LETTING DATE

Unknown Pavement - Grade and Replace
NHSX-014-3(064)--3H-63

MARION COUNTY

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet
A.2	Location Map Sheet
A.3 - 11	Concept
B Sheets	**Typical Cross Sections and Details**
B.1	Typical Cross Sections and Details
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 8	IA-14
J Sheets	**Traffic Control and Staging Sheets**
* J.1	Traffic Control Plan
* J.2	Detour Sheet

IOWA DOT

REVISIONS

TOTAL
..
PROJECT IDENTIFICATION NUMBER
24-63-014-020
PROJECT NUMBER
NHSX-014-3(064)--3H-63
R.O.W. PROJECT NUMBER

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
MARION COUNTY
Unknown Pavement - Grade and Replace

N of Kermit Dr in Knoxville to
N of Co Rd G28

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

IOWA ONE CALL
1-800-292-8989
811
www.iowaonecall.com

Future Event Dates:

NHSX-014-3(063)--3H-63:
D5: 08/01/2025
D8: 08/04/2026
Bid Letting: 10/20/2026

NHSX-014-3(064)--3H-63:
D5: 10/17/2025
D8: 08/03/2027
Bid Letting: 10/19/2027

DESIGN DATA RURAL			
2030	AADT	3,600	V.P.D.
2050	AADT	3,900	V.P.D.
20 –	DHV	400	V.P.H.
TRUCKS		12	%
Total Design ESALs		--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	X	Primary Signature Block	X
X	X	X	X

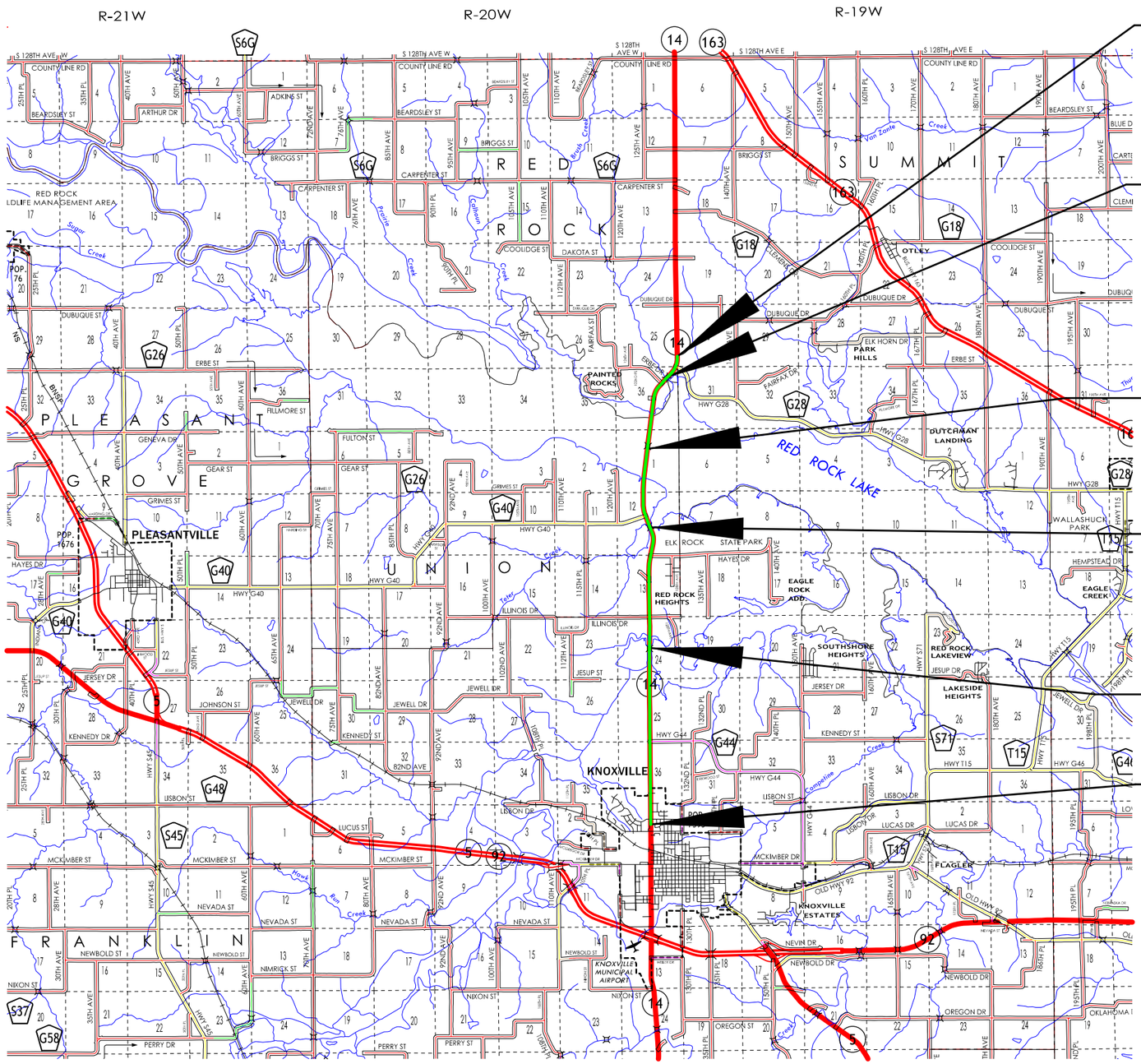
PRELIMINARY PLANS

Subject to change by final design.

