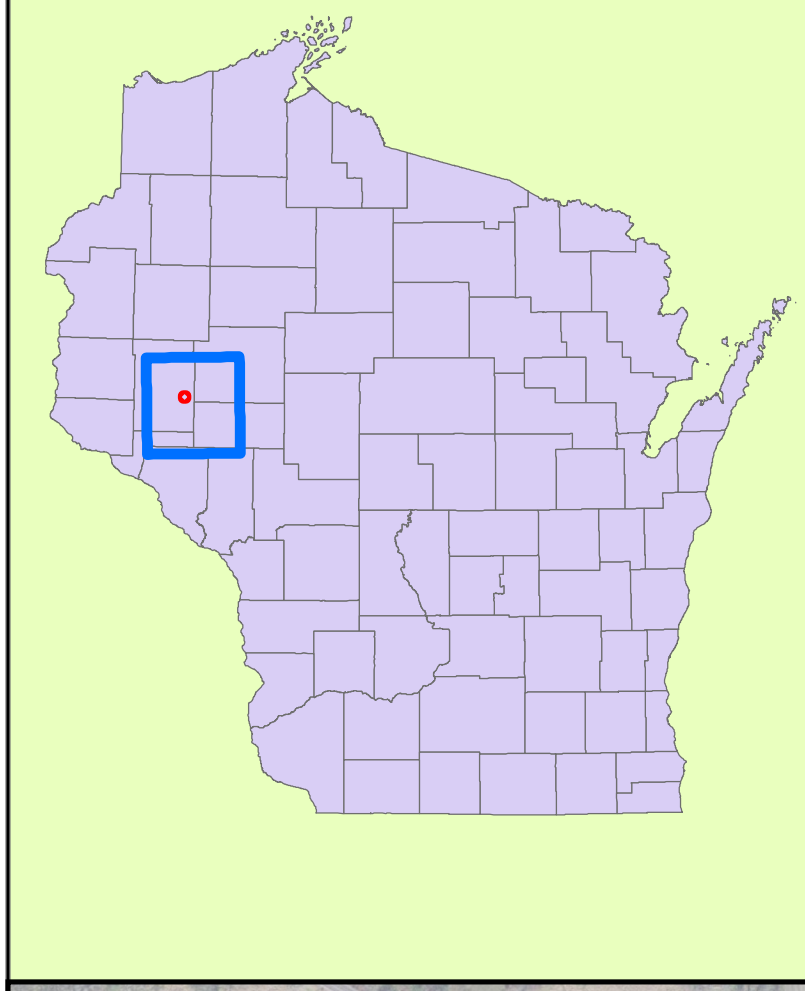
CONCLUSION

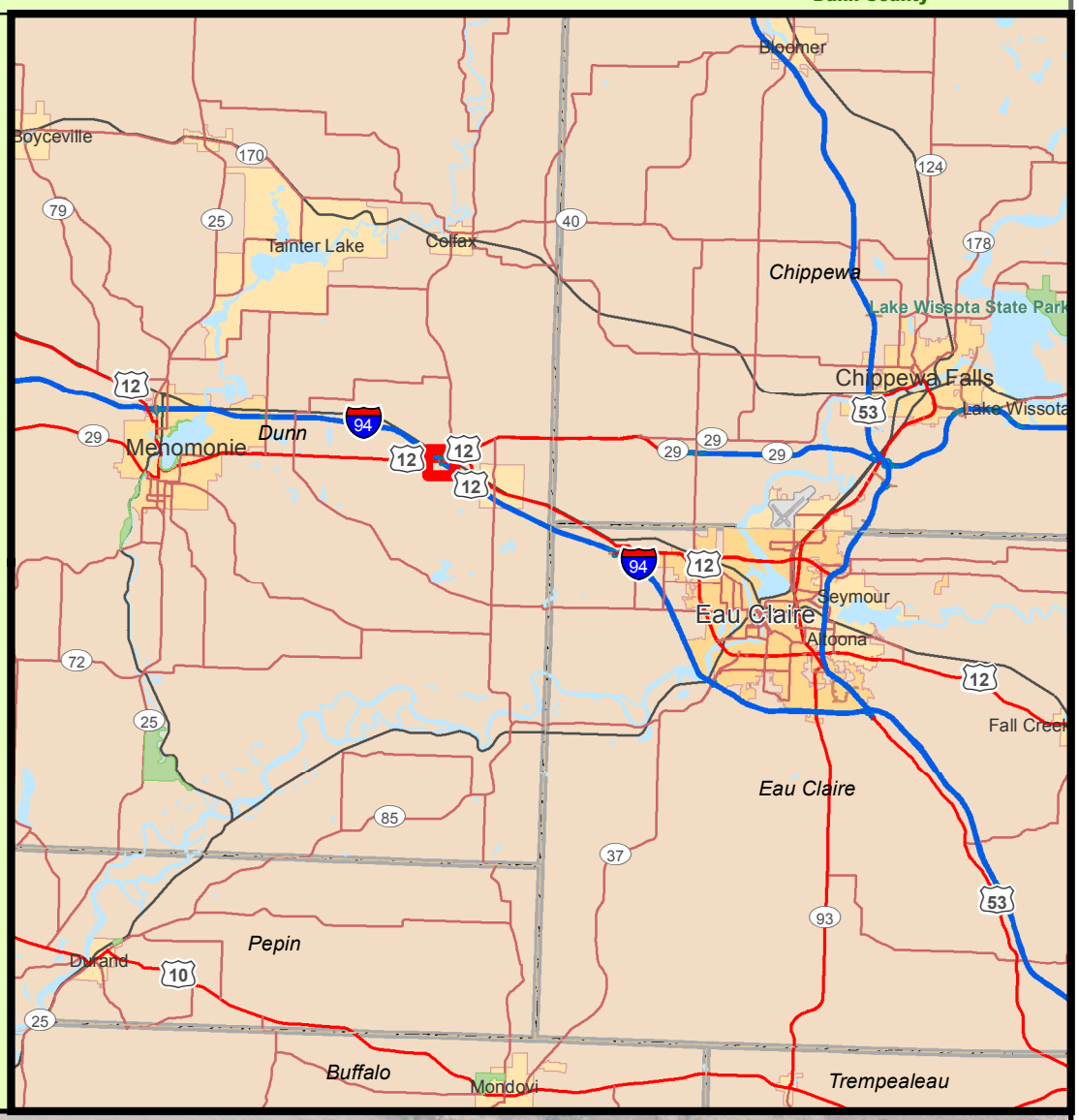
This report formally requests final approval for the mapping of the IH 94 interchange with USH 12/STH 29. The interchange improvements are included in the Environmental Assessment that was completed in 2013. The proposed improvements for this interchange address the purpose and need for the project. The proposed facility will operate at level of service B or better under design year (2034) traffic conditions. Constructing a collector-distributor system and directional ramps will provide safety benefits both on the mainline and the side road.

APPENDIX A
Project Location Maps

IH 94 & USH 12/STH 29

Project I.D. 1020-09-01
IH 94 & USH 12/STH 29
Interchange Access Modification Report
Dunn County





APPENDIX B
Traffic Volume Data

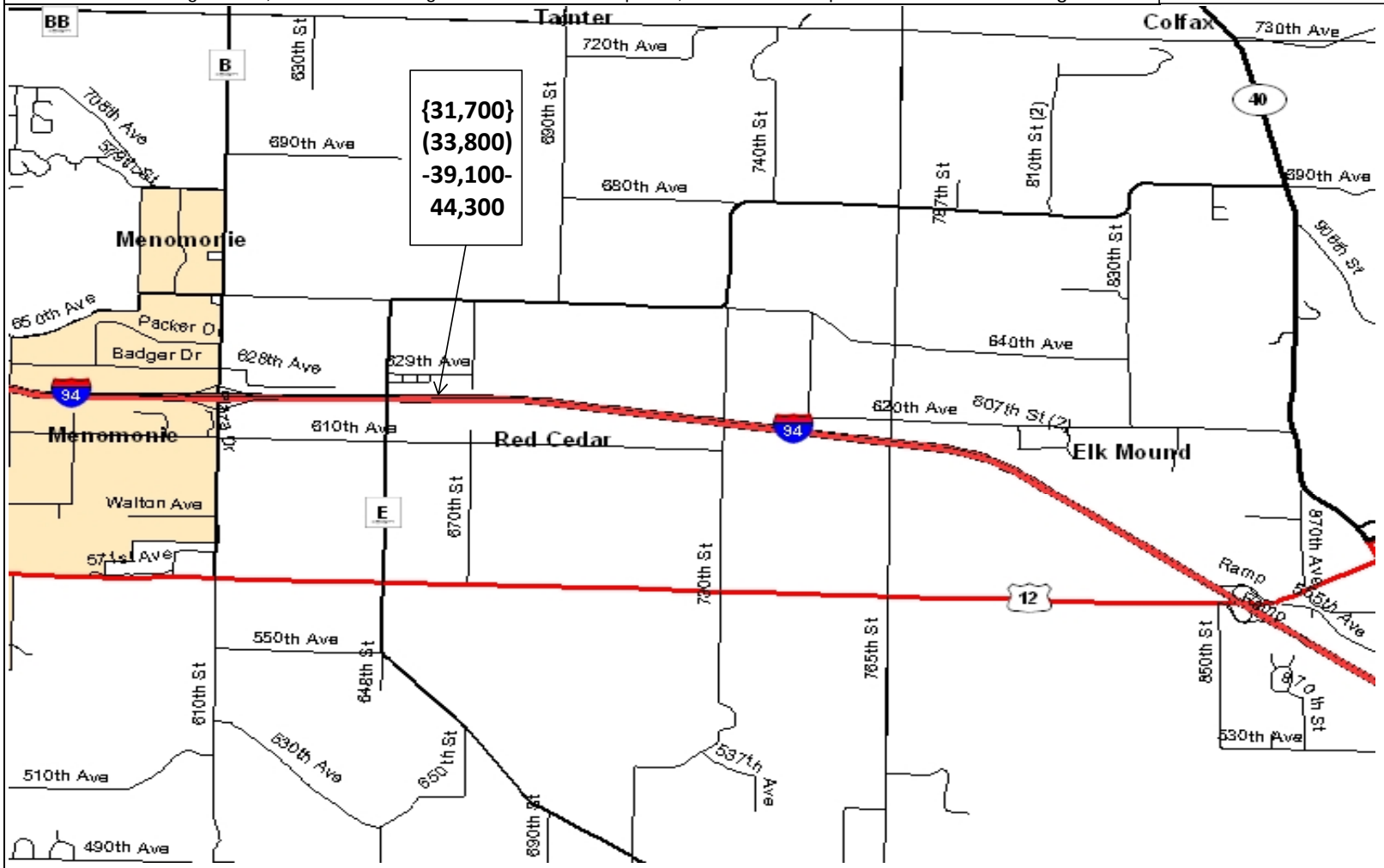
TRAFFIC FORECAST REPORT

PROJECT ID(S): 1020-09-01
ROUTE(S): IH 94

Region/COUNTY(IES): NW/Dunn
LOCATION: IH 94, from CTH B to USH 12
COMPLETED: 4/23/12

Traffic Forecasting Section; Bureau of Planning and Economic Development; Division of Transportation Investment Management

Developed by: Karl Buck
Phone : (608) 266-1379
FAX #: (608) 267-0294
E-Mail ID: Karl.Buck@dot.wi.gov



Design Values (%)			
Routes →	IH-94		
Design Volume(s):	44300	--	--
K250	9.0	--	--
K100	9.9	--	--
K30	10.9	--	--
T(DHV)	13.7	--	--
D(Dsgn. Hr.)	60/40	--	--
K8(ADT)	--	--	--
T(A8HV)	--	--	--

Last Count/Forecast Years:

{000} 2010 AADT
(000) 2014 AADT
-000- 2024 AADT
000 2034 AADT

Truck Class %'s			
Class	Seg. 1	Seg. 2	Seg. 3
2D	2.8	--	--
3AX	0.4	--	--
2S1+2S2	3.8	--	--
3-S2	16.5	--	--
DBL-BTM	1.5	--	--
TOTAL	25.0%	--	--

NOTES ON THE FORECAST:

1. This projection assumes that no major new traffic generators will be developed in the area served by the roadway or intersections over the course of the planning period.

2. The historical traffic count trends will continue increasing at a decreasing rate. BoxCox regression is used to project past count data.

3. Truck classification percentages were taken from the 2010 Wisconsin Vehicle Classification Data (Site # 550002, IH 94, 2.0 miles east of USH 63, Hersey, St. Croix County).

MORE NOTES ON THE FORECAST:

4. IH 94 is a factor group III (rural-interstate) highway indicating low to moderate fluctuation in traffic from a seasonal perspective. It is functionally classified as a rural interstate highway (1) for count purposes.

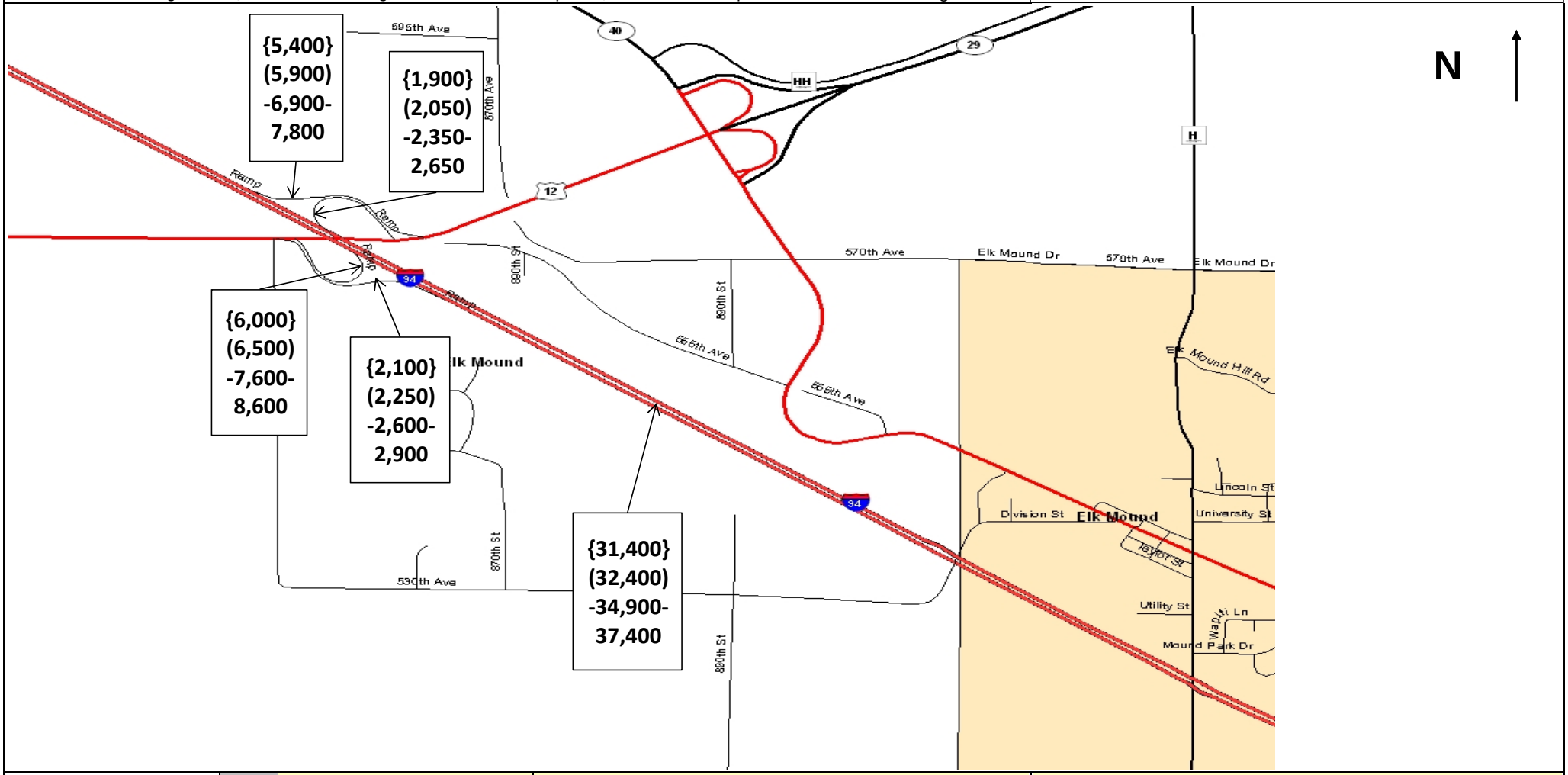
TRAFFIC FORECAST REPORT

PROJECT ID(S): 1020-09-01
ROUTE(S): IH 94

Region/COUNTY(IES): NW/Dunn
LOCATION: IH 94, including USH 12 interchange
COMPLETED: 5/16/12

Traffic Forecasting Section; Bureau of Planning and Economic Development; Division of Transportation Investment Management

Developed by: Karl Buck
Phone : (608) 266-1379
FAX #: (608) 267-0294
E-Mail ID: Karl.Buck@dot.wi.gov



Design Values (%)			
Routes →	**IH-94**		
Design Volume(s):	37400	--	--
K250	9.2	--	--
K100	10.3	--	--
K30	11.4	--	--
T(DHV)	13.7	--	--
D(Dsgn. Hr.)	60/40	--	--
K8(ADT)	--	--	--
T(A8HV)	--	--	--

Last Count/Forecast Years:

{000}	2010	AADT
(000)	2014	AADT
-000-	2024	AADT
000	2034	AADT

Truck Class %'s

Class	Seg. 1	Seg. 2	Seg. 3
2D	2.8	--	--
3AX	0.4	--	--
2S1+2S2	3.8	--	--
3-S2	16.5	--	--
DBL-BTM	1.5	--	--
TOTAL	25.0%	--	--

NOTES ON THE FORECAST:

1. This projection assumes that no major new traffic generators will be developed in the area served by the roadway or intersections over the course of the planning period.

2. The historical traffic count trends will continue increasing at a decreasing rate. BoxCox regression is used to project past count data.

3. Truck classification percentages were taken from the 2010 Wisconsin Vehicle Classification Data (Site # 550002, IH 94, 2.0 miles east of USH 63, Hersey, St. Croix County).

MORE NOTES ON THE FORECAST:

4. IH 94 is a factor group III (rural-interstate) highway indicating low to moderate fluctuation in traffic from a seasonal perspective. It is functionally classified as a rural interstate highway (1) for count purposes.

APPENDIX C
Preferred Alternative
Traffic Analysis Output

2014 Existing Operations

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*CLA*
Agency or Company	*KL Engineering*
Date Performed	*5/20/2014*
Analysis Time Period	*Peak*

Site Information

Highway/Direction of Travel	*IH 94*
From/To	*CTH EE to USH 12/STH 29*
Jurisdiction	*Dunn County*
Analysis Year	*2014*

Project Description *IH 94 & USH 12/STH 29 IAMR*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2216*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.935*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1261*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*18.0*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 10-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

2014 Existing Operations

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*CLA*
Agency or Company	*KL Engineering*
Date Performed	*5/20/2014*
Analysis Time Period	*Peak*

Site Information

Highway/Direction of Travel	*IH 94*
From/To	*USH 12/STH 29 to CTH B*
Jurisdiction	*Dunn County*
Analysis Year	*2014*

Project Description *IH 94 & USH 12/STH 29 IAMR*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2312*	veh/h	Peak-Hour Factor, PHF	*0.94*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.935*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1316*	pc/h/ln
S	*69.8*	mph
D = v_p / S	*18.8*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 10-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

2014 Existing Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 EB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2014

Project Description Interchange IAMR

Inputs

Upstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	775
Freeway Volume, V_F	2312
Ramp Volume, V_R	741
Freeway Free-Flow Speed, S_{FF}	65.0
Ramp Free-Flow Speed, S_{FR}	35.0

Downstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2312	0.94	Level	14	0	0.935	1.00	2632
Ramp	741	0.94	Level	14	0	0.935	1.00	843
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)
P_{FM} = using Equation (Exhibit 13-6)
V_{12} = pc/h
V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)
LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)
S_R = mph (Exhibit 13-11)
S_0 = mph (Exhibit 13-11)
S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)
P_{FD} = 1.000 using Equation (Exhibit 13-7)
V_{12} = 2632 pc/h
V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	2632	Exhibit 13-8	4700	No
$V_{FO} = V_F - V_R$	1789	Exhibit 13-8	4700	No
V_R	843	Exhibit 13-10	2000	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	2632	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 19.9 (pc/mi/ln)
LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.504 (Exhibit 13-12)
S_R = 53.4 mph (Exhibit 13-12)
S_0 = N/A mph (Exhibit 13-12)
S = 53.4 mph (Exhibit 13-13)

HCS2010™ Version 6.41 Generated: 5/20/2014 12:34 PM

2014 Existing Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 EB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2014

Project Description Interchange IAMR

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 860	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 2312	
	Ramp Volume, V_R: 257	
	Freeway Free-Flow Speed, S_{FF}: 65.0	
	Ramp Free-Flow Speed, S_{FR}: 35.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2312	0.94	Level	14	0	0.935	1.00	2632
Ramp	257	0.94	Level	14	0	0.935	1.00	293
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 2632 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	2925	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	2925	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 22.8 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

M_S = 0.333 (Exibit 13-11)

S_R = 57.3 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 57.3 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

2014 Existing Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 WB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2014

Project Description Interchange IAMR

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off; L_{up} = ft; V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	780
Freeway Volume, V_F	2216
Ramp Volume, V_R	234
Freeway Free-Flow Speed, S_{FF}	65.0
Ramp Free-Flow Speed, S_{FR}	35.0

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off; L_{down} = ft; V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2216	0.94	Level	14	0	0.935	1.00	2522
Ramp	234	0.94	Level	14	0	0.935	1.00	266
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = using Equation (Exhibit 13-6)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)

S_R = mph (Exhibit 13-11)

S_0 = mph (Exhibit 13-11)

S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 using Equation (Exhibit 13-7)

V_{12} = 2522 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	2522	Exhibit 13-8	4700	No
$V_{FO} = V_F - V_R$	2256	Exhibit 13-8	4700	No
V_R	266	Exhibit 13-10	2000	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	2522	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 18.9 (pc/mi/ln)

LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.452 (Exhibit 13-12)

S_R = 54.6 mph (Exhibit 13-12)

S_0 = N/A mph (Exhibit 13-12)

S = 54.6 mph (Exhibit 13-13)

HCS2010™ Version 6.41 Generated: 5/16/2014 10:17 AM

2014 Existing Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 WB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2014

Project Description Interchange IAMR

Inputs

Upstream Adj Ramp		Downstream Adj Ramp
☐ Yes ☐ On	Freeway Number of Lanes, N: 2	☐ Yes ☐ On
☑ No ☐ Off	Ramp Number of Lanes, N: 1	☑ No ☐ Off
L_{up} = ft	Acceleration Lane Length, L_A: 850	L_{down} = ft
V_u = veh/h	Deceleration Lane Length L_D:	V_D = veh/h
	Freeway Volume, V_F: 2216	
	Ramp Volume, V_R: 673	
	Freeway Free-Flow Speed, S_{FF}: 65.0	
	Ramp Free-Flow Speed, S_{FR}: 35.0	

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2216	0.94	Level	14	0	0.935	1.00	2522
Ramp	673	0.94	Level	14	0	0.935	1.00	766
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 2522 pc/h

V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	3288	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	3288	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 25.4 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

M_S = 0.366 (Exibit 13-11)

S_R = 56.6 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 56.6 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

2034 No Build Operations

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*CLA*
Agency or Company	*KL Engineering*
Date Performed	*5/20/2014*
Analysis Time Period	*Peak*

Site Information

Highway/Direction of Travel	*IH 94*
From/To	*CTH EE to USH 12/STH 29*
Jurisdiction	*Dunn County*
Analysis Year	*2034*

Project Description *IH 94 & USH 12/STH 29 IAMR - No Build*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2558*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.935*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1369*	pc/h/ln
S	*69.7*	mph
D = v_p / S	*19.7*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 10-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

2034 No Build Operations

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*CLA*
Agency or Company	*KL Engineering*
Date Performed	*5/20/2014*
Analysis Time Period	*Peak*

Site Information

Highway/Direction of Travel	*IH 94*
From/To	*USH 12/STH 29 to CTH B*
Jurisdiction	*Dunn County*
Analysis Year	*2034*

Project Description *IH 94 & USH 12/STH 29 IAMR - No Build*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3030*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.935*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*2*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1621*	pc/h/ln
S	*67.9*	mph
D = v_p / S	*23.9*	pc/mi/ln
LOS	*C*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 10-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

2034 No Build Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 EB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2034

Project Description Interchange IAMR - No Build

Inputs

Upstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	775
Freeway Volume, V_F	3030
Ramp Volume, V_R	980
Freeway Free-Flow Speed, S_{FF}	65.0
Ramp Free-Flow Speed, S_{FR}	35.0

Downstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3030	1.00	Level	14	0	0.935	1.00	3242
Ramp	980	1.00	Level	14	0	0.935	1.00	1049
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)
P_{FM} = using Equation (Exhibit 13-6)
V_{12} = pc/h
V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)
LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)
S_R = mph (Exhibit 13-11)
S_0 = mph (Exhibit 13-11)
S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)
P_{FD} = 1.000 using Equation (Exhibit 13-7)
V_{12} = 3242 pc/h
V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	3242	Exhibit 13-8	4700	No
$V_{FO} = V_F - V_R$	2193	Exhibit 13-8	4700	No
V_R	1049	Exhibit 13-10	2000	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	3242	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 25.2 (pc/mi/ln)
LOS = C (Exhibit 13-2)

Speed Determination

D_s = 0.522 (Exhibit 13-12)
S_R = 53.0 mph (Exhibit 13-12)
S_0 = N/A mph (Exhibit 13-12)
S = 53.0 mph (Exhibit 13-13)

HCS2010™ Version 6.41 Generated: 5/20/2014 12:37 PM

2034 No Build Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 EB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2034

Project Description: Interchange IAMR - No Build

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	860
Deceleration Lane Length L_D	
Freeway Volume, V_F	3030
Ramp Volume, V_R	331
Freeway Free-Flow Speed, S_{FF}	65.0
Ramp Free-Flow Speed, S_{FR}	35.0

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3030	1.00	Level	14	0	0.935	1.00	3242
Ramp	331	1.00	Level	14	0	0.935	1.00	354
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 3242 pc/h

V_3 or V_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	3596	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	3596	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 28.0 (pc/mi/ln)

LOS = C (Exhibit 13-2)

Speed Determination

M_S = 0.403 (Exibit 13-11)

S_R = 55.7 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 55.7 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} = pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

2034 No Build Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 WB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2034

Project Description Interchange IAMR - No Build

Inputs

Upstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	780
Freeway Volume, V_F	2558
Ramp Volume, V_R	302
Freeway Free-Flow Speed, S_{FF}	65.0
Ramp Free-Flow Speed, S_{FR}	35.0

Downstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2558	1.00	Level	14	0	0.935	1.00	2737
Ramp	302	1.00	Level	14	0	0.935	1.00	323
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)
P_{FM} = using Equation (Exhibit 13-6)
V_{12} = pc/h
V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)
LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)
S_R = mph (Exhibit 13-11)
S_0 = mph (Exhibit 13-11)
S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)
P_{FD} = 1.000 using Equation (Exhibit 13-7)
V_{12} = 2737 pc/h
V_3 or V_{av34} 0 pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	2737	Exhibit 13-8	4700	No
$V_{FO} = V_F - V_R$	2414	Exhibit 13-8	4700	No
V_R	323	Exhibit 13-10	2000	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	2737	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 20.8 (pc/mi/ln)
LOS = C (Exhibit 13-2)

Speed Determination

D_s = 0.457 (Exhibit 13-12)
S_R = 54.5 mph (Exhibit 13-12)
S_0 = N/A mph (Exhibit 13-12)
S = 54.5 mph (Exhibit 13-13)

HCS2010™ Version 6.41 Generated: 5/16/2014 10:24 AM

2034 No Build Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 WB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2034

Project Description: Interchange IAMR - No Build

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Freeway Number of Lanes, N	2
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	850
Deceleration Lane Length L_D	
Freeway Volume, V_F	2558
Ramp Volume, V_R	889
Freeway Free-Flow Speed, S_{FF}	65.0
Ramp Free-Flow Speed, S_{FR}	35.0

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2558	1.00	Level	14	0	0.935	1.00	2737
Ramp	889	1.00	Level	14	0	0.935	1.00	951
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 using Equation (Exhibit 13-6)

V_{12} = 2737 pc/h

V_3 or V_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	3688	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	3688	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 28.5 (pc/mi/ln)

LOS = D (Exhibit 13-2)

Speed Determination

M_S = 0.417 (Exibit 13-11)

S_R = 55.4 mph (Exhibit 13-11)

S_0 = N/A mph (Exhibit 13-11)

S = 55.4 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = using Equation (Exhibit 13-7)

V_{12} = pc/h

V_3 or V_{av34} = pc/h (Equation 13-14 or 13-17)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)

S_R = mph (Exhibit 13-12)

S_0 = mph (Exhibit 13-12)

S = mph (Exhibit 13-13)

2034 Build Operations

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*CLA*
Agency or Company	*KL Engineering*
Date Performed	*5/20/2014*
Analysis Time Period	*Peak*

Site Information

Highway/Direction of Travel	*IH 94*
From/To	*CTH EE to USH 12/STH 29*
Jurisdiction	*Dunn County*
Analysis Year	*2034*

Project Description *IH 94 & USH 12/STH 29 IAMR - Build*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*2558*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.935*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*912*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*13.0*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h/ln
S		mph
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 10-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

2034 Build Operations

BASIC FREEWAY SEGMENTS WORKSHEET

General Information

Analyst	*CLA*
Agency or Company	*KL Engineering*
Date Performed	*5/20/2014*
Analysis Time Period	*Peak*

Site Information

Highway/Direction of Travel	*IH 94*
From/To	*USH 12/STH 29 to CTH B*
Jurisdiction	*Dunn County*
Analysis Year	*2034*

Project Description *IH 94 & USH 12/STH 29 IAMR - Build*

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs

Volume, V	*3030*	veh/h	Peak-Hour Factor, PHF	*1.00*
AADT		veh/day	%Trucks and Buses, P_T	*14*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length Up/Down %	*mi*

Calculate Flow Adjustments

f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.935*

Speed Inputs

Lane Width		ft
Rt-Side Lat. Clearance		ft
Number of Lanes, N	*3*	
Total Ramp Density, TRD		ramps/mi
FFS (measured)	*70.0*	mph
Base free-flow Speed, BFFS		mph

Calc Speed Adj and FFS

f_{LW}		mph
f_{LC}		mph
TRD Adjustment		mph
FFS	*70.0*	mph

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1081*	pc/h/ln
S	*70.0*	mph
D = v_p / S	*15.4*	pc/mi/ln
LOS	*B*	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h/ln
S	mph
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits 11-10, 11-12	f_{LW} - Exhibit 11-8
E_T - Exhibits 11-10, 11-11, 11-13	f_{LC} - Exhibit 11-9
f_p - Page 11-18	TRD - Page 11-11
LOS, S, FFS, v_p - Exhibits 11-2, 11-3	

2034 Build Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 EB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2034

Project Description Interchange IAMR - Build

Inputs

Upstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Freeway Number of Lanes, N	3
Ramp Number of Lanes, N	2
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	1500
Freeway Volume, V_F	3030
Ramp Volume, V_R	980
Freeway Free-Flow Speed, S_{FF}	65.0
Ramp Free-Flow Speed, S_{FR}	55.0

Downstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3030	1.00	Level	14	0	0.935	1.00	3242
Ramp	980	1.00	Level	14	0	0.935	1.00	1049
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)
P_{FM} = using Equation (Exhibit 13-6)
V_{12} = pc/h
V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)
LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)
S_R = mph (Exhibit 13-11)
S_0 = mph (Exhibit 13-11)
S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)
P_{FD} = 0.450 using Equation (Exhibit 13-7)
V_{12} = 2036 pc/h
V_3 or V_{av34} 1206 pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	3242	Exhibit 13-8	7050	No
$V_{FO} = V_F - V_R$	2193	Exhibit 13-8	7050	No
V_R	1049	Exhibit 13-10	4400	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	2036	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = -11.1 (pc/mi/ln)
LOS = A (Exhibit 13-2)

Speed Determination

D_s = 0.262 (Exhibit 13-12)
S_R = 59.0 mph (Exhibit 13-12)
S_0 = 70.5 mph (Exhibit 13-12)
S = 62.8 mph (Exhibit 13-13)

HCS2010™ Version 6.41 Generated: 5/20/2014 12:35 PM

2034 Build Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 EB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2034

Project Description Interchange IAMR - Build

Inputs

Upstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Freeway Number of Lanes, N	3
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	960
Deceleration Lane Length L_D	
Freeway Volume, V_F	3030
Ramp Volume, V_R	331
Freeway Free-Flow Speed, S_{FF}	65.0
Ramp Free-Flow Speed, S_{FR}	55.0

Downstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	3030	1.00	Level	14	0	0.935	1.00	3242
Ramp	331	1.00	Level	14	0	0.935	1.00	354
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)
P_{FM} = 0.604 using Equation (Exhibit 13-6)
V_{12} = 1959 pc/h
V_3 or V_{av34} 1283 pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No
If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	3596	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	2313	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 17.3 (pc/mi/ln)
LOS = B (Exhibit 13-2)

Speed Determination

M_S = 0.255 (Exibit 13-11)
S_R= 59.1 mph (Exhibit 13-11)
S_0= 62.2 mph (Exhibit 13-11)
S = 60.2 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)
P_{FD} = using Equation (Exhibit 13-7)
V_{12} = pc/h
V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No
If Yes,V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)
LOS = (Exhibit 13-2)

Speed Determination

D_s = (Exhibit 13-12)
S_R= mph (Exhibit 13-12)
S_0= mph (Exhibit 13-12)
S = mph (Exhibit 13-13)

2034 Build Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 WB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2034

Project Description Interchange IAMR - Build

Inputs

Upstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Freeway Number of Lanes, N	3
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	
Deceleration Lane Length L_D	880
Freeway Volume, V_F	2558
Ramp Volume, V_R	302
Freeway Free-Flow Speed, S_{FF}	65.0
Ramp Free-Flow Speed, S_{FR}	55.0

Downstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2558	1.00	Level	14	0	0.935	1.00	2737
Ramp	302	1.00	Level	14	0	0.935	1.00	323
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)
P_{FM} = using Equation (Exhibit 13-6)
V_{12} = pc/h
V_3 or V_{av34} pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8		

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/mi/ln)
LOS = (Exhibit 13-2)

Speed Determination

M_S = (Exibit 13-11)
S_R = mph (Exhibit 13-11)
S_0 = mph (Exhibit 13-11)
S = mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)
P_{FD} = 0.677 using Equation (Exhibit 13-7)
V_{12} = 1957 pc/h
V_3 or V_{av34} 780 pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F	2737	Exhibit 13-8	7050	No
$V_{FO} = V_F - V_R$	2414	Exhibit 13-8	7050	No
V_R	323	Exhibit 13-10	2200	No

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}	1957	Exhibit 13-8	4400:All	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = 13.2 (pc/mi/ln)
LOS = B (Exhibit 13-2)

Speed Determination

D_s = 0.197 (Exhibit 13-12)
S_R = 60.5 mph (Exhibit 13-12)
S_0 = 71.3 mph (Exhibit 13-12)
S = 63.2 mph (Exhibit 13-13)

HCS2010™ Version 6.41 Generated: 5/20/2014 10:08 AM

2034 Build Operations

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	CLA	Freeway/Dir of Travel	IH 94 WB
Agency or Company	KL Engineering	Junction	USH 12/STH 29
Date Performed	5/16/2014	Jurisdiction	Dunn County
Analysis Time Period	Peak	Analysis Year	2034

Project Description Interchange IAMR - Build

Inputs

Upstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Freeway Number of Lanes, N	3
Ramp Number of Lanes, N	1
Acceleration Lane Length, L_A	870
Deceleration Lane Length L_D	
Freeway Volume, V_F	2558
Ramp Volume, V_R	889
Freeway Free-Flow Speed, S_{FF}	65.0
Ramp Free-Flow Speed, S_{FR}	55.0

Downstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	v = V/PHF x f_{HV} x f_p
Freeway	2558	1.00	Level	14	0	0.935	1.00	2737
Ramp	889	1.00	Level	14	0	0.935	1.00	951
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 13-6 or 13-7)
P_{FM} = 0.602 using Equation (Exhibit 13-6)
V_{12} = 1647 pc/h
V_3 or V_{av34} = 1090 pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	3688	Exhibit 13-8		No

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	2598	Exhibit 13-8	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 19.8 (pc/mi/ln)
LOS = B (Exhibit 13-2)

Speed Determination

M_S = 0.278 (Exibit 13-11)
S_R = 58.6 mph (Exhibit 13-11)
S_0 = 62.9 mph (Exhibit 13-11)
S = 59.8 mph (Exhibit 13-13)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 13-12 or 13-13)
P_{FD} = using Equation (Exhibit 13-7)
V_{12} = pc/h
V_3 or V_{av34} = pc/h (Equation 13-14 or 13-17)
Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No
Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No
If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 13-8		
$V_{FO} = V_F - V_R$		Exhibit 13-8		
V_R		Exhibit 13-10		

Flow Entering Diverge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 13-8		

Level of Service Determination (if not F)

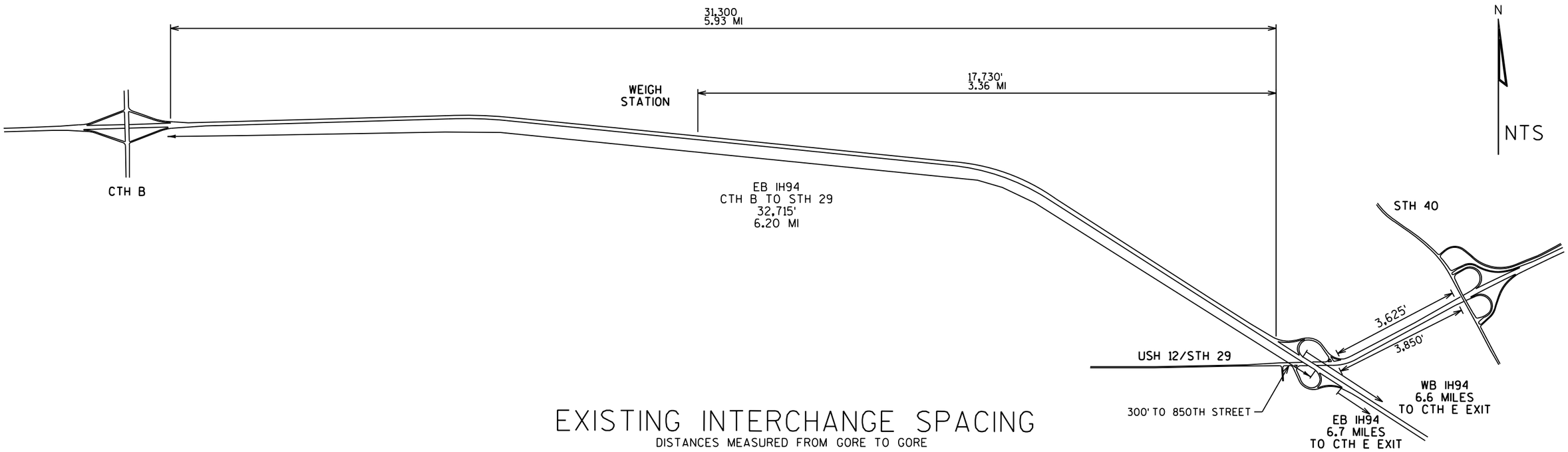
$D_R = 4.252 + 0.0086\ V_{12} - 0.009\ L_D$

D_R = (pc/mi/ln)
LOS = (Exhibit 13-2)

Speed Determination

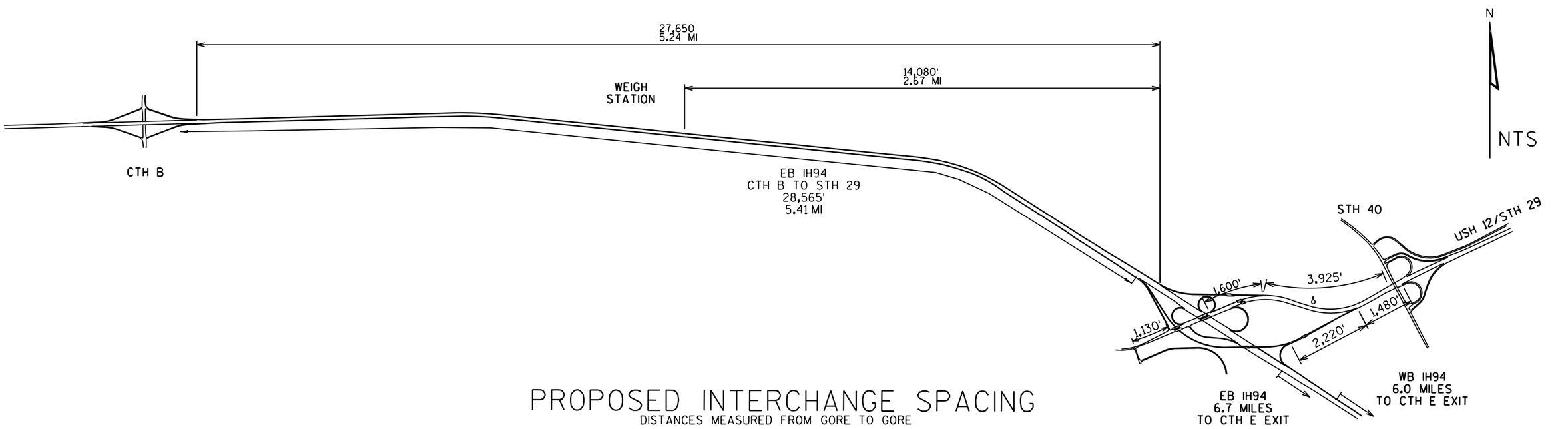
D_s = (Exhibit 13-12)
S_R = mph (Exhibit 13-12)
S_0 = mph (Exhibit 13-12)
S = mph (Exhibit 13-13)

APPENDIX D
Proposed Interchange Alternative



EXISTING INTERCHANGE SPACING

DISTANCES MEASURED FROM GORE TO GORE



PROPOSED INTERCHANGE SPACING

DISTANCES MEASURED FROM GORE TO GORE

PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	INTERCHANGE SPACING EXHIBIT	SHEET	E

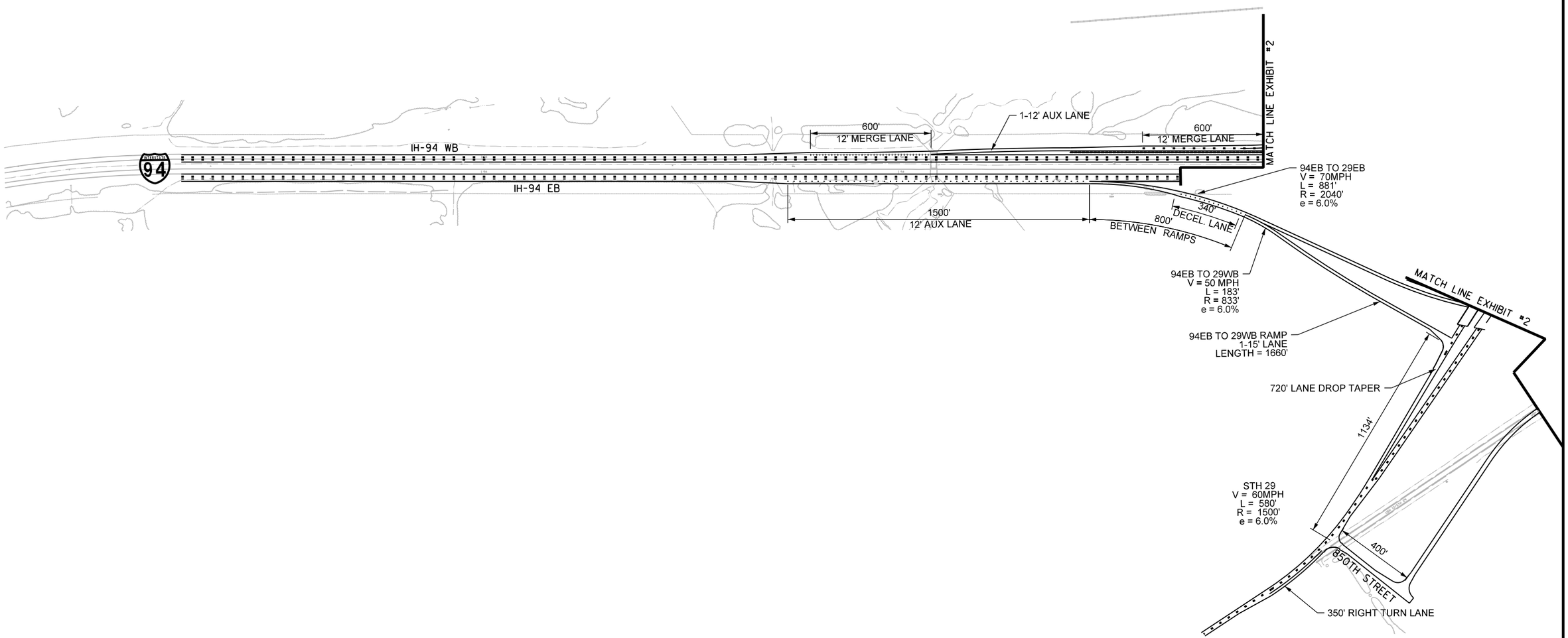
FILE NAME : G:\WDOTNW\WNW600832\REPORTS\Interstate Access Modification Report\Appendices\Sheets\STH 29 INTERCHANGE SPACING.dgn PLOT DATE : 11/26/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :

WISDOT/CADDS SHEET 42

2

N

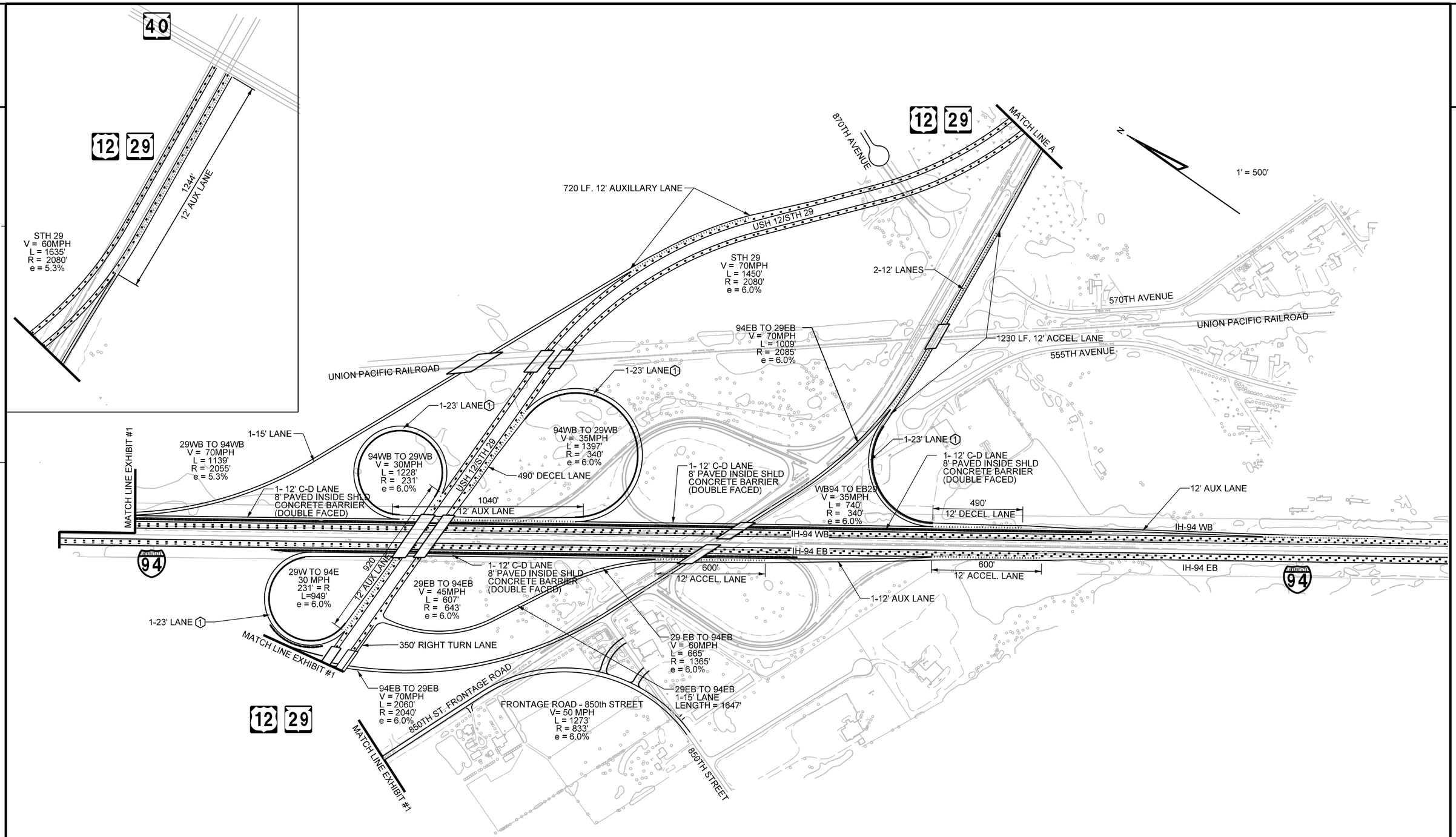
1' = 500'



PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	IH94 & USH 12/STH 29 INTERCHANGE GEOMETRICS EXHIBIT 1/2	SHEET	E

FILE NAME : G:\WDOTNW\WNW600832\REPORTS\Interstate Access Modification Report\Appendices\Sheets\STH 29 INTERCHANGE(2).dgn PLOT DATE : 11/26/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :

WISDOT/CADDS SHEET 42



(1) RADII < 430' THEREFORE 8' PAVED SHOULDER & 30" BARRIER CURB & GUTTER
ALL PARALLEL EXIT RAMP TAPERS ARE 25:1
ALL PARALLEL ENTRANCE TAPERS ARE 30:1

PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	IH94 & USH 12/STH 29 INTERCHANGE GEOMETRICS EXHIBIT 2/2	SHEET	E

FILE NAME : G:\WDOTNW\WNW600832\REPORTS\Interstate Access Modification Report\Appendices\Sheets\STH 29 INTERCHANGE(1).dgn PLOT DATE : 11/26/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :

2

N

IH-94 WB

IH-94 EB

MATCH LINE SHEET #2

EXIT 52

12 29 40

Chippewa Falls
Wausau

EXIT ONLY

EXIT 52

12 29

Chippewa Falls
Wausau

¼ MILE

EXIT 52

12 29

Wausau
Menomonie

1 MILE

12 29 EAST 40

12 29 WEST

MATCH LINE SHEET #2

St Paul

Madison

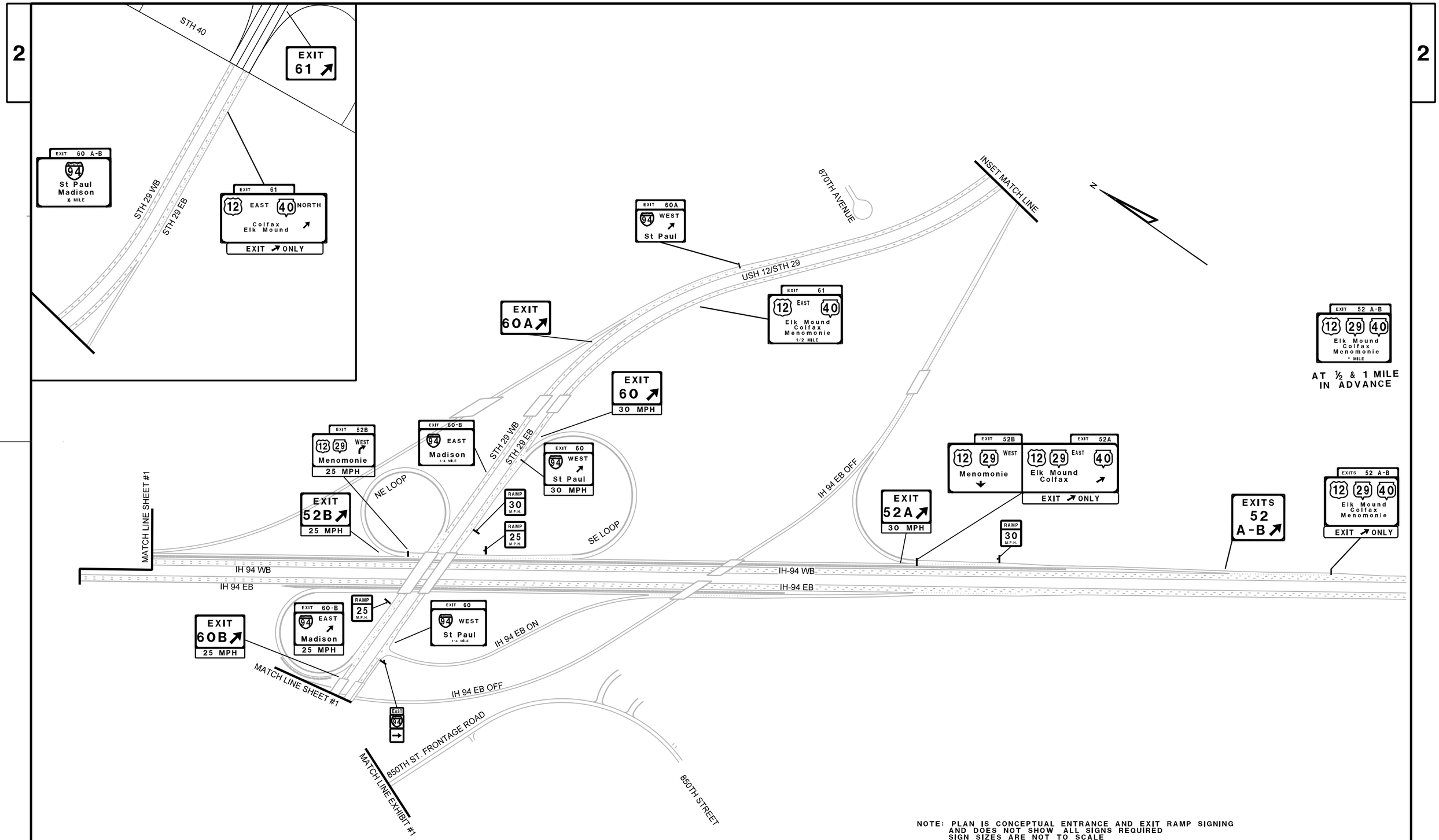
STH 29/USH 12

850TH STREET

NOTE: PLAN IS CONCEPTUAL ENTRANCE AND EXIT RAMP SIGNING
AND DOES NOT SHOW ALL SIGNS REQUIRED
SIGN SIZES ARE NOT TO SCALE

PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	IH94 & USH 12/STH 29 INTERCHANGE RAMP SIGNING PLAN (1 OF 2)	SHEET	E

FILE NAME : G:\WDOTNW\WNW600832\REPORTS\Interstate Access Modification Report\Appendices\Sheets\PROPOSED SIGNING (2).dgn PLOT DATE : 11/26/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :



NOTE: PLAN IS CONCEPTUAL ENTRANCE AND EXIT RAMP SIGNING AND DOES NOT SHOW ALL SIGNS REQUIRED SIGN SIZES ARE NOT TO SCALE

PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	IH94 & USH 12/STH 29 INTERCHANGE RAMP SIGNING PLAN (2 OF 2)	SHEET	E

2

2

N

WB29 TO WB94 RAMP

NE LOOP RAMP

IH 94 WB

IH 94 EB

EB94 TO EB29 RAMP

EB94 TO WB29 RAMP

STH 29 WB

STH 29 EB

NW LOOP RAMP

SE LOOP RAMP

EB29 TO EB94 RAMP

870TH ST.

STH 40

570TH AVE

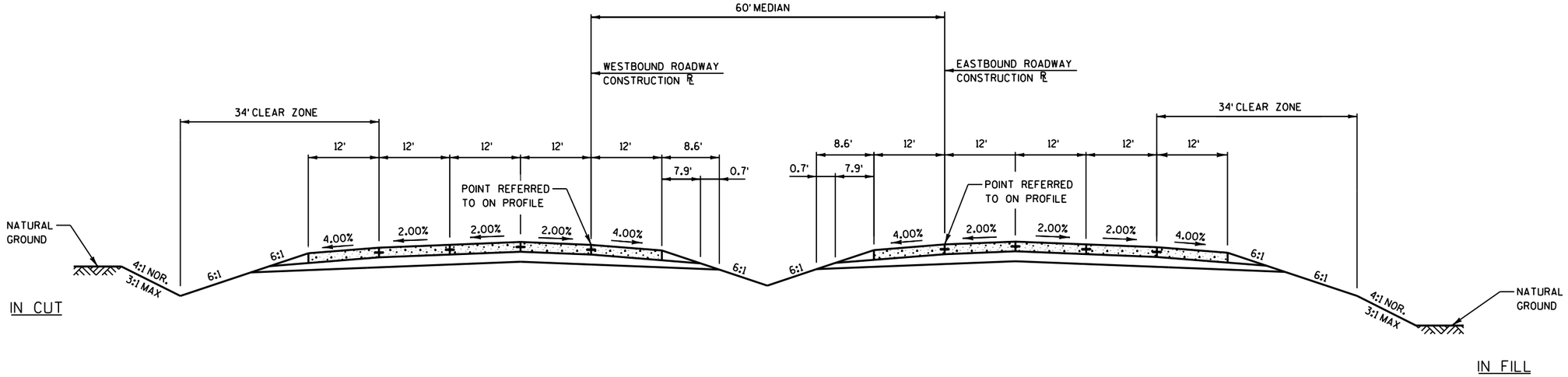
555TH AVE

WB94 TO EB29 RAMP

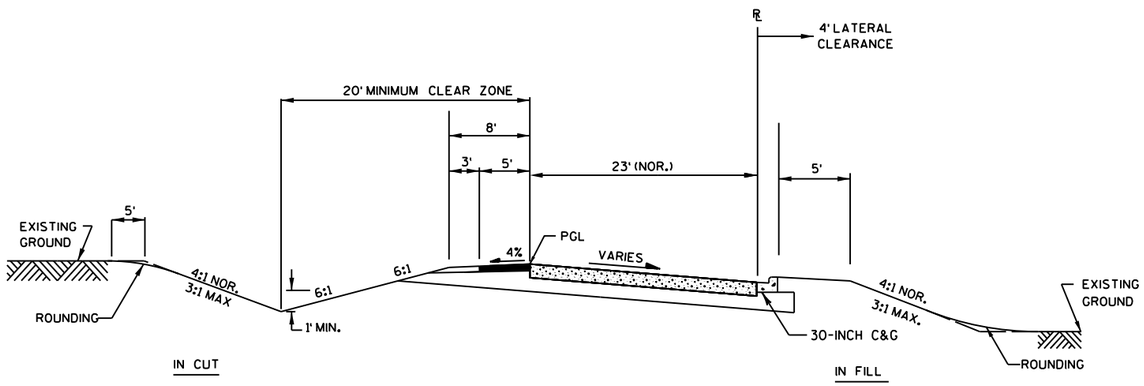
850TH STREET

850TH STREET

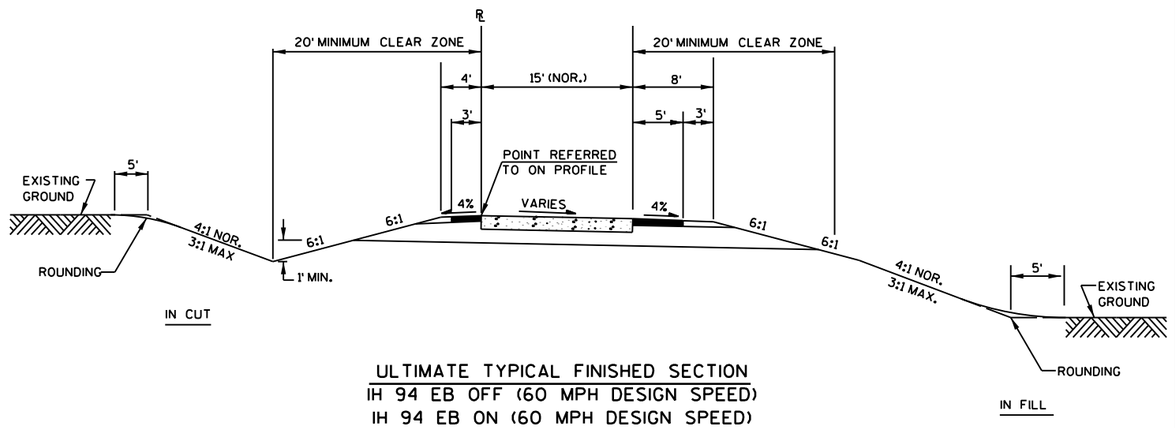
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PROJECT OVERVIEW	SHEET	E



TYPICAL FINISHED CROSS SECTION
IH 94 EB & WB
60' MEDIAN

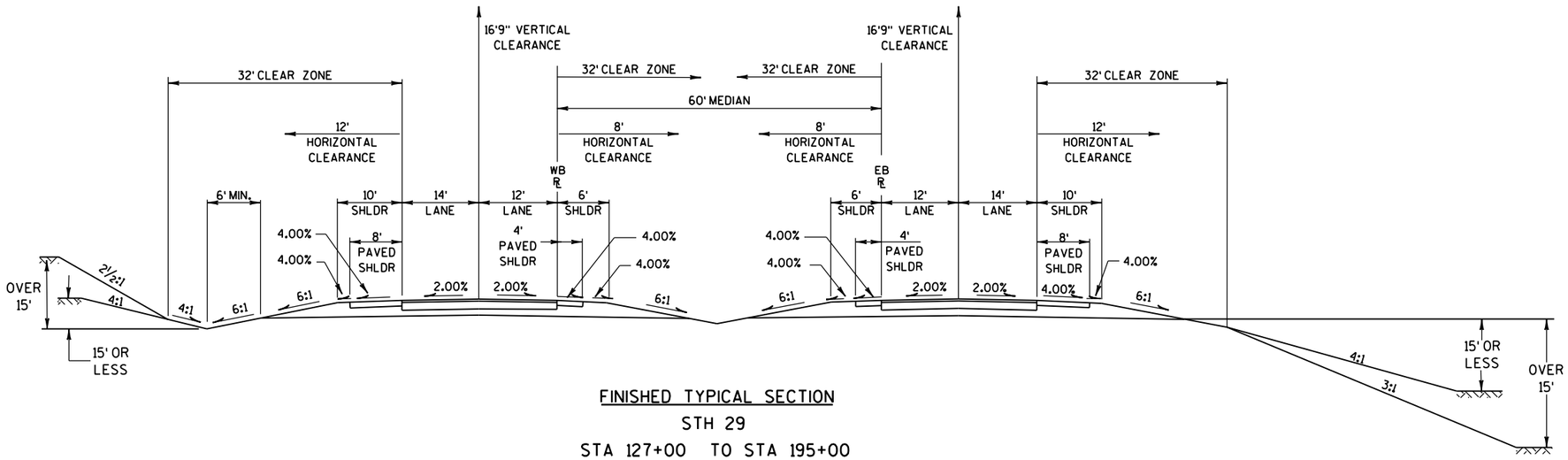


TYPICAL FINISHED SECTION
NE LOOP RAMP (30 MPH DESIGN SPEED)
NW LOOP RAMP (35 MPH DESIGN SPEED)
SW LOOP RAMP (30 MPH DESIGN SPEED)



ULTIMATE TYPICAL FINISHED SECTION
IH 94 EB OFF (60 MPH DESIGN SPEED)
IH 94 EB ON (60 MPH DESIGN SPEED)
IH 94 WB ON (60 MPH DESIGN SPEED)

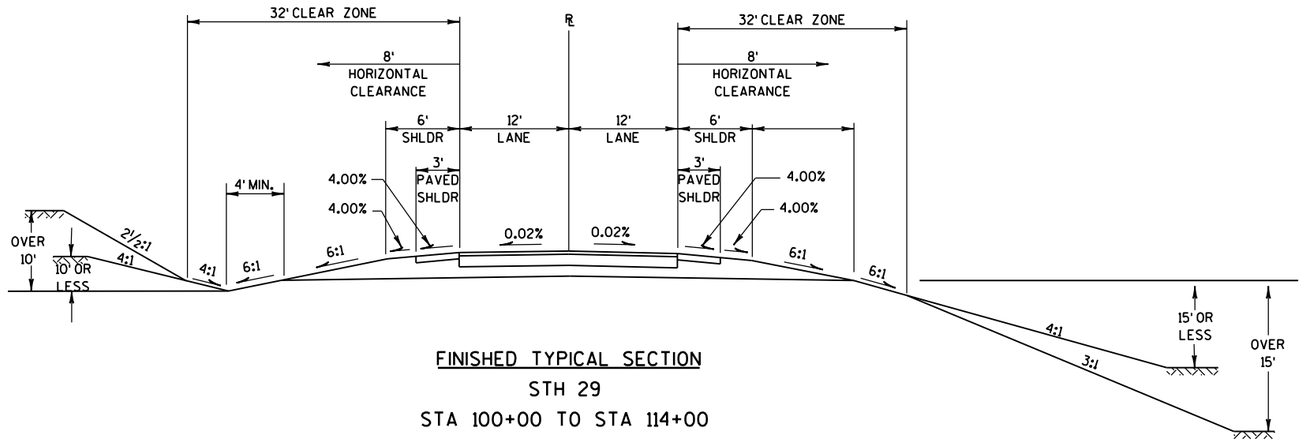
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	TYPICAL SECTIONS	SHEET	E



FINISHED TYPICAL SECTION

STH 29

STA 127+00 TO STA 195+00

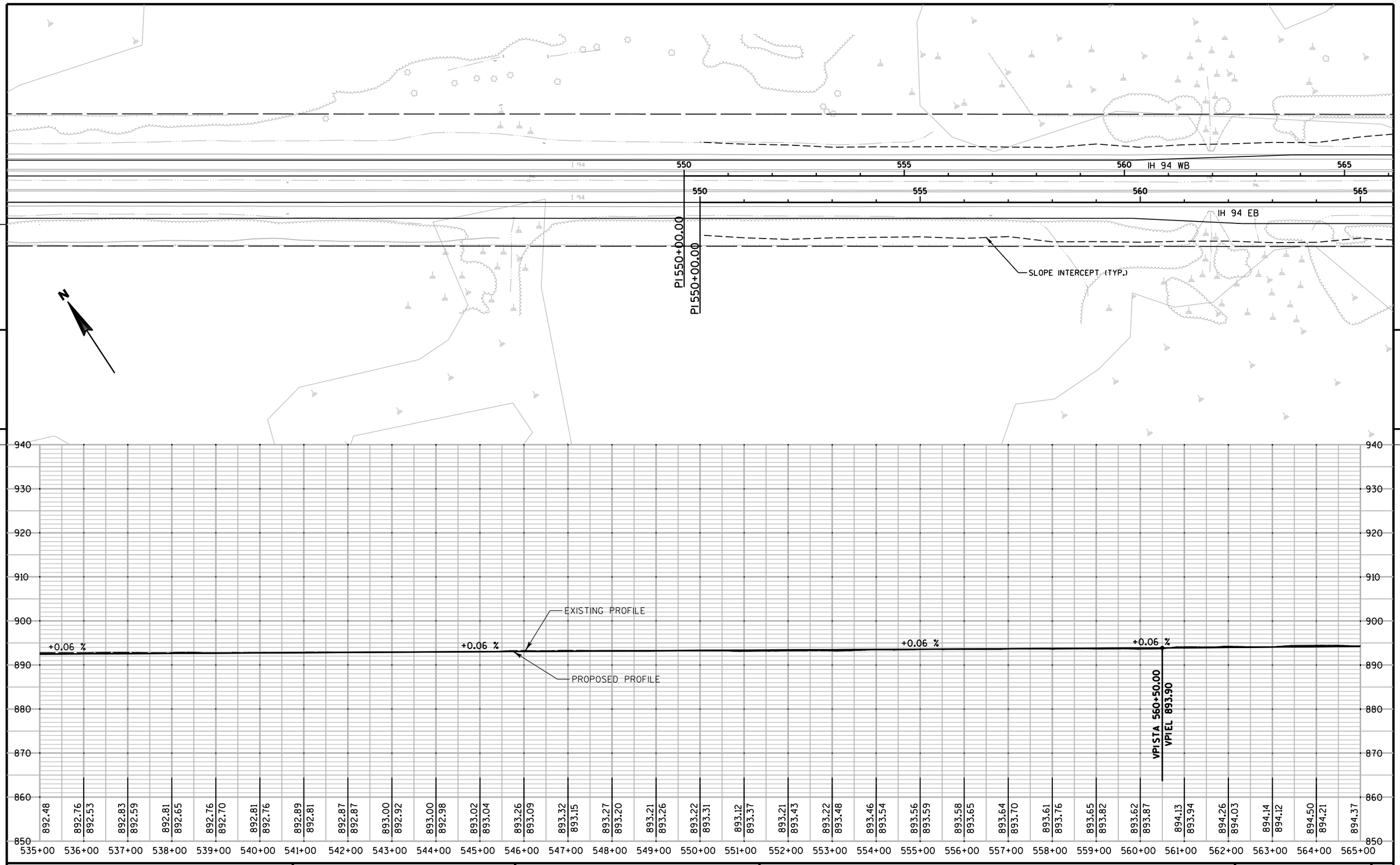


FINISHED TYPICAL SECTION

STH 29

STA 100+00 TO STA 114+00

PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	TYPICAL SECTIONS	SHEET	E



PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: IH-94 EB	SHEET	E

FILE NAME : G:\WDOTNW\WNW600832\INTERCHANGE\Plan Sheets\08032pp0.dgn PLOT DATE : 11/14/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :

THOMAS MOUSEL

EXIST R/W

IH 94 WB

IH 94 EB

R/W

WB29 TO WB94 RAMP

EB94 TO EB29 RAMP

EB94 TO WB29 RAMP

PC 585+24.80

PC 577+34.58

PC 585+24.20

PI 586+15.39

PI 581+07.28

PC 588+23.00

PC 592+94.

PT 595+64.00

STEVEN & JANICE HARRISON

SLOPE INTERCEPT (TYP.)

565 570 575 580 585 590 595

5

940 930 920 910 900 890 880 870 860 850

EXISTING PROFILE

PROPOSED PROFILE

+0.09 %

VCL 1200.00
K = 722.00

VPC STA 580+65.00
VPC EL 895.67

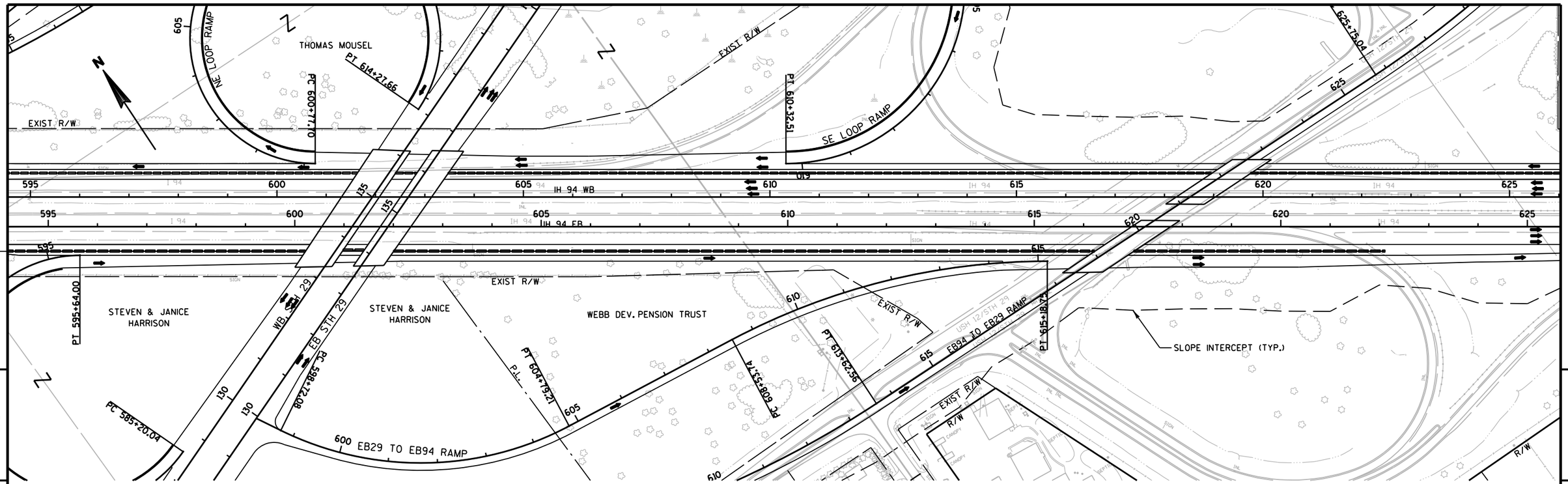
VPI STA 586+65.00
VPI EL 896.20

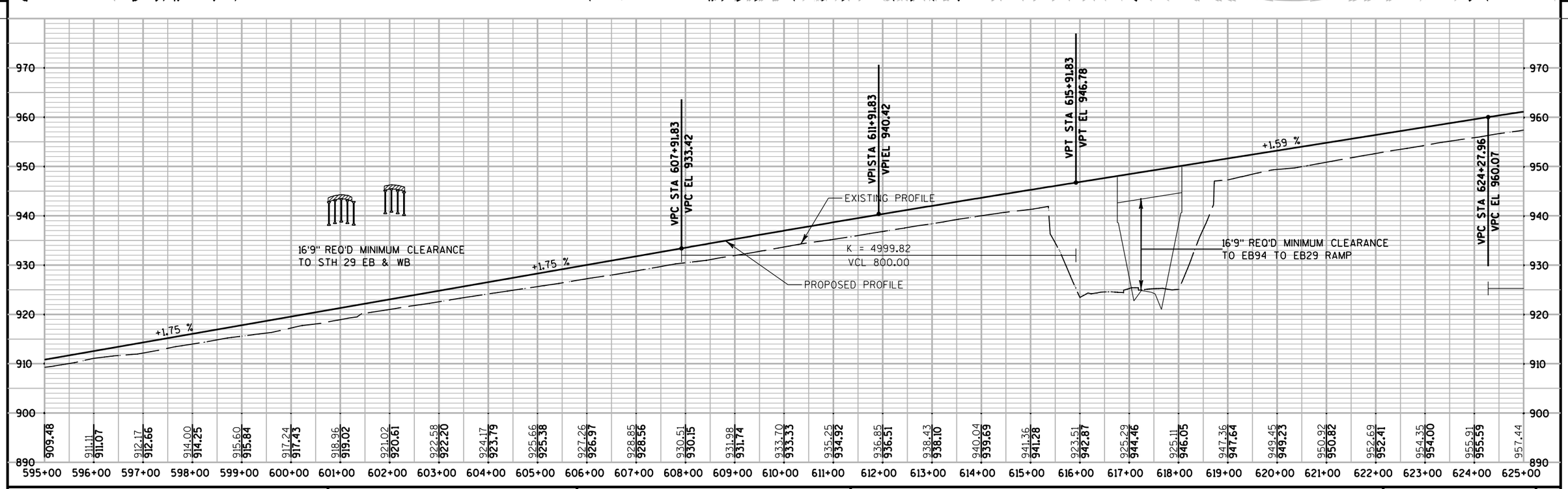
VPT STA 592+65.00
VPT EL 906.70

894.30 894.33 894.38 894.39 894.47 894.49 894.56 894.65 894.65 894.54 894.74 894.67 894.82 894.71 894.91 895.31 895.00 895.47 895.09 895.47 895.18 895.62 895.26 895.62 895.35 895.78 895.44 896.05 895.53 896.11 895.62 896.25 895.71 896.25 895.91 896.52 896.22 897.29 896.67 897.42 897.24 898.05 897.93 898.74 898.75 899.71 899.70 900.79 900.77 901.93 901.97 903.28 903.29 904.84 904.73 906.27 906.30 907.78 907.89 909.26

565+00 566+00 567+00 568+00 569+00 570+00 571+00 572+00 573+00 574+00 575+00 576+00 577+00 578+00 579+00 580+00 581+00 582+00 583+00 584+00 585+00 586+00 587+00 588+00 589+00 590+00 591+00 592+00 593+00 594+00 595+00

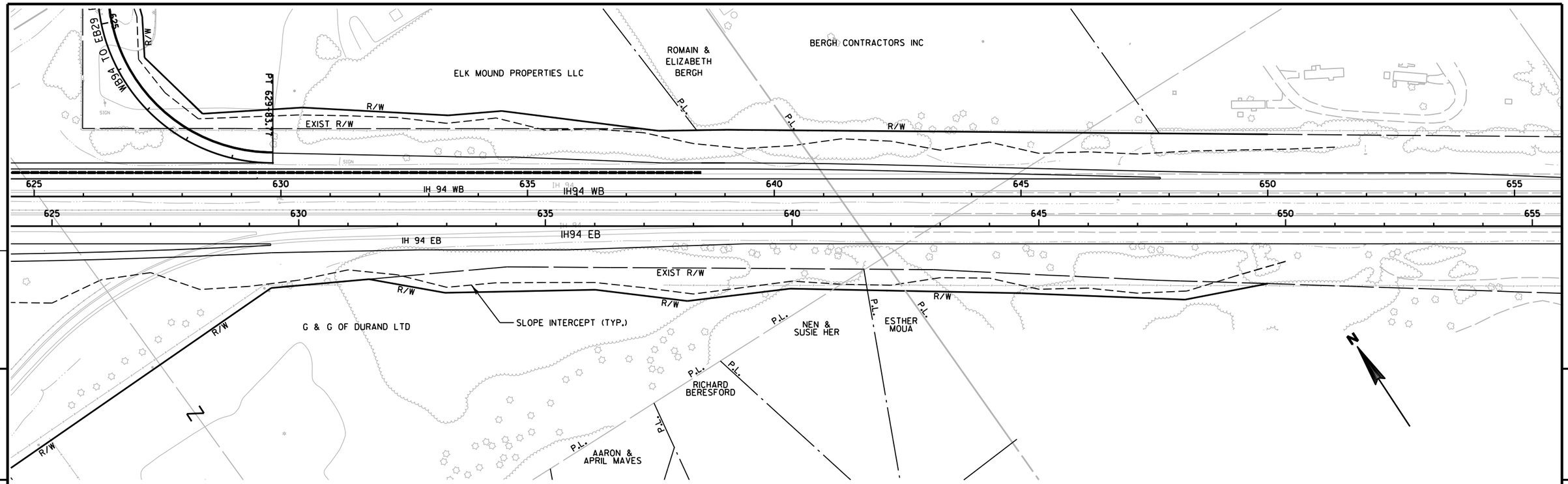
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: IH-94 EB	SHEET	E





PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: IH-94 EB	SHEET E

FILE NAME : G:\WDOTNW\WNW600832\INTERCHANGE\Plan Sheets\08032pp2.dgn PLOT DATE : 11/18/2014 PLOT BY : KL Engineering PLOT NAME : _____ PLOT SCALE :



PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: IH-94 EB	SHEET	E

FILE NAME : G:\WDOTNW\WNW600832\INTERCHANGE\Plan Sheets\08032pp3.dgn PLOT DATE : 11/14/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :

WISDOT/CADDS SHEET 40

THOMAS MOUSEL

THOMAS MOUSEL

R/W

WB29 TO WB94 RAMP

595

PC 585+24.20

590

EXIST R/W

EXIST R/W

EXIST

565 570 575 IH 94 WB 580 585 590 595

565 570 575 580 585 590 595

IH 94 EB

580

595

EXIST R/W

R/W

EXIST R/W

PC 577+34.58

STEVEN & JANICE HARRISON

585

STEVEN & JANICE HARRISON

EB94 TO EB29 RAMP

PC 588+23.03

SLOPE INTERCEPT (TYP.)

EB94 TO WB29 RAMP

PC 585+24.20

PT 586+15.39

PT 587+07.28

R/W

590

590

PC 592+94.

STEVEN & JANICE HARRISON

5

5

N

VCL 1200.00
K = 742.37

PROPOSED PROFILE

EXISTING PROFILE

+0.11 %

+0.11 %

+0.11 %

VPC STA 582+00.00
VPC EL 896.82

VPI STA 588+00.00
VPI EL 897.50

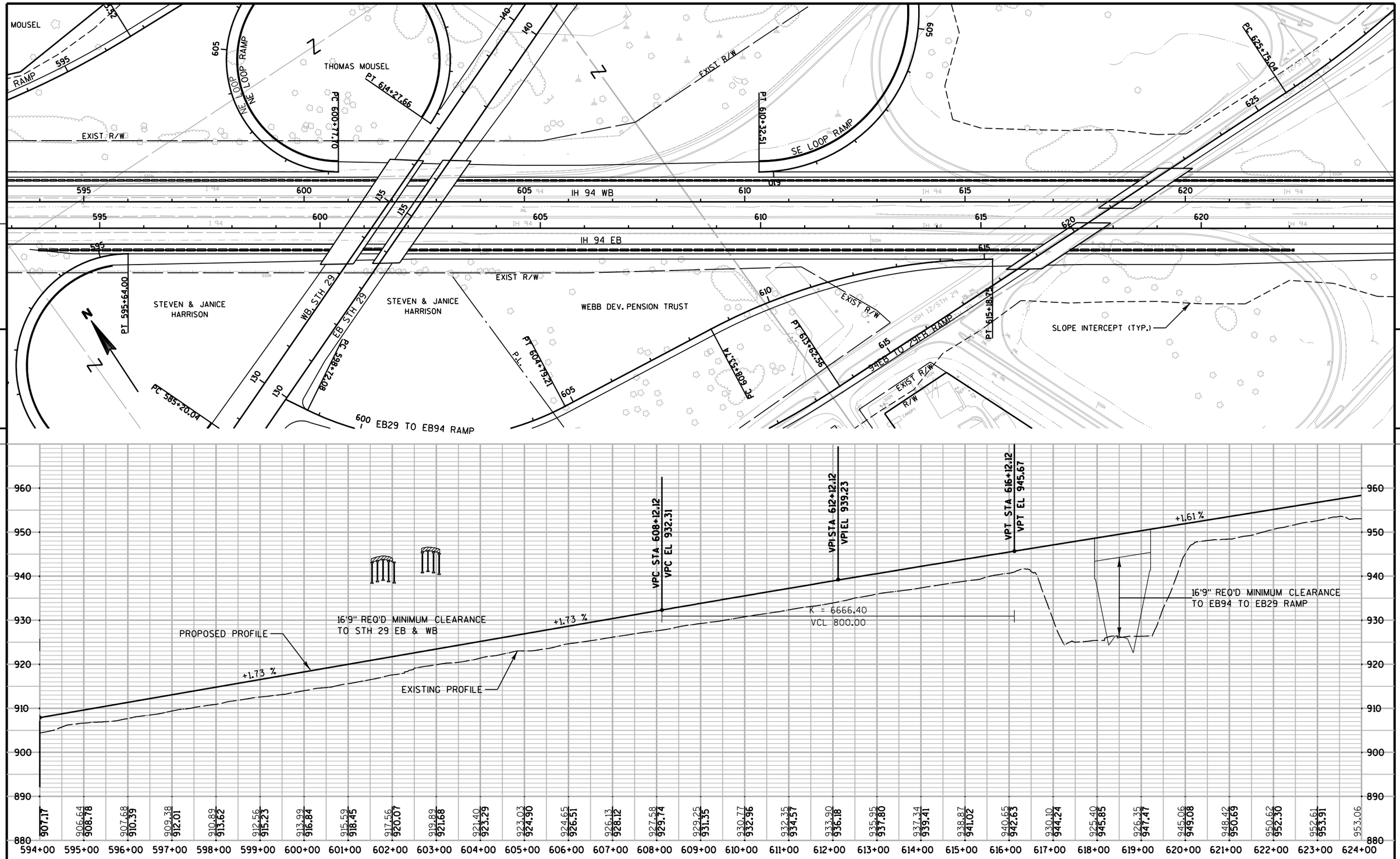
VPT STA 594+00.00
VPT EL 907.88

930 920 910 900 890 880 870 860 850

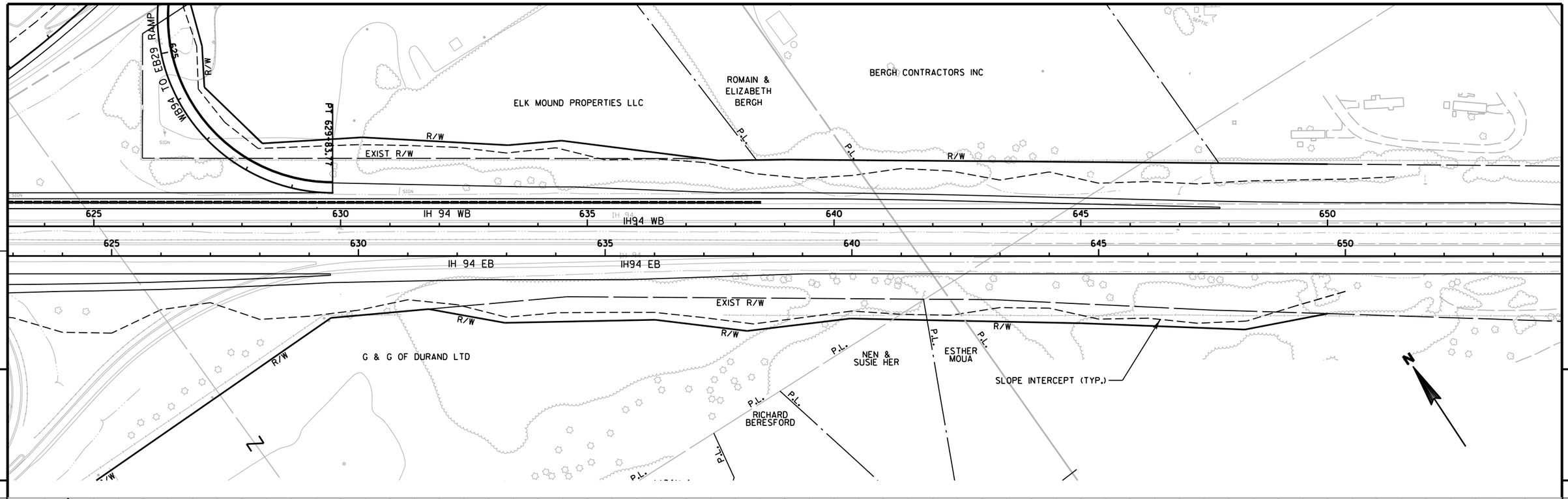
564+00	565+00	566+00	567+00	568+00	569+00	570+00	571+00	572+00	573+00	574+00	575+00	576+00	577+00	578+00	579+00	580+00	581+00	582+00	583+00	584+00	585+00	586+00	587+00	588+00	589+00	590+00	591+00	592+00	593+00	594+00
894.77	891.99 894.89	892.26 895.00	892.84 895.12	893.04 895.23	892.40 895.34	885.16 895.46	893.50 895.57	893.95 895.68	894.20 895.80	893.70 895.91	893.01 896.02	893.49 896.14	893.33 896.25	893.65 896.36	893.51 896.48	893.59 896.59	893.86 896.71	893.97 896.82	894.19 896.99	894.44 897.30	894.29 897.72	896.14 898.27	896.60 898.95	896.56 899.75	897.70 900.67	898.83 901.72	899.91 902.90	901.39 904.20	902.84 905.62	904.38

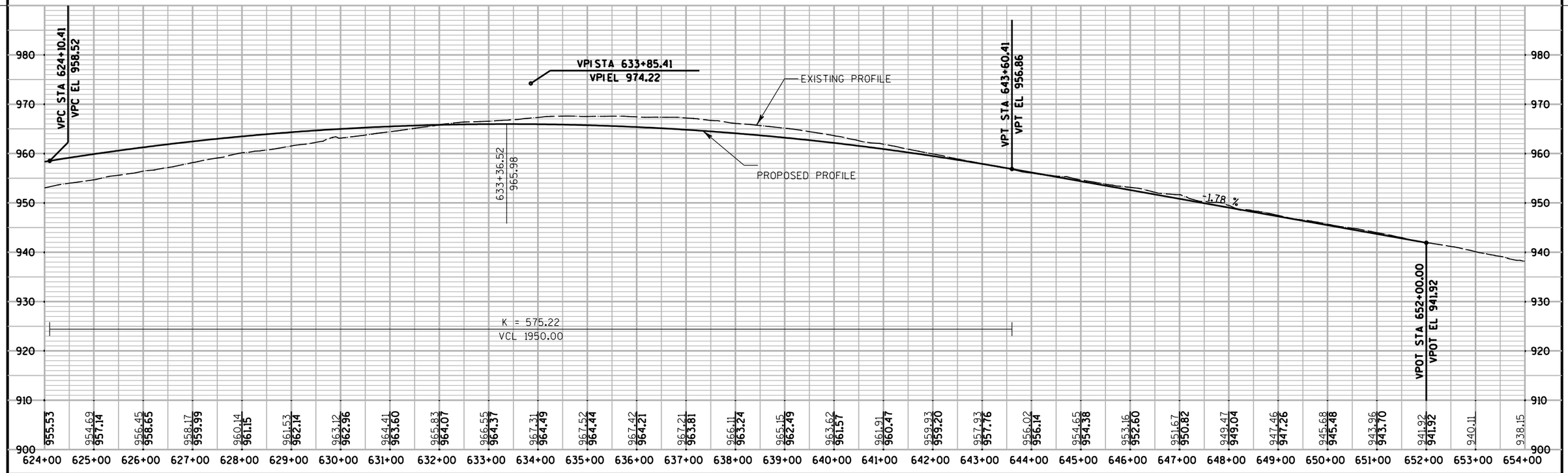
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: IH-94 WB	SHEET	E

FILE NAME : G:\WDOTNW\WNW600832\INTERCHANGE\Plan Sheets\08032pp4.dgn PLOT DATE : 11/14/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :

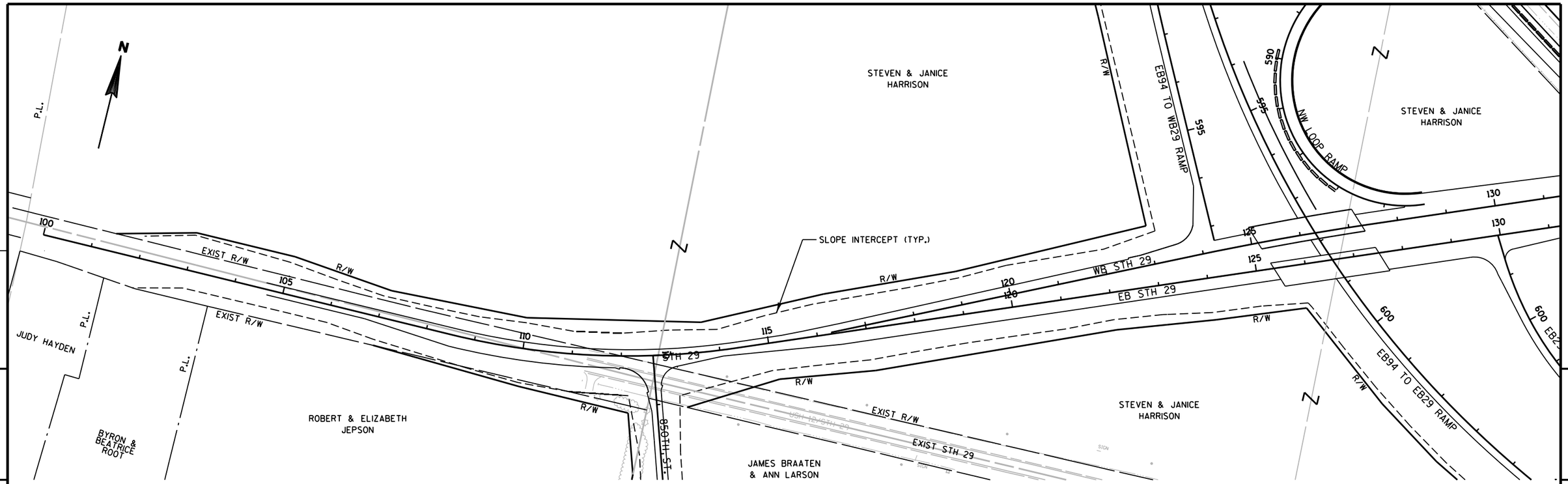


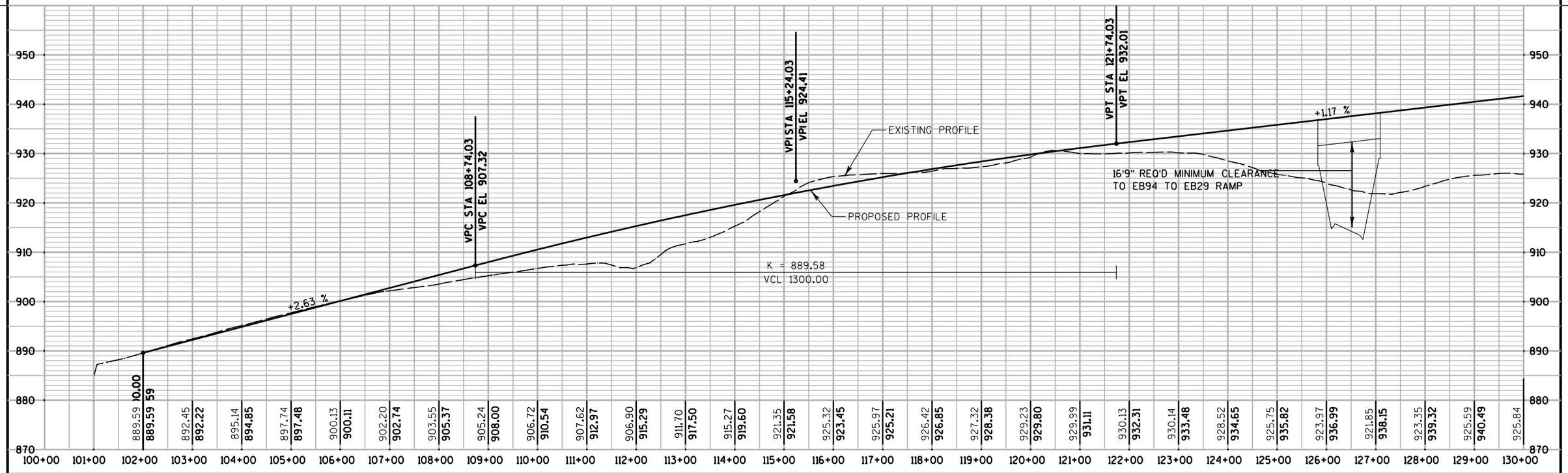
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: IH-94 WB	SHEET	E



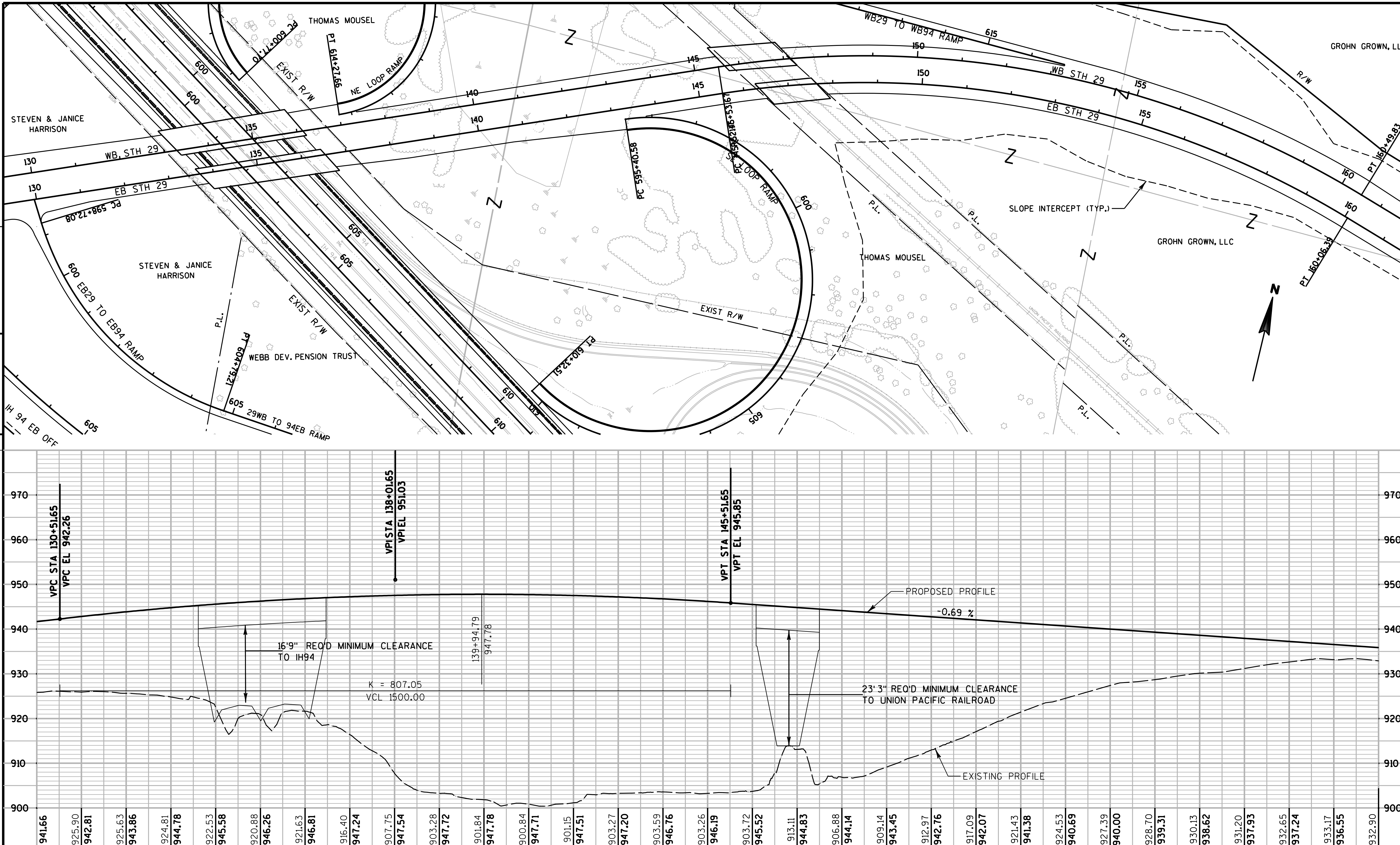


PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: IH-94 WB	SHEET	E





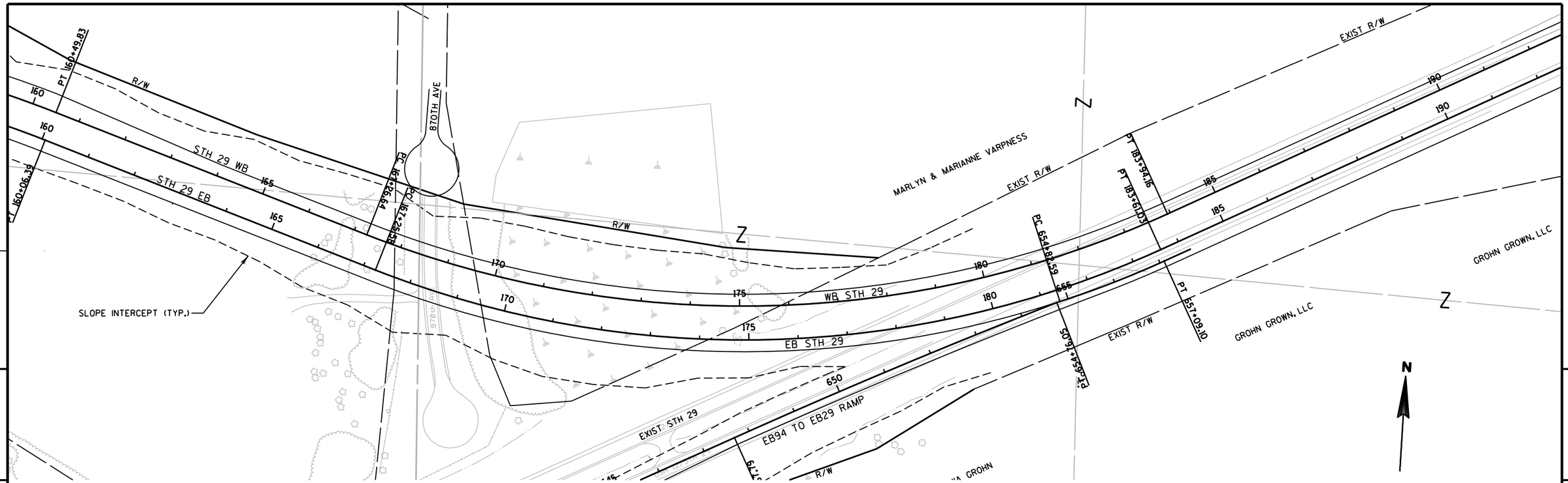
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: STH 29 EB	SHEET	E

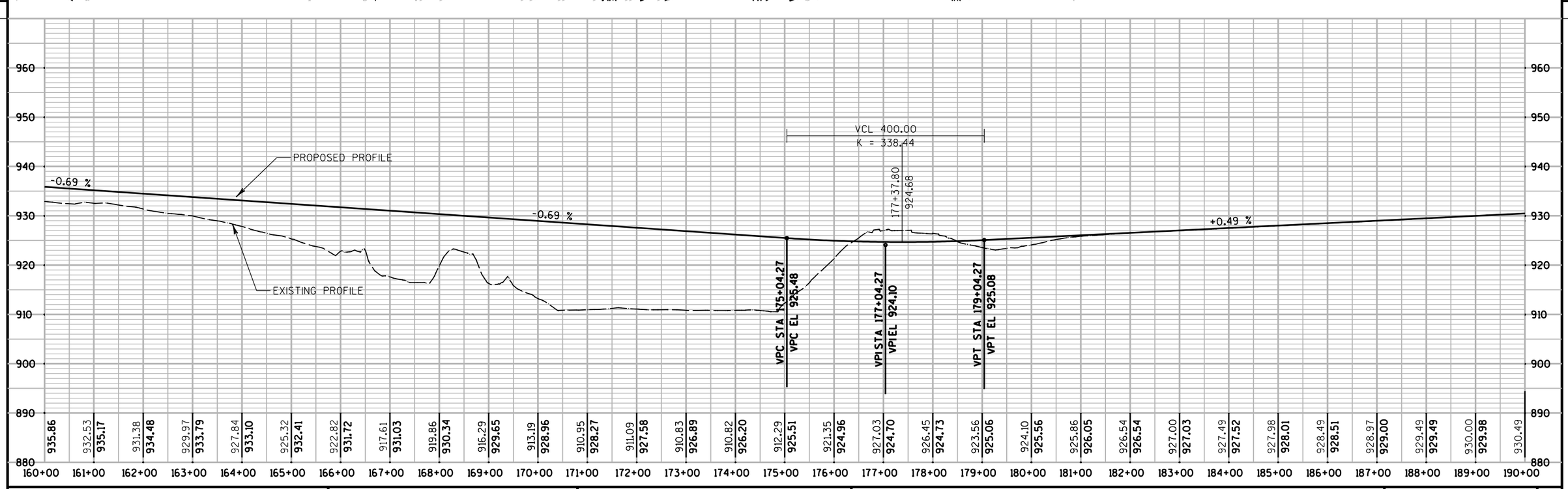


Station	Existing	Proposed
130+00		941.66
131+00	925.90	942.81
132+00	925.63	943.86
133+00	924.81	944.78
134+00	922.53	945.58
135+00	920.88	946.26
136+00	921.63	946.81
137+00	916.40	947.24
138+00	907.75	947.54
139+00	903.28	947.72
140+00	901.84	947.78
141+00	900.84	947.71
142+00	901.15	947.51
143+00	903.27	947.20
144+00	903.59	946.76
145+00	903.26	946.19
146+00	903.72	945.52
147+00	913.11	944.83
148+00	906.88	944.14
149+00	909.14	943.45
150+00	912.97	942.76
151+00	917.09	942.07
152+00	921.43	941.38
153+00	924.53	940.69
154+00	927.39	940.00
155+00	928.70	939.31
156+00	930.13	938.62
157+00	931.20	937.93
158+00	932.65	937.24
159+00	933.17	936.55
160+00	932.90	

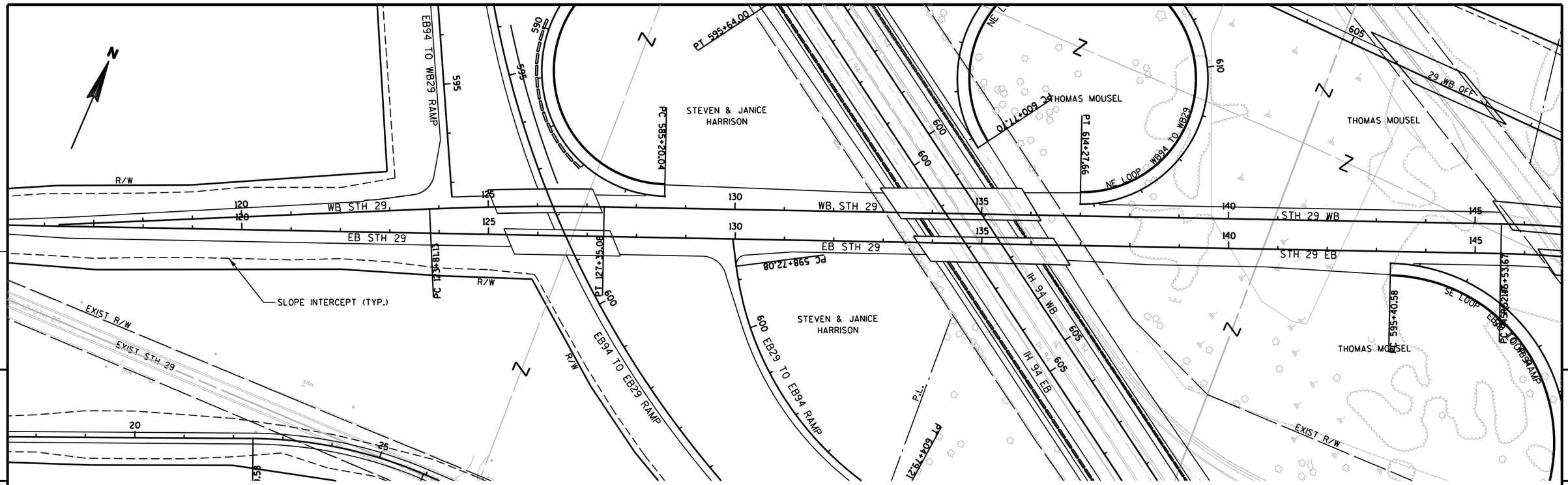
PROJECT NO:1020-09-01	HWY:IH 94	COUNTY:DUNN	PLAN & PROFILE: STH 29 EB	SHEET	E

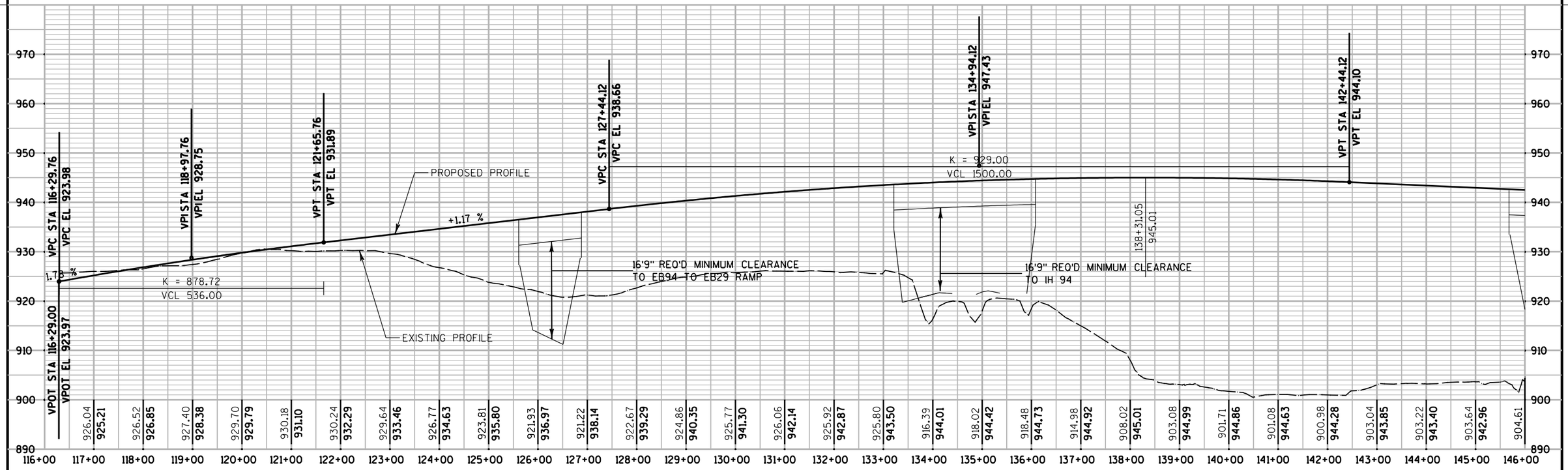
FILE NAME : G:\WDOTNW\WNW600832\INTERCHANGE\Plan Sheets\08032pp8.dgn PLOT DATE : 11/14/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :





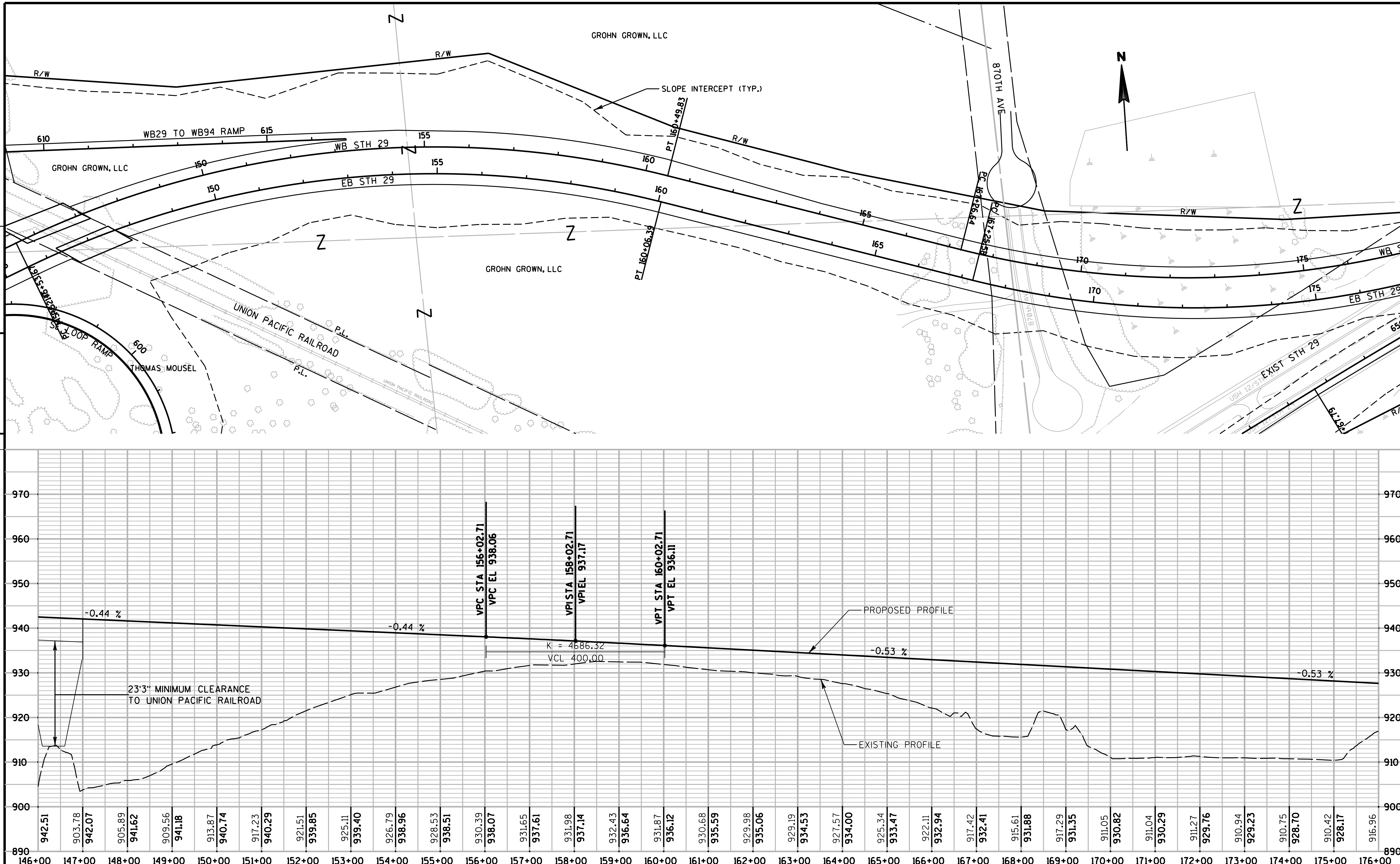
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: STH 29 EB	SHEET	E





PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: STH 29 WB	SHEET E

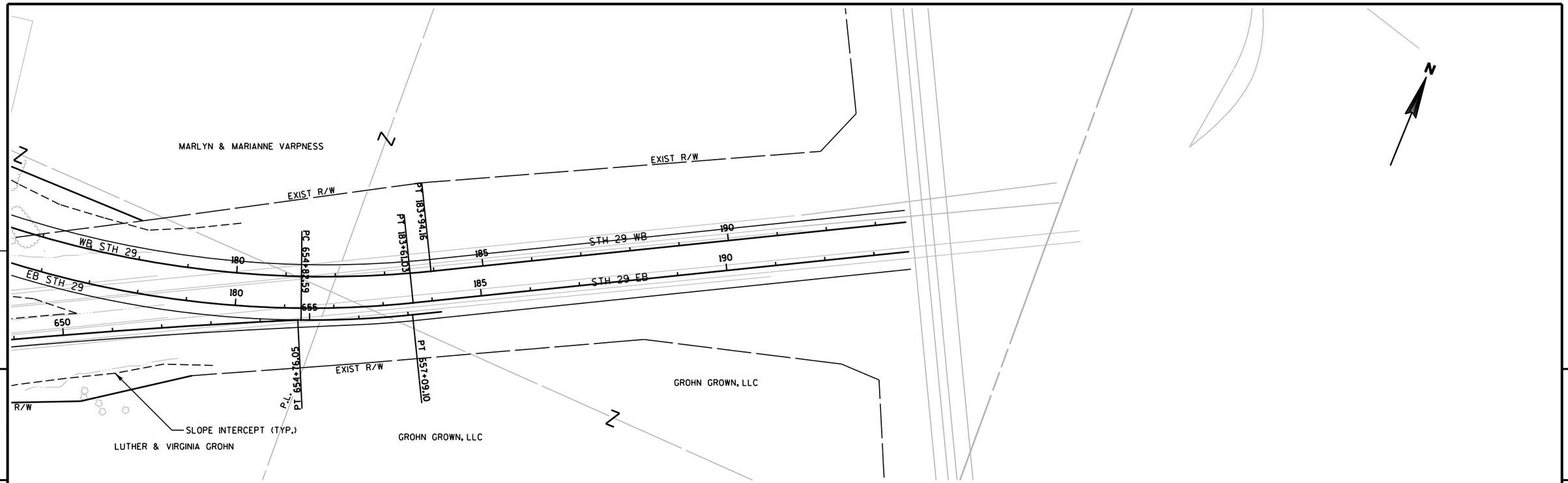
FILE NAME : G:\WDOTNW\WNW600832\INTERCHANGE\Plan Sheets\08032pp11.dgn PLOT DATE : 11/14/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :

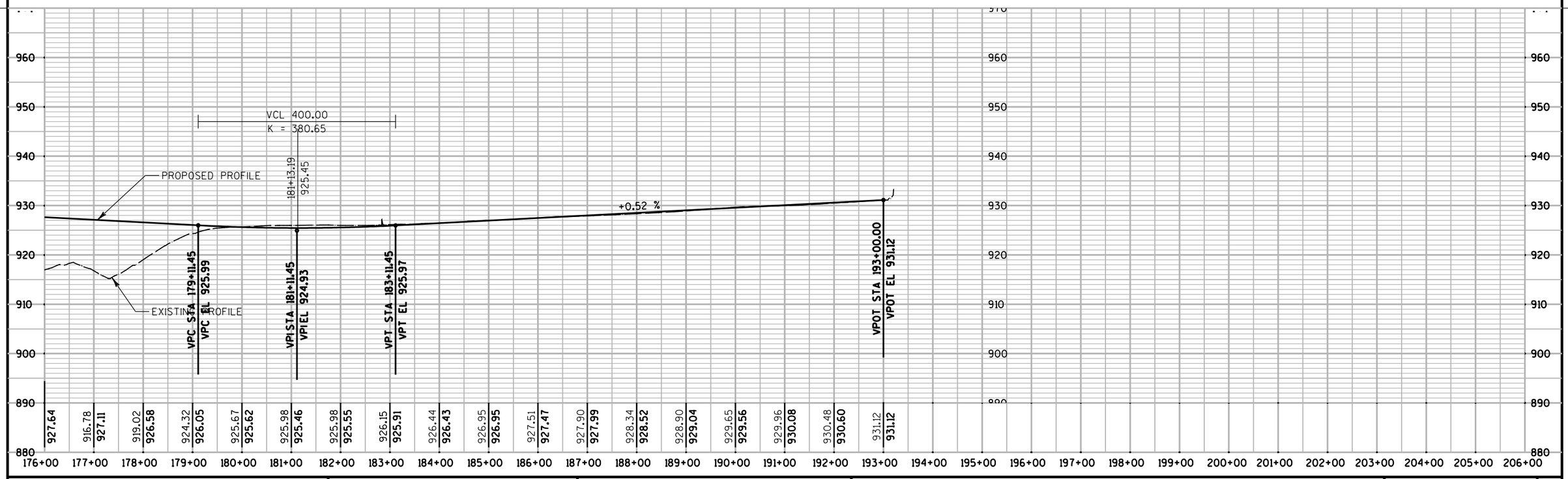

GROHN GROWN, LLC
R/W
SLOPE INTERCEPT (TYP.)
870TH AVE
N
WB29 TO WB94 RAMP
610
615
WB STH 29
EB STH 29
150
155
160
165
170
175
PT 160+49.83
PT 160+06.39
UNION PACIFIC RAILROAD
P.L.
SE LOOP RAMP
600
THOMAS MOUSEL
EXIST STH 29
650
5
970
960
950
940
930
920
910
900
890
VPC STA 156+02.71
VPC EL 938.06
VPI STA 158+02.71
VPI EL 937.17
VPT STA 160+02.71
VPT EL 936.11
-0.44 %
-0.53 %
K = 4686.32
VCL 400.00
PROPOSED PROFILE
EXISTING PROFILE
23'3" MINIMUM CLEARANCE
TO UNION PACIFIC RAILROAD
146+00
147+00
148+00
149+00
150+00
151+00
152+00
153+00
154+00
155+00
156+00
157+00
158+00
159+00
160+00
161+00
162+00
163+00
164+00
165+00
166+00
167+00
168+00
169+00
170+00
171+00
172+00
173+00
174+00
175+00
176+00

PROJECT NO:1020-09-01	HWY:IH 94	COUNTY:DUNN	PLAN & PROFILE: STH 29 WB	SHEET	E

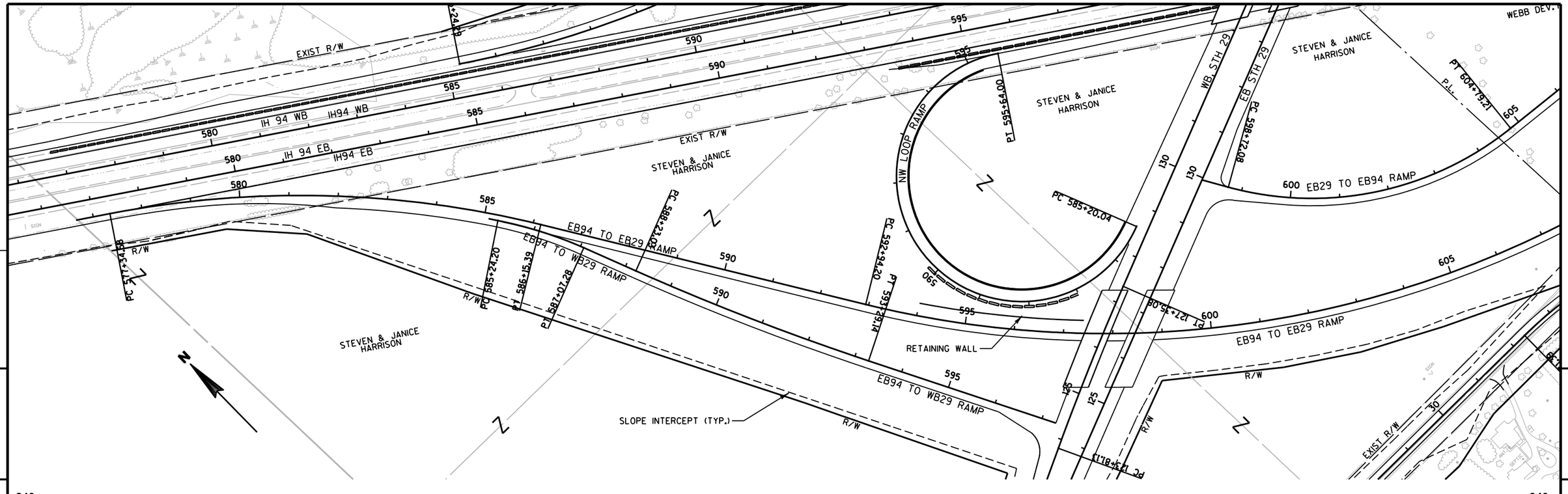
FILE NAME : G:\WDOTNW\WNW600832\INTERCHANGE\Plan Sheets\08032pp12.dgn PLOT DATE : 11/14/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :

WISDOT/CADDS SHEET 40

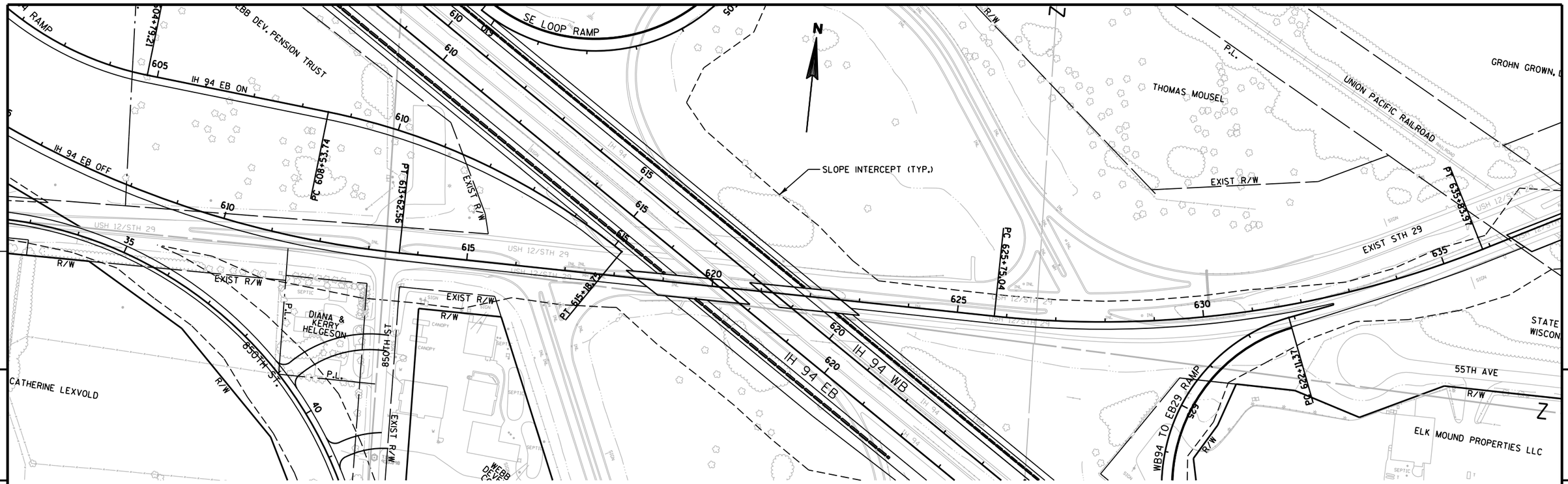


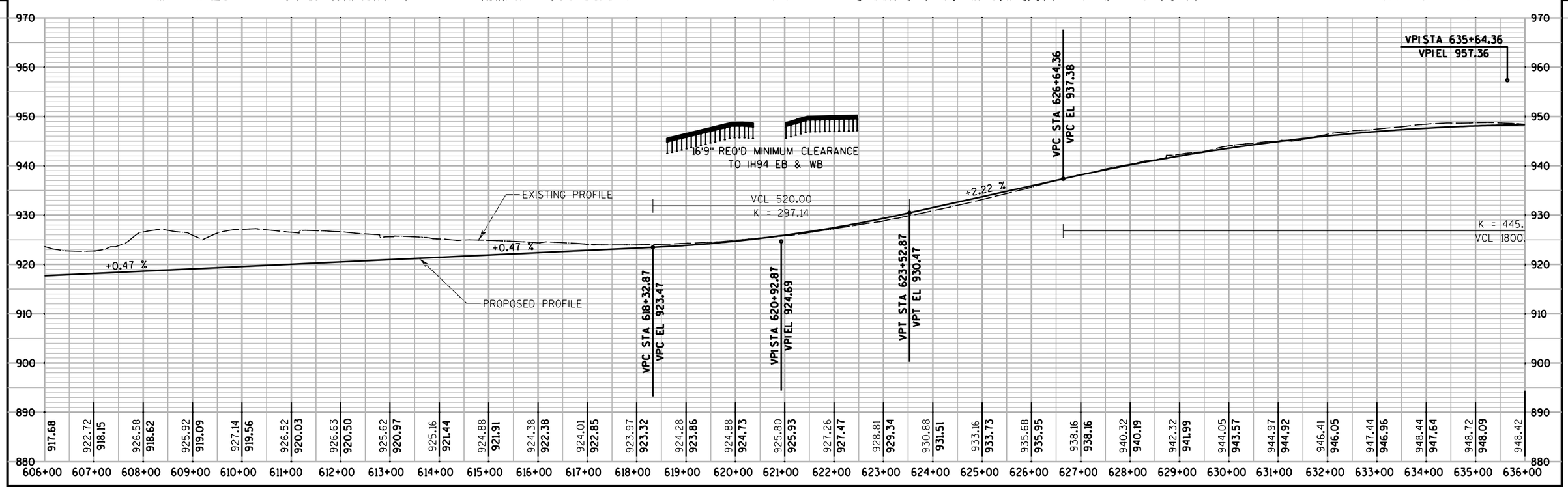


PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: STH 29 WB	SHEET	E

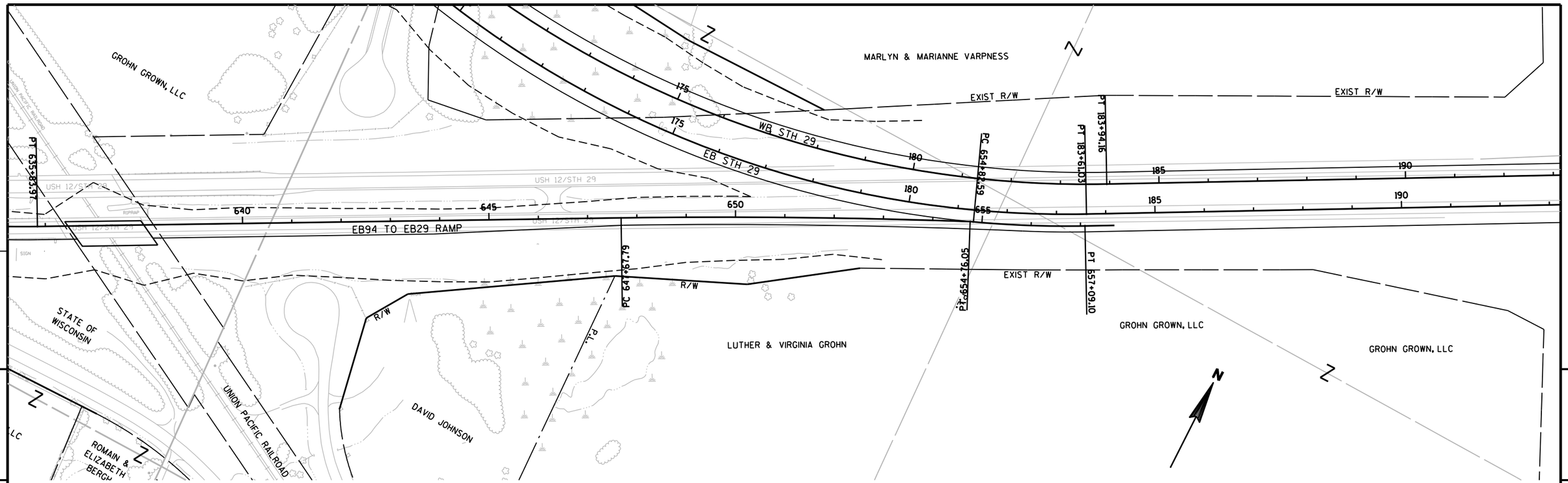


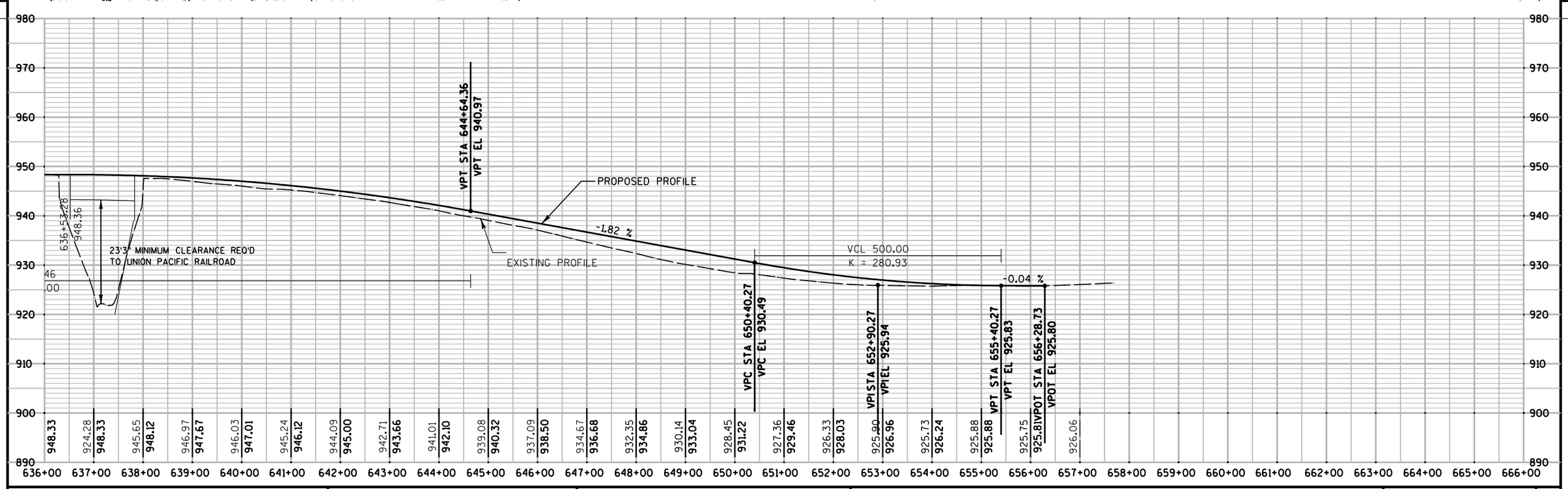
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: IH-94 EB TO STH 29 EB RAMP	SHEET	E



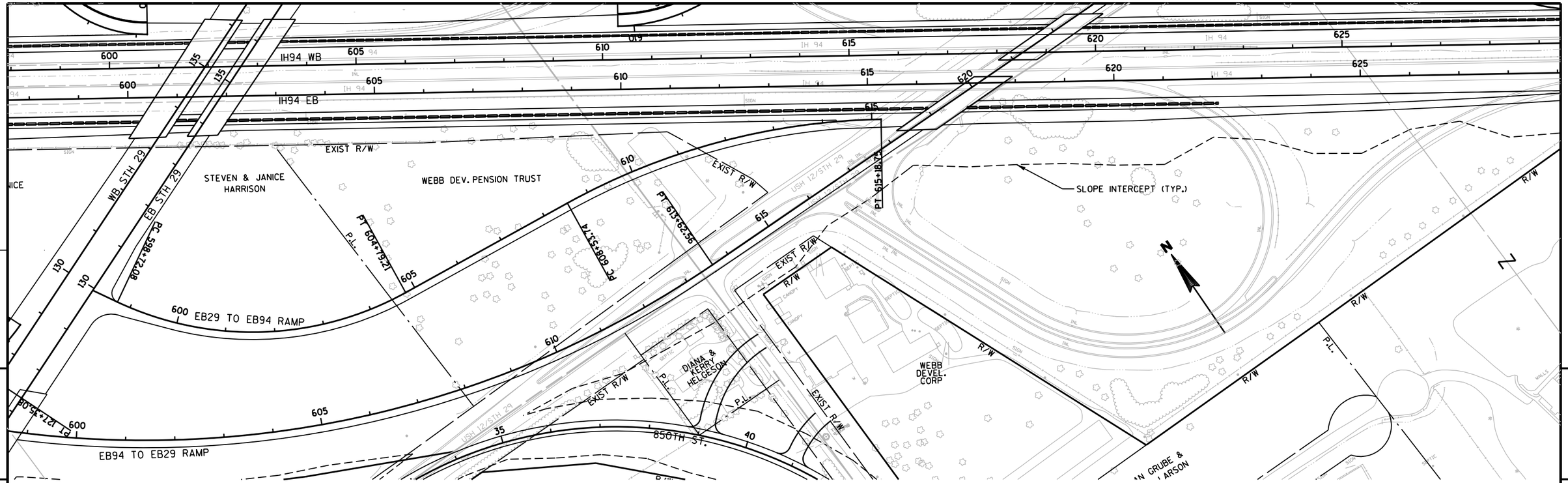


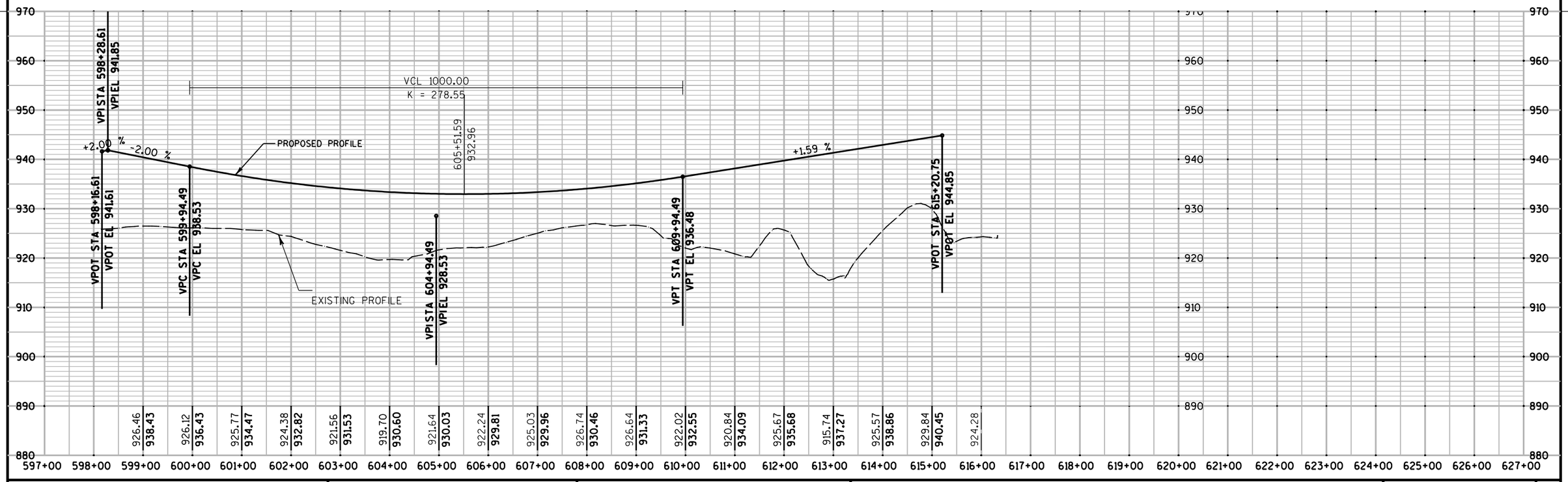
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: IH-94 EB TO STH 29 EB RAMP	SHEET	E