D2/D3 PLAN - Date: 6/30/25

FILE NO.	ENGLISH	DESIGN TEAM Schrock/Gunderson	MARION COUNTY	PROJECT NUMBER NHSX-014-3(064)--3H-63	SHEET NUMBER A.1

8:43:26 AM 6/26/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_A01.dgn



FILE NO.	ENGLISH	DESIGN TEAM Schrock/Gunderson	MARION COUNTY	PROJECT NUMBER NHSX-014-3(064)--3H-63	SHEET NUMBER A.2

11:07:02 AM 6/25/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_A01.dgn

Roadway				
PIN Number			**Submittal Date**	
Project Number	NHSX-014-3(046)-3H-63			**Approval Date**
District	District 5	**Assistant District Engineer**		
County	MARION		**or**	
Route	IA-14	**Office Director**	Kent Nicholson	
Location	Knoxville to North of Red Rock Reservoir Bridge			
Work Type	Unknown Pavement - Grade and Replace			
Segment Manager				
Designer	Brandon Gunderson and Kyle Schrock			

Design Manual Section 1C-1
Last Updated: 04-29-19

Rural Two-Lane Highways (Rural Arterials)

Design Element		Preferred	Acceptable	Project Values
Design speed (mph)		60	50	60
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	UAC
Design lane width (ft)		12	12	12
Full depth paved width (ft)		12	12	12
Right turn lane (ft)		12	10	N/A
Climbing Lane (ft)		12	12	N/A
Left turn lane (ft)		12	10	N/A
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	N/A
	Crown break at centerline	4%	4% maximum	4%
Shoulder cross-slope (on tangent sections)		4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph	6-inch sloped	6-inch standard	N/A
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	N/A
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1	UAC
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	UAC
	Curbed roadways	2%	not steeper than 3:1	UAC
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	UAC
Transverse Slopes	w/ drainage structures	8:1	6:1	UAC
	w/o drainage structures	10:1	6:1	UAC
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	UAC
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	N/A
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	N/A
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	N/A
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	UAC
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	UAC
	Over railroad	23.3	23.3	UAC
	Sign trusses and pedestrian bridges	17.5	17	UAC
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	N/A
Level of Service		B	B	N/A

*FHWA notification via email is required if acceptable critera is not met on the NHS system (No formal design exeption is required)

Design year ADT = 3900

Design Manual Section 1C-1
Last Updated: 04-29-19

Effective Shoulder Width and Type for Two-Lane Highways

Preferred (values shown in feet)			Acceptable (values shown in feet)			Project Values
	Rural Roadways	Urban Roadways		Rural Roadways	Urban Roadways	
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0	N/A
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	N/A
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0	N/A
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	0*	8,6
On roadways approaching urban areas (due to increased bike traffic)	10	10				
On all curves with a superelevation rate of 7.0% or greater	10	10				
On roadways with design year ADT > 5000	10	6	Design year ADT between 400 - 2000 vpd	6	0*	
On all other NHS	10	6				
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*	
On non-NHS routes with design year ADT < 3000	8	0*				

*Requires safety edge-Refer to Section 3C-6

Curbs should be located beyond the outer edge of the effective shoulder width in rural areas

Refer to Section 3C-2 for curb offsets in urban areas

Notes:

Roadway Design Speed (mph) =	60	

Design Manual Section 1C-1
Last Updated: 04-29-19

Design Criteria for High Speed Roadways

Design Element			Preferred Criteria, Design Speed, mph						Acceptable Criteria, Design Speed, mph						Project Values
			50	55	60	65	70	75	50	55	60	65	70	75	
Stopping sight distance (ft) (Refer to Section 6D-1)			425	495	570	645	730	820	425	495	570	645	730	820	UAC
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	Method 5 superelevation and side friction distribution	e_{max} = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	UAC
		e_{max} = 8%	--	--	--	--	--	--	758	960	1200	1480	1810	2210	UAC
Minimum vertical curve length (ft) (Refer to Section 2B-1)			150	165	180	195	210	225	150	165	180	195	210	225	UAC
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves		84	114	151	193	247	312	84	114	151	193	247	312	UAC
	sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	UAC
		roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	UAC
Minimum gradient (%)	(Refer to Section 2B-1)		0.5						0.3% with a curb, 0.0% without a curb						UAC
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	4		3				7	6	6	--	--	--	UAC
		Rural roadways							5	5	4	4	4	4	UAC
		Interstates							5	5	4	4	4	4	UAC
Clear zone			See "Preferred Clear Zone" table in Section 8A-2						See "Acceptable Clear Zone" table in Section 8A-2						UAC

FINAL PROJECT CONCEPT STATEMENT

IA 14 Reconstruction Concept

Marion County
Proj.# NHSX-014-3(063)--3H-63
NHSX-014-3(064)--3H-63

From Knoxville to North of Red Rock Reservoir Bridge

Prepared by Foth Infrastructure &
Environment for the Iowa Department of
Transportation
District 5

December 15, 2023

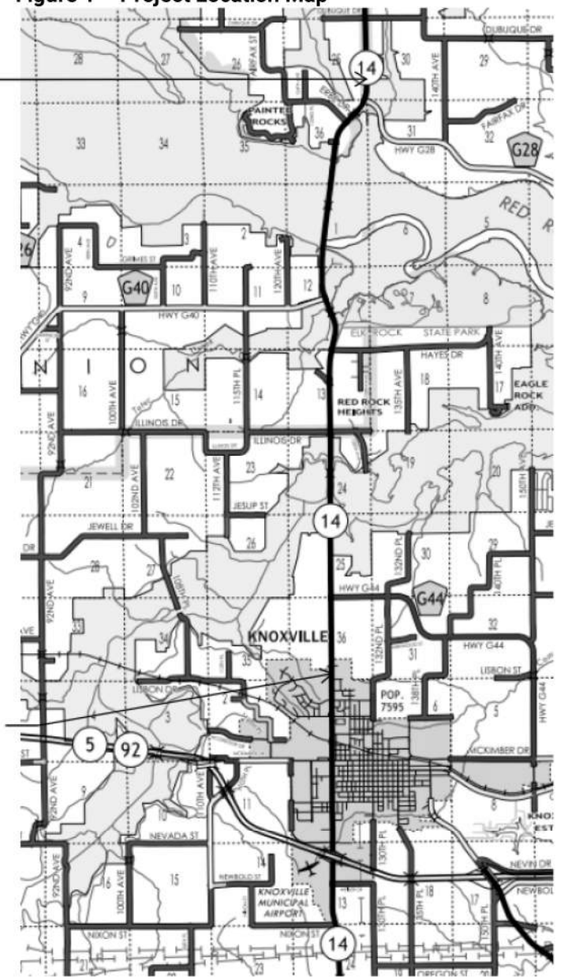
I. STUDY AREA

A. Project Description

The projects consist of the reconstruction of IA 14 in Marion County from the Knoxville city limits to north of the Red Rock Reservoir Bridge. The length of reconstruction is approximately 7.31 miles.

Figure 1 – Project Location Map

EP STA 1785+91.98
RP 52.0



BP STA. 1400+00.00
RP 44.7

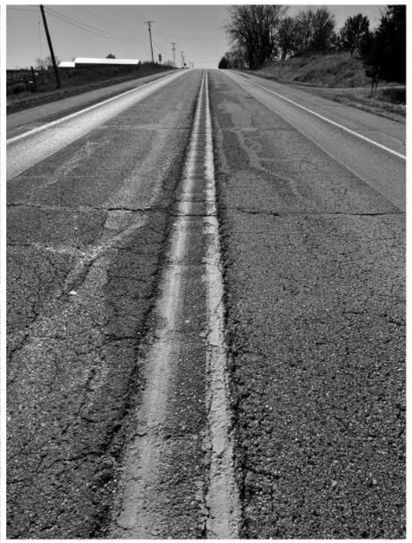
B. Need for Project

The IA 14 pavement section north of Knoxville is in deteriorated condition. Joint reflective cracking is present through the entire corridor (see photos below). The transverse joint cracks create a rough riding surface and allow for moisture infiltration. Longitudinal cracking along the centerline of IA 14 is also present and indicates possible onset of

fatigue cracking and structural failure. There are several locations with broken or deteriorated pavement with potholes forming that require patching.