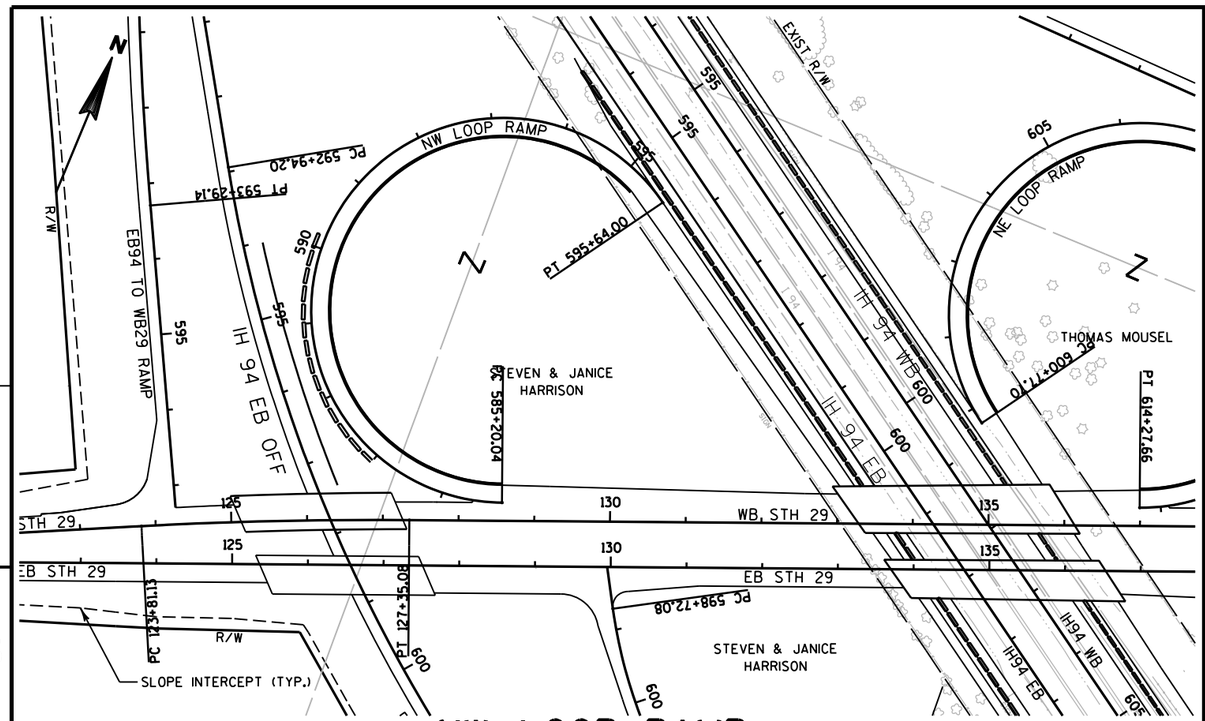
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: IH-94 EB TO STH 29 EB RAMP	SHEET	E



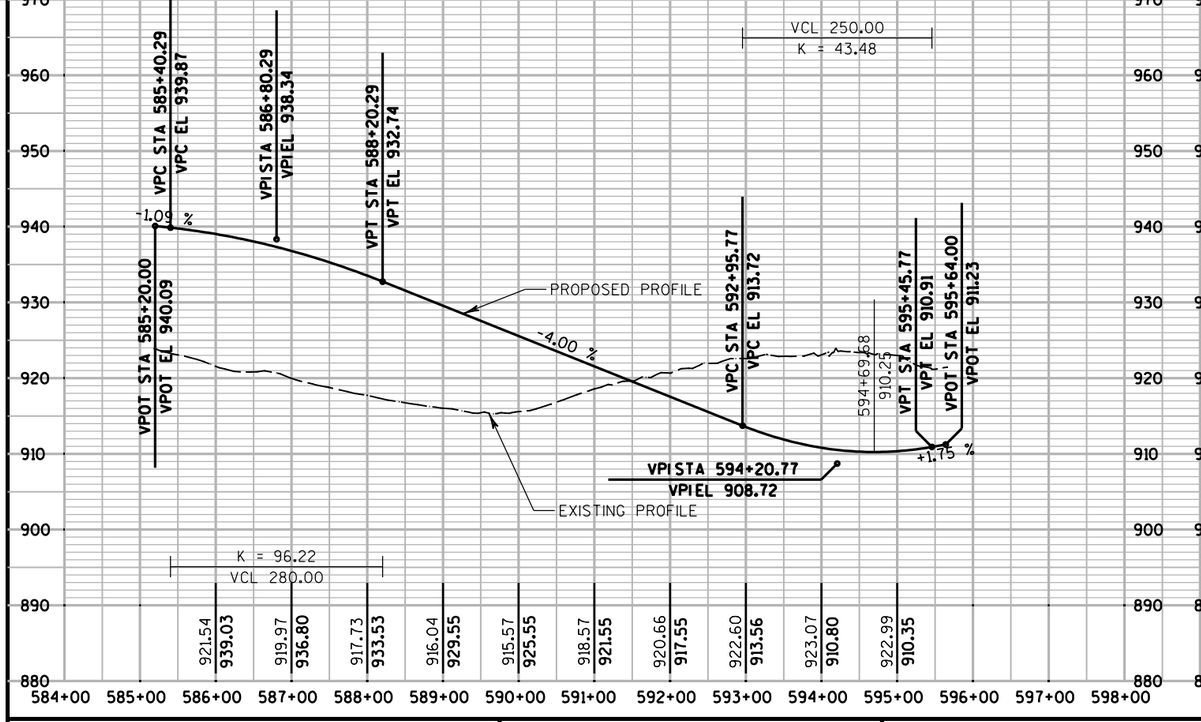


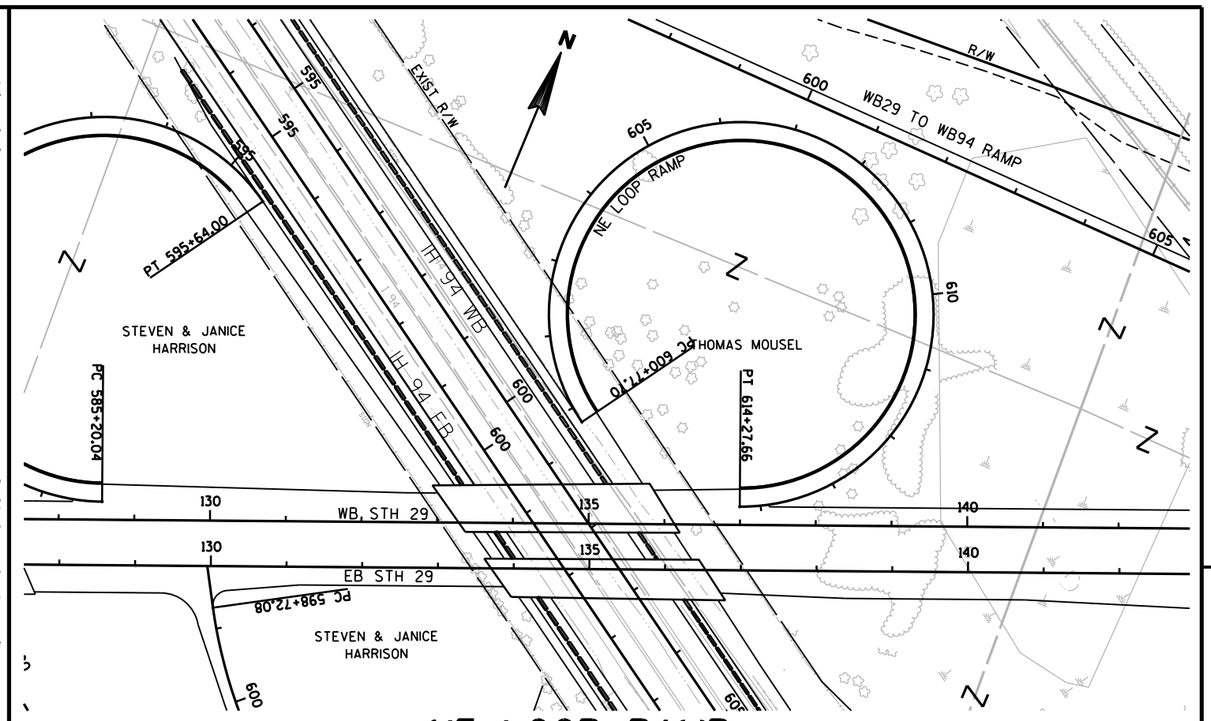
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: STH 29 EB TO IH-94 EB RAMP	SHEET	E

FILE NAME : G:\WDOTNW\WNW600832\INTERCHANGE\Plan Sheets\08032pp17.dgn
PLOT DATE : 11/14/2014
PLOT BY : KL Engineering
PLOT NAME :
PLOT SCALE :

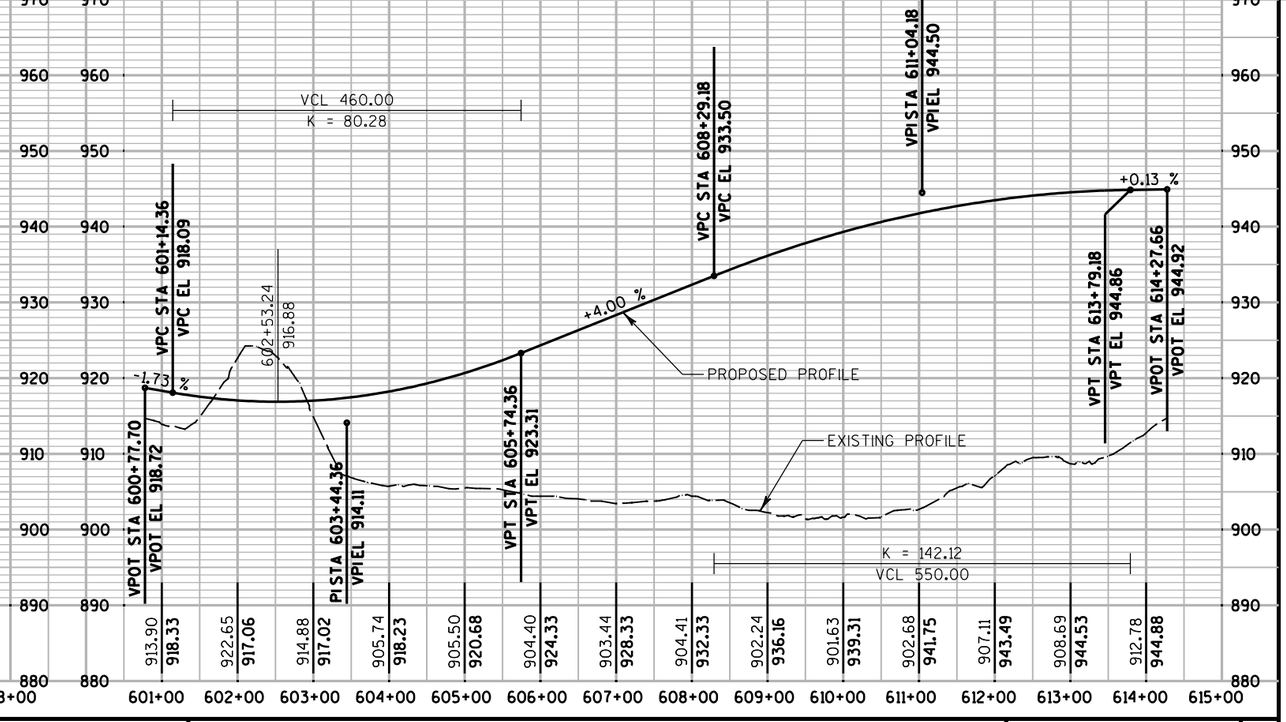


NW LOOP RAMP

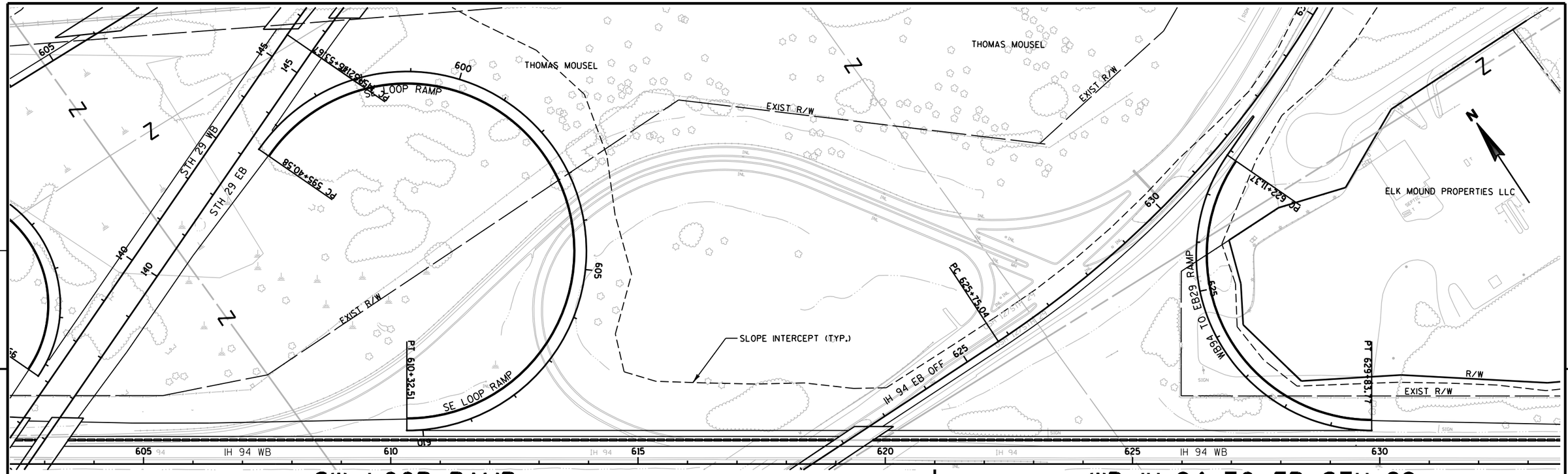




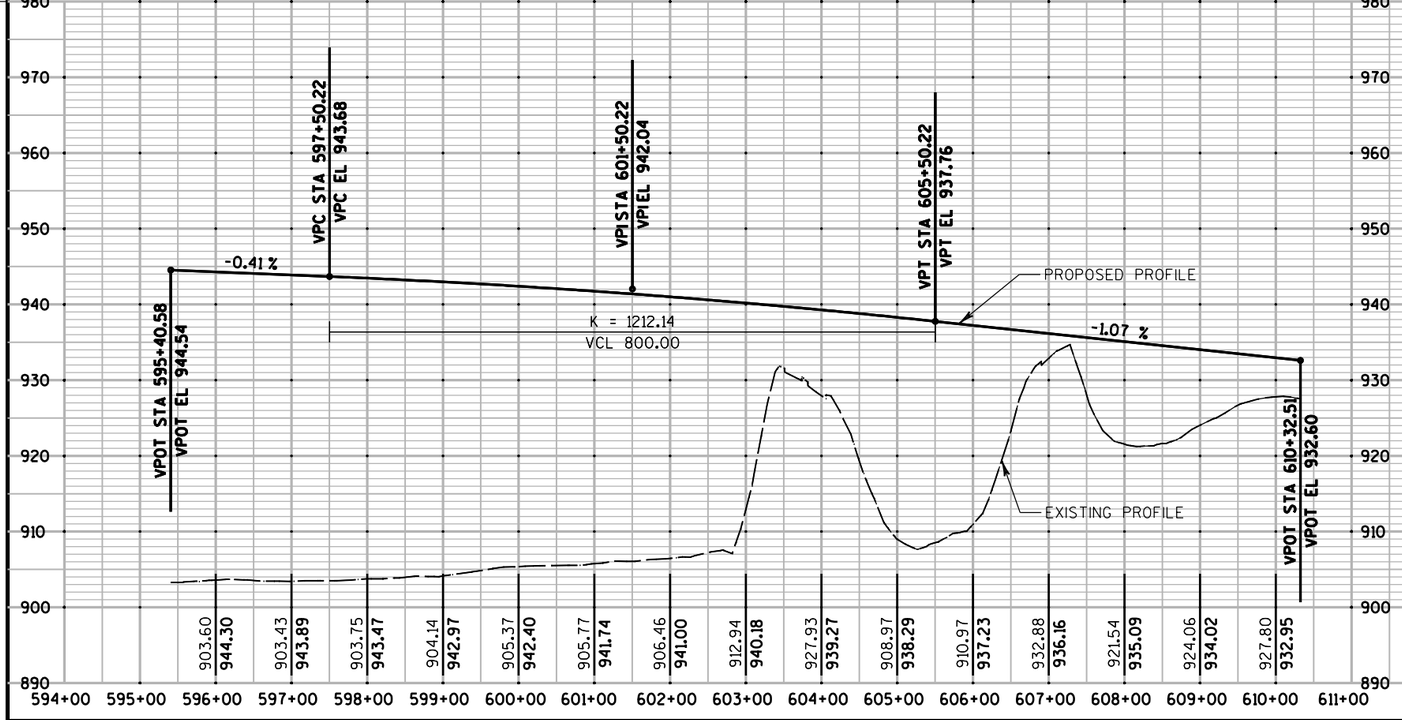
NE LOOP RAMP



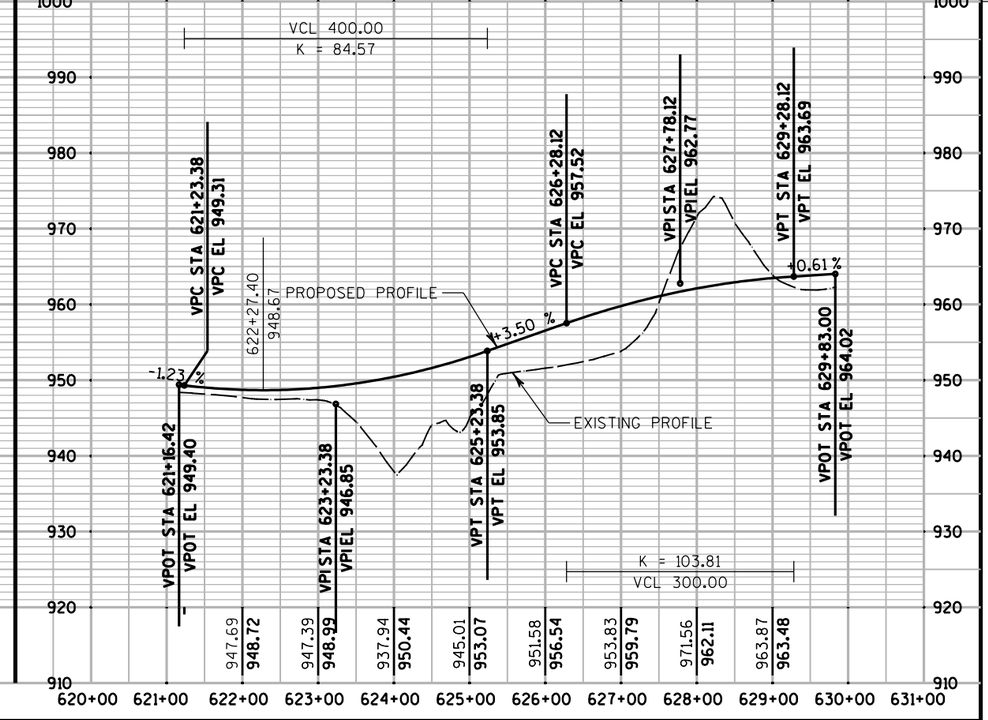
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: NORTH LOOP RAMPS	SHEET	E



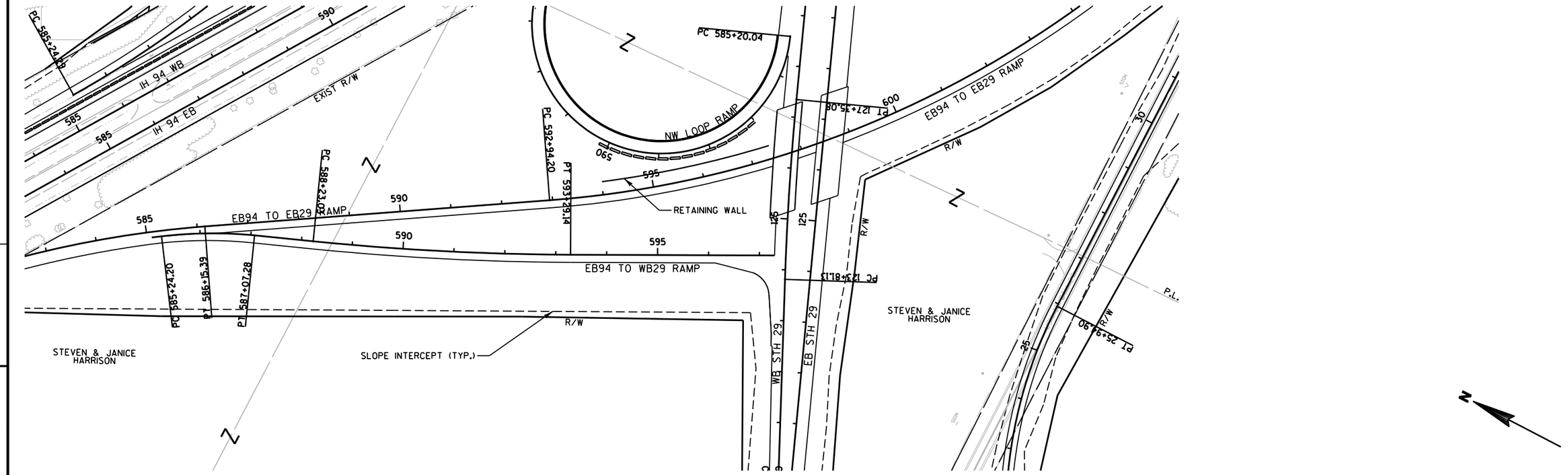
SW LOOP RAMP

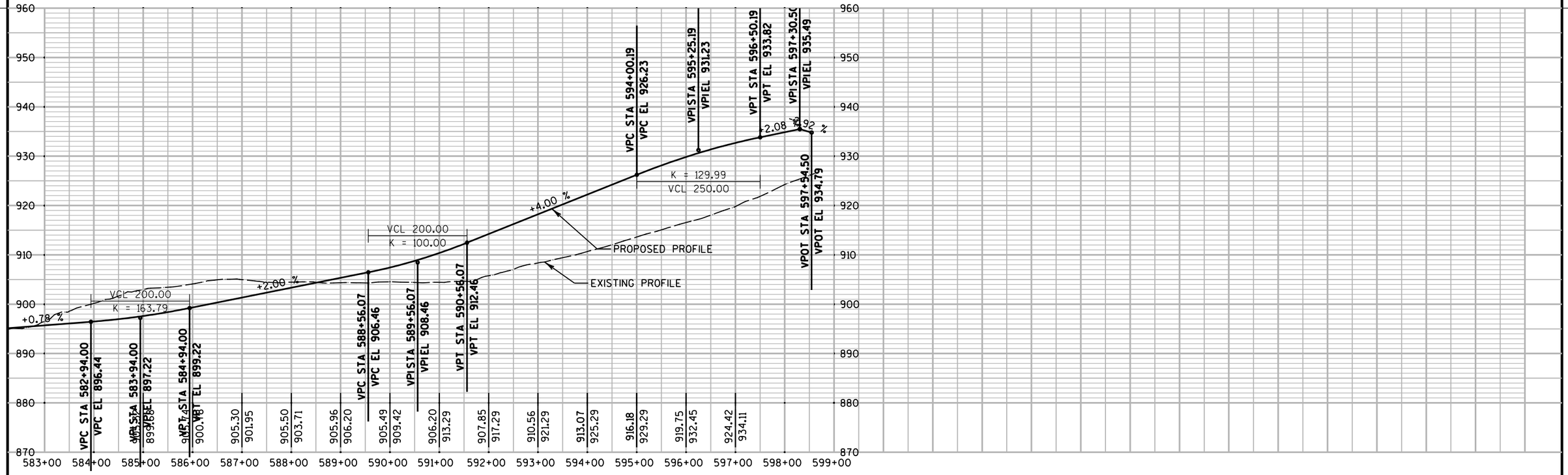


WB IH-94 TO EB STH 29

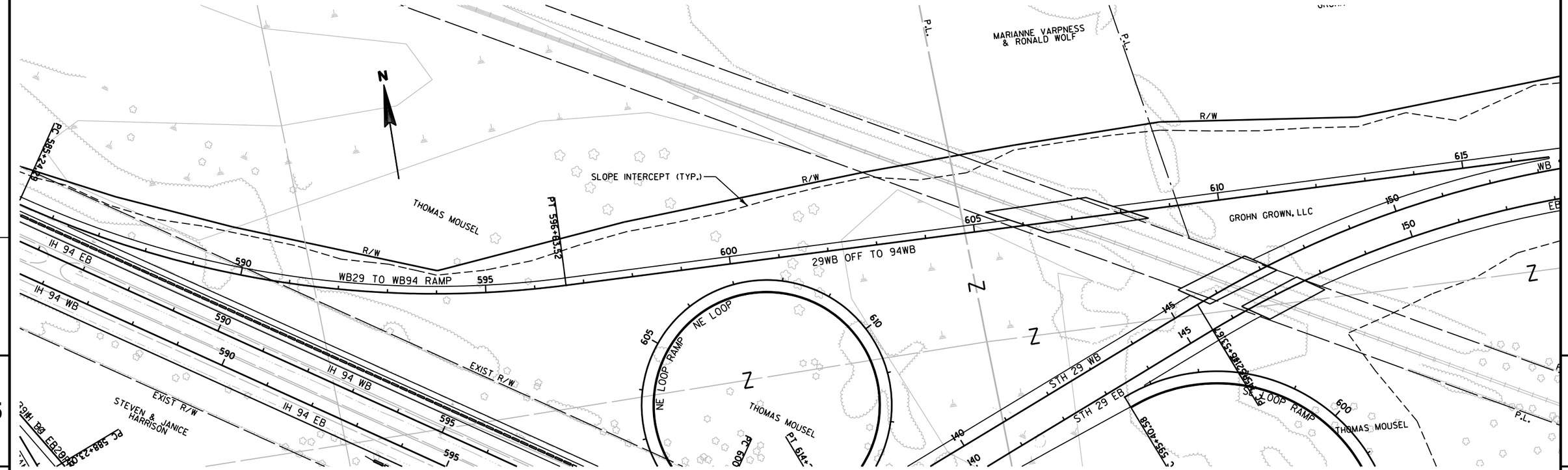


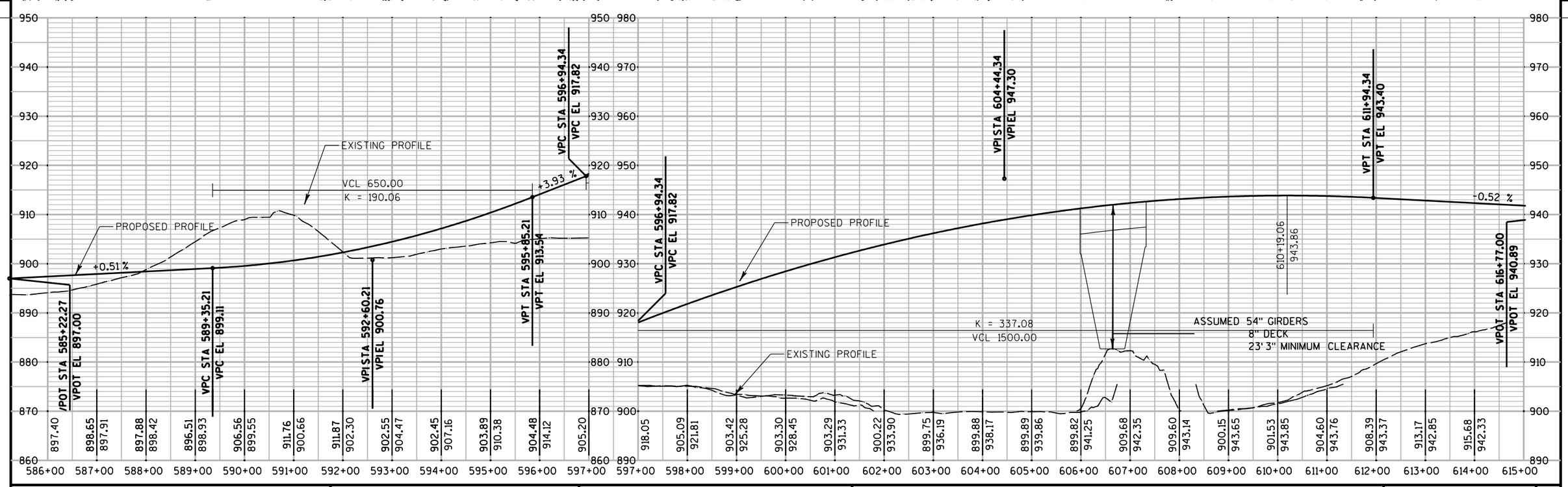
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: SW LOOP RAMP	SHEET	E



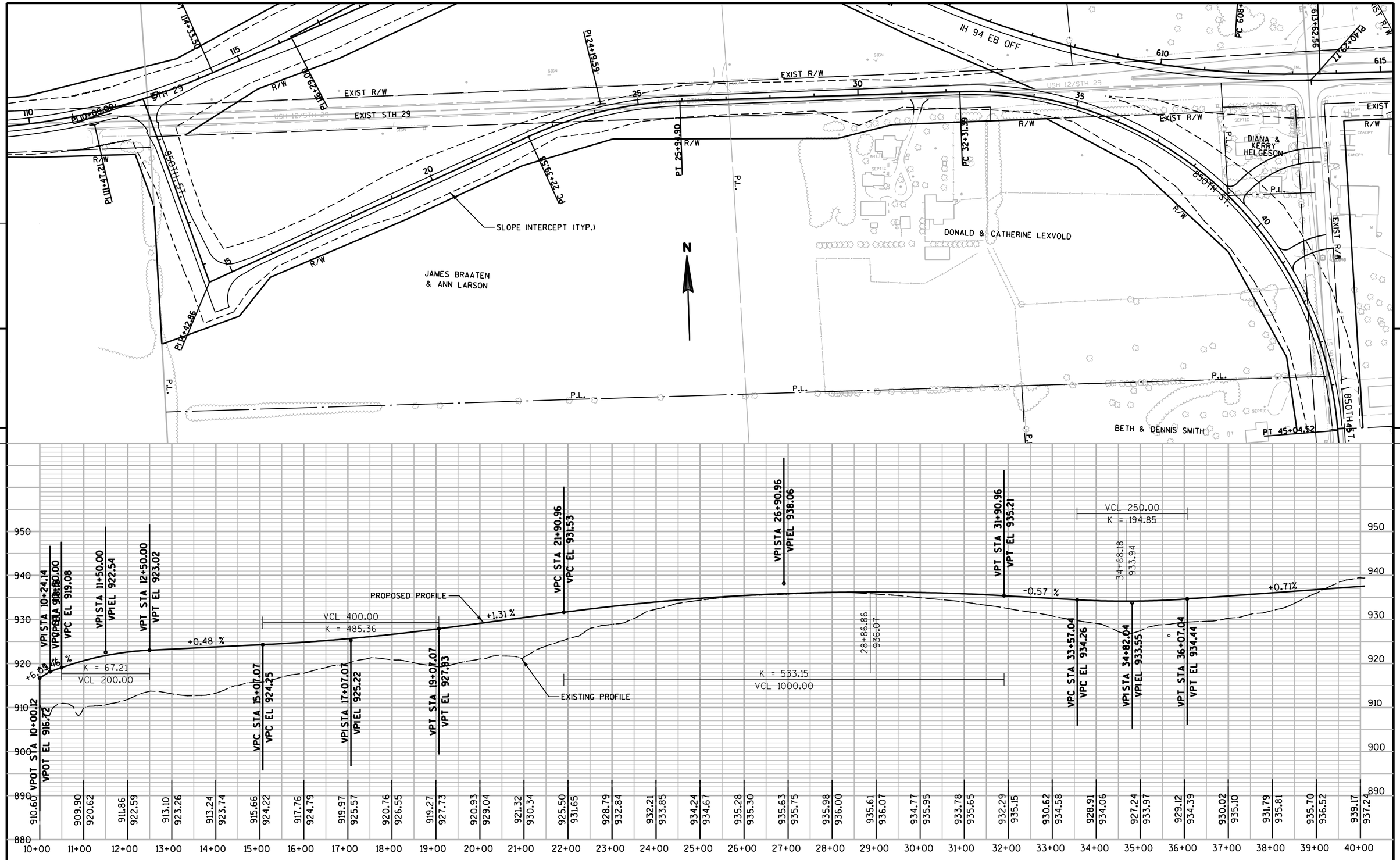


PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: EB IH-94 TO WB STH 29	SHEET	E





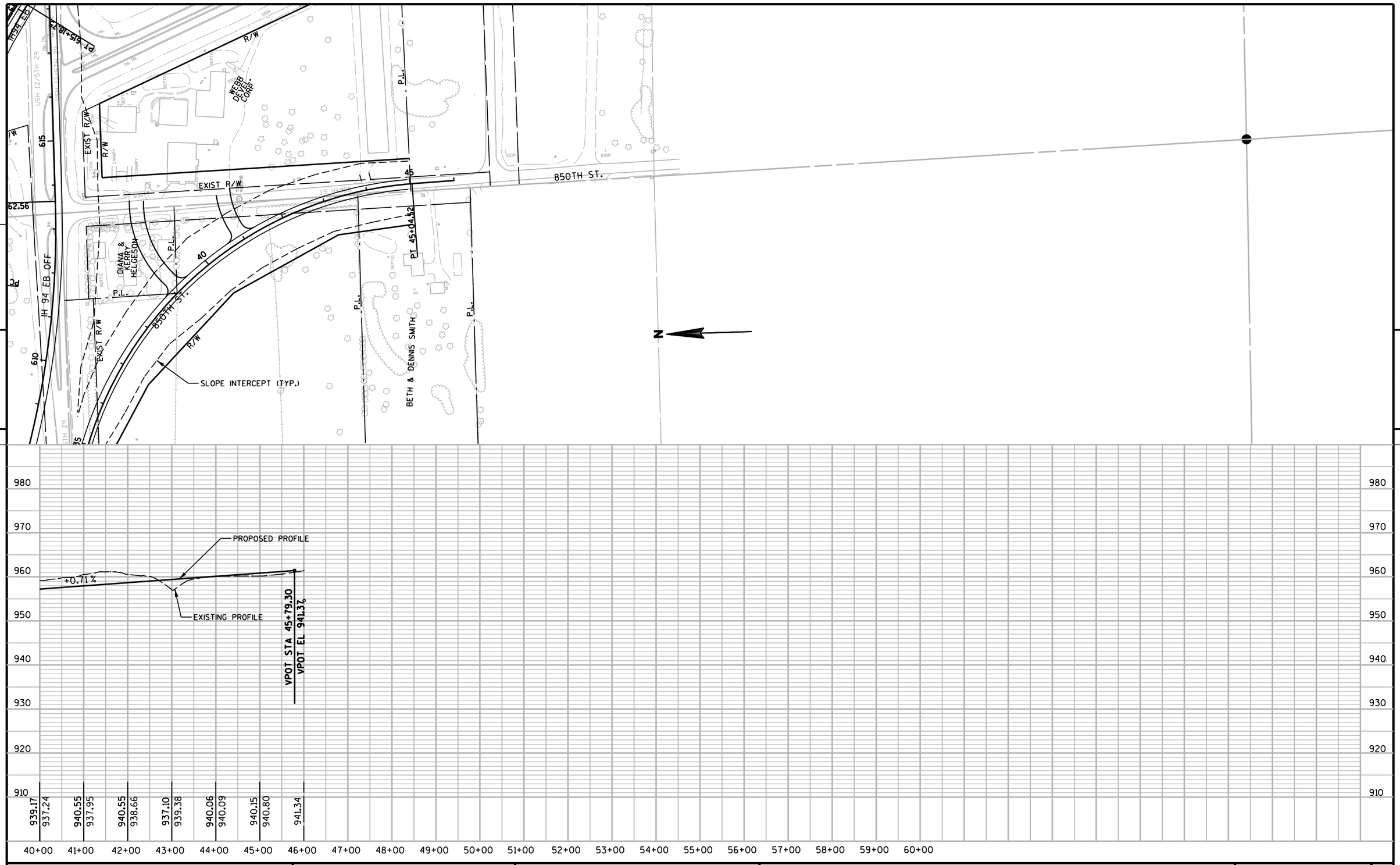
PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: IH-94 WB ON RAMP	SHEET	E



PROJECT NO: 1020-09-01	HWY: IH 94	COUNTY: DUNN	PLAN & PROFILE: 850TH STREET	SHEET	E

FILE NAME : G:\WDOTNW\WNW600832\INTERCHANGE\Plan Sheets\08032pp22.dgn PLOT DATE : 11/14/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :

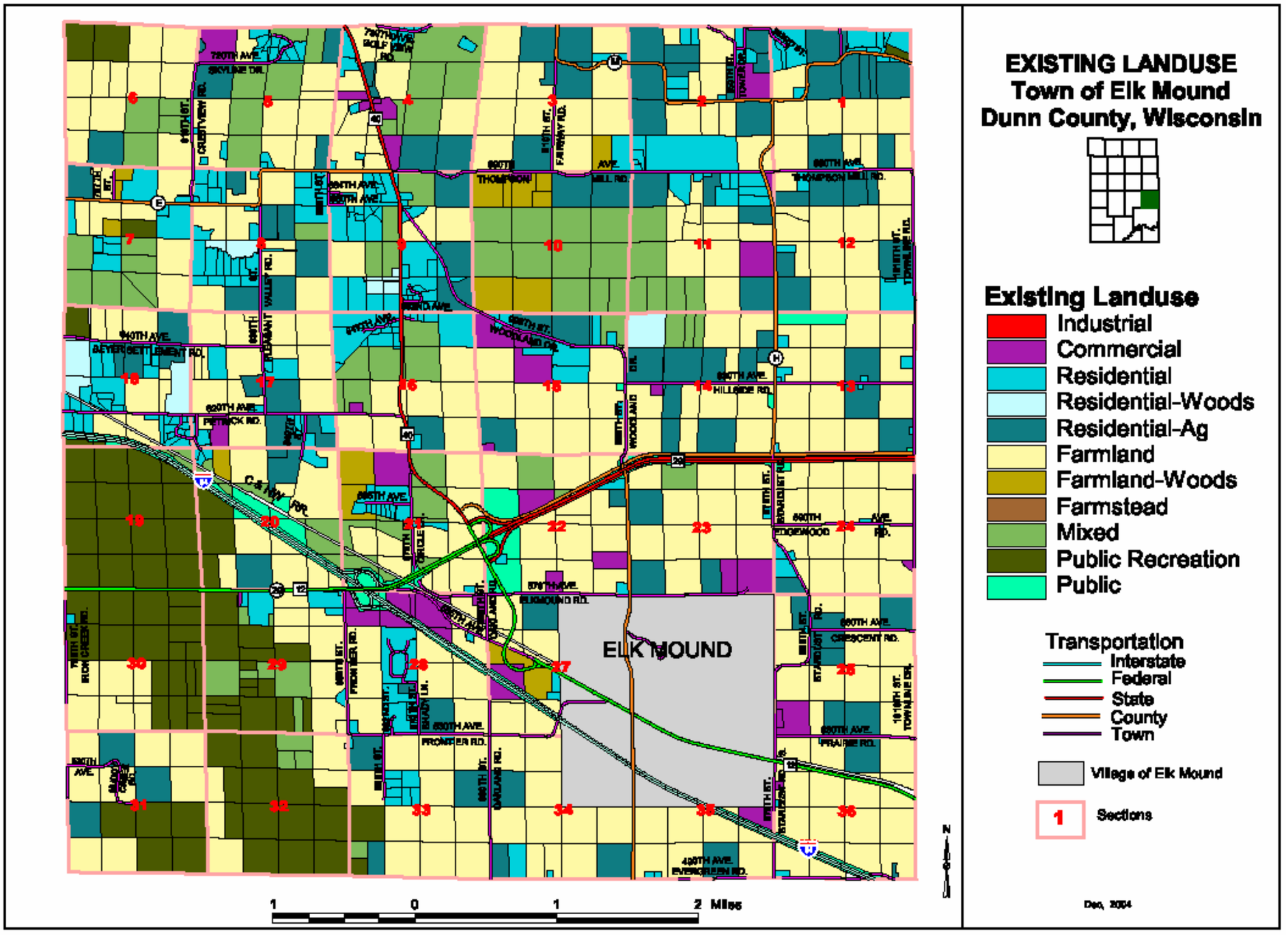
WISDOT/CADDS SHEET 40



PROJECT NO: 1020-09-01	HWY: IH94	COUNTY: DUNN	PLAN & PROFILE: 850TH STREET	SHEET	E

FILE NAME : G:\WDOTNW\WNW600832\INTERCHANGE\Plan Sheets\08032pp23.dgn PLOT DATE : 11/14/2014 PLOT BY : KL Engineering PLOT NAME : PLOT SCALE :

APPENDIX E
Regional Planning Documentation



EXISTING LANDUSE
Town of Elk Mound
Dunn County, Wisconsin

Existing Landuse

- Industrial
- Commercial
- Residential
- Residential-Woods
- Residential-Ag
- Farmland
- Farmland-Woods
- Farmstead
- Mixed
- Public Recreation
- Public

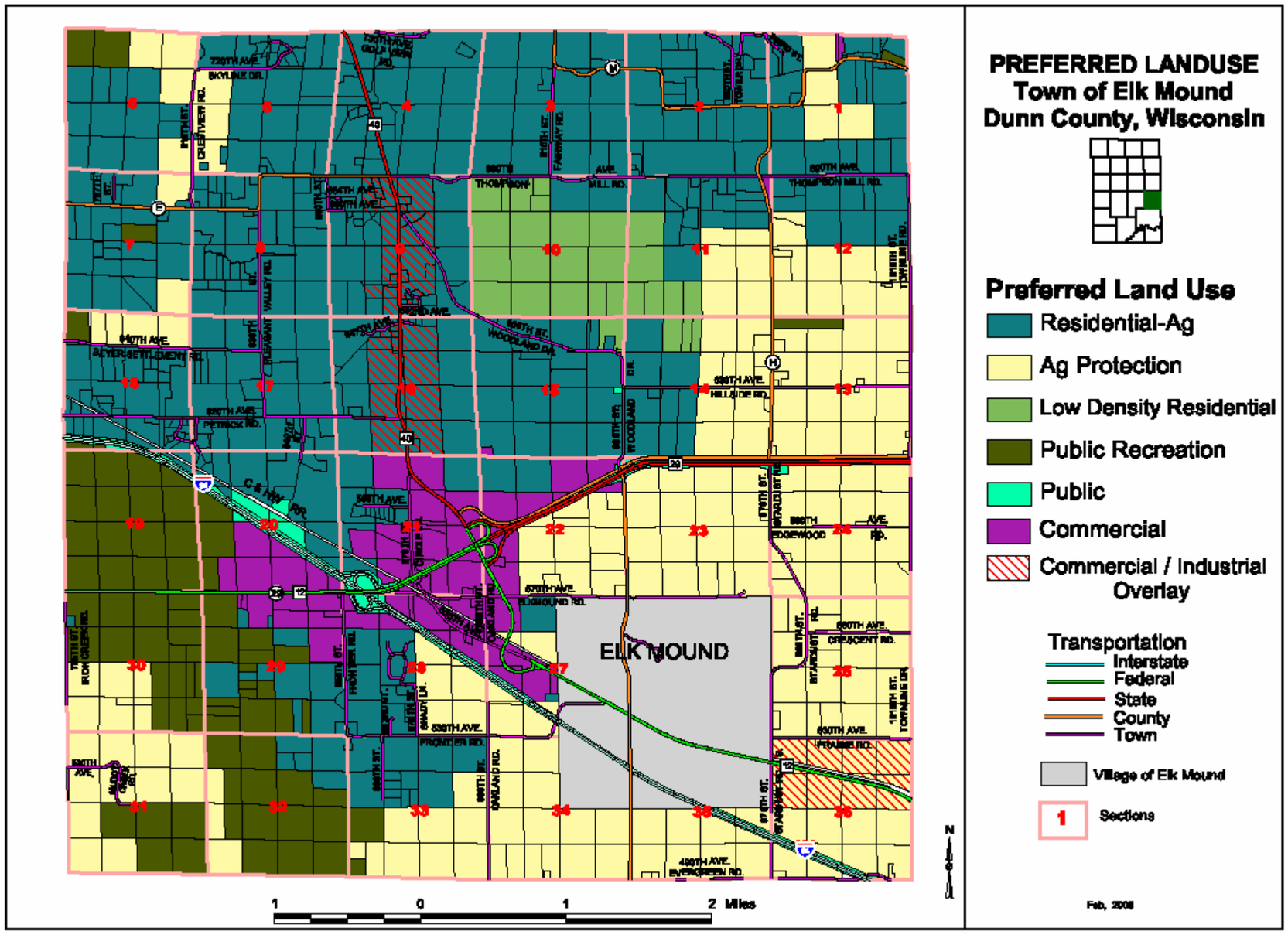
Transportation

- Interstate
- Federal
- State
- County
- Town

Village of Elk Mound

1 Sections

Dec, 2004



PREFERRED LANDUSE
Town of Elk Mound
Dunn County, Wisconsin

Preferred Land Use

- Residential-Ag
- Ag Protection
- Low Density Residential
- Public Recreation
- Public
- Commercial
- Commercial / Industrial Overlay

Transportation

- Interstate
- Federal
- State
- County
- Town

- Village of Elk Mound
- 1 Sections

Feb, 2008

APPENDIX F
Environmental Assessment

ENVIRONMENTAL EVALUATION OF FACILITIES DEVELOPMENT ACTIONS

Wisconsin Department of Transportation

Basic Sheet 1

Project ID 1020-09-01	**Project Termini** Menomonie – Eau Claire Road	**Funding Sources (Check all that apply)** ☒ Federal ☒ State ☐ Local
Route Designation (if applicable) National Highway System (NHS) Route ☒ Yes ☐ No	**Nearest Community** City of Menomonie Town of Elk Mound Town of Red Cedar	**Estimated IH 94 Mainline Project Cost** $67.8 million (2010 dollars, including real estate) **Estimated IH 94/US 12/STH 29 Interchange Project Cost** $44.3 million (2010 dollars, including real estate)
Project Name IH 94 Mainline Mapping Project under 84.295 IH 94/USH 12/STH 29 Interchange Mapping Project under 84.295		
County Dunn	**Section-Township-Range** Township 28 Range 12 W Sections 13,14,15,16,17,18 Range 11 W Sections 18,19,20,21,28,29	**Right of Way Acquisition** The proposed action is corridor preservation and official mapping project under Wis. Stat. 84.295 **STH 29 Interchange**: Proposed mapped area is approximately 148 acres. **IH 94 Mainline:** Proposed mapped area is approximately 4 acres.
Bridge Number(s), if applicable B-17-0059 (STH 29 over IH94 Westbound) B-17-0060 (STH 29 over IH94 Eastbound) B-17-41 (Stokke Pkwy under IH94) Mainline B-17-144 (CTH BB under IH94) B-17-145 (CTH BB under IH94) B-17-43 (CTH E under IH94) B-17-44 (Ney Rd under IH94)	**Scheduled start date** Mapping; July 2014 Construction is not programmed at this time.	