Photo 1 – Transverse Cracking

Photo 2 - Longitudinal Cracking



C. Pavement History

M.P. 44.72 to M.P. 46.41

Original Pavement:	10”-7”-10” PCC Concrete Slab
Year Constructed:	1942
Coarse Aggregate Source:	Eddyville, Gravel
Project:	FA-7
Resurfaced:	1978 with 1.5” of surface course over 1.5” of base course
Coarse Aggregate Source:	Malcom, C.LST.
Project:	HHS-14-3(11)--47-63
Resurfaced:	2001 with 2” of surface course over 2” of base course over 4” of subbase
Coarse Aggregate Source:	Durham Mine, C.LST.
Project:	STP-14-3(35)--2C-63

M.P. 46.41 to M.P. 47.73 (Illinois Drive)

Original Pavement:	9” PCC
Year Constructed:	1965
Project:	P-1114(1)
Cracked, Seated, & Resurfaced:	2001 with 2” of surface course over 2” of base course over 4” of subbase
Coarse Aggregate Source:	Durham Mine, C.LST.
Project:	STP-14-3(35)--2C-63

M.P. 47.73 (Illinois Drive) to M.P. 48.42

Original Pavement:	10”-7”-10” PCC Concrete Slab
Year Constructed:	1942
Coarse Aggregate Source:	Eddyville, Gravel
Project:	FA-7
Resurfaced:	1978 with 1.5” of surface course over 1.5” of base course
Coarse Aggregate Source:	Malcom, C.LST.
Project:	HHS-14-3(11)--47-6
Resurfaced:	2001 with 2” of surface course over 2” of base course over 4” of subbase
Coarse Aggregate Source:	Durham Mine, C.LST.
Project:	STP-14-3(35)--2C-63

M.P. 48.42 to M.P. 50.97

Original Pavement:	9” PCC
Year Constructed:	1965
Project:	P-1114(1)
Cracked, Seated, & Resurfaced:	2001 with 2” of surface course over 2” of base course over 4” of subbase
Coarse Aggregate Source:	Durham Mine, C.LST.
Project:	STP-14-3(35)--2C-63

M.P. 50.97 to M.P. 52.04 (Emerald Drive)

Original Pavement:	10”-8”-10” PCC Concrete Slab
Year Constructed:	1955
Coarse Aggregate Source:	West Des Moines, Gravel
Project:	FN-231
Cracked, Seated, & Resurfaced:	2001 with 2” of surface course over 2” of base course over 4” of subbase
Coarse Aggregate Source:	Durham Mine, C.LST.
Project:	STP-14-3(35)--2C-63

D. Traffic Estimates

The estimated Average Daily Traffic (ADT) for 2030 is 3,600 while the estimated ADT for the future design year (2050) is 3,900. The percent truck traffic for both 2030 and 2050 is 12%.

E. Bridges

There are 4 bridges located within the project limits. See the following additional information for each bridge:

- IA 14 over White Breast Creek located 2.1 miles south of County Road G40 - 685'-0 x 30'-0 Continuous Welded Girder Bridge (Maintenance No. 6347.1S014, FHWA No. 35180). This bridge is currently programmed for an overlay to be let on October 21, 2025. Included with this PCC overlay is replacement of the bridge approaches along with reinstallation of guardrail as needed.

- IA 14 over Teter Creek, located 0.2 miles south of County Road G40 - 385'-0 x 30'-0 Continuous Welded Girder Bridge (Maintenance No. 6349.1S014, FHWA No. 35190). This bridge is currently programmed for an overlay to be let on October 21, 2025. Included with this PCC overlay is patching the approach pavement and reinstallation of guardrail as needed.

- IA 14 over the Des Moines River and reservoir located 0.6 miles north of County Road G40\ - 5,645'-6 x 30'-0 Continuous Welded Girder Bridge (Maintenance No. 6350.4S014, FHWA No. 35200). This bridge is currently programmed for a bridge deck overlay to occur in 2025.

- IA 14 over Brush Creek located 0.2 miles south of County Road G28 - 320'-0 x 30'-0 Continuous Welded Girder Bridge (Maintenance No. 6351.5S014, FHWA No. 35210). This bridge is currently programmed for replacement to occur in 2025.

It is anticipated the roadway reconstruction will be gapped at the bridge approaches with all bridge related elements U.A.C.

F. Crash Analysis

Refer to Table 1 and Table 2 below for crash data obtained from the Iowa DOT's Iowa Crash Analysis Tool (ICAT) along with values from the Iowa DOT Potential for Crash Reduction Tool (PCR) to identify an intersections or segments potential for crash reductions and safety improvements.

Table 1 – Intersection Crash Summary

	2018-2022				
Intersection with IA 14/Lincoln St	**PDO (Property Damage Only)**	**Injury**	**Fatality**	**Total # of Crashes**	**Potential for Crash Reduction (PCR) 2016-2020**
Erwin Drive	0	0	0	0	-0.09
County Road G44	6	1	0	7	0.08
Illinois Drive	3	0	0	3	0.01
Hempstead Drive	3	0	0	3	0.00
Hayes Drive	1	0	0	1	-0.01
County Road G40	4	0	0	4	-0.01
Erbe Drive	0	0	0	0	-0.02
County Road G28	5	4	0	9	0.70

Table 2 – Segment Crash Summary

	2018-2022				
Segment of IA 14	**PDO (Property Damage Only)**	**Injury**	**Fatality**	**Total # of Crashes**	**Potential for Crash Reduction (PCR) 2016-2020**
Knoxville NCL to just north of Co Rd G28	58	8	6	72	0.15

The intersection of IA 14 and County Road G28 has a PCR value of 0.70. According to the Iowa DOT Safety Analysis Guide (SAG), a PCR value greater than 0.2 but less than 1 falls into the medium category. A medium PCR indicates the intersection has room for improvement and may qualify for safety funds.