Functional Classification of Existing Route	Urban	Rural
Freeway/Expressway	☐	☒
Principal Arterial	☐	☒
Minor Arterial	☐	☐
Major Collector		☐
Minor Collector		☐
Collector	☐	
Local	☐	☐
No Functional Class	☐	☐

WisDOT Project Classification	
Resurfacing	☐
Pavement Replacement	☐
Reconditioning	☐
Expansion	☐
Bridge Rehabilitation	☐
Bridge Replacement/Expansion	☐
A "Majors" Project	☐
SHRM	☐
Preventive Maintenance	☐
Safety	☐
Corridor Preservation for future reconstruction.	☒

☐ **FHWA Categorical Exclusion, Type 2c**

☒ **FHWA Environmental Assessment. No significant Impacts Indicated by Initial Assessment.**

(Signature) 07/19/13 (Date)

SR. Enviro Mgr, KL Engineering
(Title) (Company/Org.)

(Signature) 7/23/13 (Date)
(Director, Bureau of Equity & Environmental Services)

(Signature) 7/19/13 (Date)

WisDOT Project Manager
(Title) (Company/Org.)

Peter M. Garcia
(Signature) (Date)
(☐ FHWA ☐ FAA ☐ FTA ☐ FRA)

Digitally signed by Peter M. Garcia
DN: cn=Peter M. Garcia, o=WI Division, ou=FHWA, email=pete.garcia@dot.gov, c=US
Date: 2013.08.08 08:57:47 -05'00'

(Signature) (Date) (Title)
(☐ Region ☐ Aeronautics ☐ Rails & Harbors)

After reviewing and addressing substantive public comments, updating the Environmental Assessment (EA) and coordinating with other agencies, it is determined this action:

A Will not significantly affect the quality of the human environment. This document is a [X] Finding of No Significant Impact (FONSI)

B Has potential to significantly affect the quality of the human environment [ ] Environmental Impact Statement (EIS) Required

KL Engineering, Inc. 12/17/2014 Sr. Enviro. Mgr.
(Signature) (Company/Org.) (Date) (Title)

for 2/27/15
(Signature) (Date) (Title)
(Director, Bureau of Technical Services)

(Signature) (Company/Org.) (Date) (Title)

Jeff Abboud
Digitally signed by Jeff Abboud
DN: cn=Jeff Abboud, o=WisDOT NW Region, ou=Planning, email=jeffry.abboud@dot.wi.gov, c=US
Date: 2015.02.17 15:33:26 -06'00'
(Signature) (Date) (Title)
([X] Region [ ] Aeronautics [ ] Rails & Harbors)

(Signature) (Date) (Title)
([ ] FHWA [ ] FAA [ ] RITA [ ] FRA)

PETER M GARCIA

Digitally signed by PETER M GARCIA
DN: c=US, o=U.S. Government, ou=DOT FHWAMadisonWI, ou=FHWA FHWAMadisonWI, cn=PETER M GARCIA
Date: 2015.03.19 10:55:59 -05'00'

Project ID#: 1020-09-01

ENVIRONMENTAL ADDENDUM A

Wisconsin Department of Transportation

Alternative **Mainline Two (IH 94 Corridor)** **North IH 94/US 12/STH 29 Interchange**	Total Length of Center Line of Existing Roadway **8.5 miles** Length of This Alternative **8.5 miles**
Preferred ☒ Yes ☐ No ☐ None Identified	

1. **Date(s) of Public Notice:** May 14, 2014 and June 4, 2014 (Dunn County News)
   May 15, 2014 and June 5, 2014 (Eau Claire Leader-Telegram)

2. **In: (Name of Newspaper):** Dunn County News and Eau Claire Leader-Telegram

3. **Dates Environmental Assessment made available to public**:
   From: May 14, 2014
   To: June 16, 2014

4. **Public Hearing**:
   - ☐ Was not required, explain: _____
   - ☒ Opportunity was given but no hearing was held.
     - ☒ No requests for a public hearing were received. (see below)
     - ☐ Requests for a public hearing were not substantial.
   - ☐ Was held _____

5. **Summarize comments from the Public Hearing and Public Notice of Availability. Characterize public support or opposition to the project. Include a summary of the changes to the environmental document and the project resulting from comments:** (Note: Alternatives proposed by the public and subsequently rejected should be identified and the reasons for rejecting them included.)

   The Notice of Opportunity to Request a Public Hearing and Notice of Availability of the Environmental Assessment is presented in Attachment 1.

   During the Public Availability period, a Public Hearing was requested by the Town of Elk Mound in a letter dated May 23, 2014. A copy of the letter is presented in Attachment 2. Following the request, WisDOT representatives appeared at an Elk Mound Town Board meeting, at the request of the Board. Following the meeting, the Town of Elk Mound rescinded its request for a Public Hearing in a letter dated June 12, 2014. A copy of that letter is presented in Attachment 2.

   WisDOT also received approximately 5 phone calls from local citizens who had general questions about the project. No changes to the project or environmental document resulted from these comments.

6. **Describe selected alternative**:
   - ☒ Selected alternative is the same as that described on form DT2094, Environmental Evaluation of Facilities Development Actions.
   - ☐ Selected alternative is different from that described on form DT2094, Environmental Evaluation of Facilities Development Actions. Explain changes and why another alternative was selected.

Attachment 1
Notice of Opportunity to Request a Public Hearing and Notice of Availability of the Environmental Assessment

Project ID#: 1020-09-01

NOTICE OF OPPORTUNITY TO REQUEST A PUBLIC HEARING
ON THE IH 94 MAINLINE AND IH 94/USH 12/STH 29 MAPPING PROJECT
AND NOTICE OF AVAILABILITY OF
THE ENVIRONMENTAL ASSESSMENT FOR THE
IH 94 MAINLINE AND IH 94/USH 12/STH 29 MAPPING PROJECT
BETWEEN THE RED CEDAR RIVER AND STH 29

ALL INTERESTED PERSONS are advised of an opportunity to request a public hearing by the Wisconsin Department of Transportation (WisDOT) to consider the environmental aspects of the IH 94 project between Menomonie and Eau Claire Road, in Dunn County, Wisconsin. The hearing will include those aspects that may require application to the U.S. Army Corps of Engineers for the placement of fill materials into waters of the United States.

The purpose of the project, consistent with Wisconsin State Statute 84.295 (10)(a), is to preserve right-of-way in the corridor for **a**)8.5 miles of planned reconstruction of the IH 94 mainline in eastern Dunn County, and **b**) the reconstruction of the USH 12/WIS 29 interchange at IH 94. This action will result in an Official Map under Wisconsin State Statute 84.295 (10)(a), which allows the Wisconsin Department of Transportation (WisDOT) to more adequately serve the present and anticipated future needs of highway travel in the corridor and prevent conflicting and costly economic development on lands needed for future highway right-of-way. At a minimum, any future actions resulting from this project will require environmental evaluation and documentation, as specified in Wisconsin Administrative Code Trans 400.

Further information concerning the mapping project is available at the WisDOT Region Office in Eau Claire, Wisconsin, at the address given below. Information can also be viewed online at http://www.dot.wisconsin.gov/projects/nwregion/94dunn/environ.htm.

A public hearing may be requested by individuals to whom the proposed project is of significant concern. The hearing request should indicate the concerns and reasons why a hearing is requested.

Before making a request for a public hearing, persons are encouraged to contact Jeff Abboud at (715) 855-7661 to express their views and discuss those aspects of the proposal that are of concern.

A request for a public hearing may be made by submitting a written request via U.S. mail to the WisDOT project manager contact listed below on or before June 16, 2014.

If a hearing is held, it will consider design and official mapping aspects of IH 94 between Menomonie and Eau Claire Road, in Dunn County, Wisconsin in accordance with the provisions of Section 84.295(10) of the Wisconsin Statutes; as well as the social, economic, and environmental impacts and effects (including those impacts and effects for which permit application to the U.S. Army Corps of Engineers may be required pursuant to Section 404 of the Federal Clean Water Act); and whether the improvement is or is not in the public interest and consistent with the goals and objectives of area planning.

If a hearing is held, notice of the time and place of the hearing will be published in area newspapers.

It is anticipated that the relocation of one residence will occur as a result of the proposed improvement. Any person who feels that he or she may be thus affected by the proposed improvement may obtain relocation assistance information by contacting Nanette Vetsch, from the Department's Northwest Region Real Estate Office at (715) 836-2080.

ALL INTERESTED PERSONS are further notified of the availability of an Environmental Assessment of the proposal's impacts and effects that has been prepared and filed according to the Wisconsin and National Environmental Policy Acts. This document indicates that no significant environmental impacts are anticipated to occur as a result of this study. The Environmental Assessment is available for inspection and copying at the following locations:

Wisconsin Department of Transportation
Northwest Region
718 West Clairemont Avenue
Eau Claire, WI 54701

Bureau of Equity and Environmental Services
Wisconsin Department of Transportation
4802 Sheboygan Avenue, Room 451
P.O. Box 7965
Madison, Wisconsin 53707-7965

Copies are also available at the following location:

Elk Mound Village Hall E206 Menomonie Street Elk Mound, WI 54739

There may be a charge for copying service. An online copy can be viewed at the project website: http://www.dot.wisconsin.gov/projects/nwregion/94dunn/environ.htm.

Note: The Region Office is wheelchair accessible and the hearing impaired can contact the WisDOT Project Manager Jeff Abboud via The Wisconsin Telecommunications Relay System (dial 711).

Persons with an interest in or knowledge of historical and archaeological resources in the project area are invited to include such information as part of any comments submitted or contact the WisDOT Northwest Region.

Comments regarding the environmental impacts and effects of the proposed improvement are invited to be submitted via U.S. mail or e-mail to the WisDOT contact person listed below.

Jeff Abboud, Project Manager
Wisconsin Department of Transportation
Northwest Region
718 West Clairemont Avenue
Eau Claire, WI 54701
Jeffry.Abboud@dot.wi.gov
(715) 855-7661

Wisconsin Department of Transportation
Division of Transportation System Development

Project # 1020-09-01

Attachment 2
Town of Elk Mound May 23, 2014 Letter
Town of Elk Mound June 12, 2014 Letter

Project ID#: 1020-09-01

Town of Elk Mound
Carolyn Loechler, Clerk

N6936 810th Street
Elk Mound, WI 54739
dcloechler@yahoo.com

May 23, 2014

Jeff Abboud, Project Manager
Wisconsin Department of Transportation
Northwest Region
718 West Clairemont Avenue
Eau Claire, WI 54701

Dear Mr. Abboud,

I am writing to request a public hearing for I-94 project between Menomonie and Eau Claire Road to consider the environmental impacts on our town residents. Please let me know the date time and place that the hearing will be held and I will pass that information on to the Town of Elk Mound board members.

Thank you for your time and consideration.

Sincerely,

Carolyn Loechler, Clerk
Town of Elk Mound

Town of Elk Mound
Carolyn Loechler, Clerk

N6936 810th Street
Elk Mound, WI 54739
dcloechler@yahoo.com

June 20, 2014

Jeff Abboud, Project Manager
Wisconsin Department of Transportation
Northwest Region
718 West Clairemont Avenue
Eau Claire, WI 54701

Dear Mr. Abboud,

The Town of Elk Mound is rescinding its request for a public hearing on the environmental impact of the I-94 project. Thank you for the information that you presented to the Town on June 12, 2014. It was extremely helpful and the Board will use this information to explain the project to our citizens. Thank you for your time.

Sincerely,

Carolyn Loechler

Carolyn Loechler, Clerk
Town of Elk Mound

ENVIRONMENTAL EVALUATION OF FACILITIES DEVELOPMENT ACTIONS

Wisconsin Department of Transportation

Basic Sheet 1

Project ID 1020-09-01	**Project Termini** Menomonie – Eau Claire Road	**Funding Sources (Check all that apply)** ☒ Federal ☒ State ☐ Local
Route Designation (if applicable) National Highway System (NHS) Route ☒ Yes ☐ No	**Nearest Community** City of Menomonie Town of Elk Mound Town of Red Cedar	**Estimated IH 94 Mainline Project Cost** $67.8 million (2010 dollars, including real estate) **Estimated IH 94/US 12/STH 29 Interchange Project Cost** $44.3 million (2010 dollars, including real estate)
Project Name IH 94 Mainline Mapping Project under 84.295 IH 94/USH 12/STH 29 Interchange Mapping Project under 84.295		
County Dunn	**Section-Township-Range** Township 28 Range 12 W Sections 13,14,15,16,17,18 Range 11 W Sections 18,19,20,21,28,29	**Right of Way Acquisition** The proposed action is corridor preservation and official mapping project under Wis. Stat. 84.295 **STH 29 Interchange**: Proposed mapped area is approximately 148 acres. **IH 94 Mainline:** Proposed mapped area is approximately 4 acres.
Bridge Number(s), if applicable B-17-0059 (STH 29 over IH94 Westbound) B-17-0060 (STH 29 over IH94 Eastbound) B-17-41 (Stokke Pkwy under IH94) Mainline B-17-144 (CTH BB under IH94) B-17-145 (CTH BB under IH94) B-17-43 (CTH E under IH94) B-17-44 (Ney Rd under IH94)	**Scheduled start date** Mapping; July 2014 Construction is not programmed at this time.	

Functional Classification of Existing Route	Urban	Rural
Freeway/Expressway	☐	☒
Principal Arterial	☐	☒
Minor Arterial	☐	☐
Major Collector		☐
Minor Collector		☐
Collector	☐	
Local	☐	☐
No Functional Class	☐	☐

WisDOT Project Classification	
Resurfacing	☐
Pavement Replacement	☐
Reconditioning	☐
Expansion	☐
Bridge Rehabilitation	☐
Bridge Replacement/Expansion	☐
A "Majors" Project	☐
SHRM	☐
Preventive Maintenance	☐
Safety	☐
Corridor Preservation for future reconstruction.	☒

☐ **FHWA Categorical Exclusion, Type 2c**

☒ **FHWA Environmental Assessment. No significant Impacts Indicated by Initial Assessment.**

07/19/13
(Signature) (Date)
SR Enviro Mgr, KL Engineering
(Title) (Company/Org.)

7/23/13
(Signature) (Date)
(Director, Bureau of Equity & Environmental Services)

7/19/13
(Signature) (Date)
WisDOT Project Manager
(Title) (Company/Org.)

Peter M. Garcia
(Signature) (Date)
(☐ FHWA ☐ FAA ☐ FTA ☐ TRA)

Digitally signed by Peter M. Garcia
DN: cn=Peter M. Garcia, o=WI Division, ou=FHWA, email=pete.garcia@dot.gov, c=US
Date: 2013.08.08 08:57:47 -05'00'

(Signature) (Date) (Title)
(☐ Region ☐ Aeronautics ☐ Rails & Harbors)

After reviewing public comments and coordinating with other agencies, it is determined that this action:

A) Will not significantly affect the quality of the human environment. This document is a:
☐ Finding of No Significant Impact (FONSI)

B Has potential to significantly affect the quality of the human environment:
☐ Environmental Impact Statement (EIS) Required

_____
(Signature) (Company/Org.) (Date) (Title)

_____
(Signature) (Company/Org.) (Date) (Title)

_____
(Signature) (Date) (Title)
(☐ Region ☐ Aeronautics ☐ Rails & Harbors)

_____
(Signature) (Date) (Title)

(Director, Bureau of Equity & Environmental Services)

_____
(Signature) (Date) (Title)
(☐ FHWA ☐ FAA ☐ FTA ☐ FRA)

1. Description of proposed action:

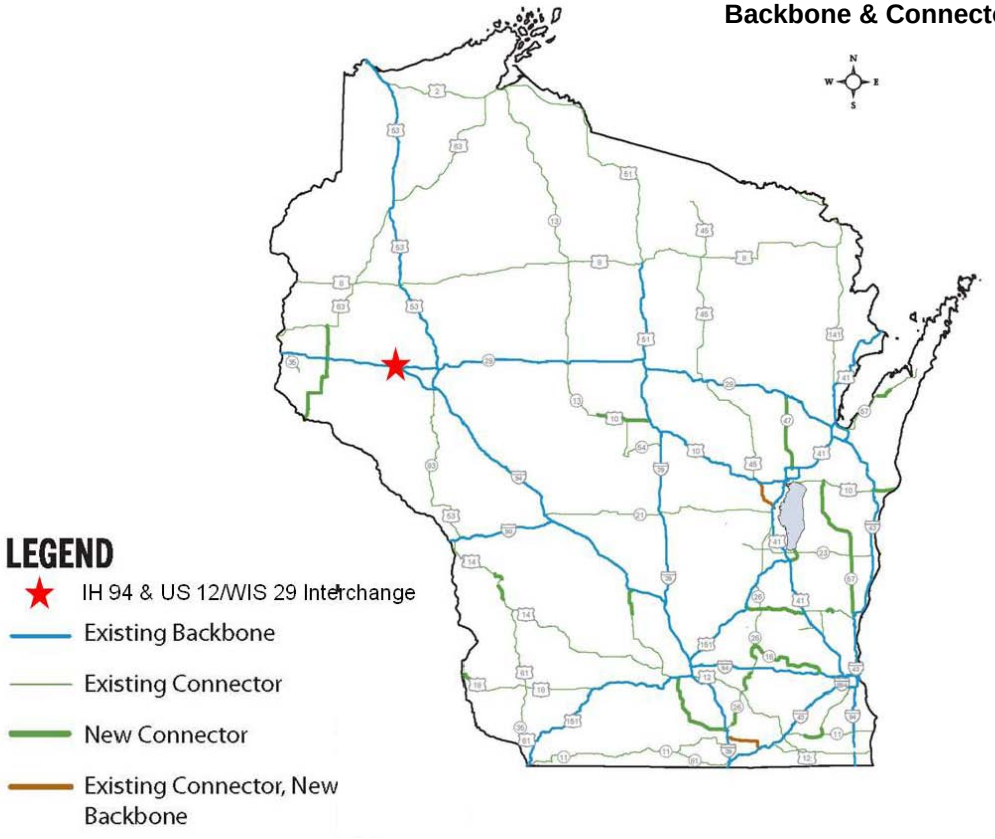
Purpose of proposed action:
The purpose of this project, consistent with Wisconsin State Statute 84.295 (10)(a), is to preserve right-of-way (ROW) in the corridor for (1) 8.5 miles of planned reconstruction of the IH 94 mainline in eastern Dunn County and (2) the reconstruction of USH 12/STH 29 Interchange at IH 94. This action will result in an official map under Wisconsin State Statute 84.295 (10)(a)[1], which allows the Department of Transportation (WisDOT) to more adequately serve the present and anticipated future needs of highway travel in the corridor and prevent conflicting and costly economic development on lands needed for future highway ROW. At a minimum, any future actions resulting from this project will require additional environmental evaluation and documentation, as specified in Wisconsin Administrative Code Trans 400[2].

2. Need for the Proposed Action

A. System Linkage and Route Importance

IH 94 Mainline
IH 94 is the northernmost east–west Interstate Highway in the United States and is part of the Strategic Highway Network. In Wisconsin, it is a four-lane Interstate Freeway and is identified in the Wisconsin Department of Transportation *Corridors 2030* (2009)[3] plan as an existing backbone route. The Backbone System includes the highest value multi-lane (or planned multi-lane) divided highways, which connect all regions and major economic centers in the state and are tied to the national transportation network. *Corridors 2030* places a high priority on protecting highways that connect major economic/population centers and carry long-distance, statewide traffic. Backbone and Connector routes identified in *Connections 2030* are shown below in Figure 1.

***Figure 1*: Corridors 2030 Routes: Backbone & Connector**



[1] Wisconsin State Statute 84.295 (10)(a) https://docs.legis.wisconsin.gov/statutes/statutes/84/295
[2] Wisconsin Administrative Code, *Trans* 400. https://docs.legis.wisconsin.gov/code/admin_code/trans/400
[3] 2009. Wisconsin Department of Transportation. *Connections 2030*.http://www.dot.wisconsin.gov/projects/state/2030-background.htm

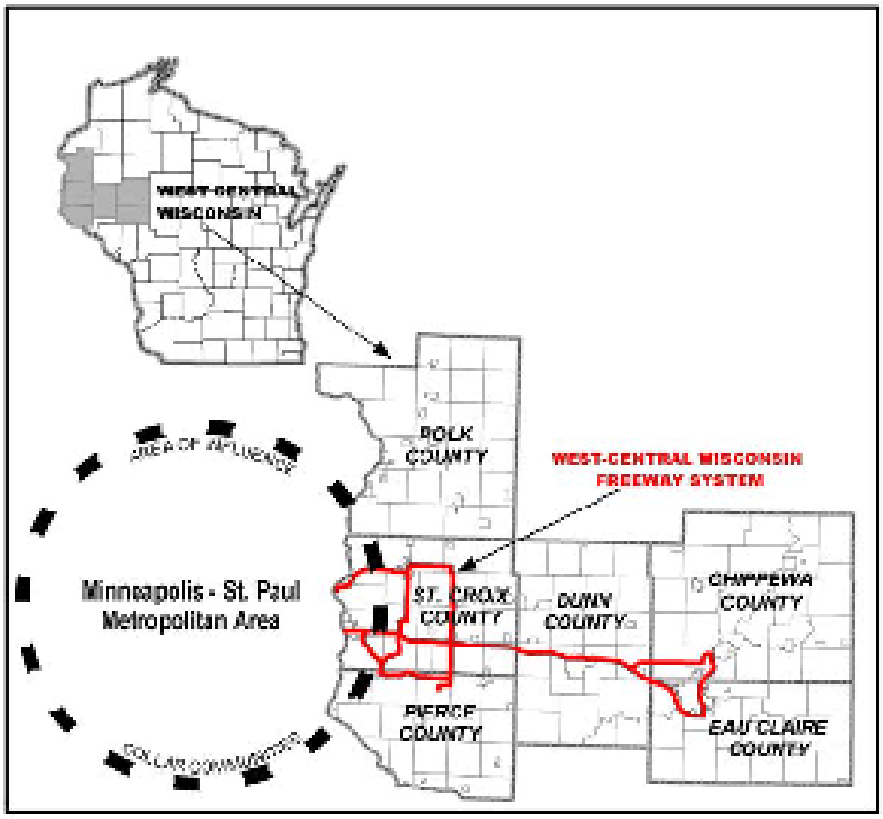
IH 94 and STH 12/29 are also critical to the regional transportation network as part of the West Central Freeway (WCF) transportation system[4] (see Figure 2). The WCF is a set of inter-dependent highways connecting West Wisconsin and the Chippewa Valley metropolitan area with the Twin Cities (Minnesota) metropolitan area. The backbone of the WCF is IH 94. On the east end, IH 94 connects with USH 53 and STH 29, two intra-state freeway facilities that link the Chippewa Valley with the Fox Valley and Superior/Duluth metro areas. On the west end, STH 35, STH 65, and USH 63 connect the rapidly growing western border counties with IH 94. In 2005, WisDOT conducted a study of the WCF to assess capacity issues. The study's findings confirm the importance of the corridor between Eau Claire and the Twin Cities Metro Area as one of the most heavily traveled corridors in Wisconsin.

- Approximately 30,000 vehicles per day use IH 94 between Menomonie and Eau Claire, Wisconsin. Twenty-five percent of those vehicles are freight trucks, underscoring the importance of the route as a freight corridor in west central Wisconsin.
- Forty miles west of the project area, vehicle use per day on IH 94 jumps to 40,000, approximately equal to the traffic volume on IH 94 between Madison and Milwaukee, Wisconsin
- Approaching the Minneapolis/St. Paul, Minnesota, metro area 50 miles west of the project area, vehicle use per day increases to 70,000, the highest interstate traffic volumes outside of southeast Wisconsin.

IH94 and STH 12/29 Interchange

STH 29 is a NHS route and a WisDOT *Corridors 2030* Backbone Route to the east of IH 94. To the west of IH 94, STH 29 is classified as a minor arterial. East of IH 94, USH 12/STH 29 is constructed as a four-lane freeway, and a two-lane rural highway west of IH 94. As noted above, STH 29 has regional significance as a component of the West Central Freeway transportation system (see Figure 2).

***Figure 2*: West-Central Wisconsin Freeway System**



[4] 2005. West Central Freeway System Study. http://www.dot.wi.gov/projects/docs/wcfexecsumm.pdf

Roadway and Interchange Deficiencies

IH 94 Mainline

The existing pavement and structures on the mainline segment of IH 94 need to be reconstructed or replaced due to age, deterioration, and outdated design standards.

Deteriorating pavement conditions require the reconstruction of the IH 94 mainline corridor. This 8.5-mile section of roadway was initially constructed in 1958 and has had several rehabilitations, the last in 2002. An asphalt resurface project is scheduled for 2015 to address immediate pavement needs. To minimize disruptions to traffic, resurfacing work will be performed at night.

The proposed corridor preservation will allow WisDOT to bring this section of the IH 94 mainline into conformance with current FHWA Interstate Standards and National Highway System design standards. WisDOT's current roadway and structure design standards, address roadway improvement needs, and maintain traffic flow during reconstruction efforts.

As part of this corridor preservation project, a detailed review of the existing IH 94 corridor infrastructure in Dunn County was completed in 2008. The review compared the existing roadway geometrics to 2008 WisDOT Facilities Development Manual (FDM) freeway design standards and found deficiencies in the clear width of drainage box culverts, shoulder width, median width and the CTH B entrance ramps configuration.

As part of this report, crashes from 2004-2007 were analyzed and the following was determined:

- Non-collision type crashes accounted for 121 (61%) of the 199 crashes and 35 (60%) of the 58 injuries. A collision type crash is defined as an incident involving a collision of one motor vehicle with another motor vehicle, other property or pedestrian. A non-collision crash is any other type of crash.
- Of the non-collision type crashes 32 (26%) were overturn type crashes, 19 (59%) of those had injuries.
- Forty seven percent of crashes occurred when the pavement condition was either wet or snowy/icy.

Substandard clear zones and inadequate slopes play a factor in the number and severity of the overturn type crashes.

The following table provides an overview of design criteria on the mainline, identifying which criteria meet WisDOT standards and which do not.

Table 1: Facility Design Criteria and Standards

Design Criteria	**Design Standard Conformance**
Design speed	Meets Standard
Lane width	Meets Standard
Shoulder width	Sub-Standard
Median width	Sub-Standard
Bridge width	Sub-Standard
Horizontal alignment	Meets Standard
Superelevation	Meets Standard
Vertical alignment	Sub-Standard
Grade	Meets Standard
Stopping sight distance	Meets Standard
Cross slope	Meets Standard
Vertical clearance	Sub-Standard
Lateral offset to obstruction	Sub-Standard
Structural capacity	Sub-Standard

IH 94 & US 12/STH 29 Interchange

The IH 94 & US 12/STH 29 interchange needs to be reconstructed in the next 20 years primarily due to the age of the IH 94 pavement and structures over USH 12/STH 29.

A March 2007 *Backbone Interchange Needs and Improvement Study (see Appendix 3)*detailed the results of a comprehensive evaluation of the IH 94 & US 12/STH 29 interchange.. The existing interchange was reviewed and analyzed for traffic, operational, safety, geometric, and structural deficiencies. Although the interchange is operating well and in general has excess capacity even at peak hours, it suffers from several substandard conditions and safety concerns.

Interchange Design Standards
To the east of IH 94, USH 12/STH 29 is currently constructed as a 4-lane expressway. Future plans include upgrading the facility to a Freeway and possibly an Interstate. During coordination with Federal Highway Administration (FHWA), WisDOT was advised to design any future interchange reconfiguration to meet freeway interstate design standards for Interstate to Interstate connection.

Interchange Safety
Crash data from 2000-2004 indicate an average of nearly 10 crashes annually associated with the interchange. The worst crash location is the IH 94 eastbound off-ramp, with 3.4 annual average crashes. The IH 94 westbound off-ramp has 2 annual average crashes. Both of these ramps are located on the narrow IH 94 bridges over USH 12/STH 29. While the crash rate is below the state-wide average, increases in traffic volume coupled with sub-standard design have the potential to increase crash rates.

Existing Interchange Deficiencies
There are four major geometric deficiencies of this interchange. Specific interchange deficiencies and their locations are shown in Figure 2 on the following page.

- IH 94 Entrance Ramp Lengths: The existing merge lengths of the IH 94 entrance ramps are shorter than current design standards.
- Site Distance: The intersection sight distance at the eastbound ramp terminal connection with USH 12/STH 29 is less than the minimum 8 seconds when looking east.
- Access Spacing: The distance between the IH 94 on-ramp and the US 12/STH 29 – Frontier Road intersection is severely sub-standard. Drivers are confused by the proximity of Frontier Road to the ramp and occasionally turn onto Frontier Road instead of the ramp.
- Bridge Clearance: The lateral clearance of the existing bridges does not meet standard because they are too narrow. The vertical clearance of the bridges does not meet clearance standards, as a result, there is a history of vehicles hitting the structures.

Figure 3: IH 94/US 12/STH 29 Interchange Deficiencies

2. Alternatives for IH-94 Mainline

No-build Alternative: No improvements to the current roadway

The purpose of the No-Build Alternative is to provide a baseline against which impacts of the proposed Build Alternatives are evaluated. In many cases, the No Build Alternative does not meet the purpose and need of the proposed action; therefore it is not considered a feasible or prudent alternative.

The No-build Alternative represents the roadway and associated structures in their present condition at the time of analysis. If no action is taken, the existing roadway and facilities will continue to deteriorate, safety concerns as a function of sub-standard design will not be corrected, and the long-term operational needs of the corridor will not be met. Based on the evaluation of alternatives and the federal, state, and regional importance of IH 94, the No Build Alternative does not satisfy the purpose and need of the project to address sub-standard design elements and deteriorating pavement to provide a safe and dependable transportation corridor.

Operational and maintenance costs associated with short-term solutions, such as repaving, continue to increase, as do the safety hazards associated with performing such operations. To reduce traffic delays and backups during peak travel times, construction activities are performed at night, which increases work zone safety concerns and is more costly.

Build Alternatives

A range of potential build alternatives and associated figures are summarized below. Each alternative upgrades the roadway to meet design standards. The median width will be upgraded to a minimum of 60 feet but could be as wide as 84 feet depending on final roadway alignment after mainline reconstruction. IH 94 shoulders and drainage culverts will be widened and CTH B will have acceleration lanes added.

Comments received during the Public Information Meetings and correspondence with federal, state, tribal, and local stakeholders have been taken into consideration during the development of the alternatives. Analysis of the alternatives considers social, economic, and environmental impacts, construction staging, right-of-way impacts, structures impacts, private property impacts, the IH 94 & USH 12/STH 29 freeway to freeway connections, and stakeholder input.

The existing corridor is adjacent to the Wisconsin Department of Natural Resources (WDNR) Muddy Creek Wildlife Area[5]. WisDOT coordinated with WDNR to avoid and minimize impacts to the wildlife area. WDNR's comments are included in Appendix 4.

IH 94 spans the Red Cedar River approximately 1 mile west of the proposed project. Bridge replacement is expected in 2013- 2014. The westbound roadway bridge will be relocated north of the existing alignment. Any build alternative must accommodate this change to provide appropriate alignment at the transition of these two projects.

[5] Wisconsin Department of Natural Resources http://dnr.wi.gov/topic/lands/WildlifeAreas/muddycreek.html

Mainline Build Alternative 1

This alternative maintains the eastbound outside shoulder point and reconstructs the westbound roadway north of the present westbound lanes, creating impacts along the north side of the corridor.

Upgrades to the median would result in a minimum width of 60 feet and a maximum width of 84 feet. Two bridge overpasses are proposed for reconstruction (structures B-17-43 CTH E and B-17-44 Ney Road) and eight drainage structures (B-17-52 eastbound and westbound, B-17-63 EB, B-17-34 WB, B-17-35 EB, B-17-36 WB, B-17-37 EB, B-17-38 WB, and B-17-39 EB). The structures at CTH B (replaced in 1996) and Stokke Parkway (replaced in 2009) are not proposed for replacement, however, structure modifications would be necessary to keep the existing structures at Stokke Parkway. The weigh station ramps between CTH E and Ney Road would be reconstructed, which would push the ramp under the structure at Ney Road and require a longer span.

Approximately 4 acres of right-of-way would be acquired from 16 parcels. Approximately 20 acres of wetlands would be impacted based on preliminary plans and existing wetland mapping.

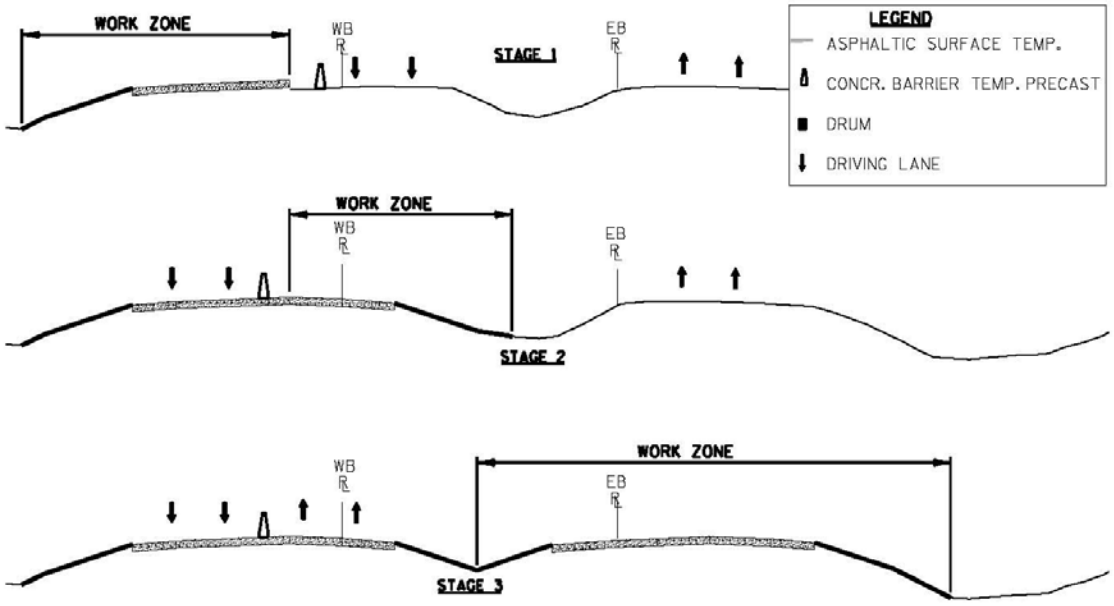
Utility impacts are limited to 1,250 feet of overhead electrical distribution and transmission lines along the north side of IH 94 near the CTH B interchange and approximately 700 feet of telephone service line inside the north IH 94 right of way from County Road E to the weigh station. Specific minimization and mitigation efforts will be addressed in future environmental documents.

Advantages

- Matches expansion of the Red Cedar River Bridge
- Lowest utility impacts

Disadvantages

- Highest wetland impacts (approximately 20.37 acres)
- Modifications required to keep Stokke Parkway bridge
- Higher impacts to weigh station
- Higher estimated cost



Mainline Build Alternative 2 (Preferred)

The Mainline Two alternative maintains the westbound outside shoulder point and reconstructs the eastbound roadway to the south of the existing eastbound lanes, creating impacts along the southern side of the corridor.

This alternative upgrades the median width to a minimum of 60' but could be as wide as 84'.-+ All structures will be replaced with the exception of CTH B (replaced in 1996) and Stokke Parkway (replaced in 2009). These bridges would not require replacement based on their 75 year service life at the anticipated construction year.

This alternative would require the acquisition of slightly more than 4 acres of additional right of way from 21 parcels and would impact 7.83 acres of wetlands. Wetland impacts are based on preliminary plans and available wetland mapping.

This alternative utilizes most of the existing ramp configuration at the weigh station between CTH E and Ney Road, with minimal reconstruction to the current facility.

Construction staging for this alternative would require modifications to match the planned expansion of the Red Cedar River Bridge to the north. The transition from north to south would occur through the newly constructed Stokke Parkway Bridge typical section. Additional widening and median barrier would also be required .

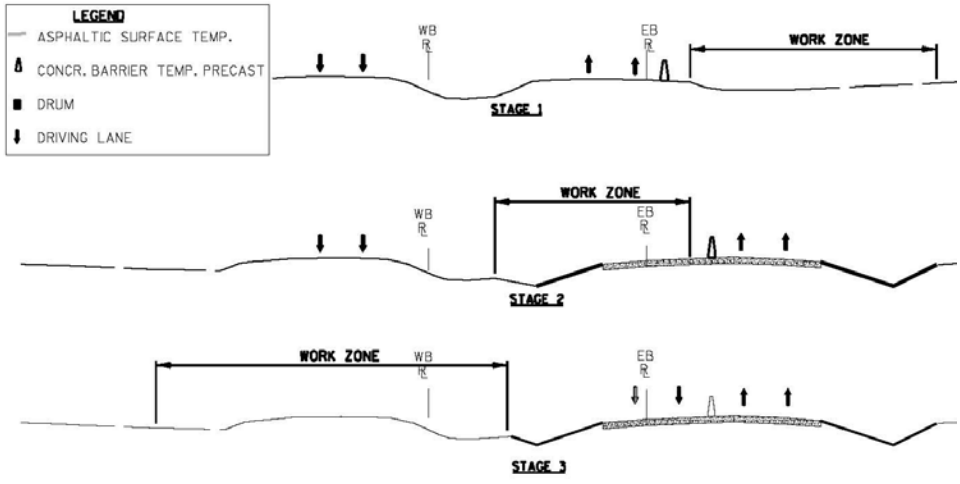
Utilities impacted are a fiber optic and copper communication line owned by AT&T, which runs the length of the project inside the south IH 94 right of way. These communication lines are impacted in 10 separate locations for a total length of approximately 11,000 feet. Specific minimization and mitigation efforts will be addressed in future environmental documents.

Advantages

- Lower wetland impacts (7.83 acres)
- Lowest estimated cost
- Lower weigh station impacts
- Requires no modifications to Stokke Parkway bridge

Disadvantages

- Highest utility impacts
- Requires transition to match Red Cedar River Bridge expansion to the north that will create more difficult construction staging.



Preferred Alternative for IH 94 Mainline

The preferred alternative for the I94 Mainline is Mainline 2 due to lower cost and fewer impacts to wetlands.

Interchange Alternatives for IH 94 & USH 12/STH 29

No-Build

This alternative includes only normal maintenance of the existing roadway and structures. This alternative was reviewed and used as a baseline for comparison with other alternatives; it **IS NOT** proposed. Continued use of this facility without improvements does not address the roadway aging and deteriorating pavement and bridges, safety needs, substandard conditions, or the long-term operational needs of the interchange. Due to the regional importance of this connection between IH 94 and STH 29, the No Build Alternative is not a feasible and prudent option.

Build Alternatives

Three build alternatives of the IH 94 & USH 12/STH 29 Interchange were evaluated as part this corridor preservation process. All of the alternatives meet the purpose and need of the project. A summary of each alternative is presented on the following pages.

The alternatives reflect input received during Public Information Meetings, including correspondence with local officials, state and federal agencies, and the general public. Comments received during Public Information Meetings and from the public were minimal and generally were directed toward maintaining business access.

The IH 94/US 12/STH 29 Interchange alternatives are designed in accordance with criteria outlined in FHWA and Interstate and NHS standards, the American Association of State Highway and Transportation Officials (AASHTO) "*A Policy of Geometric Design of Highways and Streets*" (2001), and WisDOT's Facilities Development Manual. These criteria were used to accommodate freeway vehicle movements between IH 94 and STH 29 East. To meet design standards, each alternative includes a realignment of 850th Street moving it away from the interchange to meet minimum design standards.

Comments received during the Public Information Meetings and correspondence with federal, state, tribal, and local stakeholders have been taken into consideration during the development of the alternatives. Analysis of the alternatives considers social, economic, and environmental impacts, construction staging, right-of-way impacts, structures impacts, private property impacts, the IH 94 & USH 12/STH 29 freeway to freeway connections, and stakeholder input.

Interchange Alternative 1: In-Place Reconstruction

Advantages

- Maintains Freeway to freeway free flow movement from IH 94 to STH 29 east.
- Moderate wetland impacts (5.69 acres). Wetland impacts are based on preliminary plans and available wetland mapping.
- On existing alignment; minimizes right of way impacts (Approximately 77 acres)
- Iowa Tribe of Oklahoma preferred alternative (see Agency Correspondence in Appendix 4).

Disadvantages

- Relocates two businesses.
- Relocates one residence.
- Need to raise IH 94 grade line to meet bridge clearance standards, complicates construction staging.
- Westbound US 12/STH 29 to westbound IH 94 ramp will have moderate wetland impacts.
- Westbound IH 94 to eastbound US 12/STH 29 ramp will have significant wetland impacts.
- The Town of Elk Mound has indicated a preference for the North Alternative.
- Interchange layout at existing location and need to raise the IH 94 grade line makes constructability difficult and costly, and adversely impact the traveling public.

***Figure 4*: IH 94/US 12/STH 29 Interchange: In Place Reconstruction Alternative**

Interchange Alternative 2: South Reconstruction

Advantages

- Freeway to freeway free flow movement from IH 94 to STH 29 east.
- Lower wetland impacts (approximately 5.60 acres). Wetland impacts are based on preliminary plans and available wetland mapping, and include:
  - The ramp connecting eastbound and westbound IH 94 to eastbound US 12/STH 29.
  - The connection between westbound US 12/STH 29 and westbound IH 94.

Disadvantages

- Relocates two businesses. Requires minor impacts to a third business's parking lot.
- Relocates one residence.
- Right of way impacts of approximately 94 acres.
- The Town of Elk Mound has indicated a preference for the North Alternative.
- Interchange layout at existing location east of IH 94 makes constructability difficult and costly, and adversely impacts the traveling public.
- Significant upland impacts due to expansions in the southwest quadrant of the project area.

Figure 5: IH 94/US 12/STH 29 Interchange: South Reconstruction Alternative

Interchange Alternative 3: North Reconstruction (Preferred).

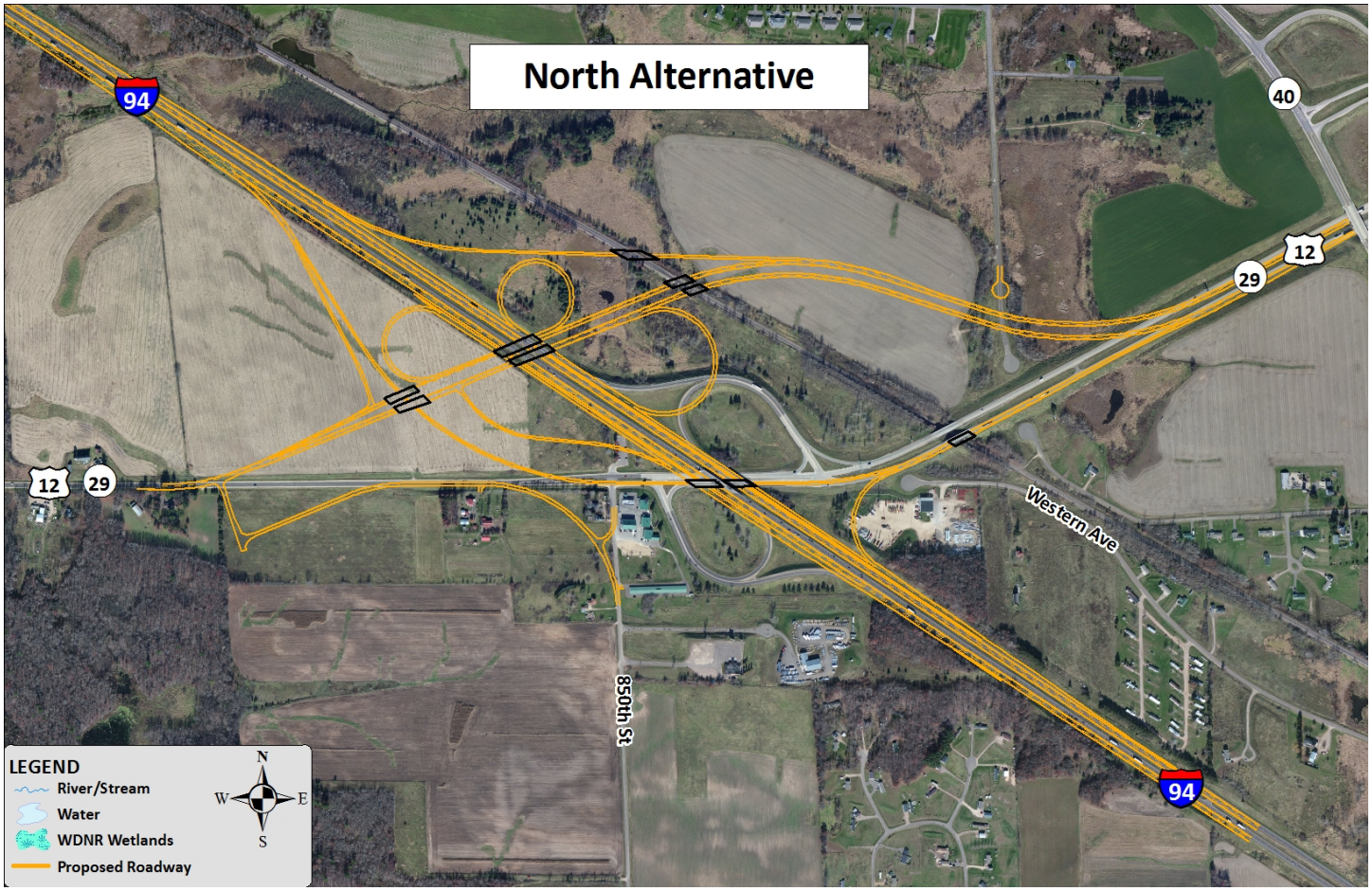
Advantages

- Freeway to freeway free flow movement from IH 94 to STH 29 east.
- Fewest business impacts.
  - Minor impacts to one business's parking lot.
- No residential relocations.
- Town of Elk Mound preferred alternative (see Agency Correspondence in Appendix 4).
- Interchange construction to the north is off alignment, simplifying constructability, reducing cost, and minimizes impacts to the traveling public.