All other intersection and segment PCR values are less than 0.2 and fall into the negligible category. A negligible PCR indicates that the expected crashes are less than the predicted crashes, indicating that the potential for crash reduction is negligible, and that the intersections and segments are performing better than expected.

G. Left Turn Lane Warrants

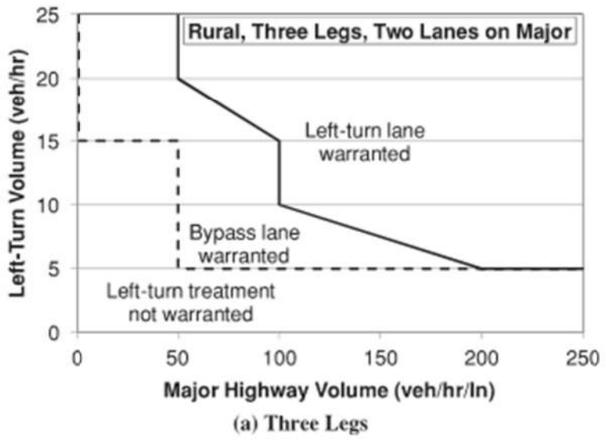
The intersection of IA 14 and Kennedy Street was asked by Iowa DOT personnel to be analyzed for the potential inclusion of left turn lane for the SB to EB movement. Left turn lane warrants for a rural 2-lane highway from NRCHP 745 at a 3-legged intersection are shown in Table 3 and Figure 1 below. AM volumes at this intersection do not meet the

warrant for a left turn lane. However, PM volumes of 13 left turns and 127 through vehicles meet the threshold provided in Table 1 and when plotted on Figure 1, fall to the right of the trend line. Therefore, consideration for a left turn lane would be warranted at this intersection. Additional traffic information would be needed to analyze the intersection of IA 14 and County Road G28 for left turn lane warrants.

Table 3. Recommended left-turn treatment warrants for rural two-lane highways.

Left-Turn Lane Peak-Hour Volume (veh/hr)	Three-Leg Intersection, Major Two-Lane Highway Peak-Hour Volume (veh/hr/ln) That Warrants a Bypass Lane	Three-Leg Intersection, Major Two-Lane Highway Peak-Hour Volume (veh/hr/ln) That Warrants a Left-Turn Lane	Four-Leg Intersection, Major Two-Lane Highway Peak-Hour Volume (veh/hr/ln) That Warrants a Bypass Lane	Four-Leg Intersection, Major Two-Lane Highway Peak-Hour Volume (veh/hr/ln) That Warrants a Left-Turn Lane
5	50	200	50	150
10	50	100	< 50	50
15	< 50	100	< 50	50
20	< 50	50	< 50	< 50
25	< 50	50	< 50	< 50
30	< 50	50	< 50	< 50
35	< 50	50	< 50	< 50
40	< 50	50	< 50	< 50
45	< 50	50	< 50	< 50
50 or More	< 50	50	< 50	< 50

Figure 2. Recommended left-turn treatment for intersections on rural two-lane highways.



(a) Three Legs

H. Coordination with Marion County Road Department

The following is a list of known County projects and their construction schedule.

1. County Road G28 mill and overlay & subsequent guardrail replacement – February 2024 letting.
2. County Road T15 Flagler Bridge Replacement (full closure) – Winter 2023-2024 start date.
3. US Army Corps of Engineers Red Rock Dam Gate Rehabilitation Project – intermittent closures of County Road T15 until summer 2025.

Based on the construction schedules above, these projects will be completed prior to the lettings for the IA 14 improvements and should not impact proposed detour routes. Additionally, the County is interested in sideroad paving of the gravel road approaches at intersections. More specifically, the Illinois Drive and Hayes Drive intersections. They also are also interested in flattening of the sideroad foreslopes and culvert extensions at the intersections, especially at Illinois Drive.

II. PROJECT CONCEPT

A. Proposed Improvements

The purpose of this project is to replace the deteriorated roadway pavement section. Review of the 2001 ACC Resurfacing and Widening Plans (Project No. STP-14-3(35)--2C-63) reveal approximately 65% of the existing roadway pavement within the project limits has already been cracked and seated. Therefore, rubblization of the existing PCC pavement is not feasible and is not considered a viable alternative.