Disadvantages

- Greatest potential for wetland impacts (16.07 acres). Wetland impacts are based on preliminary plans and available wetland mapping. Wetland impacts include:
  - Westbound IH 94 to westbound US 12/STH 29 ramp.
  - Eastbound US 12/STH 29 to westbound IH 94 ramp.
  - Westbound US 12/STH 29 to westbound IH 94 ramp.
  - Relocating US 12/STH 29 to the north of the existing alignment, which will include constructing an overpass over the railroad tracks - expanding the normal footprint of the roadway.
- Requires greatest amount of real estate acquisition (approximately 148 acres)

Figure 6: IH 94/US 12/STH 29 Interchange: North Reconstruction Alternative (Preferred)



Preferred Interchange Alternative

Interchange Alternative 3: North Reconstruction is the preferred alternative for the US12/STH29 Interchange rebuild. This alternative has the fewest impacts to businesses in the project area and does not require any relocations. The impacts to wetlands are greater with this alternative, but have the potential for on-site wetland mitigation.

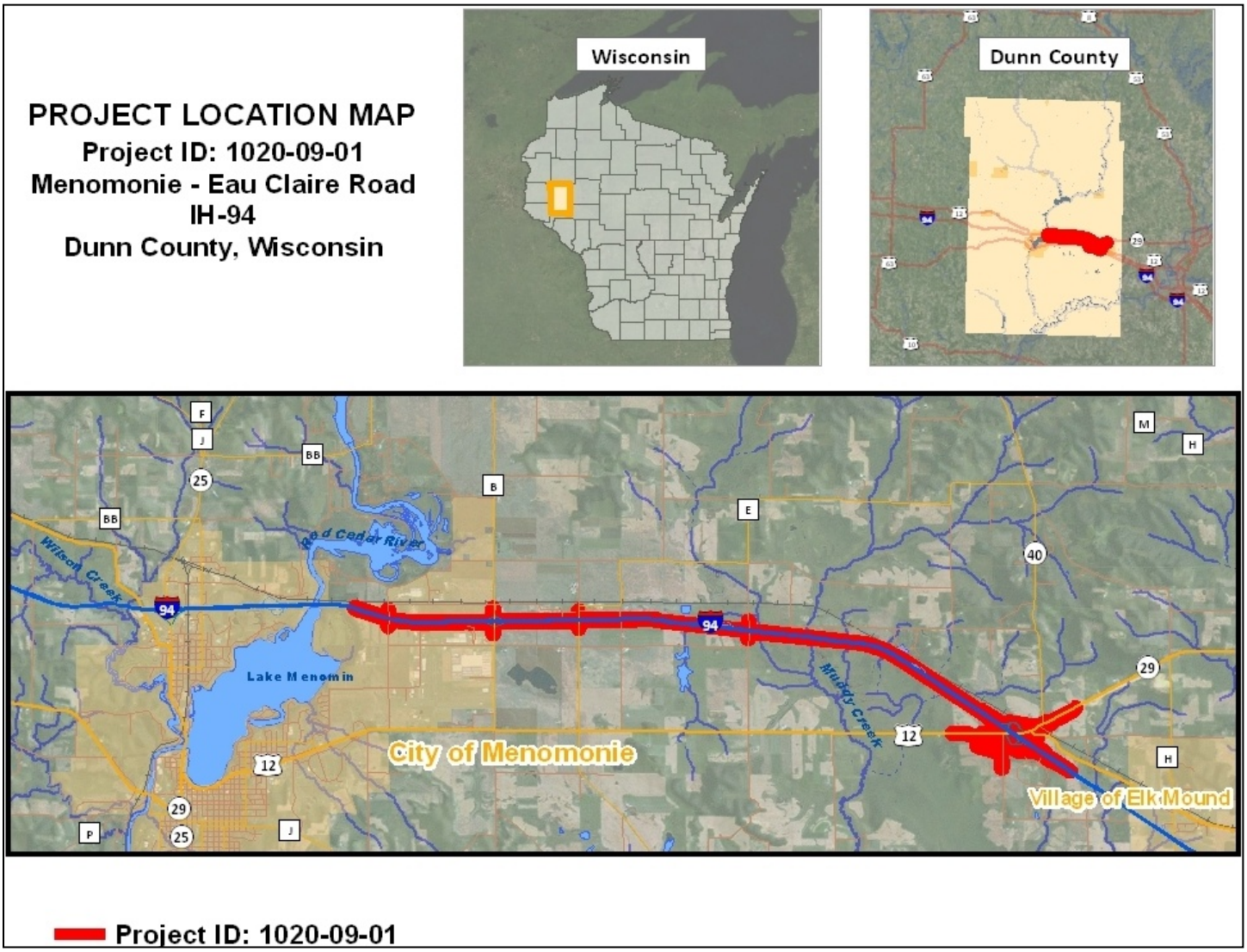
Summary of Alternatives

The preferred alternatives recommended by WisDOT in this document are for corridor preservation along the IH 94 Mainline and USH 12/29 Interchange in Dunn County, Wisconsin. All of the alternatives evaluated are considered reasonable and feasible. Additionally, all of the alternatives evaluated meet state and federal design standards, address safety deficiencies, improve level of service, and replace sub-standard pavement and bridges.

The Preferred Alternative for USH12/29 Interchange (North Alternative) has fewer business and residential impacts compared to the other alternatives and does not require any relocations. If this alternative were to be selected for construction, it would occur on existing alignment, thus simplifying the constructability of the interchange, reducing construction costs, and reducing construction impacts to the travelling public. While the North Alternative has the greatest potential for wetland impacts, the potential for on-site wetland mitigation is also much greater. Avoidance, minimization, and mitigation of all impacts, including wetlands, will be evaluated in the environmental documentation necessary prior to project construction.

3. Description of Proposed Action

***Figure 7*: Project Location Map**



The proposed corridor preservation and mapping project is needed for future construction and reconstruction of the I94 mainline and interchange. This document analyzes social, economic, and environmental impacts an 8.5-mile section of Interstate Highway 94 (IH 94) and the IH 94 & USH 12/STH 29 interchange in Dunn County, Wisconsin.

The existing four lanes of this segment of IH 94 Mainline, including the IH 94/US 12/STH 29 interchange, will need to be reconstructed within the next 20 years. The proposed project:

- Plans for the future reconstruction of the existing four lanes of the 8.5-mile section of IH 94 in eastern Dunn County;
- Allows WisDOT to prepare an official map for the reconstruction of the IH 94 & USH 12/STH 29 interchange under Wis. Stat. 84.295.

The schedule for the proposed improvements throughout the identified corridor will be based on funding as it becomes avail and additional documentation is compeleted. Prelim ROW needs have been identified for each alternative. Four lanes of traffic will be maintained during future construction of the mainline or the interchange.

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

Construction energy requirements for the proposed project will consist primarily of fuel consumption by construction equipment and energy expended in producing materials needed to construct the new facility. Operational energy requirements are measured by the efficiency of vehicle operation in the corridor. While the amount of construction energy expended would be least for the No Build Alternative, the projected construction energy requirements for all Build Alternatives would be relatively similar.

Immediate energy requirements for construction of the Build Alternatives would be greater than the No-Build Alternative. However, the No-Build Alternative would perpetuate the use of an inefficient transportation system and deteriorated pavement structure. Unimproved geometrics and clearances would potentially increase crash and safety problems as well. Over the design life of the facility, savings in operational energy would likely be greater than the energy required to construct the facility and, in the long-term, would result in net savings in energy usage.

Maintenance costs would also be greater for the No-Build Alternative. The existing pavement structure will continue to deteriorate and utilize greater amounts of maintenance funds, in addition to the additional energy consumption associated with maintenance related delays for the motoring public.

5. Describe existing land use (attach land use maps, if available):

a. Land use of properties that adjoin the project:
Properties that adjoin the project include agricultural, public recreation, commercial, residential, and mixed/woodland/wetland land uses.

IH 94 Mainline Land Use
The west terminus of the IH 94 corridor project begins in the City of Menomonie. Land uses for this area of the City of Menomonie include typical highway oriented commercial/industrial uses. The section of IH 94 between the City of Menomonie and the IH 94/US 12/STH 29 interchange includes agricultural land, rural residential areas, woodlands, wetlands, and a public recreation area (Muddy Creek State Public Hunting Grounds) located on the south side of IH 94. The City of Menomonie is located approximately six miles west of the IH 94/US 12/STH 29 interchange. Wal-Mart Distribution, Ford Distribution, and Anderson Windows Manufacturing and Distribution are each located at the CTH B interchange with IH 94. The University of Wisconsin-Stout is also located in the City of Menomonie.

IH 94/US 12/STH 29 Interchange Land Use
Existing land uses adjacent to the IH 94/US 12/STH 29 interchange are identified in the Existing Land Use map (Figure 7) . Existing land use as identified in The Town of Elk Mound Comprehensive Land Use Plan (2004)[6],, includes the following land use types:

- Residential-agriculture land in the southwest quadrant;
- Commercial land in the southeast quadrant;
- Mixed/agricultural land in the northeast quadrant; and
- Mixed land uses in the northwest quadrant.

The land use plan defines mixed land uses as parcels of land greater than 10 acres that are not residential, cropland, commercial or industrial in nature, and contain woods, woodland programs, open water, or wetlands (or some combination).

IH 94/US 12/STH 29 Interchange Planned Land Use
The Town of Elk Mound comprehensive plan also identifies planned land use for the interchange area (see Figure 8).

b. Land use surrounding project area:

[6] 2004. Town of Elk Mound Comprehensive Land Use Plan.
http://www.dunncountywi.govoffice2.com/vertical/sites/%7B8D65D186-760D-414B-890C-7C4376A23107%7D/uploads/%7B1114350A-140D-4476-B584-54AAC4D488D8%7D.PDF

Figure 8: Existing Interchange Land Use (2004)

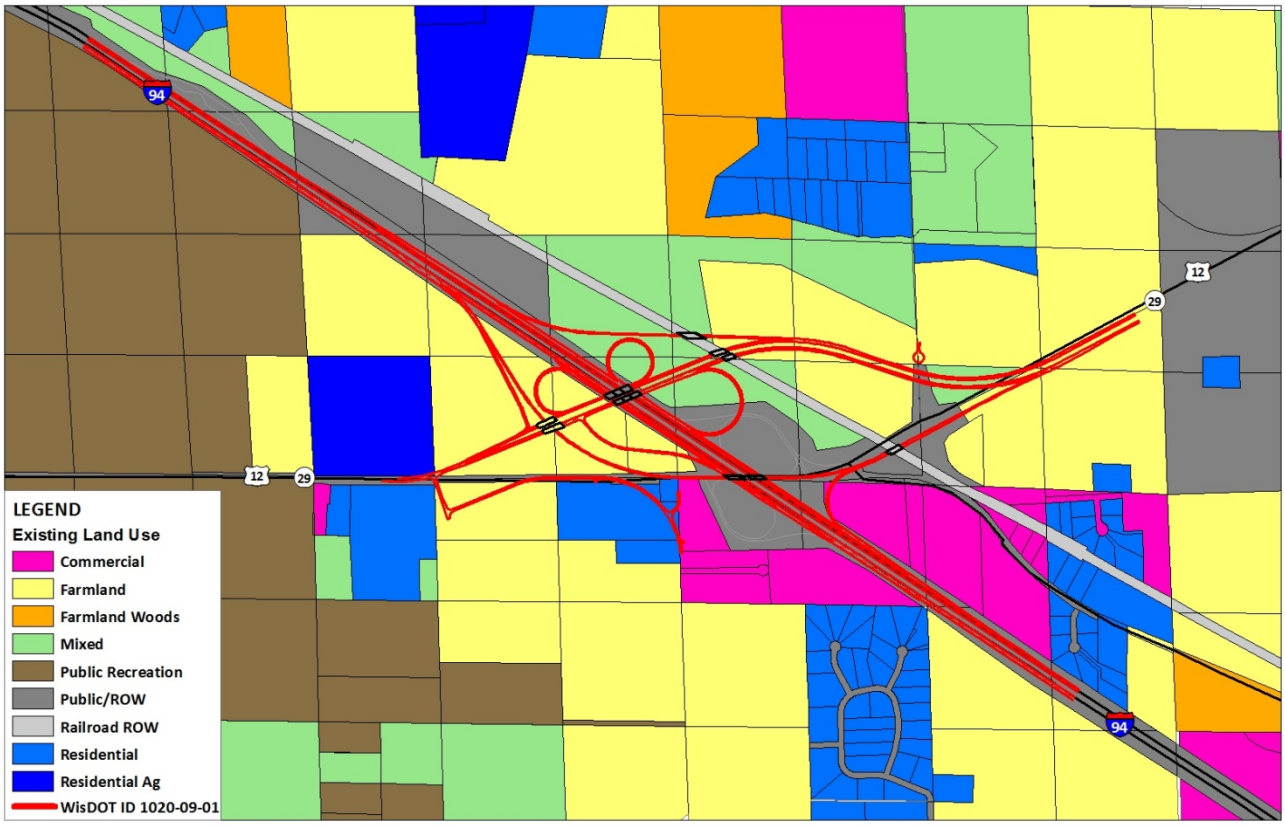
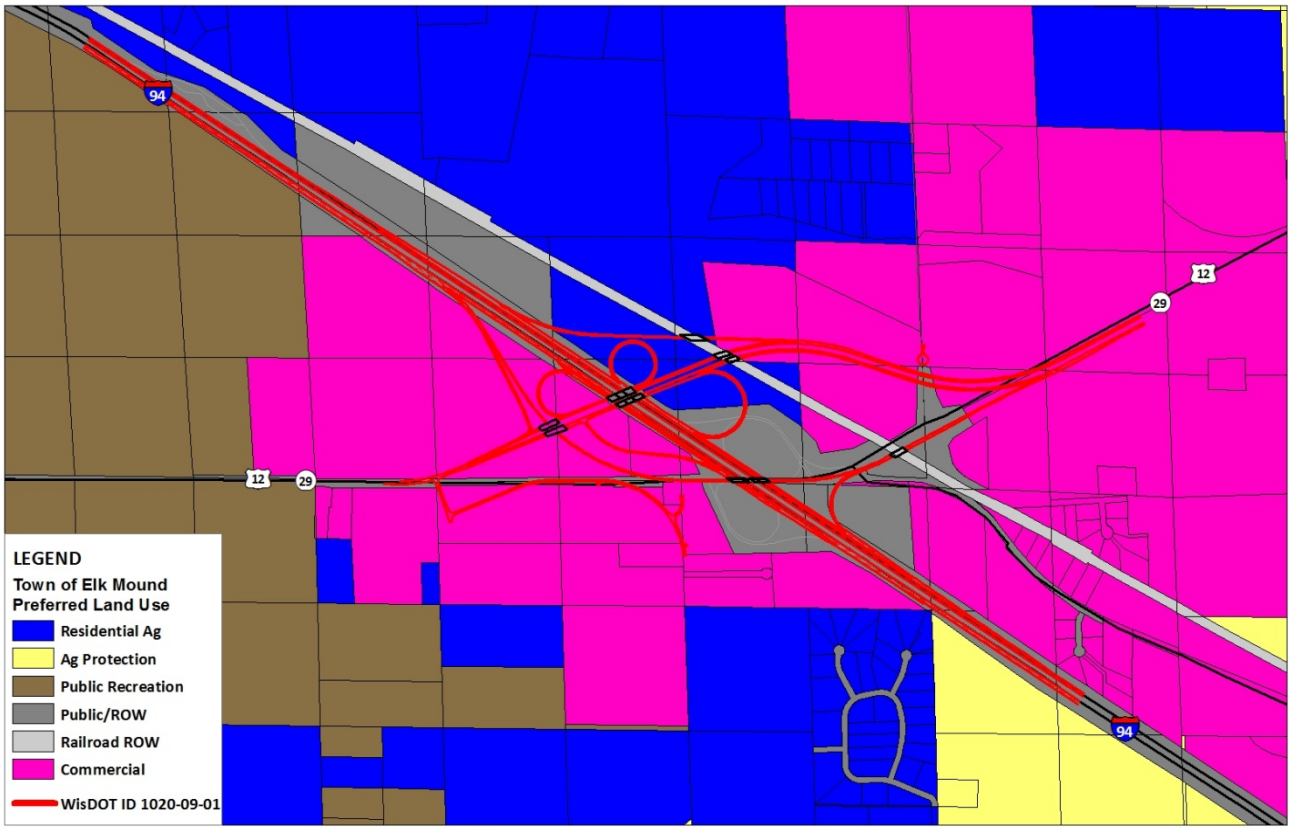


Figure 9: Planned Interchange Land Use



6. Briefly identify adopted local or regional plans for the project area and zoning regulations. Discuss whether the proposed action is compatible with the plan or zoning:

Plan Name	Author/Year	Comments
Connections 2030 Long Range Multi-modal Transportation Plan	WisDOT, 2009	The project area is identified as part of the Chippewa Valley Corridor – Twin Cities to Eau Claire, a system-level priority corridor. Plan can be found: www.dot.wisconsin.gov/projects/state/connections2030.htm
2012-2015 WisDOT Statewide Transportation Improvement Program (STIP)	WisDOT, 2012	The project is listed in the 2012-2015 STIP. Plan can be found: www.dot.state.wi.us/localgov/highways/docs/stip.pdf
West Central Wisconsin Regional Comprehensive Plan	West Central Wisconsin Regional, Planning Commission, 2010	The project is consistent with transportation goals identified by the West Central Wisconsin Regional Planning Commission. Plan can be found: http://wcwrpc.org/Regional_Comp_Plan/regional_comp_plan.html
Dunn County Comprehensive Land Use Plan	Dunn County, 2009	The project is consistent with the broad transportation goals identified by Dunn County. Land around the IH94/US12/STH29 interchange is shown as commercial on future land use maps, indicating the potential for future land development. Plan can be found: http://dunncountywi.govoffice2.com/
Comprehensive Land Use Plan for The Town of Elk Mound	Town of Elk Mound 2005	The project is consistent with the broad transportation goals identified by the Town of Elk Mound. Land around the IH94/US12/STH29 interchange is shown as commercial on future land use maps, indicating the potential for future land development. Plan can be found: http://dunncountywi.govoffice2.com/
Town of Red Cedar Comp Plan	Dunn County, 2005	The project is consistent with the broad transportation goals identified for IH 94 by the Town of Red Cedar. Plan can be found: http://dunncountywi.govoffice2.com/
City of Menomonie Comprehensive Plan 2007-2027	Cedar Corporation, West Central, 2007	The project is consistent with the broad transportation goals identified for IH 94 by the City of Menomonie. Plan can be found: http://www.menomonie-wi.gov/

7. Describe how the project development process complied with Executive Order 12898 on Environmental Justice. If populations of any group covered by EO 12898 are present in the project area, complete Factor Sheet B-4, Environmental Justice:

How was information obtained about the presence of populations covered by EO 12898?	
☒ Windshield Survey	☐ Official Plan
☒ US Census Data	☐ Survey Questionnaire
☐ Real Estate Company	☐ WisDOT Real Estate
☐ Public Information Meeting	☐ Local Government
☐ Human Resources Agency Identify agency Identify plan, approval authority and date of approval	
☐ Other (Identify)	

a. ☒ No - Populations covered by EO 12898 are not present in project area.
b. ☐ Yes - Populations covered by EO 12898 are present. Factor Sheet B-4 must be completed.

8. Indicate whether individuals covered by Title VI of the 1964 Civil Rights Act, the Americans with Disabilities Act or the Age Discrimination Act were identified: *Title VI prohibits discrimination on the basis of race, color, or country of origin.*

a. ☒ No - Individuals covered by the above laws were not identified.

b. ☐ Yes - Individuals covered by the above laws were identified.

The proposed project is located within the City of Menomonie and the Towns of Red Cedar and Elk Mound in Dunn County. The U.S. Census Bureau data for 2010 indicates the following population characteristics for the surrounding municipalities.

Town of Elk Mound
Total population—1,792
White—96% of total population
Black or African American—0.2% of total population
American Indian and Alaska Native—0.1% of total population
Asian—3% of total population
Persons of Hispanic or Latino origin—1.5% of total population

According to the U.S. Census Bureau data from 2010, the median household income (average of 3 persons per household) for the Town of Elk Mound is $66,310. Median household income for the Town of Elk Mound is substantially above the national poverty line guideline of $18,530 for households with 3 persons (Department of Health and Human Services, Federal Register, January 2011).

Town of Red Cedar
Total population—2,086
White—97% of total population
Black or African American—0.4% of total population
American Indian and Alaska Native—0.3% of total population
Asian—0.8% of total population
Persons of Hispanic or Latino origin—0.8% of total population

According to the U.S. Census Bureau data from 2010, the median household income (average of 3 persons per household) for the Town of Red Cedar is $70,036. Median household income for the Town of Red Cedar is substantially above the national poverty line guideline of $18,530 for households with 3 persons..

City of Menomonie
Total population—16,264
White—92% of total population
Black or African American—0.8% of total population
American Indian and Alaska Native—0.5% of total population
Asian—4.2% of total population
Persons of Hispanic or Latino origin—1.7% of total population

According to the U.S. Census Bureau data from 2010, the median household income (average of 3 persons per household) for the City of Menomonie is $38,716. Median household income for the City of Menomonie is substantially above the national poverty line guideline of $18,530 for households with 3 persons[7] (Department of Health and Human Services, Federal Register, January 2011).

Although there are individuals, groups, or populations subject to Environmental Justice requirements present in the project area, including a slightly larger than average Hmong population, due to the nature of the proposed action there is no indication that the proposed improvements would disproportionately affect any individuals, groups, or populations subject to Environmental Justice requirements. A letter was sent to the Hmong American Community Association in Menomonie informing them of the proposed project. WisDOT did not receive any comments or concerns in response. There are no Environmental Justice concerns with the proposed action at this time.

[7] U.S. Department of Health and Human Services, Federal Register, January 2011. http://aspe.hhs.gov/poverty/11fedreg.shtml

9. Briefly summarize public involvement methods:

a. Meetings.

Date	Meeting Sponsor (WisDOT, RPC, MPO, etc.)	Type of Meeting (PIM, Public Hearings, etc.)	Location	Approx. # Attendees
05/25/2011	WisDOT	PIM #1	Elk Mound Middle School	15
Fall, 2013	WisDOT	PIM #2	To be determined	TBD

b. Other methods, describe:

Key Public involvement activities during preparation of the Environmental Assessment are summarized as follows:

- **May, 2011** – The WisDOT sent a press release to the following news organizations: Chippewa Valley Post, Colfax Messenger, Dunn County News, Eau Claire Leader Telegram, Glenwood City Tribune, WEAU TV 13, and WQOW TV 18.

- **May, 2011** – Postcard announcing first public information meeting mailed to residents in the immediate vicinity of the project, local units of government, tribes, county, state, and federal elected officials.

- **May 25, 2011** – First public information meeting was held in the Village of Elk Mound Middle School using an open house format. Six people signed in, and approximately 15 people attended the session. The meeting purpose was to introduce the public to the project team, review the study purpose and scope, present mainline and interchange alternatives, and review the project schedule and upcoming activities. This information was also included in a handout available at the meeting.. The handout also included a mail-in comment sheet. Local media was present, including the local ABC TV affiliate, WQOW 18.

- **Winter 2012** – Project information letter sent to local Hmong American Community Association, Inc.

- **Fall 2013** – A second public information meeting is planned.

c. Identify groups that participated in the public involvement process. Include any organizations and special interest groups:

Public involvement and coordination meetings included representatives from WisDOT, local businesses, and local property owners.

Representatives for the Town of Elk Mound, Dunn County, the City of Menomonie, the WDNR, the West Central WI Regional Planning Commission, local businesses, and local property owners were also invited to the PIM events.

d. Indicate plans for additional public involvement, if applicable:

A second PIM is planned for the fall of 2013

10. Briefly summarize the results of public involvement:

a. Describe the issues, if any, identified by individuals or groups during the public involvement process:

Access modification was a primary concern of those attending public meetings. The owner of the Goodrich Trailer Sales was concerned that moving his business's access from STH 29 will negatively impact business by deterring easy access to the interstate.

The owners of a pet boarding and grooming business, had similar concerns with the ease of access that people had to their property and business off of the interstate.

Other general concerns regarded each alternative's impact on individual properties.

b. Briefly describe how the issues identified above were addressed:

The preferred alternative for the IH 94 & US 12/STH 29 interchange will minimize the disruption to local businesses in part because the new interchange will be built prior to closing the existing interchange. Any access removals due to the proposed action will be replaced along a new service road.

11. Local/regional government coordination:

a. Identify units of government contacted and provide the date coordination was initiated:

There has been ongoing coordination with Dunn County and the Town of Elk Mound concerning the proposed action. This coordination includes phone conversations, e-mails, and meetings.

Unit of Government	Coordination	Coordination Initiation Date	Coordination Completion Date	Comments
Town of Elk Mound	Y	February, 2009	Ongoing	Coordination has been ongoing since February, 2009.
Town of Red Cedar	Y	February, 2009	Ongoing	Coordination has been ongoing since February, 2009.
Town of Menomonie	Y	February, 2009	Ongoing	Coordination has been ongoing since February, 2009.
Village of Elk Mound	Y	February, 2009	Ongoing	Coordination has been ongoing since February, 2009.
City of Menomonie	Y	February, 2009	Ongoing	Coordination has been ongoing since February, 2009.
Dunn County	Y	February, 2009	Ongoing	Coordination has been ongoing since February, 2009.

b. Describe the issues, if any, identified by units of government during the public involvement process:

The Town of Elk Mound voiced concerns of potential disruption for Town residents during construction of the new IH 94 andUSH 12/STH 29 interchange. The Town expressed hope that the project would disrupt residents and businesses as little as possible.

c. Briefly describe how the issues identified above were addressed:

The preferred alternative will minimize the disruption to local businesses at the IH 94/US 12/STH 29 interchange as most of the new interchange can be built prior to closing the existing interchange. Any access changes due to the proposed action will be replaced along a new frontage road.

d. Indicate any unresolved issues or ongoing discussion:

No unresolved issues identified.

Basic Sheet 3

Coordination

INTERNAL WisDOT	Coordination Required?	Correspondence Attached? Y = Yes N = No	Comments Explain or give results. If no correspondence is attached to this document, indicate when coordination with the agency was initiated and, if available, when coordination was completed. If coordination is not required, state why.
Bureau of Aeronautics	☐ No	Y	**April 10, 20012** – Initial Information regarding the project was provided to the WisDOT project manager for the Menomonie Municipal Airport/Lee Score Memorial Field. This airport is located within 1 mile of IH 94, near the proposed action's western terminus. **April 18, 2012** – Initial comments received from WisDOT project manager for the Menomonie Municipal Airport/Lee Score Memorial Field. General concerns of the airport include the height of any new lighting or signs, any land acquisition/or encroachment, and the height of any construction equipment to be used. The airport plans to offer further comments at future public involvement opportunities closer to construction.
	☒ Yes		
Bureau of Rails & Harbors	☒ No	N	Coordination is not required because no railways or harbors are in or planned in the project area.
	☐ Yes		
Regional Real Estate Section	☐ No	N	Coordination with the WisDOT NW Region Real Estate Section occurred during the project to obtain a per acre estimate of real estate values.
	☒ Yes		
STATE AGENCY			
Agriculture (DATCP)	Y	Y	**February 6, 2009** – Initial Information regarding the project was provided to DATCP. **May 31, 2011**– Updated Information regarding interchange alternatives was provided to DATCP. **June 16, 2011** – Initial comments received from DATCP. Little or no new right of way will be needed along IH 94 corridor. DATCP may prepare an Agricultural Impact Statement when farmland acquisitions at the IH 94/US 12/STH 29 interchange are determined. **May 21, 2012** – DATCP stated that an AIS will not be conducted at this time. At the time when WisDOT determines that construction of the project is needed, DATCP is to be notified if any of the land that is proposed to be acquired is agricultural land. DATCP correspondence is presented in Appendix 4.
Natural Resources (WDNR)	Y	Y	**February 6, 2009** – Initial Information regarding the project was provided to WDNR. **May 31, 2011**– Updated Information regarding interchange alternatives was provided to WDNR. **March 11, 2009** – Initial comments received from WDNR. Additional WDNR coordination will occur during the design phase. WDNR correspondence is presented in Appendix 4.
State Historic Preservation Office (SHPO)	N	N	Correspondence with SHPO through submittal of the Section 106 Form will be conducted through WisDOT during a later design phase. No correspondence is attached.
Others:			

FEDERAL AGENCY	Coordination Required? Y = Yes N = No	Correspondence Attached? Y = Yes N = No	
Advisory Council on Hist.Pres. (ACHP)	N	N	Coordination with the ACHP is not required. No properties that are on the National List of Historic Places will be affected by the proposed action.
Corps of Engineers (COE)	Y	Y	**February 6, 2009** – Information regarding the project was provided to COE. **March 5, 2009** – Initial comments received from COE. **May 31, 2011**– Updated Information regarding interchange alternatives was provided to COE. The applicable COE permit will be applied for during the design phase. COE correspondence is presented in Appendix 4.
Environmental Protection Agency (EPA)	N	N	Coordination with EPA was not required for the project.
National Park Service (NPS)	N	N	Coordination with NPS was not required for the project. There are no parks within the project area.
Nat. Resource Cons. Service (NRCS)	Y	Y	**February 6, 2009** – Information regarding the project was provided to NRCS. **February 18, 2009** – Initial comments received from NRCS. Initial comments indicated that no further action with NRCS will be necessary. **May 31, 2011**– Updated Information regarding interchange alternatives was provided to NRCS. Additional NRCS coordination will occur during the design phase. NRCS correspondence is presented in Appendix 4.
US Coast Guard (USCG)	N	N	Coordination with USCG was not required. There are no commercial navigable waters along the project
Fish & Wildlife Serv. (FWS)	Y	Y	**February 6, 2009** – Information regarding the project was provided to USFWS. **February 19, 2009** – Initial comments received from USFWS. General guidance for avoiding impacts to fish and wildlife resources was provided. **May 31, 2011**– Updated Information regarding interchange alternatives was provided to FWS. **June 28, 2011** – Comments received from FWS. Comments indicated that no federally listed species or critical habitat is within the project area. Additional USFWS coordination will occur during the design phase. FWS correspondence is presented in Appendix 4.
AMERICAN INDIAN TRIBES	Y	Y	In accordance with WisDOT policy, all required American Indian Tribes were notified of the proposed project. **February 6, 2009** – Information regarding the project was provided all required tribes. **February 10, 2009**– Comments received from Lac Vieux Desert Band of Lake Superior Chippewa Indians express no interest in the proposed project. **April 21, 2009**– Comments received from Lac du Flambeau Band of Lake Superior Chippewa Indians express concerns for the project area due to the location's proximity to lands previously occupied by the Northern Ojibwe Bands. **May 14, 2009**– Comments received from Lac du Flambeau Band of Lake Superior Chippewa Indians indicate that further review of project plans produced no special concerns for the project area, but indicate a wish to be contacted in a case of inadvertent discovery. **May 31, 2011**– Updated Information regarding interchange alternatives was provided to all required tribes. **June 3, 2011**– Comments received from Lac du Flambeau Band of Lake Superior Chippewa Indians express concerns for the project area due to the location's proximity to lands previously occupied by the Northern Ojibwe Bands. **June 6, 2011**– Comments received from Iowa Tribe of Oklahoma indicate no special concerns for project area. Responses from interested tribes are presented in Appendix 4.

Basic Sheet 4
Environmental Factors Matrix

FACTORS	EFFECTS				
	Adverse	Benefit	None Identified	Factor Sheet Attached	Note: Comments should be of a summary nature and should not extensively duplicate information contained in an attached factor sheet. If an "adverse" effect is permanent, a factor sheet must be attached. If an "adverse" effect is temporary, it must be explained on this sheet under "comments". If "None Identified" is indicated, explain why. **Comments**
A. ECONOMIC FACTORS					
A-1 General Economics	☒	☒	☐	☒	The Proposed Action will: • Require capital investment by WisDOT that would not be able to be expended elsewhere. • Assist in ensuring economic viability of the area by promoting safe and efficient travel through the project area and the region. • Accommodate current and planned economic growth for the project area and region. • Promote the general economics of the surrounding area by ensuring safe access for employees and efficient shipment of goods and services. • See the General Economics Factor Sheet.
A-2 Business	☒	☒	☐	☐	The Proposed Action will: • Impact access to local businesses on a short-term basis during the construction of the improvements. • Assist in ensuring economic viability of the project area by promoting safe and efficient travel and access for expected heavy truck traffic and additional local, regional, and national traffic. • Benefit commercial and industrial establishments by increasing level of service, safety, and access for employees and shipment of goods and services in the project area. • Require minor impacts to one local business, Dawes Rigging and Crane Rental. The westbound IH 94 to eastbound STH 29 ramp will pass thru the southwest corner of the Dawes Crane Rental property eliminating a small portion of their parking\storage and their stormwater retention facility. No other facilities will be impacted. Factor Sheet not necessary.
A-3 Agriculture	☒	☐	☐	☒	**Mainline** Impacts to agricultural land adjacent to the IH 94 mainline corridor will be not be significant due to the proposed action remaining on-alignment and significantly within the existing corridor. The project will require minor strips of right-of-way acquisition. **Interchange** The IH 94/US 12/STH 29 interchange design will affect existing agricultural land. Preliminary estimates show the preferred interchange alternative would impact approximately 86 acres of agricultural land. An Agricultural Impact Statement (AIS) has not been prepared in conjunction with this Environmental Assessment because this assessment is conducted to map and preserve the IH 94 corridor and IH 94/US 12/STH 29 interchange. DATCP stated that an AIS may be conducted when WisDOT schedules construction of the project. See the Agriculture Factor Sheet.

B. SOCIAL/CULTURAL FACTORS					
B-1 Community or Residential	☐	☒	☐	☐	The Proposed Action will: Improve safety to local motorists while traveling on the corridor Benefit the project area by providing a safer and more efficient roadway. Not require any residential acquisitions. Factor sheet not required
B-2 Indirect Effects	☐	☐	☒	☐	No indirect effects are identified. The preferred alternative does not add capacity or add any additional access. See the indirect effects discussion on page 34 for additional information on this topic.
B-3 Cumulative Effects	☐	☐	☒	☐	The extent of all cumulative effects is anticipated to be fairly moderate, as much of the project will be on existing alignment. See the cumulative effects discussion on the on page 34 for additional information on this topic.
B-4 Environmental Justice	☐	☐	☒	☒	This document is in compliance with U.S. DOT and FHWA policies to determine whether a proposed project will have induced socioeconomic impacts or any adverse impacts on minority or low income populations; and it meets the requirements of Executive Order on Environmental Justice 12898—"Federal Actions to Address Environmental Justice in Minority and Low-Income Populations." Neither minority nor low-income populations would receive disproportionately high or adverse impacts as a result of this project.
B-5 Historic Resources	☐	☐	☒	☐	An assessment of architectural/history resource potential was conducted for the project area. An historical reconnaissance and evaluation study of the area of potential effect did not produce any properties or structures potentially eligible for the National Register for Historic Places (NHRP). The *Assessment of Archaeological and Architectural/History Resource Potential* report is presented in Appendix 5. In accordance with Section 106 of the NHPA, following development of a design plan, formal Phase I archaeological and architectural historic surveys will be required to determine if there are any historic properties (archaeological or architectural/historic) that will be affected by the proposed improvement to the IH 94 corridor. Factor Sheet not necessary.
B-6 Archaeological Sites	☐	☐	☒	☐	An assessment of archaeological resource potential was conducted for the project area. No sites within the project area were found to be eligible for the National Register for Historic Places (NHRP). The *Assessment of Archaeological and Architectural/History Resource Potential* report is presented in Appendix 5. In accordance with Section 106 of the NHPA, following development of a design plan, formal Phase I archaeological and architectural historic surveys will be required to determine if there are any historic properties (archaeological or architectural/historic) that will be affected by the proposed improvement to the IH 94 corridor. Factor Sheet not necessary.
B-7 Tribal Issues	☐	☐	☒	☐	No identified tribal issues.
B-8 Section 4(f) and 6(f) or Other Unique Areas	☐	☐	☒	☐	No section 4(f) or 6(f) impacts.
B-9 Aesthetics	☒	☒	☐	☐	Impacts on the rural character of the land adjacent to IH 94 will be minimized by the proposed action remaining on-alignment. The visual appearance of the corridor will be impacted during construction activities; however, the project would eliminate the deteriorated appearance of the existing roadway and provide maintainable and more uniform roadside slopes. When constructed, the IH 94/US 12/STH 29 interchange will be a more prominent feature in the project area's viewshed.

C. NATURAL SYSTEM FACTORS					
C-1 Wetlands	☒	☐	☐	☒	Impacts to wetlands adjacent to the IH 94 mainline corridor will total 7.83 acres. The proposed action keeps the road on-alignment; but the reconstruction will require filling areas of some wetland to improve steep roadside slopes. The IH 94/US 12/STH 29 interchange design will affect existing wetlands with impacts resulting from filling and storm water runoff. Preliminary estimates show the preferred interchange alternative would disturb 16.07 acres of wetland. On-site wetland opportunities will be evaluated. If unachievable, wetland will be mitigated as part of the WisDOT wetland mitigation bank site. Wetland impacts are based on preliminary plans and available wetland mapping. More detailed wetland calculations will be determined during a future design phase. See the Wetlands Factor Sheet.
C-2 Rivers, Streams and Floodplains	☒	☒	☐	☒	The IH 94 mainline corridor includes six (6) crossings of Muddy Creek and several of its unnamed tributaries. The IH 94/SUS 12/STH 29 interchange includes one (1) crossing of an unnamed tributary of Muddy Creek. Increased runoff from the reconstructed interchange could impair the water quality; however, storm water best management practices will be implemented. See the Rivers, Streams and Floodplains Factor Sheets.
C-3 Lakes or Other Open Water	☐	☐	☒	☐	No lake or other open water impacts.
C-4 Groundwater, Wells, and Springs	☐	☐	☒	☐	No groundwater, wells, or springs impacts.
C-5 Upland Wildlife and Habitat	☒	☐	☐	☐	The proposed IH 94 mainline corridor project calls for a wider footprint along existing alignment which requires additional ROW along the corridor. This area has not been identified as unique habitat; however it serves as habitat for several forms of wildlife. No threatened or endangered species have been identified in this project area, however this will be verified prior to construction. The IH 94/USH 12/STH 29 interchange design will also affect existing upland wildlife habitat. Preliminary estimates show the preferred interchange alternative would disturb approximately 50 acres of non-agricultural uplands. More detailed upland calculations will be determined during a future design phase closer to construction.
C-6 Coastal Zones	☐	☐	☒	☐	No coastal zone impacts.
C-7Threatened and Endangered Species	☐	☐	☒	☐	No threatened or endangered species impacts.

D. PHYSICAL FACTORS					
D-1 Air Quality	☐	☐	☒	☐	This project is exempt from permit requirements under Wisconsin Administrative Code Chapter NR 411. No substantial impacts to air quality are expected.
D-2 Construction Stage Sound Quality	☒	☐	☐	☒	WisDOT Standard Specifications 1.7.8(6) and 108.7.1 will apply. See the Construction Stage Sound Quality Factor Sheet.
D-3 Traffic Noise	☐	☐	☒	☐	No traffic noise impacts.
D-4 Hazardous Substances or Contamination	☐	☐	☒	☐	No hazardous substance or contamination sites were identified through a records search and review. A Phase 1 Hazardous Materials Report will be conducted during a future design phase closer to construction. Factor Sheet not necessary.
D-5 Stormwater	☒	☐	☐	☒	Stormwater will be controlled through the use of the methods shown in the latest edition of the WisDOT's Standard Specifications for Highway and Structure Construction through consultation with the Wisconsin Department of Natural Resources pursuant to the DOT/DNR Cooperative Agreement. This will be made part of the construction contract to be administered by the WisDOT project engineer. See the Stormwater Factor Sheet.
D-6 Erosion Control	☒	☐	☐	☒	Erosion and sediment transport will be controlled through the use of the methods shown in the latest edition of the WisDOT's Standard Specifications for Highway and Structure Construction through consultation with the Wisconsin Department of Natural Resources pursuant to the DOT/DNR Cooperative Agreement. This will be made part of the construction contract to be administered by the WisDOT project engineer. See the Erosion Control Factor Sheet.
E. OTHER FACTORS					
E-1	☐	☐	☐		
E-2	☐	☐	☐		

Basic Sheet 5
IH 94 Mainline Alternatives Impact Matrix
(All estimates, including costs, are based on conditions described in this document at the time of preparation. Additional agency or public involvement may change these estimates in the future.)

ENVIRONMENTAL ISSUE	UNIT MEASURE	CORRIDOR ALTERNATIVES	
		Mainline One	Mainline Two (Preferred)
Project Length	Miles	8.5 miles	8.5 miles
Preliminary Cost Estimate			
Construction	Million $	68.1 Million	67.7 Million
Real Estate	Million $	0.017 Million	0.018 Million
Total	Million $	68.2 Million	67.8 Million
Land Conversions			
Wetland Area Converted to ROW	Acres	0	0.10
Upland Habitat Area Converted to ROW	Acres	0	0
Other Area Converted to ROW	Acres	4	4
Total Area Converted to ROW	Acres	4	4
Real Estate			
Number of Farms Affected	Number	5	3
Total Area Required From Farm Operations	Acres	2	4
AIS Required	Yes/No	To be determined	To be determined
Farmland Rating	Score	To be determined	To be determined
Total Buildings Required	Number	0	0
Housing Units Required	Number	0	0
Commercial Units Required	Number	0	0
Other Buildings or Structures Required	Number (Type)	0	0
Environmental Issues			
Indirect Effects	Yes/No	No	No
Cumulative Effects	Yes/No	No	No
Environmental Justice Populations	Yes/No	No	No
Historic Properties	Number	0	0
Archeological Sites	Number	0	0
106 MOA Required	Yes/No	No	No
4(f) Evaluation Required	Yes/No	No	No
Flood Plain	Yes/No	No	No
Total Wetlands Filled	Acres	20.37	7.83
Stream Crossings	Number	6	6
Endangered Species	Yes/No	No	No
Air Quality Permit Required	Yes/No	No	No
Design Year Noise Sensitive Receptors			
No Impact	Number		
Impacted	Number	0	0
Contaminated Sites	Number	0	0

Basic Sheet 5
Interchange Alternatives Comparison Matrix
(All estimates, including costs, are based on conditions described in this document at the time of preparation. Additional agency or public involvement may change these estimates in the future.)

ENVIRONMENTAL ISSUE	UNIT MEASURE	ALTERNATIVES/SECTIONS		
		In Place Alternative	South Alternative	North Alternative (Preferred)
Project Length	Miles	1.5 miles	1.5 miles	1.5 miles
Preliminary Cost Estimate				
Construction	Million $	42.45 Million	41.33 Million	43.61 Million
Real Estate	Million $	1.1	1.5	0.7
Total	Million $	43.55 Million	42.83 Million	44.31 Million
Land Conversions				
Wetland Area Converted to ROW	Acres	3	2	13
Upland Habitat Area Converted to ROW	Acres	41	62	50
Other Area Converted to ROW	Acres	33	30	85
Total Area Converted to ROW	Acres	77	94	148
Real Estate				
Number of Farms Affected	Number	6	7	5
Total Area Required From Farm Operations	Acres	43	30	86
AIS Required	Yes/No	To be determined	To be determined	To be determined
Farmland Rating	Score	To be determined	To be determined	To be determined
Total Buildings Required	Number	11	13	0
Housing Units Required	Number	1	2	0
Commercial Units Required	Number	6	6	0
Other Buildings or Structures Required	Number (Type)	4	5	0
Environmental Issues				
Indirect Effects	Yes/No	No	No	No
Cumulative Effects	Yes/No	No	No	No
Environmental Justice Populations	Yes/No	No	No	No
Historic Properties	Number	0	0	0
Archeological Sites	Number	0	0	0
106 MOA Required	Yes/No	No	No	No
4(f) Evaluation Required	Yes/No	No	No	No
Flood Plain	Yes/No	No	No	No
Total Wetlands Filled	Acres	5.69	5.60	16.07
Stream Crossings	Number	1	1	1
Endangered Species	Yes/No	No	No	No
Air Quality Permit Required	Yes/No	No	No	No
Design Year Noise Sensitive Receptors No Impact Impacted	 Number Number	 0	 0	 0
Contaminated Sites	Number	0	0	0

* The proposed action is a planning project; construction is not anticipated to be approved for several years. Preliminary Cost Estimates include approximate real estate costs. Real estate costs will be evaluated when specific impacts are more fully developed, based on final project design to be determined in a future design phase.

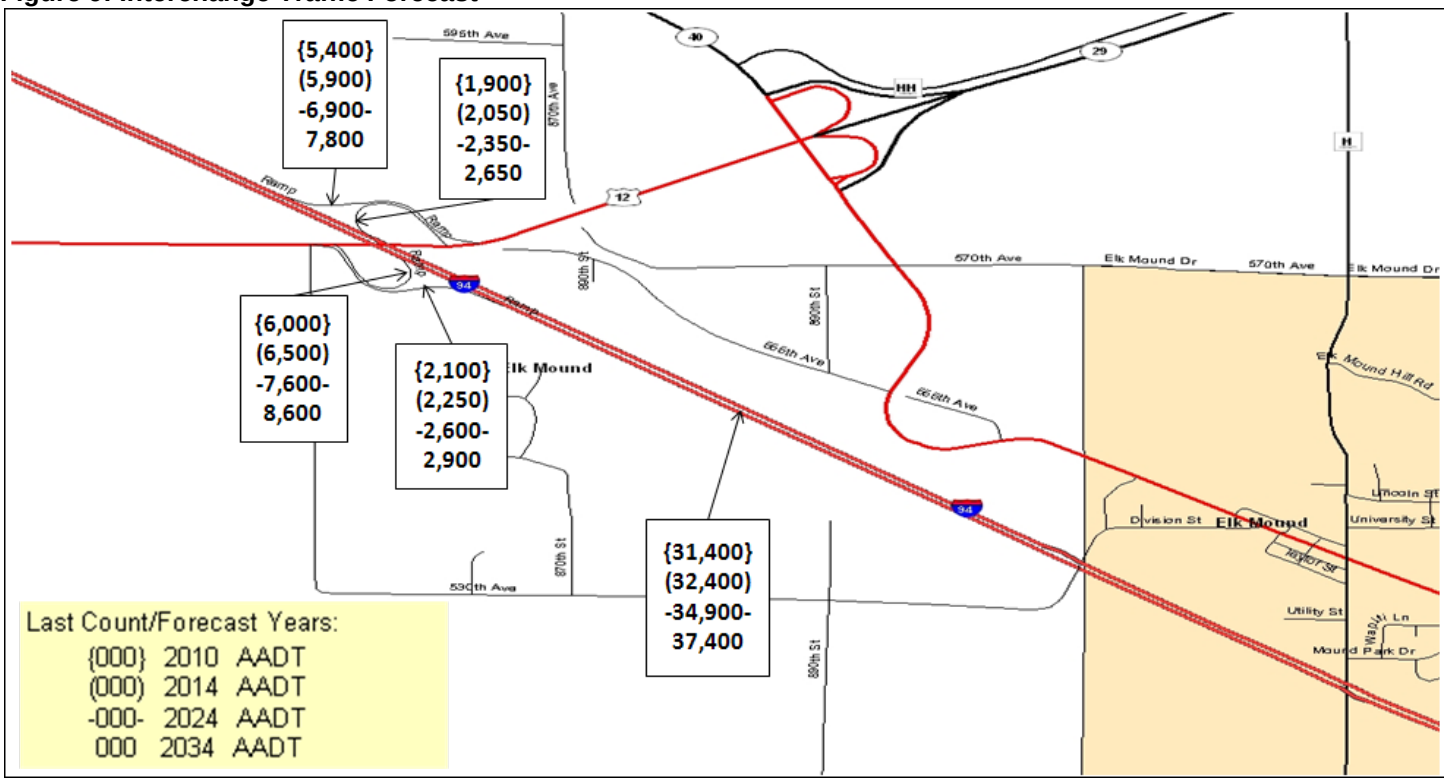
Basic Sheet 6
Traffic Summary Matrix IH 94 Corridor

	ALTERNATIVES/SECTIONS		
	IH 94 Mainline Reconstruction w/ North Expansion	**IH 94/STH 29 Interchange Reconstruction North Alternative**	
TRAFFIC VOLUMES			
Existing ADT (Yr. 2010)	31,700	6,000*	
Const. Yr. ADT (Yr. 2014)	33,800	6,500*	
Const. Plus 10 Yr. ADT (Yr. 2024)	39,100	7,600*	
Design Yr. ADT (Yr. 2034)	44,300	8,600*	
DHV (Yr. 2034)			
TRAFFIC FACTORS			
K $[_{30}]$ (%)	10.9	11.4	
D (%)	60/40	60/40	
Design Year T (% of ADT)	25	25	
T (% of DHV)	13.7	13.7	
Level of Service	C	C	
SPEEDS			
Existing Posted	65	30	
Future Posted	65	30-60	
Design Year Project Design Speed	70	35-65	

ADT = Average Daily Traffic
DHV = Design Hourly Volume
K $[_{30/100/200}]$: K_{30} = Interstate, K_{100} = Rural, K_{200} = Urban, % = ADT in DHV
D = % DHV in predominate direction of travel
T = Trucks
P = % ADT in peak hour
K_8 = % ADT occurring in the average of the 8 highest consecutive hours of traffic on an average day. (Only required when a carbon monoxide analysis must be performed per Wisconsin Administrative Code - Chapter NR 411.)

* The highest ADT for the IH 94/STH 29 interchange is shown in the table above. ADTs for all interchange ramps are shown in Figure 9 below.

Figure 9: Interchange Traffic Forecast



Basic Sheet 7
EIS Significance Criteria

When the significance of impact of a transportation project proposal is uncertain, an environmental assessment (EA) is prepared to assist in making this determination. If it is found that significant impact(s) will result, the preparation of an environmental impact statement (EIS) should commence immediately. Indicate whether the issue listed below is a concern for the proposed action or alternative. If the issue is a concern, explain how it is to be addressed or where it is addressed in this environmental document.

1) Will the proposed action stimulate substantial indirect environmental effects?

☒ No
☐ Yes – Explain or indicate where addressed.

It is the finding of this Environmental Assessment that the development of the Preferred Alternatives will not stimulate any substantial secondary environmental effects as this is a reconstruction of an existing corridor and preservation of land for a future reconstructed interchange. The project will reconstruct on the existing alignment. According to the FHWA report "A Guidebook for Evaluating the Indirect Land Use and Growth Impacts of Highway Improvements," the primary study area for indirect impacts should be a function of travel time savings and travel volumes. In evaluating the indirect effects of development of the Preferred Alternative, a generally accepted study area of ½-mile around the corridor is the primary area of potential effect.

The initial construction of the Eisenhower Interstate System during the 1950s resulted in substantial secondary environmental effects to the primary area. Since that time, no considerable improvements to this section of the system have occurred. Subsequent improvements have seen maintenance related or minor widening of pavement and shoulders to improve safety. The IH 94 mainline and STH 29 interchange of the proposed actionis being conducted to address existing design deficiencies and improve failing infrastructure.

The existing presence of the roadway and the relationship of the corridor to the primary employment and retail centers of the region—specifically, Minneapolis-St. Paul,Minnesota, Hudson, Eau Claire, and Menomonie, Wisconsin—are important in determining that the proposed action will not stimulate substantial secondary environmental effects. Again, the Federal policy and programs to develop the interstate system resulted in accelerated growth and development of this area by providing a fast, efficient, high-speed transportation network to jobs and shopping. This proposed action will enable safer travelfor the public, but will not result in travel time savings. Land development pressure along the corridor will not increase as a result, and substantial secondary environmental effects will not occur.

Finally, the proposed action does not provide new access to IH 94. Although corridor preservation of the proposed IH 94 and USH 12/STH 29 interchange will occur with this project, the number of access will remain unchanged. Roadway and access improvements at interchanges may lead to development opportunities near ramp terminals. Based on future land use and zoning in the Dunn County Comprehensive Plan, and the Town of Elk Mound Comprehensive Plan, development near IH 94 and USH 12/STH 29 is likely independent of the proposed project.

Based on analysis using WisDOT's pre-screening for indirect effects procedure and the Facilities Development Manual Chapter 25 on indirect effects, it has been determined that further detailed analysis potential for indirect effects is not warranted. The project does is unlikely to result in *significant* indirect effects as defined by National Environmental Policy Act (NEPA). This conclusion is based on the evaluation of ten pre-screening factors including project design concepts and scope; project purpose and need; project type; facility function (current and planned); project location; improved travel times to an area; local land use and planning considerations; population and demographic considerations; rate of urbanization; and public/agency concerns. If changes are made to the project design and alternatives, this screening will be re-examined for sufficiency.

2) Will the proposed action contribute to cumulative effects of repeated actions?

☒ No

☐ Yes – Explain or indicate where addressed.

According to Council on Environmental Quality (CEQ) regulations, a cumulative effects analysis is required whenever an Environmental Assessment is prepared AND the following two related criteria apply: (1) The proposed action under review must have a direct and/or indirect effect on a specific natural, historic, cultural resource or population for the proposal or alternative to exert a cumulative influence, and (2) If no direct and/or indirect effect to a specific resource is suspected, there is no need to consider cumulative effects to that resource. The mere presence of the transportation system will contribute to cumulative environmental impacts of repeated actions. Be it the No Build or Preferred Alternative, any man-made presence will have cumulative impacts over time. Only the outright removal of the infrastructure will mitigate any cumulative effects.

With that said, in the instance of this proposed action, any cumulative impacts are tied to the existence of IH 94 itself and not related to the actions within the scope of the proposed project. As expressed in the discussion of indirect impacts earlier, the proposed action is a reconstruction of the corridor to address existing design deficiencies and improve failing infrastructure, and the official mapping of land for the future reconstruction of the IH 94&USH 12/STH 29 interchange.

3) Will the creation of a new environmental effect result from this proposed action?

☒ No

☐ Yes – Explain or indicate where addressed.

4) Will the proposed action impact geographically scarce resources?

☒ No

☐ Yes – Explain or indicate where addressed.

5) Will the proposed action have a precedent-setting nature?

☒ No

☐ Yes – Explain or indicate where addressed.

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

☒ No

☐ Yes – Explain or indicate where addressed.

7) Will the proposed action be in conflict with official agency plans or local, state, or national policies, including conflicts resulting from potential effects of transportation on land use and land use on transportation demand?

☒ No

☐ Yes – Explain or indicate where addressed.

Basic Sheet 8
Environmental Commitments

Identify and describe any commitments made to protect the environment. Indicate when the commitment should be implemented and who in WisDOT will have jurisdiction to assure fulfillment for each commitment. Note if the commitment will be recorded in the plans, "special provisions", "notes to construction" or some other written format. Note if the commitment is mandated by law, and therefore legally binding.

Commitments on Basic Sheet 8 supplement environmental commitments incorporated in WisDOT's Standard Specifications for Highway and Bridge Construction.

ATTACH A COPY OF THIS PAGE TO THE DESIGN STUDY REPORT AND THE PS&E SUBMITTAL PACKAGE

Factors	Commitments
A-1 General Economics	The goal of this Environmental Assessment (EA) is preservation of the IH 94 corridor and the future IH 94/USH 12/STH 29 interchange. The EA seeks to identify the preferred future IH 94/USH 12/STH 29 interchange to a level of detail sufficient to discourage or prohibit development within its limits. This will allow local governmental jurisdictions to minimize future community, residential, commercial, and industrial impacts of the improvement when it is constructed. WisDOT NW Region Planning will be the WisDOT liaison for the local officials.
A-2 Business	See comments for **A-1 General Economics** above.
A-3 Agriculture	None at this time. Will be evaluated when EA is updated for construction.
B-1 Community or Residential	See comments for **A-1 General Economics** above.
B-2 Indirect Effects	No Commitments Needed
B-3 Cumulative Effects	No Commitments Needed
B-4 Environmental Justice	No Commitments Needed
B-5 Historic Resources	No Commitments Needed
B-6 Archaeological Sites	No Commitments Needed
B-7 Tribal Issues	No Commitments Needed
B-8 Section 4(f) and 6(f) or Other Unique Areas	No Commitments Needed
B-9 Aesthetics	No Commitments Needed. Will be evaluated when EA is updated for construction.
C-1 Wetlands	The project will require filling some wetland areas. On-site wetland opportunities will be evaluated. If unachievable, wetland impacts will be mitigated according to regulations and policies in place at the time of construction. More detailed wetland calculations will be determined duringthe design phase.
C-2 Rivers, Streams & Floodplains	Erosion and sediment transport into waterways during construction will be controlled by methods shown in the latest edition of the WisDOT's Facilities Development Manual and through consultation with the Wisconsin Department of Natural Resources pursuant to the DOT/DNR Cooperative Agreement. Commitments to avoid seasonal work in streambeds will be evaluated when EA is updated for construction.
C-3 Lakes or other Open Water	No Commitments Needed
C-4 Groundwater, Wells and springs	No Commitments Needed
C-5 Upland Wildlife and Habitat	Will be reevaluated when EA is updated for construction.
C-6 Coastal Zones	No Commitments Needed
C-7 Threatened and Endangered Species	No Commitments Needed
D-1 Air Quality	No Commitments Needed

D-2 Construction Stage Sound Quality	Check all that apply: ☒ WisDOT Standard Specification 107.8(6) and 108.7.1 will apply. The Construction Supervisor will assure fulfillment of the commitment.
D-3 Traffic Noise	No Commitments Needed
D-4 Hazardous Substances or Contamination	Standard Special Provisions
D-5 Stormwater	Storm water management will be implemented in accordance with standard storm water management practices and the WisDOT / DNR Cooperative Agreement. The WisDOT Project Manager will fulfill this commitment.
D-6 Erosion Control	Erosion control will be implemented in accordance with standard erosion control practices and the WisDOT / DNR Cooperative Agreement. The stormwater measures will follow Trans 401 Wis Admin Code. The WisDOT Project Manager will fulfill this commitment.
E Other	

GENERAL ECONOMICS EVALUATION

Wisconsin Department of Transportation

Factor Sheet A -1

Alternative **Mainline Two (IH 94 Corridor)** **North IH 94/US 12/STH 29 Interchange**	Total Length of Center Line of Existing Roadway **8.5 miles** Length of This Alternative **8.5 miles**
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Briefly describe the existing economic characteristics of the area around the project:

The proposed project is within a rural portion of west central Dunn County. The proposed interchange project is located in the Town of Elk Mound, Dunn County, Wisconsin. The west terminus of the section of IH 94 proposed to be reconstructed as part of this project is on the eastern edge of the City of Menomonie and extends through the Town of Dunn, the Town of Red Cedar, and the Town of Elk Mound. Land uses for this area of the City of Menomonie include typical highway oriented commercial/industrial uses. The lands adjacent to the IH 94 corridor are agricultural for crop production and/or dairy farming, public recreation, commercial, residential, and mixed/woodland/wetland land uses.

The City of Menomonie is Dunn County's largest population center, at 16,264 residents. Home to the University of Wisconsin - Stout, the city added 1,327 residents from 2000 to 2010 (based on US Census data), the most of any municipality in Dunn County, accounting for almost one-third of the county's growth.

The Town of Elk Mound was the fastest growing municipality in Dunn County, up almost 60 percent from 2000 to 2010. This population gain of 671 people represents significant growth for this sparsely populated township.

More people moving into the county are choosing to live in a rural area, with the lifestyle that entails, while still living relatively close to city amenities and job opportunities - a common trend. Elk Mound also benefits from its location, equally close to Menomonie and the much larger City of Eau Claire. The Town of Red Cedar is another fast growing township experiencing this trend.

The IH 94 project corridor was also designated as a "High Tech Industrial Corridor" in June of 2002 by the State of Wisconsin.

- $5 million in income tax credits has been allocated to the Wisconsin IH 94 Corridor Zone.
- Zones are in effect for 10 years.
- Tax credits are made available to high-technology businesses expanding, location or commencing operations in the Technology Zone.

The following high-technology clusters have been identified in the Wisconsin IH 94 Corridor Technology Zone: Computers & Electronic Technologies, Medical Technology & Devices, Materials Technologies, Information Technologies, Telecommunications & Utilities, Machinery, Equipment & Electrical, Automation & Precision Fabrication and Biotechnology.

Four of the county's single largest employers are in the education or health sectors, including the University of Wisconsin—Stout. Warehousing & storage is another important sub-sector. Menomonie's location along the IH 94 corridor between Minneapolis, Milwaukee, and Chicago makes it a good place for a distribution center—Wal-Mart operates one such large site near Menomonie. Wal-Mart is the single largest employer in the county, and while some of those employees work at the store in Menomonie the majority work at Wal-Mart's distribution center nearby. Dunn's diverse manufacturing sector is also a large source of jobs. Wal-Mart Distribution, Ford Distribution, and Anderson Windows Manufacturing and Distribution are each located at the CTH B interchange with IH 94.

Prominent public and private employers in Dunn County are shown below.

Establishment	Employees
Wal Mart Associates	1,000+ employees
UW - Stout	1,000+ employees
Aurora Residential Alternatives Inc	500-999 employees
3M Company	500-999 employees
Red Cedar Medical Center Inc - Mayo	500-999 employees
Menomonie Public School	500-999 employees
County of Dunn	500-999 employees
Conagra Foods Pkg Foods LLC	250-499 employees
Phillips Plastics Corp	250-499 employees
Cardinal Glass Industries Inc	100-249 employees
Source: Dunn County Workforce Profile 2009, Wisconsin Department of Workforce Development, Office of Economic Advisors	

2. Discuss the economic advantages and disadvantages of the proposed action and whether advantages would outweigh disadvantages. Indicate how the project would affect the characteristics described in item 1 above:

Advantages: The proposed improvements to IH 94 and the IH 94/US 12/STH 29 interchange will provide safe and efficient travel through the project area. The improvements will provide safer, more efficient access for existing businesses, and provide safer local and regional transportation connections.

Disadvantages: Businesses and residents will be temporarily disadvantaged during construction due to delays, rerouting of roadway traffic, and the potential for temporary reduced access to the roadway during construction.

As population growth in Dunn County and the rest of the region continues to migrate east, development pressures may cause an increase in economic development within the project limits of the corridor over the next 20 years. Future land use maps found in the Dunn County and Town of Elk Mound comprehensive plans show a desire for increased commercial/business activity at the IH 94/US 12/STH 29 interchange. Through corridor planning, WisDOT is helping local governments prepare for construction activities, make land use decisions that will benefit their communities, and preserve the highway as an economic development generator. Moreover, by being proactive, WisDOT will save construction and real estate costs in the future.

3. What effect will the proposed action have on the potential for economic development in the project area?

☒ **The proposed project will have no effect on economic development.**

☐ **The proposed project will have an effect on economic development.**

- ☐ Increase, describe:
- ☐ Decrease, describe:

The proposed action will not increase or decrease the potential for economic development as capacity improvements will not be made until traffic volumes warrant such construction. At this point the proposed project will be helping to sustain the projected growth rather than create or diminish the growth. Quality transportation infrastructure will meet the growing demands created by economic prosperity and provide the services necessary to sustain future growth. Further, the project will minimize future impacts by preparing the corridor for additional capacity expansion.

AGRICULTURE EVALUATION

Wisconsin Department of Transportation

Factor Sheet A-3

Alternative **Mainline Two (IH 94 Corridor)** **North IH 94/US 12/STH 29 Interchange**	Total Length of Center Line of Existing Roadway **8.5** Length of This Alternative **8.5**
Preferred ☒ Yes ☐ No ☐ None identified	

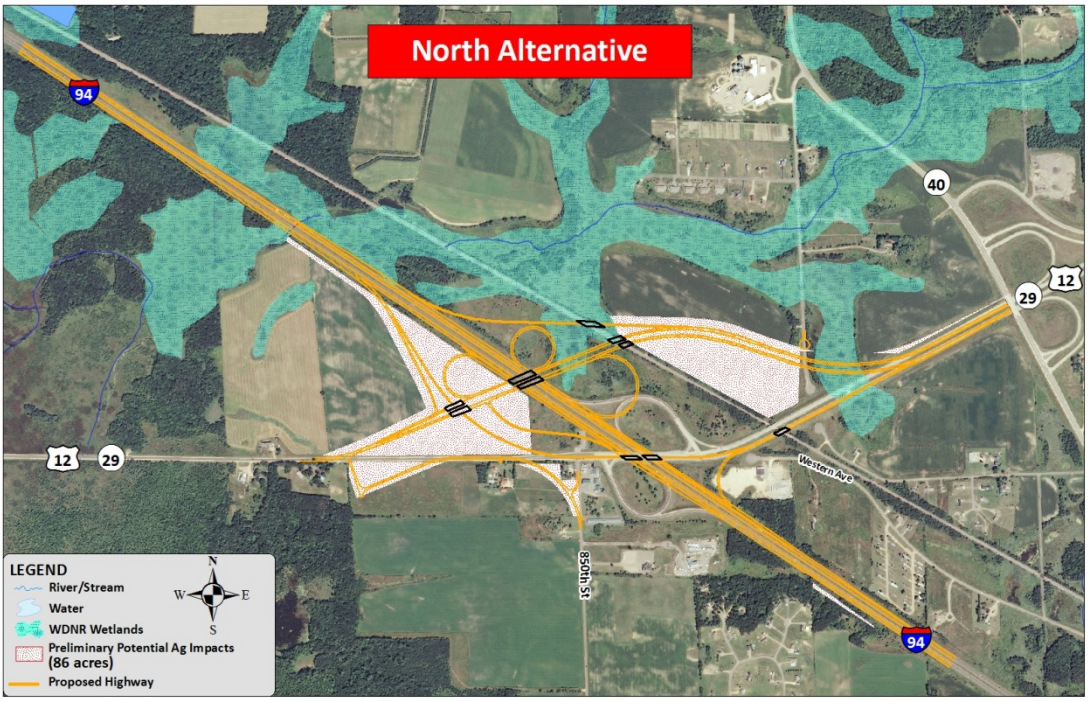
1. Total acquisition interest, by type of agricultural land use:

Mainline Two (IH 94 Corridor)

Type of Land Acquired From Farm Operations	Type of Acquisition (acres)		Total Area Acquired (acres)
	Fee Simple	Easement	
Crop land and pasture	0.52	0	0.52
Woodland	2.09	0	2.09
Land of undetermined or other use (e.g., wetlands, yards, roads, etc.)	1.59	0	1.59
Totals	4.20	0	4.20

North IH 94/US 12/STH 29 Interchange

Type of Land Acquired From Farm Operations	Type of Acquisition (acres)		Total Area Acquired (acres)
	Fee Simple	Easement	
Crop land and pasture	86	To be determined	86
Woodland	0	To be determined	0
Land of undetermined or other use (e.g., wetlands, yards, roads, etc.)	0	To be determined	0
Totals	86	To be determined during future design stage	86



Agricultural Impacts at IH 94/US 12/STH 29 Interchange

2. Indicate number of farm operations from which land will be acquired:

Mainline Two (IH 94 Corridor)

Acreage to be Acquired	Number of Farm Operations
Less than I acre	3
1 acre to 5 acres	0
More than 5 acres	0

North IH 94/US 12/STH 29 Interchange

Acreage to be Acquired	Number of Farm Operations
Less than I acre	1
1 acre to 5 acres	1
More than 5 acres	3

3. Is land to be converted to highway use covered by the Farmland Protection Policy Act?

☒ No, based on agency coordination received from NRCS (see NRCS coordination in Appendix 4). *This will be reevaluated when specific agricultural impacts are more fully developed, based on project design to be determined in a future design phase.*

- ☐ The land was purchased prior to August 6, 1984 for the purpose of conversion.
- ☐ The acquisition does not directly or indirectly convert farmland.
- ☐ The land is clearly not farmland
- ☐ The land is already in, or committed to urban use or water storage.

☐ Yes (This determination is made by the Natural Resources Conservation Service (NRCS) via the completion of the Farmland Impact Conversion Rating Form, NRCS Form AD-1006)

- ☐ The land is prime farmland which is not already committed to urban development or water storage.
- ☐ The land is unique farmland.
- ☐ The land is farmland which is of statewide or local importance as determined by the appropriate state or local government agency.

4. Has the Farmland Impact Conversion Rating Form (AD-1006) been submitted to NRCS?

☒ No - based on agency coordination received from NRCS (see NRCS coordination in Appendix 4). *This will be reevaluated when specific agricultural impacts are more fully developed, based on project design to be determined in a future design phase.*

☐ Yes

- ☐ The Site Assessment Criteria Score (Part VI of the form) is less than 60 points for this project alternative.
  Date Form AD-1006 completed. _____
- ☐ The Site Assessment Criteria Score is 60 points or greater.
  Date Form AD-1006 completed. _____

5. Is an Agricultural Impact Statement (AIS) Required?

☒ Undetermined

The DATCP may prepare an Agricultural Impact Statement (AIS) for the proposed project once WisDOT determines the amount of property to be acquired from each farmland owner. This will be reevaluated when specific agricultural impacts are more fully developed, based on project design to be determined in a future design phase. The AIS would provide detailed information on the impacts to agriculture caused by the proposed project.

☐ No

- ☐ Eminent Domain will not be used for this acquisition
- ☐ The project is a “Town Highway” project
- ☐ The acquisition is less than 1 acre
- ☐ The acquisition is 1-5 acres and DATCP chooses not to do an AIS.
- ☐ Other. Describe _____

☐ Yes

- ☐ Eminent Domain may be used for this acquisition.

☐ The project is not a "Town Highway" project
☐ The acquisition is 1-5 acres and DATCP chooses to do an AIS.
☐ The acquisition is greater than 5 acres

6. Is an Agricultural Impact Notice (AIN) Required?

☐ No, the project is not a State Trunk Highway Project - AIN not required but complete questions 7-16.
☒ Yes, the project is a State Trunk Highway Project - AIN may be required.
Is the land acquired "non-significant"?
☐ Yes - (All must be checked) An AIN is not required but complete questions 7-16.
☐ Less than 1 acre in size
☐ Results in no severances
☐ Does not significantly alter or restrict access
☐ Does not involve moving or demolishing any improvements necessary to the operation of the farm
☐ Does not involve a high value crop
☒ No
☐ Acquisition 1 to 5 acres - **AIN required**. Complete Pages 1 and 2, Form DT1999, (Pages 1 and 2, Figure 1, Procedure 21-25-30.)
☒ Acquisition over 5 acres - **AIN required**. Complete Pages 1, 3 and 4, Form DT1999. (Pages 1, 3 and 4, Figure 1, Procedure 21-25-30)

Due to the scope of this planning level project, an AIN and potential AIS will be prepared during a future design phase, closer to construction. The AIN/AIS would provide detailed information on the impacts to agriculture caused by the proposed project.

7. Identify and describe effects to farm operations because of land lost due to the project:

☐ Does Not Apply.
☒ Applies – Discuss. Specific impacts will be determined during a future design phase, closer to construction.

8. Describe changes in access to farm operations caused by the proposed action:

☐ Does Not Apply.
☒ Applies – Discuss. Because the existing roadway does not currently allow direct access to or from adjacent land, the realignment of the interchange will not have a significant impact on landowners' use of the interchange. However, acquisition of land and the creation of severed parcels could affect landowners' ability to access their remaining property. WisDOT could offer to purchase some or all of these parcels as uneconomic remnants if they are too small for any practical use or if their proximity to the interchange prohibits WisDOT from providing access to them. Specific impacts will be determined during a future design phase, closer to construction.

9. Indicate whether a farm operation will be severed because of the project and describe the severance (include area of original farm and size of any remnant parcels):

☐ Does Not Apply.
☒ Applies – Discuss. The proposed alignment for the IH 94/USH 12/STH 29 Interchange will sever parcels that are currently contiguous. WisDOT could offer to purchase some or all of these parcels as uneconomic remnants if they are too small for any practical use or if their proximity to the interchange prohibits WisDOT from providing access to them. Specific impacts will be determined during a future design phase, closer to construction.

10. Identify and describe effects generated by the acquisition or relocation of farm operation buildings, structures or improvements (e.g., barns, silos, stock watering ponds, irrigation wells, etc.). Address the location, type, condition and importance to the farm operation as appropriate:

☒ Does Not Apply.
☐ Applies – Discuss.

11. Describe effects caused by the elimination or relocation of a cattle/equipment pass or crossing. Attach plans, sketches, or other graphics as needed to clearly illustrate existing and proposed location of any cattle/equipment pass or crossing:

☒ Does Not Apply.
☐ Replacement of an existing cattle/equipment pass or crossing is not planned. Explain.
☐ Cattle/equipment pass or crossing will be replaced.
☐ Replacement will occur at same location.

☐ Cattle/equipment pass or crossing will be relocated. Describe.

12. Describe the effects generated by the obliteration of the old roadway:

☐ Does Not Apply.
☒ Applies – Discuss. Specific impacts will be determined during a future design phase, closer to construction.

13. Identify and describe any proposed changes in land use or indirect development that will affect farm operations and are related to the development of this project:

☐ Does Not Apply.
☒ Applies – Discuss. Specific impacts will be determined during a future design phase, closer to construction.

14. Describe any other project-related effects identified by a farm operator or owner that may be adverse, beneficial or controversial:

☒ No effects indicated by farm operator or owner.
☐ Applies – Discuss.

15. Indicate whether minority or low-income population farm owners, operators, or workers will be affected by the proposal: (Include migrant workers, if appropriate.)

☒ No
☐ Applies – Discuss.

16. Describe measures to minimize adverse effects or enhance benefits to agricultural operations:

The proposed roadway will be designed in accordance with WisDOT and FHWA guidelines using criteria that balances the safety of the traveling public with the need for roadway improvements. Specific measures to minimize adverse effects or enhance benefits to agricultural operations will be determined during a future design phase, closer to construction.

ENVIRONMENTAL JUSTICE EVALUATION

Wisconsin Department of Transportation

Factor Sheet B-4

Alternative	Total Length of Center Line of Existing Roadway **8.5 miles**
Mainline Two (IH 94 Corridor) **North IH 94/US 12/STH 29 Interchange**	Length of This Alternative **8.5 miles**
Preferred ☒ Yes ☐ No ☐ None Identified	

1. **Identify and give a brief description of the populations covered under Executive Order 12898 (EO 12898). Include the relative size of the populations and their pertinent demographic characteristics: (Check all that apply.)**

Population Groups	Low Income	Elderly	Disabled
☒ Black (having origins in any of the black racial groups of Africa) Describe: Less than 1% of the population	Yes ☐ No ☒	Yes ☐ No ☒	Yes ☐ No ☒
☒ Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race) Describe: Less than 2% of the population	Yes ☐ No ☒	Yes ☐ No ☒	Yes ☐ No ☒
☒ Asian American (origins in any of the original peoples of the Far East, SE Asia, the Indian subcontinent, or the Pacific Islands) Describe: Less than 4% of the population	Yes ☐ No ☒	Yes ☐ No ☒	Yes ☐ No ☒
☒ American Indian and Alaska Native (having origins in any of the original people of North American and who maintains cultural identification through tribal affiliation or community recognition) Describe: Less than 1% of the population	Yes ☐ No ☒	Yes ☐ No ☒	Yes ☐ No ☒
☐ White and any combination of the above. Describe: None identified	Yes ☐ No ☒	Yes ☐ No ☒	Yes ☐ No ☒
☐ Non-minority low-income population Describe: None identified		Yes ☐ No ☒	Yes ☐ No ☒

2. How was information on the proposed action communicated to populations covered by Executive Order 12898. Check all that apply:

Public Information Meeting (PIM) invitations were sent to all property owners adjacent to the proposed action. Individuals covered by Executive Order 12898 and owning property along the project corridor were invited to the PIM.

A project information letter was sent to the local Hmong Mutual Assistance Association (Hmong American Community Association, Inc.) in Menominee; no concerns were expressed.

☐ Advertisements
☐ Brochures
☐ Newsletters
☒ Notices
☐ Utility Bill Inserts
☐ E-mails
☐ Public Service Announcements
☒ Direct Mailings
☐ Key Persons
☐ Other, identify _____

3. **How was input from populations covered by EO 12898 obtained? Check all that apply:**

☐ Mailed Surveys
☐ Targeted Small Group Information Meetings
☐ Door-to-door interviews
☐ Targeted Workshop/conferences
☐ Focus Group Research
☒ Public Meetings
☐ Public Hearings
☐ Key Person Interviews
☒ Other, letter to Hmong Mutual Assistance Association

4. **Indicate any special accommodations made to encourage participation from populations covered by EO 12898. Check all that apply:**

☐ Interpreters
☐ Listening Aids
☐ Accessibility for Elderly & Disabled
☐ Transportation Provided
☐ Child Care Provided
☐ Sign Language
☐ Other, _____

5. If there is a project advisory committee, identify and describe committee members from populations covered by EO 12898

☒ None identified
☐ Yes - Check all that apply and describe below:
- ☐ Black
- ☐ Hispanic
- ☐ Asian-American
- ☐ American Indian or Alaska Native
- ☐ White and any combination of the above
- ☐ Non-minority low-income

Describe: _____

6. As a result of public involvement and inter-agency coordination, identify and describe issues of concern or controversy to populations covered by EO 12898:

A. Economic Development and Business

☒ No issues of concern or controversy identified.
☐ Yes - Issues of concern or controversy identified.

1. List effects on businesses and populations covered by EO 12898:
   - ☒ None identified.
   - ☐ Yes.

     List and discuss - _____

Population Groups	Number of Businesses **Created** That Will:		Number of Businesses **Displaced** That:	
	Employ	Serve	Employ	Serve
Elderly				
Disabled				
Low income				
Minority				

2. List other effects.
   - ☒ None identified.
   - ☐ Yes

     List and discuss - _____

B. Agriculture

☒ No issues of concern or controversy identified.
☐ Yes - Issues of concern or controversy identified.

1. List effects on agricultural operations owned by members of populations covered by EO 12898.
   - ☒ None identified.
   - ☐ Yes

     List and discuss - _____
2. List effects on agricultural operations which employ members of populations covered by EO 12898, including migrant workers
   - ☒ None identified.
   - ☐ Yes

     List and discuss - _____
3. List other effects on members of populations covered by EO 12898:
   - ☒ None identified.
   - ☐ Yes

     List and discuss - _____

C. Community/Residential

☒ No issues of concern or controversy identified.
☐ Yes - Issues of concern or controversy identified.

List and discuss - _____

1. List relocation effects on households covered by EO 12898:
   - ☒ None identified.
   - ☐ Yes

     List and discuss - _____

Population Groups	Number of Households Relocated
Elderly	
Disabled	
Low income	
Minority	

2. List other effects on members of populations covered by EO 12898.
   - ☒ None identified.
   - ☐ Yes
     List and discuss - _____

D. Other
- ☒ No issues of concern or controversy identified.
- ☐ Issues of concern or controversy identified.
  List and discuss - _____

7. Indicate whether effects on populations covered by EO 12898 are beneficial or adverse:

A. Beneficial effects.

☐ Describe effects on populations and discuss whether they are direct, indirect or cumulative. Include a discussion of any measures to enhance beneficial effects. Describe methods used to determine beneficial effects resulting from the proposed project. (If only beneficial effects, process is complete.)

The proposed action will improve safety to all local motorists, including populations covered by EO 12898, while traveling on the corridor and will benefit all people n the project area, including populations covered by EO 12898, by providing a safer and more efficient roadway.

B. Adverse effect.

☒ 1. Adverse Effects are proportional or disproportionately low. Identified adverse effects are proportionate or disproportionately low to those experienced by the general population.

Describe effects on populations and discuss whether they are direct, indirect or cumulative. Describe methods used to determine adverse effects resulting from the proposed project. Include a discussion of any measures to avoid, minimize, or mitigate adverse effects. (If only beneficial or proportional or disproportionately low effects, process is complete.)

Adverse Effects of the proposed action include minor impacts to one business's parking lot, and minor Right-of-Way purchase along the project corridor. There is no evidence that these effects will disproportionately affect any populations covered by EO 12898.

☐ 2. Adverse Effects are disproportionately high. A disproportionately high and adverse effect means an adverse effect that:

a.) is predominately borne by populations covered by EO 12898; or

b.) will be suffered by populations covered by EO 12898 and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by population not covered by EO 12898.

Describe disproportionately high and adverse effects on populations covered by EO 12898 and discuss whether they are direct, indirect or cumulative. Describe methods used to determine adverse effects resulting from the proposed project. Include a discussion of any measures to avoid, minimize, or mitigate disproportionately high and adverse effects or enhance beneficial effects.

WETLANDS EVALUATION

Wisconsin Department of Transportation

Factor Sheet C-1

Alternative **Mainline Two (IH 94 Corridor)** **North IH 94/US 12/STH 29 Interchange**	Total Length of Center Line of Existing Roadway **8.5 miles** Length of This Alternative **8.5 miles**
Preferred ☒ Yes ☐ No ☐ None identified	

1. Describe Wetlands:

Wetlands in the area of potential effect for the recommended alternative are associated with a large wetland complex related to drainage and unnamed tributaries of Muddy Creek. Affected wetland areas are located adjacent to the existing roadway and along drainage ditches. Wetland locations were determined based on WDNR's wetland inventory maps and visually verified through subsequent site visits. Wetland delineation will be performed during a future design phase. The wetland type and areas impacted shown in the tables below are based on preliminary plans and available wetland mapping.

Wetlands in the area are classified as Palustrine. Palustrine wetlands are any inland wetland which lacks flowing water and has either surface water or moist soils present for most of the growing season. Sub classifications include emergent wet meadow, emergent scrub, forested, and forested scrub.

The proposed action would require fill to be placed in the wetlands in order to construct slope improvements, realign entrance/exit ramps, and provide culvert extensions. On site and banking opportunities for wetland mitigation will be evaluated during design.

Mainline Two (IH 94 Corridor) (wetland locations are shown on IH 94 Corridor Plan and Profile Sheets in Appendix 1)

WETLAND AREA (#)	LOCATION	DESCRIPTION	WETLAND TYPE[1]	CONTIGUOUS WITH LAKE OR STREAM (Y/N)[2]	WETLAND ACRES IMPACTED
1	STA WB390 - STA WB393	Farmed wetland adjacent to localized low point with no outlet	SM	N	0.13
2	STA WB400 - STA WB414	Adjacent to an unnamed intermittent stream that connects to Muddy Creek	SM	Y	1.02
3	STA EB398+50 - STA EB401	Adjacent to an unnamed intermittent tributary to Muddy Creek	SM	Y	0.27
4	STA EB402+50 - STA EB407	Adjacent to an unnamed intermittent tributary to Muddy Creek	SM	N	0.30
5	STA EB419 - STA EB421+50	Low lying area that has connectivity to Muddy Creek	RPE	N	0.30
6	STA WB417 - STA WB470	Gore between weigh station and IH94 that drains to low lying area that has connectivity to Muddy Creek	RPF SM	Y	0.16 3.01
7	STA EB449 - STA EB451	Wetland connected to unnamed tributary to Muddy Creek	RPE	Y	0.02

8	STA EB475+50 - STA EB477	Muddy Creek	RPE	Y	0.29
9	STA EB490 - STA EB498	Muddy Creek Wildlife Area	WS	Y	0.43
10	STA EB499+50 - STA EB512+50	Muddy Creek Wildlife Area	WS	Y	1.13
11	STA WB513+50 - STA WB524	Muddy Creek Wildlife Area	SM	Y	0.53
12	STA EB542+50 - STA EB545	Muddy Creek Wildlife Area	SS	Y	0.24
		TOTAL			**7.83**

[1]Use wetland types as specified in the "WisDOT Wetland Mitigation Banking Technical Guideline, Table 3-C"

[2]If wetland is contiguous to a stream, complete Factor Sheet C-2, Rivers, Streams and Floodplains Impact Evaluation. If wetland is contiguous to a lake or other water body, complete Factor Sheet C-3, Lake or Water Body Impact Evaluation.

North IH 94/US 12/STH 29 Interchange (wetland locations are shown on IH 94/US 12/STH 29 Interchange Plan and Profile Sheets in Appendix 2)

WETLAND AREA (#)	LOCATION	DESCRIPTION	WETLAND TYPE[1]	CONTIGUOUS WITH LAKE OR STREAM (Y/N) [2]	WETLAND ACRES IMPACTED
1	EB562+00-EB562+75	Wetland connected to unnamed tributary to Muddy Creek	RPE M	Y	0.06 0.05
2	EB562+10-EB563+75	Wetland connected to unnamed tributary to Muddy Creek	RPE	Y	0.06
3	WB565+20-WB593+50	Wetland adjacent to unnamed tributary to Muddy Creek	RPE M	Y	0.77 0.76
4	EB567+25-EB570+00	Wetland adjacent to unnamed tributary to Muddy Creek	SS	Y	0.46
5	WB586+00-WB598+50	Wetland connected to unnamed tributary to Muddy Creek	RPE SM	Y	0.06 0.07
6	STH 29 139+00 TO 146+75	Wetland connected to unnamed tributary to Muddy Creek	RPE SM	Y	4.77 4.77
7	STH 29 169+50 TO 175+50	Wetland connected to unnamed tributary to Muddy Creek	RPE SM	Y	1.64 1.64
8	EB94 TO EB29 644+50 TO 649+50	Wetland connected to unnamed tributary to Muddy Creek	RPE SM	Y	0.48 0.48
		TOTAL			**16.07**

[1]Use wetland types as specified in the "WisDOT Wetland Mitigation Banking Technical Guideline, Table 3-C"

[2]If wetland is contiguous to a stream, complete Factor Sheet C-2, Rivers, Streams and Floodplains Impact Evaluation. If wetland is contiguous to a lake or other water body, complete Factor Sheet C-3, Lake or Water Body Impact Evaluation.

2. Are any impacted wetlands considered "wetlands of special status" per WisDOT Wetland Mitigation Banking Technical Guideline, page 10?

☒ No
☐ Yes:
☐ Advanced Identification Program (ADID) Wetlands

☐ Other – Describe: _____

3. Describe proposed work in the wetland(s), e.g., excavation, fill, marsh disposal, other:

The proposed action would require fill to be placed in the wetlands in order to construct slope improvements, realign entrance/exit ramps, and provide culvert extensions.

4. List any observed or expected waterfowl and wildlife inhabiting or dependent upon the wetland: (List should include permanent, migratory and seasonal residents).

Wetlands in the project area form a corridor for wildlife such as songbirds, small mammals, reptiles, and amphibians. The larger wetland areas in the project area contain more vegetative diversity and connections to other habitat areas that support waterfowl, larger mammals such as deer and furbearers, a variety of songbirds and other wildlife typically found in Dunn County.

5. Federal Highway Administration (FHWA) Wetland Policy:

☒ Not Applicable - Explain

Evaluation of FHWA wetland policy will be necessary during the design phase, when a determination of wetland impact can be more fully determined based on project plans.

☐ Individual Wetland Finding Required - Summarize why there are no practicable alternatives to the use of the wetland.

☐ Statewide Wetland Finding: **NOTE: All three boxes below must be checked for the Statewide Wetland Finding to apply.**

- ☐ Project is either a bridge replacement or other reconstruction within 0.3 mile of the existing location.
- ☐ The project requires the use of 7.4 acres or less of wetlands.
- ☐ The project has been coordinated with the DNR and there have been no significant concerns expressed over the proposed use of the wetlands.

6. Erosion control or storm water management practices which will be used to protect the wetland are indicated on form: (Check all that apply)

☒ Factor Sheet D-6, Erosion Control Impact Evaluation.
☒ Factor Sheet D-5, Stormwater Impact Evaluation.
☐ Neither Factor Sheet - Briefly describe measures to be used

7. U S Army Corps of Engineers (USACE) Jurisdiction - Section 404 Permit (Clean Water Act)

☐ Not Applicable - No fill to be placed in wetlands or wetlands are not under USACE jurisdiction.
☒ Applicable - Fill will be placed in wetlands under the jurisdiction of the USACE.

Indicate area of wetlands filled:

Approximately 24 acres total (Mainline Two: 7.83 acres, North Interchange: 16.07 acres)

During the design phase, a determination of final wetland impacts will be based on project plans.

Type of 404 permit anticipated:

The appropriate Corps of Engineers permit will be requested during a future design stage.

☒ Individual Section 404 Permit required.
☐ General Permit (GP) or Letter Of Permission (LOP) required to satisfy Section 404 Compliance.

Indicate which GP or LOP is required:

- ☐ Non-Reporting GP
- ☐ Provisional GP
- ☐ Provisional LOP
- ☐ Programmatic GP

8. Section 10 Waters (Rivers and Harbors Act). For navigable waters of the United States (Section 10) indicate which 404 permit is required:

☒ No Section 10 Waters.

Indicate whether Pre-Construction Notification (PCN) to the USACE is:

☐ Not applicable.

☐ Required: Submitted on: (Date)

Status of PCN

USACE has made the following determination on: (Date)

USACE is in the process of review, anticipated date of determination is: (Date)

9. Wetland Avoidance and Impact Minimization: [Note: Required before compensation is acceptable]
The proposed slopes will be constructed as steep as standards allow, minimizing impacts to wetlands.

10. Compensation for Unavoidable Wetland Loss:
According to Section 401 (b) (1), of the Clean Water Act, unavoidable wetland losses must be mitigated on-site, if possible. If no on-site opportunities exist, near/off-site wetland compensation sites must be considered. If neither exists, the losses may be debited to an existing wetland mitigation bank site. Compensation ratios are based on WisDOT Wetland Mitigation Banking Technical Guideline.

Final wetland impacts, mitigation, and compensation will be determined during a future design phase.

Mainline Two (IH 94 Corridor)

	Type	Acre(s) Loss	Ratio	Compensation Type and Acreage			
				On-site	Near/off site	Consolidation Site	Bank site
RPF(N)	Riparian wetland (wooded)	0.16					
RPF(D)	Degraded riparian wetland (wooded)						
RPE(N)	Riparian wetland (emergent)	0.61					
RPE(D)	Degraded riparian wetland (emergent)						
M(N)	Wet and sedge meadows, wet prairie, vernal pools, fens						
M(D)	Degraded meadow						
SM	Shallow marsh	5.26					
DM	Deep marsh						
AB(N)	Aquatic bed						
AB(D)	Degraded aquatic bed						
SS	Shrub Swamp, shrub carr, alder thicket	0.24					
WS(N)	Wooded swamp	1.56					
WS(D)	Degraded wooded swamp						
Bog	Open and forested bogs						

D = Degraded
N = Non-degraded

North IH 94/US 12/STH 29 Interchange

	Type	Acre(s) Loss	Ratio	Compensation Type and Acreage			
				On-site	Near/off site	Consolidation Site	Bank site
RPF(N)	Riparian wetland (wooded)						
RPF(D)	Degraded riparian wetland (wooded)						
RPE(N)	Riparian wetland (emergent)	7.84					
RPE(D)	Degraded riparian wetland (emergent)						
M(N)	Wet and sedge meadows, wet prairie, vernal pools, fens						
M(D)	Degraded meadow	0.81					
SM	Shallow marsh	6.96					
DM	Deep marsh						
AB(N)	Aquatic bed						
AB(D)	Degraded aquatic bed						
SS	Shrub Swamp, shrub carr, alder thicket	0.46					
WS(N)	Wooded swamp						
WS(D)	Degraded wooded swamp						
Bog	Open and forested bogs						

D = Degraded
N = Non-degraded

11. If on-site compensation is proposed, describe how a search for a compensation site was conducted:
On site mitigation will be explored further during design. WDNR recommends that unavoidable losses be made up with the use of the nearest banking site.