The proposed improvements involve the removal of the entire existing pavement structure and constructing a 9.5" thick PCC pavement over 12" of special backfill and 6" of granular subbase, per the recommendation from the DOT Construction and Materials Bureau. The intended limits of reconstruction within the ROW are from edge of shoulder to edge of shoulder and to the end of the radius return on all paved sideroads and driveways. The existing 2-lane 28-ft rural cross section with 6-ft granular shoulders will be replaced with a 24-ft mainline roadway section. The proposed shoulders will consist of a combination shoulder featuring a 6-ft wide paved shoulder with 2-ft wide granular shoulder. The installation of longitudinal subdrain and outlets would be included with the reconstruction work.

The proposed vertical profile will match the existing profile in order to not impact the existing ROW and limit the disturbance. Therefore, no Permanent Right-of-Way or Temporary Construction Easements are anticipated. All work will be contained within the foreslopes of the existing roadway.

It is anticipated the high-tension cable guardrail running along the outside shoulders of IA 14 in various segments will be removed and reinstalled during construction.

B. Construction Sequence

The IA 14 reconstruction work will consist of two project lettings and constructed over 2 construction seasons. The limits for each project are listed below:

- FY 2027 (63) – Knoxville to Illinois Drive
- FY 2028 (64) – Illinois Drive to north of Red Rock Reservoir Bridge

It is anticipated IA 14 will be closed to thru traffic for the duration of construction. The proposed detour route for the FY 2027 (63) project would follow IA 92/IA 5 west for 9.0 miles and north on IA 5 for 0.8 miles to IA 5 Business. Then north on IA 5 Business for 1.5 miles to G40 and east on G40 for 8.5 miles to the intersection with IA 14. Total out of distance travel is 19.8 miles.

The proposed detour route for the FY 2028 (64) project would follow Old State Hwy 92/Hwy T15 12.6 miles east/north across the Red Rock Dam to County Road G28. Then west on G28 for 8.2 miles to the intersection with IA 14. Total out of distance travel is 20.8 miles. Interim stages of construction within each project will be required to maintain access to residences and businesses.

It is recommended the lettings for the three bridge deck overlays and bridge replacement project located within the project limits be delayed until FY 2027 and FY 2028 so that work can occur concurrently with the reconstruction of IA 14. This would limit the duration of closures and minimize the amount of local disruption.

C. Special Considerations

The following conditions were identified for approval and will be implemented during the design process prior to construction:

- ADA improvements will not be needed as part of these projects.
- Above ground utilities are located at or near the right-of-way line.
- Elk Rock State Park is located near the project area and the only access to the park is from IA 14.
- Consideration for limited geotechnical exploration should be given to confirm the presence of suitable subgrade material that doesn't require further subgrade mitigation.
- District 5 plans to evaluate several mainline roadway pipes along the corridor based on their condition. Repairs for these pipe culverts will be included in the project as necessary.
- Construction activities will be coordinated with public utilities to avoid potential conflicts and to minimize planned interruptions of service.

D. Program Status

These projects are currently programmed for FY 2027 (63) and FY 2028 (64) with the following cost estimate:

Table 4 – Cost Estimate FY 2027 (63)

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
REMOVAL OF PAVEMENT	SY	58514	$11.00	$643,654
SUBDRAIN	LF	29257	$7.50	$219,428
SPECIAL BACKFILL	CY	16254	$46.50	$755,811
GRANULAR SUBBASE	SY	48762	$11.50	$560,763
PCC PAVEMENT, 9.5"	SY	39009	$70.00	$2,730,630
PAVED SHOULDERS	SY	19505	$29.00	$565,645
GRANULAR SHOULDERS	TON	2048	$32.50	$66,560
SURFACING, CLASS A CRUSHED STONE	TON	293	$30.00	$8,790
DRIVEWAYS, PCC	SY	546	$85.00	$46,410
REMOVE & REINSTALL HIGH TENSION CABLE GUARDRAIL	LF	9505	$63.00	$598,815
PAVEMENT MARKINGS	STA	585	$135.00	$78,975
CULVERT PIPE REPAIRS	LS	1	$50,000.00	$50,000
SUBTOTAL ROADWAY CONSTRUCTION				**$6,325,481**
UNQUANTIFIED ITEMS (10%)	LS	1	$632,548.05	$632,548
MOBILIZATION (5%)	LS	1	$316,274	$316,274
TRAFFIC CONTROL (5%)	LS	1	$316,274	$316,274
TOTAL ESTIMATED COSTS				**$7,590,577**