The construction of the roadway will require a wetland impact of approximately 24 acres total (Mainline Two: 7.83 acres, North Interchange: 16.07 acres). On-site wetland opportunities will be evaluated. If unachievable, wetland will be mitigated as part of the WisDOT wetland mitigation bank site. More detailed wetland calculations will be determined during a future design phase.

12. Summarize the coordination with other agencies regarding the compensation for unavoidable wetland losses: Attach appropriate correspondence:
Coordination to determine compensation for unavoidable wetland loss will be conducted during a future design phase closer to construction.

RIVERS, STREAMS AND FLOODPLAINS EVALUATION

Wisconsin Department of Transportation

Factor Sheet C-2

Alternative **Mainline Two (IH 94 Corridor)** **North IH 94/US 12/STH 29 Interchange**	Total Length of Center Line of Existing Roadway **8.5 miles** Length of This Alternative **8.5 miles**
Preferred ☒ Yes ☐ No ☐ None identified	

1. Stream Name: Muddy Creek

2. Stream Type: (Indicate Trout Stream Class, if known)

- ☐ Unknown
- ☐ Warm water
- ☒ Cold water
  - If trout stream, identify trout stream classification: Class III Trout Stream
- ☐ Wild and Scenic River

3. Size of Upstream Watershed Area: (Square miles or acres)

238 square miles

4. Stream flow characteristics:

- ☒ Permanent Flow (year-round)
- ☐ Temporary Flow (dry part of year)

5. Stream Characteristics:

A. Substrate:

1. ☐ Sand
2. ☒ Silt
3. ☒ Clay
4. ☐ Cobbles
5. ☐ Other-describe:

B. Average Water Depth: 0-6 feet

C. Vegetation in Stream

- ☒ Absent
- ☐ Present

D. Identify Aquatic Species Present:

Unknown

E. If water quality data is available, include this information:

Water quality data is not readily available.

F. Is this river or stream on the WDNR's "Impaired Waters" list?

- ☒ No
- ☐ Yes - List: _____

6. If bridge or box culvert replacement, are migratory bird nests present?

- ☐ Not Applicable
- ☐ None identified.
- ☒ Yes – Identify Bird Species present

Estimated number of nests is:

Migratory birds may nest in vegetation or on bridge structures affected by the proposed construction. The primary season for most migratory bird nesting activity in Wisconsin is between the dates of May 1 to August 30 of a given year. However, some migratory birds are known to nest outside of the primary nesting season period.

Structure replacement under this proposed action is not expected to occur before 2020. Future Environmental Documents are anticipated to precede detailed roadway and structure design phases. This document specifies that a survey will be conducted to document the presence/absence of active nests (i.e., occupied by eggs or young birds) as a component of those respective future Environmental Documents. The results of a field survey for nesting birds, along with the information regarding the qualification of person(s) performing the survey, will be documented and maintained.

Clearing of vegetation and bridge demolition activities will be scheduled outside of the primary nesting season dates to avoid or minimize adverse impact to nesting migratory birds. If construction must be scheduled during the migratory bird nesting season, bridges shall be maintained to preclude nesting activity (e.g. netting and/or clearing of inactive nests from the structure prior to nesting activity). Should active nests be observed and the contractor and project manager determine that they cannot be avoided until after the birds have fledged (left the nest), and if no practicable or reasonable avoidance alternatives are identified then the contractor will complete a Federal Fish and Wildlife License/Permit Application Form 37 and submit it to the USFWS Migratory Bird Program Office. The contractor may proceed with work on the affected project activities following receipt of the approved permit the USFWS.

7. Is a Fish & Wildlife Depredation Permit required to remove swallow nests?

- ☒ Not Applicable
- ☐ Yes
- ☐ No - Describe mitigation measures:

8. Describe land adjacent to stream*:*

Agriculture, wooded, and unimproved open green space lands surround Muddy Creek. Wetland areas are immediately adjacent to the stream and its tributaries. Wetlands in the area are classified as Palustrine. Palustrine wetlands are any inland wetland which lacks flowing water and has either surface water or moist soils present for most of the growing season. Sub classifications include emergent wet meadow, emergent scrub, forested, and forested scrub. The Muddy Creek Wildlife Area lies adjacent to the southern edge of a portion of the proposed southern expansion of the IH 94 corridor. Muddy Creek and its unnamed tributaries flow through the Muddy Creek Wildlife Area. The Muddy Creek Wildlife Area is used for outdoor recreation purposes.

9. Identify upstream or downstream dischargers or receivers (if any) within 0.8 kilometers (1/2 mile) of the project site:

Not identified during preliminary review

10. Describe proposed work in, over, or adjacent to stream. Indicate whether the work is within the 100-year floodplain and whether it is a crossing or a longitudinal encroachment: [Note: Coast Guard must be notified when Section 10 waters are affected by a proposal. Also see Wetland Evaluation, Factor Sheet C-1, Question 8.]

Potential work would consist of replacing the existing culvert structures on Muddy Creek and unnamed tributaries to Muddy Creek. No floodplain designations for Muddy Creek are identified in FEMA floodplain documents or available Dunn County floodplain maps. Minor amounts of fill would be placed adjacent to the existing road fill.
The new structure would not affect the hydraulic performance. If migratory bird nests are at the time of construction, measures will be taken to avoid affecting nesting sites.

11. Discuss the effects of any backwater which would be created by the proposed action. Indicate whether the proposed activities would be in compliance with NR 116 by creating 0.01 ft. backwater or less:

No back water will be created as a result of this project.

12. Describe and provide the results of coordination with any floodplain zoning authority:

There will be no increase in the floodplain elevation; therefore no coordination with any floodplain zoning authority is anticipated.

13. Would the proposal or any changes in the design flood, or backwater cause any of the following impacts?

- ☒ No impacts would occur.
- ☐ Significant interruption or termination of emergency vehicle service or a community's only evacuation route.
- ☐ Significant flooding with a potential for property loss and a hazard to life.
- ☐ Significant impacts on natural floodplain values such as flood storage, fish or wildlife habitat, open space, aesthetics, etc.

14. Discuss existing or planned floodplain use and briefly summarize the project's effects on that use:

No floodplain designations for Muddy Creek are identified in FEMA floodplain documents or available Dunn County floodplain maps. The Muddy Creek Wildlife Area lies adjacent to the southern edge of a portion of the proposed southern expansion of the IH 94 corridor. Muddy Creek and its unnamed tributaries flow through the Muddy Creek Wildlife Area. The Muddy Creek Wildlife Area is used for outdoor recreation purposes. The project will have no effect on these uses.

15. Discuss probable direct impacts to water quality within the floodplain, both during and after construction. Include the probable effects on plants, animals, and fish inhabiting or dependent upon the stream:

During construction, water quality and vegetation at the culvert location would be impacted slightly. There will be no impacts to water quality, plants, animals or fish after construction.

16. Are measures proposed to enhance beneficial effects?

- ☐ No
- ☒ Yes. Describe

The construction window would be minimized to reduce the impact to dependent fish and other animals. The disturbed areas would be seeded and stabilized upon the completion of the work. All efforts and measures will be made in accordance with WEPA and section 22.30.12 of WisDOT's FDM to ensure no deposits or debris will enter the waterway.

CONSTRUCTION STAGE SOUND QUALITY EVALUATION

Wisconsin Department of Transportation

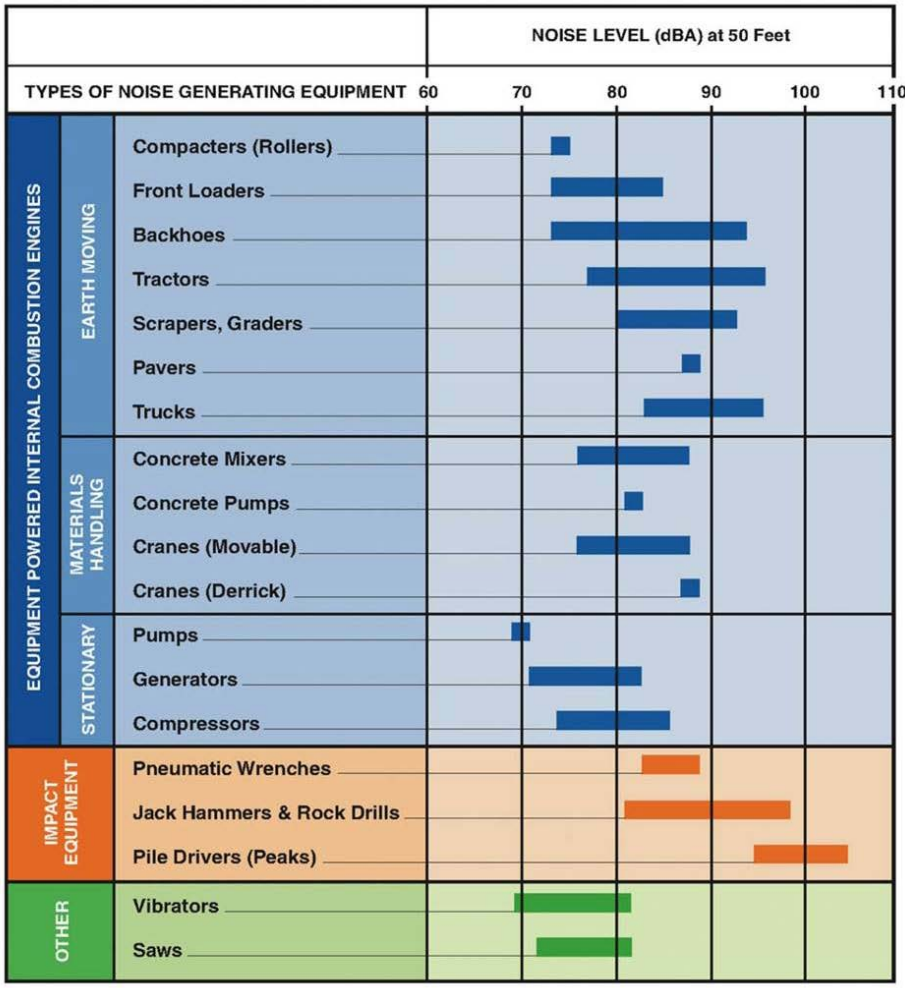
Factor Sheet D-2

Alternative **Mainline Two (IH 94 Corridor)** **North IH 94/US 12/STH 29 Interchange**	Total Length of Center Line of Existing Roadway **8.5 miles** Length of This Alternative **8.5 miles**
Preferred ☒ Yes ☐ No ☐ None Identified	

1. **Identify and describe residences, schools, libraries, or other noise sensitive areas near the proposed action and which will be in use during construction of the proposed action. Include the number of persons potentially affected:**
   The receptors along the project corridor that will be affected by construction noise consist of private residences and local businesses. These receptors will be directly affected by the project, while others who regularly use the roadway will be indirectly affected.

   There are no schools, hospitals or libraries located adjacent to the project. Less than 15 homes and less than 10 businesses are located within ¼ mile of the project corridor. Less than 50 people will be potentially affected by construction stage sound.

2. **Describe the types of construction equipment to be used on the project. Discuss the expected severity of noise levels including the frequency and duration of any anticipated high noise levels:**
   The noise generated by construction equipment will vary greatly, depending on equipment type/model/make, duration of operation and specific type of work effort. However, typical noise levels may occur in the 67 to 107 dBA range at a distance of 50 feet. Adverse effects related to construction noise are anticipated to be of a localized, temporary, and transient nature. A list of typical noise levels for a variety of construction equipment is shown in the figure below.



3. Describe the construction stage noise abatement measures to minimize identified adverse noise effects. Check all that apply:

- ☒ WisDOT Standard Specifications 107.8(6) and 108.7.1 will apply.
- ☐ WisDOT Standard Specifications 107.8(6) and 108.7.1 will apply with the exception that the hours of operation requiring the engineer's written approval for operations will be changed to _____ P.M. until _____A.M.
- ☐ WisDOT Standard Specifications 107.8(6) and 108.7.1 will apply with the exception that the hours of operation requiring the engineer's written approval for operations will be changed to _____ P.M. until _____A.M.
- ☐ Special construction stage noise abatement measures will be required. Describe:

STORMWATER EVALUATION

Wisconsin Department of Transportation

Factor Sheet D-5

Alternative **Mainline Two (IH 94 Corridor)** **North IH 94/US 12/STH 29 Interchange**	Total Length of Center Line of Existing Roadway **8.5 miles** Length of This Alternative **8.5 miles**
Preferred ☒ Yes ☐ No ☐ None identified	

1. Indicate whether the affected area may cause a discharge or will discharge to the waters of the state (Trans 401.03).

Special consideration should be given to areas that are sensitive to water quality degradation. Provide specific recommendations on the level of protection needed.

☐ No water special natural resources are affected by the alternative.
☒ Yes - Water special natural resources exist in the project area.
- ☒ River/stream
- ☒ Wetland
- ☐ Lake
- ☐ Endangered species habitat
- ☐ Other – Describe

2. Indicate whether circumstances exist in the project vicinity that require additional or special consideration, such as an increase in peak flow, total suspended solids (TSS) or water volume.

☐ No additional or special circumstances are present.
☒ Yes - Additional or special circumstances exist. Indicate all that are present.

☐ Areas of groundwater discharge	☐ Areas of groundwater recharge
☐ Stream relocations	☒ Overland flow/runoff
☒ Long or steep cut or fill slopes	☒ High velocity flows
☐ Cold water stream	☐ Impaired waterway
☒ Large quantity flows	☐ Exceptional/outstanding resource waters
☐ Increased backwater	

☐ Other - Describe any unique, innovative, or atypical stormwater management measures to be used to manage additional or special circumstances.

3. Describe the overall stormwater management strategy to minimize adverse effects and enhance beneficial effects.

Guidelines and regulations for WisDOT project storm water management include the *WisDOT Facilities Development Manual*, Chapter 10, Erosion Control and Storm Water Quality; Wisconsin Administrative Code Chapter TRANS 401, Construction site Erosion Control and Storm Water Management Procedures for Department Actions; and the WisDOT/DNR Cooperative Agreement Amendment-*Memorandum of Understanding on Erosion Control and Storm water Management*. The overall storm water management strategy for the proposed improvements would include the following:

Basic Principles and Best Management Practices

- Limit disturbance of natural drainage features and vegetation.
- Prepare and implement an approved erosion control plan before land disturbance begins.
- Protect areas that provide important water quality benefits or that are susceptible to erosion.
- Reduce direct discharge into streams and wetlands by having it flow through a filter strip or vegetated swale.
- Reduce runoff velocities by running storm water in shallow, flat-bottom swales.

Geometric Design Features/Storm Water Facilities

- Vegetated grass strips or grass swales could remove about 65 percent of suspended sediments.
- Infiltration trenches that consist of shallow ditches backfilled with stone could remove about 75 percent of suspended sediments.

4. Indicate how the stormwater management plan will be compatible with fulfilling Trans 401 requirements.
The types of storm water management strategies listed in item 3, previous page, and in item 5 below are identified in and/or consistent with TRANS 401 *Construction Site Erosion Control and Storm Water Management Procedures for Department Actions*; and the WisDOT/DNR Cooperative Agreement Amendment—*Memorandum of Understanding on Erosion Control and Storm Water Management*.

5. Identify the stormwater management measures to be utilized.

- ☒ Swale treatment (parallel to flow) Trans 401.106(10)
- ☒ Vegetated filter strips (perpendicular to flow)
- ☐ Constructed storm water wetlands
- ☐ Buffer areas – Trans 401.106(6)
- ☐ In-line storm sewer treatment, such as catch basins, non-mechanical treatment systems.
- ☐ Detention/retention basins – Trans 401.106(6)(3)
- ☒ Distancing outfalls from waterway edge
- ☐ Infiltration – Trans 401.106(5)
- ☐ Other

Describe - _____ _____

6. Indicate whether any Drainage District may be affected by the project.

- ☒ No - There will be no effects to a recognized drainage district.
- ☐ Yes

Has initial coordination with a drainage board been completed?

- ☐ No - Explain _____
- ☐ Yes - Discuss results _____

7. Indicate whether the project is within WisDOT's Phase I or Phase II stormwater management areas.
Note: See Procedure 20-30-1, Figure 1, Attachment A4, the Cooperative Agreement between WisDOT and WisDNR. Contact Regional Stormwater/erosion Control Engineer if assistance in needed to complete the following:

- ☒ No - the project is outside of WisDOT's stormwater management area.
- ☐ Yes - The project affects one of the following and is regulated by a WPDES stormwater discharge permit, issued by the WisDNR:
  - ☐ A WisDOT storm sewer system, located within a municipality with a population greater than 100,000.
  - ☐ A WisDOT storm sewer system located within the area of a notified owner of a municipal separate storm sewer system.
  - ☐ An urbanized area, as defined by the U.S. Census Bureau, NR216.02(3).
  - ☐ A municipal separate storm sewer system serving a population less than 10,000.

8. Has the effect on downstream properties been considered?

- ☒ No
- ☐ Yes - Coordination in progress

9. Are there any property acquisitions required for storm water management purposes?

- ☒ No
- ☐ Yes - Complete the following:
  - ☐ Safety measures, such as fencing are <u>not</u> needed for potential conflicts with existing and expected surrounding land use.
  - ☐ Safety measures <u>are</u> needed for potential conflicts with existing and expected surrounding land use. Describe:

EROSION CONTROL EVALUATION

Wisconsin Department of Transportation

Factor Sheet D-6

Alternative **Mainline Two (IH 94 Corridor)** **North IH 94/US 12/STH 29 Interchange**	Total Length of Center Line of Existing Roadway **8.5 miles** Length of This Alternative **8.5 miles**
Preferred ☒ Yes ☐ No ☐ None identified	

1. Give a brief description of existing and proposed slopes in the project area, both perpendicular and longitudinal to the project. Include both existing and proposed slope length, percent slope and soil types.
The existing longitudinal slopes in the project area range from 0 – 3.5% at lengths in excess of 1,000 feet. The existing perpendicular slopes range from 0 – 40% with a length up to approximately 70 feet.

The proposed longitudinal slopes range from 0 – 3.06% at lengths in excess of 1,000 feet. The proposed perpendicular slopes range from 0 – 33% with lengths up to approximately 80 feet.

2. Indicate all natural resources to be affected by the proposal that are sensitive to erosion, sedimentation, or waters of the state quality degradation and provide specific recommendations on the level of protection needed.

☐ No - there are no sensitive resources affected by the proposal.
☒ Yes - Sensitive resources exist in or adjacent to the area affected by the project.
- ☒ River/stream
- ☐ Lake
- ☒ Wetland
- ☐ Endangered species habitat
- ☐ Other - Describe _____

3. Are there circumstances requiring additional or special consideration?

☐ No - Additional or special circumstances are not present.
☒ Yes - Additional or special circumstances exist. Indicate all that are present.
- ☐ Areas of groundwater discharge
- ☐ Overland flow/runoff
- ☒ Long or steep cut or fill slopes
- ☒ Areas of groundwater recharge (fractured bedrock, wetlands, streams)
- ☒ Other - Describe any unique or atypical erosion control measures to be used to manage additional or special circumstances

Muddy Creek
Unnamed Streams and Tributaries

Box culvert replacements are required at six locations. The new box culvert can be constructed adjacent to the existing structure to accommodate drainage during the construction staging. Minor channel realignment will occur after the new culvert is completed. The proposed channel can be stabilized prior to conveying drainage to minimize erosion within the channel.

Excavation adjacent to each stream would be lined with silt fence and turbidity barrier to prevent transport of sediments. The special provisions would dictate that the areas be re-vegetated as quickly as possible. Erosion mat would be used to help stabilize slopes until seed has taken.

4. Describe overall erosion control strategy to minimize adverse effects and/or enhance beneficial effects.
Guidelines and regulations for minimizing the potential for erosion and sedimentation for highway projects include the WisDOT Facilities Development Manual, Chapter 10, *Erosion Control and Storm Water Quality*; Wisconsin Administrative Code Chapter TRANS 401, *Construction Site Erosion Control and Storm Water Management Procedures for Department Actions*; and the WisDOT/DNR Cooperative Agreement Amendment, *Memorandum of Understanding on Erosion Control and Storm Water Management.* Key concepts are summarized as follows:

Basic Principles and Best Management Practices

- The proposed improvements will be planned to fit topography, soils, drainage patterns, and natural vegetation to the extent practicable.
- The size of exposed areas at any one time and the duration of exposure will be minimized.
- Control measures will be used to prevent erosion and sedimentation in sensitive areas (proper design of drainage channels with respect to width, depth, gradient, side slopes, and energy dissipation); protective

groundcover (vegetation, mulch, erosion mat, or riprap); diversion dikes and intercepting embankments to divert sheet flow away from disturbed areas; and sediment control devices (retention/detention basins, ditch checks, erosion bales, and silt fence).

- Disturbed areas will be protected from off-site runoff and sediment will be prevented from leaving the construction site.
- Spoil piles will be stored away from sensitive areas.
- Runoff velocities will be kept low by maintaining short slope lengths, low gradients, and vegetative cover.
- Disturbed areas will be stabilized as soon as practicable (temporary vegetation, mulch, stabilizing emulsions).
- Do not park or store equipment in sensitive areas.

Geometric Design Features and Erosion Control Facilities

- Smooth grade lines with gradual changes will be used.
- Natural and existing drainage patterns will be preserved to the extent possible.
- Stabilized slopes, soil, and stream banks will be left undisturbed where possible.
- Trees and shrubs will be preserved, and over-clearing will be prevented or minimized.
- Irregular ditch profiles and steep gradients will be avoided where possible.
- Vegetated ditches and drainage channels with wide, rounded cross sections will be used where applicable.
- An undisturbed buffer will be left between disturbed soil and sensitive areas where possible.
- The soil surface will be protected by using permanent and temporary erosion control measures such as seeding and sodding, mulch, erosion mat, and riprap.
- Sediment will be removed and velocities reduced by using erosion bales, silt fence, stone or rock ditch checks, sediment traps, and basins.

Erosion Control Implementation Plan

The construction contractor is required to prepare an Erosion Control Implementation Plan that includes all erosion control commitments made during a future engineering phase. The ECIP is due 14 days prior to the project's preconstruction meeting. This plan must be approved by WisDOT with concurrence by WDNR. The construction plans and contract special provisions must include the specific erosion control measures agreed on by WisDOT in consultation with DNR who reviews the Erosion Control Implementation Plan.

5. Erosion control measures reached consensus with the appropriate authorities as indicated below:

Coordination with the following agencies is ongoing.

- ☒ WisDNR
- ☐ County Land Conservation Department
- ☐ American Indian Tribe
- ☐ US Army Corps of Engineers

Note: All erosion control measures (i.e., the Erosion Control Plan) shall be coordinated through the WisDOT-WisDNR liaison process and TRANS 401. WisDNR's concurrence is not forthcoming without an Erosion Control Plan. In addition, TRANS 401 requires the contractor to prepare an Erosion Control Implementation Plan (ECIP), which identifies timing and staging of the project's erosion control measures. The ECIP should be submitted to the WisDNR and to WisDOT 14 days prior to the preconstruction conference (Trans401.08(1)) and must be approved by WisDOT before implementation.

6. Identify the temporary and permanent erosion control measures to be utilized on the project. Consult the FDM, Chapter 10, and the Products Acceptability List (PAL).

- ☒ Minimize the amount of land exposed at one time
- ☒ Temporary seeding
- ☒ Silt fence
- ☒ Ditch checks
- ☒ Erosion or turf reinforcement mat
- ☒ Ditch or slope sodding
- ☒ Soil stabilizer
- ☒ Inlet protection
- ☒ Turbidity barriers
- ☐ Temporary settling basin
- ☒ Mulching
- ☒ Separating construction from live water - Turbidity Barrier
- ☐ Detention basin
- ☒ Vegetative swales
- ☐ Pave haul roads
- ☒ Dust abatement
- ☒ Rip rap
- ☒ Buffer strips
- ☐ Dewatering – Channel diversion and/or pumping
- ☐ Silt screen
- ☐ Temporary diversion channel
- ☒ Permanent seeding

APPENDIX G
Location Alternatives Memo

5950 Seminole Centre Ct. Suite 200
Madison, Wisconsin 53711
608-663-1218 Fax: 608-663-1226
www.klengineering.com

Memorandum

August 31, 2011

To: Jim Koenig; WisDOT Northwest Region Eau Claire Office

From: KL Engineering, Inc.

Re: *Recommendation of Alternative*
Project I.D. 1020-09-01
IH 94
Menomonie – Eau Claire Road
Dunn County

Background

The purpose of this planning study is to determine a recommended alternative for the IH 94 and US 12/WIS 29 Interchange, and to prepare an official map of the required right-of-way. Three potential alternatives of the proposed IH 94 and US 12/WIS 29 Interchange were evaluated to determine a recommended alternative. A summary of each of the potential alternatives is presented below. This summary is based on input received during Public Information Meetings, correspondence with local officials, and correspondence with state and federal agencies. Alternative analysis is based on construction staging, right-of-way impacts, environmental impacts, structures impacts, private property impacts, the IH 94 and US 12/WIS 29 freeway to freeway connection, and stakeholder input.

Requests for comments were made to all applicable agencies and Native American tribes; responses received are attached to this memo.

Summary of Alternatives

In Place Alternative

Pros

- Meets AASHTO Design Standards.
- Freeway to freeway free flow movement from IH 94 to WIS 29 east.
- Addresses safety deficiencies.
- Improves level of service.
- Replaces existing pavement and bridges.
- Moderate wetland impacts.
- On existing alignment; minimizes right of way impacts.
- Iowa Tribe of Oklahoma preferred alternative (see attached).

Cons

- Impacts two businesses;
  - Dawes Rigging and Crane Rental
  - Webb Development Corp
- Relocates one residence.
- Relocates 850th Street access ½ mile west.
- Need to raise IH 94 grade line to meet bridge clearance standards.
- Westbound US 12/WIS 29 to westbound IH 94 ramp will have moderate wetland impacts.
- Westbound IH 94 to eastbound US 12/WIS 29 ramp will have significant wetland impacts.
- Not favored by the Town of Elk Mound.
- Interchange layout at existing location and need to raise the IH 94 grade line makes constructability difficult and costly, and adversely impact the traveling public.

South Alternative

Pros

- Meets AASHTO Design Standards.
- Freeway to freeway free flow movement from IH 94 to WIS 29 east.
- Addresses safety deficiencies.
- Improves level of service.
- Replaces existing pavement and bridges.
- This alternative has the fewest wetland impacts, including:
  - The ramp connecting eastbound and westbound IH 94 to eastbound US 12/WIS 29.
  - The connection between westbound US 12/WIS 29 and westbound IH 94.
- WDNR preferred alternative (see attached).
- Interchange construction west of IH 94 is off alignment, simplifying constructability and reducing cost.

Cons

- Impacts three businesses;
  - Dawes Rigging and Crane Rental
  - Webb Development Corp
  - G and G of Durand
- Relocates one residence.
- Relocates 850th Street access ¼ mile west.
- Not favored by the Town of Elk Mound.
- Interchange layout at existing location east of IH 94 makes constructability difficult and costly, and adversely impacts the traveling public.
- Significant upland impacts due to expansions in the southwest quadrant of the project area.

North Alternative

Pros

- Meets AASHTO Design Standards.
- Freeway to freeway free flow movement from IH 94 to WIS 29 east.
- Addresses safety deficiencies.
- Improves level of service.
- Replaces existing pavement and bridges.
- Potential for on-site wetland mitigation.
- Fewest business impacts.
  - Minor impacts to one business (Dawes Rigging and Crane Rental)
- No residential relocations.
- Town of Elk Mound preferred alternative (see attached).
- Preferred by Public Information Meeting (PIM) attendees.
- Interchange construction to the north is off alignment, simplifying constructability, reducing cost, and minimizes impacts to the traveling public.

Cons

- Relocates 850th Street access 2/3 mile west.
- Greatest potential for wetland impacts due to:
  - Westbound IH 94 to westbound US 12/WIS 29 ramp.
  - Eastbound US 12/WIS 29 to westbound IH 94 ramp.
  - Westbound US 12/WIS 29 to westbound IH 94 ramp.
  - Relocating US 12/WIS 29 to the north of the existing alignment, which will include constructing an overpass over the railroad tracks - expanding the normal footprint of the roadway.

Recommendation of Alternative

The evaluation above and the attached material summarize the information used to recommend a preferred alternative for the proposed IH 94 and US 12/WIS 29 Interchange. None of the alternatives were determined to be unfeasible because of excessive cost, real estate acquisition, or other impacts when compared to the other alternatives.

Each of the three alternatives meet AASHTO Design Standards, address safety deficiencies, improve level of service, and replace existing pavement and bridges.

As stated in a letter dated July18, 2011 (see attached), the North Alternative is the preferred alternative of property owners and residents in the Town of Elk Mound. Residential and business impacts are of paramount concern to the Town of Elk Mound. The North Alternative has the fewest business and residential impacts when compared to the other alternatives. The North Alternative would result in only minor impacts to one business, and require no residential relocations.

Construction of the North Alternative is also off existing alignment, simplifying the constructability of the interchange, reducing construction costs, and reducing the impacts to vehicles utilizing the roadway during construction. Although the North Alternative does have the greatest potential for wetland impacts when compared to the other alternatives, the North Alternative has the potential for onsite wetland mitigation.

After consideration of all factors, the North Alternative is the recommended IH 94 and US 12/WIS 29 Interchange alternative.

Attachments to this memo include:

- In Place Alternative Exhibit
- South Alternative Exhibit
- North Alternative Exhibit
- Town of Elk Mound Letter, 7/18/2011
- WDNR Letter, 7/12/2011
- USFWS Letter 6/28/2011
- DATCP Letter 6/16/2011
- Iowa Tribe of Oklahoma Email, 6/6/2011
- Lac du Flambeau Band of Lake Superior Chippewa Indians Letter, 6/3/2011

In Place Alternative

94

40

12

29

12

29

94

LEGEND

- River/Stream
- Water
- WDNR Wetlands
- Proposed Highway

N

W E

S

South Alternative

94

40

12

29

12

29

94

LEGEND

- River/Stream
- Water
- WDNR Wetlands
- Proposed Highway

N

W E

S

North Alternative

94

40

12

29

12

29

94

LEGEND

- River/Stream
- Water
- WDNR Wetlands
- Proposed Highway

N

W

E

S

Town of Elk Mound
Carolyn Loechler, Clerk

N6936 810th Street
Elk Mound, WI 54739
dcloechler@yahoo.com

July 18, 2011

Dear Mr. Koenig,

RE: I-94/US 12/29 Interchange Project

The Town Board of the Town of Elk Mound has carefully reviewed the proposed I-94 highway plans. The Town Chairman, Vern Hanson, has taken them to be reviewed by business and property owners in the area. The board has determined that the North Alternative is the preferable one to property owners in the Town of Elk Mound.

We are concerned with this project not disrupting residents and businesses if at all possible. Please let us know when you will be having another meeting to gather input for this project.

Sincerely,

Carolyn Loechler, Clerk
Town of Elk Mound

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
West Central Region Headquarters
1300 W. Clairemont Avenue
PO Box 4001
Eau Claire WI 54702-4001

Scott Walker, Governor
Cathy Stepp, Secretary
Scott Humrickhouse, Regional Director
Telephone 715-839-3700
FAX 715-839-6076
TTY Access via relay - 711

July 12, 2011

Jim Koenig, PE
WisDOT Project Manager
WisDOT NW Region
718 West Clairemont Avenue
Eau Claire, WI 54701

SUBJECT: DOT/DNR Initial Project Review
Project I.D.#: 1020-09-01
Menomonie – Eau Claire Road
IH 94
Dunn County

Dear Mr. Koenig:

Three alternatives for the above-referenced project have been reviewed by DNR West Central Region staff under the DOT/DNR Cooperative Agreement. Consideration of the alternatives is presented below:

In Place Alternative

- WB 12/29 to WB IH 94 ramp will have moderate wetland impacts
- WB IH 94 to EB 12/29 ramp will have significant wetland impacts. This ramp crosses the railroad tracks with what looks like an overpass. Elevating the roadway to cross the railroad will expand the normal footprint of the roadway resulting in greater wetland impacts.
- There will be approximately 1.5 miles of new road constructed to connect 850th Street to USH 12/STH 29.

North Alternative

- This alternative appears to have the greatest potential for wetland impacts due to:
  - WB 94 to WB 12/29 ramp
  - EB 12/29 to WB 94 ramp
  - WB 12/29 to WB 94 ramp
  - Relocating 12/29 to the north of the existing alignment, which will include constructing an overpass over the railroad tracks – expanding the normal footprint of the roadway.
- This alternative will also include the new roadway to connect 850th Street to USH 12/STH 29
- There is potential for on-site mitigation should this alternative be chosen. Further examination of on-site wetland mitigation should be explored if it appears that the North Alternative will be selected as the preferred alternative.

South Alternative

- This alternative has the fewest wetland impacts, including:
  - The ramp connecting EB and WB IH 94 to EB USH 12/STH 29.
  - The connection between WB USH 12/STH 29 and WB IH 94.
- There will be significant upland impacts due to expansions in the southwest quadrant of the project area.
- This, from an environmental standpoint, is the preferred alternative.

The above comments represent the Department's initial concerns for the proposed project and do not constitute final concurrence. Final concurrence will be granted after review of plans and further consultation if necessary. If any of the concerns or information provided in this letter requires further clarification, please contact this office at (715) 839-1609.

Sincerely,

Nick Schaff
Environmental Analysis and Review Specialist

cc. Troy Stapelmann – WisDOT NW Region
Dan Munson – USCOE
Scott Cramer – KL Engineering

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Green Bay ES Field Office
2661 Scott Tower Drive
New Franken, Wisconsin 54229-9565
Telephone 920/866-1717
FAX 920/866-1710

June 23, 2011

Mr. Jim Koenig, P.E.
Wisconsin Department of Transportation
Northwest Regional Office
718 West Clairemont Avenue
Eau Claire, Wisconsin 54701

re: WisDOT Project I.D. 1020-09-01
Menomonie-Eau Claire Road
IH-94
Dunn County, Wisconsin

Dear Mr. Koenig:

The U.S. Fish and Wildlife Service (Service) has received your letter dated May 31, 2011, requesting comments on the subject project. The project involves the future reconstruction of an 8.5-mile section of Interstate Highway 94 (IH-94) in Dunn County, Wisconsin. You requested that we provide preliminary comments on the proposed project. We have reviewed the information provided in your letter and our comments follow.

Federally-Listed Species, Proposed and Candidate Species, and Critical Habitat

Due to the project location, no federally-listed, proposed, or candidate species would be expected within the project area. No critical habitat is present. This precludes the need for further action on this project as required by the 1973 Endangered Species Act, as amended. Should additional information on listed or proposed species or their critical habitat become available or if the proposed project area changes or if portions of the proposed project were not evaluated, it is recommended that you contact our office for further review.

Migratory Birds and Bridges

Under the Migratory Bird Treaty Act of 1918, as amended, it is unlawful to take, capture, kill, or possess migratory birds, their nests, eggs, and young. If migratory birds are known to nest on any structures (*e.g.,* bridges) which may be disturbed by project construction, activities should begin before the initiation of the breeding season for those species or after breeding has concluded. Alternatively, the structures can be *tightly screened* before the breeding season to prevent nesting. Generally, we recommend that screening or any other habitat disturbance occur before May 1 or after August 30 to minimize potential impacts to migratory birds, but please be aware that some species may initiate nesting before May 1.

We recommend that bridges and abutments be designed and constructed in such a way as to allow terrestrial wildlife to pass under the bridge without entering the river during normal flow conditions. This may require lengthening the bridge, limitations on the use of exposed riprap, modifications to the surface of the riprap (e.g., grouting the surface or filling with soil or other natural materials), or modifications in the substrate and/or slope at the base of the abutments, as some wildlife species cannot or prefer not to traverse areas of riprap.

Wetlands and Streams

We note that the project area includes wetlands. In refining and selecting project alternatives, efforts should be made to select an alternative that does not adversely impact wetlands. If no other alternative is feasible and it is clearly demonstrated that project construction resulting in wetland disturbance or loss cannot be avoided, a wetland mitigation plan should be developed that identifies measures proposed to minimize adverse impacts and replace lost wetland habitat values and other wetland functions and values. Any project that impacts wetlands or waterways, including seasonally ephemeral and intermittent streams, should include design features such as culverts to retain hydrological connection between areas fragmented by the project.

We appreciate the opportunity to respond. Please send draft Environmental Assessment to our office for further review. Questions pertaining to these comments can be directed to Ms. Jill Utrup 920-866-1734.

Sincerely,

Catherine J. Carnes
Acting Field Supervisor

State of Wisconsin
Governor Scott Walker

Department of Agriculture, Trade and Consumer Protection
Ben Brancel, Secretary

June 16, 2011

Mr. Jim Koenig, P.E.
Wisconsin Department of Transportation
Northwest Regional Office
718 West Clairemont Avenue
Eau Claire, WI 54701

Re: IH 94: Red Cedar River Bridge to USH 12/STH 29
Dunn County
WisDOT ID#: 1020-09-01

Dear Mr. Koenig:

Thank you for giving the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) the opportunity to comment on the proposed reconstruction of IH 94 between the Red Cedar River Bridge and the IH 94/USH 12/STH 29 Interchange.

According to the information that the Wisconsin Department of Transportation (WisDOT) has provided, it appears that little or no new right-of-way along the IH 94 corridor would be needed except at the interchange with USH 12 and STH 29. As a result, DATCP would primarily be concerned with the impacts on farms near that interchange. In areas where reconstruction occurs without the acquisition of new right-of-way, the impacts on agriculture are usually temporary.

When evaluating the impacts that a project could have on agriculture, DATCP's primary concerns include: the loss of farmland, the number of farm parcels to be severed, changes in access to farmland, the loss of farm buildings, and the impacts on drainage. The following is a brief discussion of this project's potential impacts on agriculture.

Acquisition of farmland: The loss of farmland, especially cropland or pasture, can reduce the productive capacity of a farm operation. Farmers with livestock also need to have an adequate amount of land on which to grow feed crops and spread manure. If they cannot find replacement land, they may be forced to cull some of their livestock. Farmers who lose land because of the proposed project may have difficulty finding comparable replacement acreage for a number of reasons including: (1) other area farmers will also be in the market, thereby increasing demand and perhaps price for farmland; (2) the supply of farmland will decrease because of right-of-way acquisitions; (3) the productive potential of available farmland may be less than the farmland taken; and (4) travel distances to available farmland may be cost prohibitive.

As noted earlier, the largest acquisitions of farmland are likely to be at the IH 94/USH 12/STH 29 Interchange. WisDOT is considering three alternative alignments for the interchange. Estimates for the amount of land to be acquired from individual property owners for each alternative have not yet been made. The alignment alternative that remains near the existing location appears to require the least amount of new right-of-way.

Soils: Another factor to consider when evaluating the loss of farmland is the quality of the affected soils. At this point in the design process, the amount of land to be acquired from each farmland owner is not yet known. Therefore, the amounts of each soil to be affected are also not known. The major soils in the vicinity of the three proposed interchange alignments include Meridian loam with 2 to 6 percent slopes, Urne-Norden loams with 2 to 6 percent slopes, Hixton loam with 2 to 6 percent slopes, Lows loam, Shiffer loam, Hoghton peaty muck, Billett sandy loam with 2 to 6 percent slopes, Markey muck, Norden silt loam with 2 to 6 percent slopes, Hixton loam with 6 to 12 percent slopes-eroded, Chetek sandy loam with 12 to 20 percent slopes-eroded, and Eleva sandy loam with 6 to 12 percent slopes-eroded.

Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. The major soils in the vicinity of the project alternatives that are classified as prime farmland are Meridian loam with 2 to 6 percent slopes, Urne-Norden loams with 2 to 6 percent slopes, Hixton loam with 2 to 6 percent slopes, Billett sandy loam with 2 to 6 percent slopes, and Norden silt loam with 2 to 6 percent slopes. The major soils that are classified as prime farmland where drained are Lows loam and Shiffer loam.

Zoning: The town of Elk Mound in Dunn County has not adopted an exclusive agricultural zoning ordinance and there are currently no Farmland Preservation Agreements on any of the farmland in this town.

Severances: Severance of farms, particularly those that leave irregularly shaped remnant parcels, can make equipment usage awkward and production more costly. This increased cost is due in part to the additional time, fuel, and equipment wear associated with maneuvering equipment in corners of fields that are not square or along sides of fields that are not straight. Severances can also create access problems where farm buildings are separated from cropland and pasture.

All of the proposed alternative alignments for the interchange appear to sever parcels that are currently contiguous. WisDOT could offer to purchase some or all of these parcels as uneconomic remnants if they are too small for any practical use or if their proximity to the interchange prohibits WisDOT from providing access to them.

Access: Since none of these highways currently allows direct access to or from adjacent land, the realignment of the interchange will not have a significant impact on landowners' use of the interchange. However, as described in the paragraphs about severances, acquisition of land and the creation of severed parcels could affect landowners' ability to access their remaining property. If access to local roads is affected or if existing access points are relocated due to changes to the interchange alignment, the efficiency of farm operations may

be affected. Such impacts could increase the travel time and distance between farm parcels or between the farm and other businesses. Farmers that are forced to spend more time on roadways also face greater risk of traffic accident.

Existing access points may need to be relocated to accommodate standards for distances between ramps and private driveways or because a local road has been realigned as a result of interchange reconfiguration. Relocated access points may be steeper or in a less efficient location for farm traffic. These changes could affect the maneuverability of farm equipment using these access points.

Acquisition of buildings: The loss or relocation of buildings can disrupt the efficiency of a farm operation. If affected buildings are relocated to another part of the farm or if buildings are included in an acquisition and replacement buildings are constructed elsewhere on the farm, the landowner may lose cropland or pasture in addition to the land lost for highway right-of-way. Also, if new replacement buildings are constructed, the cost to build them may be greater than the market value paid for the acquired buildings. This difference would be an additional burden on the landowner.

Drainage: The proposed project is not located within any drainage districts. The project will likely affect at least two soils that are classified as prime where drained. Cultivated areas of these soils may have drainage tiles or grass waterways to improve the productivity of these soils. Highway construction can damage these structures and impede the flow of surface water, which could damage or kill crops.

The DATCP may prepare an Agricultural Impact Statement (AIS) for the proposed project after WisDOT chooses an alternative and determines the amount of property to be acquired from each farmland owner. The AIS would provide detailed information on the impacts to agriculture caused by the proposed project.

Thank you for allowing DATCP the opportunity to comment on the proposed project. If you have any questions, please feel free to call me at (608)224-4646.

Sincerely,

Alice Halpin

Alice Halpin
Agricultural Impact Analyst

Scott Cramer

From: Jon Blomquist
Sent: Tuesday, June 07, 2011 7:36 AM
To: Scott Cramer
Subject: FW: Project 1020-09-01

Jon Blomquist, P.E.
392 Red Cedar Street, Suite 5
Menomonie, WI 54751
Voice: 715.231.1600
Cell: 715.308.3772
Fax: 715.231.1601
jblomquist@klengineering.com

From: Koenig, James - DOT [mailto:James.Koenig@dot.wi.gov]
Sent: Monday, June 06, 2011 3:26 PM
To: Jon Blomquist
Subject: FW: Project 1020-09-01

From: Bobi Roush [mailto:broush@iowanation.org]
Sent: Monday, June 06, 2011 2:47 PM
To: Koenig, James - DOT
Subject: Project 1020-09-01

Re: letter of May 31, 2011 requesting comment
Project ID 1020-09-01
Menomonie – Eau Claire Rd
IH-94
Dunn county, WI

June 6, 2011

Mr. Koenig,

We have reviewed your proposed highway project and prefer the 'In Place Alternative' because it disturbs the least amount of environment. We have no special concerns but would appreciate being informed if any artifacts or human remains are inadvertently uncovered. Any areas of your project already disturbed by previous construction is not our concern; only new construction.

We are Anthropologists with expertise in cultural anthropology and archeology focusing on areas that the Ioway people may have inhabited or migrated through. There are no village sites of any significance that we are aware of in this area.

FYI. Joyce Miller is no longer in this department and not the THPO for the Iowa Tribe of Oklahoma

Sincerely,

Dr. Robert Fields, PhD, Cultural Preservation Director, rfields@iowanation.org
Dr. Bobi Roush, PhD, Cultural Preservation Associate, broush@iowanation.org

Mailing address:
Cultural Preservation Office
Iowa Tribe of Oklahoma
R.R. 1 Box 721
Perkins, OK 74059

LAC DU FLAMBEAU BAND OF LAKE SUPERIOR CHIPPEWA INDIANS
TRIBAL HISTORIC PRESERVATION

Division of Historic Preservation

June 3, 2011

Jim Koenig, P.E.
WisDOT NW Region Planning
Northwest Region
718 West Clairemont Avenue
Eau Claire, WI 54701

SUBJECT: **Project ID: 1020-09-01, Menomonie – Eau Claire Rd, IH-94; Dunn Co., WI**

Dear Mr. Koenig:

In response to your letter dated May 31, 2011, the Lac du Flambeau Band of Lake Superior Chippewa Indians would like to express concerns with any impacts to historic and cultural properties located within the project area of potential effect for the project mentioned above. This project is located within areas that have previously been occupied by the Northern Ojibwe Bands.

Please forward all results of an archival review and archaeological reports. Should there be an impact or effect to historic properties as a result of this project, we will request consultation pursuant to Section 106 of the National Historic Preservation Act, as amended,

However, if a review has not yet been completed, the Lac du Flambeau Tribal Historic Preservation Office is available to assist in the identification of cultural resources, or an archaeological/historical assessment or archival review for a fee.

Please contact us if you have any questions or concerns at (715) 588-2139. You may send the results of the archival review and archaeological report to:

Tribal Historic Preservation Office
P.O. Box 67
Lac du Flambeau, WI 54538

Or in digital format to: sthompson2@ldftribe.com Thank you.

Sincerely,

Sarah Thompson for
Melinda J. Young
Tribal Historic Preservation Officer

P.O. Box 67
Lac du Flambeau, WI 54538

Phone: 715 588-2139 or 588-2270
Fax: 715 588-2419
E-Mail: ldfthpo@nnex.net