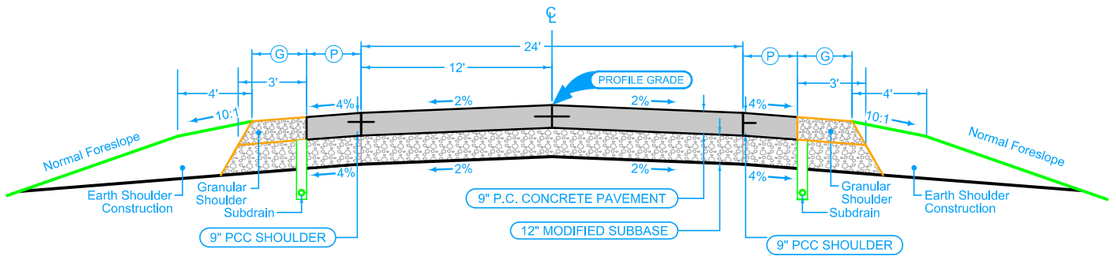
Table 5 – Cost Estimate FY 2028 (64)

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
REMOVAL OF PAVEMENT	SY	66078	$11.00	$726,858
SUBDRAIN	LF	33039	$7.50	$247,793
SPECIAL BACKFILL	CY	18355	$46.50	$853,508
GRANULAR SUBBASE	SY	55065	$11.50	$633,248
PCC PAVEMENT, 9.5"	SY	44052	$70.00	$3,083,640
PAVED SHOULDERS	SY	22026	$29.00	$638,754
GRANULAR SHOULDERS	TON	2313	$32.50	$75,173
SURFACING, CLASS A CRUSHED STONE	TON	266	$30.00	$7,980
DRIVEWAYS, PCC	SY	97	$85.00	$8,245
REMOVE & REINSTALL HIGH TENSION CABLE GUARDRAIL	LF	8905	$63.00	$561,015
PAVEMENT MARKINGS	STA	661	$135.00	$89,235
CULVERT PIPE REPAIRS	LS	1	$50,000.00	$50,000
SUBTOTAL ROADWAY CONSTRUCTION				**$6,975,447**
UNQUANTIFIED ITEMS (10%)	LS	1	$697,544.70	$697,545
MOBILIZATION (5%)	LS	1	$348,772	$348,772
TRAFFIC CONTROL (5%)	LS	1	$348,772	$348,772
TOTAL ESTIMATED COSTS				**$8,370,536**

Full Depth PCC Combination Shoulder

Shoulder Jointing:
Longitudinal joint: BT-2, or L-2
Transverse joints: C at 17' spacing

		2_C_FullPCC_ 04-15-25	
STATION TO STATION		(P) Feet	(G) Feet
50+00	172+24.00	6	2
179+95.00	277+65.00	6	2
282+49.00	321+40.00	6	2
378+40.00	410+25.00	6	2
414+05.00	433+85.00	6	2



Full Depth PCC Combination Shoulder

Shoulder Jointing:
Longitudinal joint: BT-2, or L-2
Transverse joints: C at 17' spacing

		2_C_FullPCC_ 04-15-25	
STATION TO STATION		(P) Feet	(G) Feet
50+00	172+24.00	6	2
179+95.00	277+65.00	6	2
282+49.00	321+40.00	6	2
378+40.00	410+25.00	6	2
414+05.00	433+85.00	6	2

FILE NO.	ENGLISH	DESIGN TEAM **Schrock/Gunderson**	**MARION** COUNTY	PROJECT NUMBER **NHSX-014-3(064)--3H-63**	SHEET NUMBER **B.1**	

7:47:18 AM 6/26/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_B1.dgn

SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Existing Utility Access (Manhole)
- Fire Hydrant
- WH Water Hydrant (Rural)
- ST Septic Tank
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST Underground Storage Tank
- Latrine
- Satellite TV Dish
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor
- Guardrail (Beam or Cable)
- GP Guard Post (one or two)
- Guard Post (over two)
- FP Filler Pipe
- GV Gas Valve
- WV Water Valve
- SL Speed Limit Sign
- MM Mile Marker Post
- SIGN Sign
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box
- EB Electric Box

UTILITY LEGEND

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.		
Green	(2)		Existing Topographic Features and Labels
Blue	(1)		Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)		Existing Utilities
SHADING	**Design Color No.**		**Transparency**
Pink, Dark	(13)		Temporary Pavement Shading — 50%
Yellow	(4)		Proposed Pavement Shading — 50%
Orange	(6)		Proposed Granular Shading — 50%
Orange	(70)		Proposed Shoulder Granular Shading — 50%
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading — 50%
Yellow	(132)		Proposed Shoulder Paved Partial Depth Shading — 50%
Brown, Light	(236)		Grading Shading — 50%
Orange, Light	(134)		Proposed Granular Entrance Shading — 50%
Yellow	(220)		Proposed Paved Entrance Shading — 50%
Tan	(8)		Proposed Sidewalk Shading — 50%
Blue, Light	(230)		Proposed Sidewalk Landing Shading — 50%
Pink	(11)		Proposed Sidewalk Ramp Shading — 50%
Red	(3)		Proposed Structure Shading — 50%
Red	(3)		Delineates Restricted Areas — 0%

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(10)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

- Reference Point / Station — Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way Symbol
- Proposed Right-of-Way Line
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary) Symbol
- Easement (Temporary) Line
- Easement
- C/A Access Control
- Property Line Symbol
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)

FILE NO.	ENGLISH	DESIGN TEAM Schrock/Gunderson	MARION COUNTY	PROJECT NUMBER NHSX-014-3(064)--3H-63	SHEET NUMBER D.1

11:19:24 AM 6/25/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_Legends.dgn

For Information Only

50+00
55+00
60+00
65+00
70+00
75+00
80+00

Gravel Driveway UAC
Gravel Driveway UAC
Gravel Driveway UAC
Gravel Driveway UAC
Gravel Driveway UAC
Gravel Driveway UAC
Gravel Driveway UAC
Erwin Drive UAC

Begin Construction
Sta. 50+00.00

0 100
FEET

IA-14

For Information Only

80+00
85+00
90+00
95+00
100+00
105+00
110+00

Gravel Driveway UAC
Gravel Driveway UAC
Keokuk Street UAC
Gravel Driveway UAC
Paved Driveway UAC
Gravel Driveway UAC
Gravel Driveway UAC
Paved Driveway UAC
Gravel Driveway UAC
Highway G44 UAC
Gravel Driveway UAC
Gravel Driveway UAC

0 100
FEET

IA-14

FILE NO.	ENGLISH	DESIGN TEAM Schrock/Gunderson	MARION COUNTY	PROJECT NUMBER NHSX-014-3(064)--3H-63	SHEET NUMBER D.2

11:19:33 AM 6/25/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_D02.dgn

For Information Only

110+00 Gravel Driveway UAC

115+00 Gravel Driveway UAC

120+00 Field Entrance UAC

125+00 Gravel Driveway UAC

130+00 Gravel Driveway UAC

135+00 Gravel Driveway UAC

140+00

0 100 FEET

IA-14

For Information Only

140+00

145+00

150+00

155+00

160+00

165+00

170+00

0 100 FEET

IA-14

FILE NO.	ENGLISH	DESIGN TEAM Schrock/Gunderson	MARION COUNTY	PROJECT NUMBER NHSX-014-3(064)--3H-63	SHEET NUMBER D.3	

11:19:39 AM 6/25/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_D02.dgn

For Information Only

170+00 175+00 180+00 185+00 190+00 195+00 200+00

Stop Construction
STA 172+24.00

Resume Construction
STA 179+95.00

0 100
FEET

IA-14

For Information Only

200+00 205+00 210+00 215+00 220+00 225+00 230+00

Illinois Drive
UAC

Gravel Driveway
UAC

Gravel Driveway
UAC

Gravel Driveway
UAC

Gravel Driveway
UAC

Gravel Driveway
UAC

Gravel Driveway
UAC

Illinois Drive
UAC

Gravel Driveway
UAC

Gravel Driveway
UAC

Gravel Driveway
UAC

Gravel Driveway
UAC

0 100
FEET

IA-14

FILE NO.	ENGLISH	DESIGN TEAM Schrock/Gunderson	MARION COUNTY	PROJECT NUMBER NHSX-014-3(064)--3H-63	SHEET NUMBER D.4	

11:19:45 AM 6/25/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_D02.dgn

For Information Only

230+00
235+00
240+00
245+00
250+00
255+00

Hempstead Drive UAC
Hempstead Drive UAC
Gravel Driveway UAC
Gravel Driveway UAC
Gravel Driveway UAC
Gravel Driveway UAC
Gravel Driveway UAC
Field Entrance UAC
Gravel Driveway UAC
Gravel Driveway UAC
Gravel Driveway UAC
Hayes Drive UAC

End NHSX-014-3(063)--3H-63
Begin NHSX-014-3(064)--3H-63
STA 255+00.00

0 100 FEET

IA-14

For Information Only

260+00
265+00
270+00
275+00
280+00
285+00
290+00

Highway 640 UAC
146th Avenue UAC

Resume Construction
282+49.00

Stop Construction
277+65.00

0 100 FEET

IA-14

FILE NO.	ENGLISH	DESIGN TEAM Schrock/Gunderson	MARION COUNTY	PROJECT NUMBER NHSX-014-3(064)--3H-63	SHEET NUMBER D.5	

11:19:52 AM 6/25/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_D02.dgn

For Information Only

290+00
295+00
300+00
305+00
310+00
315+00

Highway G40

Gravel Driveway
UAC

0 100
FEET

IA-14

For Information Only

320+00
325+00
330+00
335+00
340+00
345+00
350+00

Stop Construction
321+40.00

0 100
FEET

IA-14

FILE NO.	ENGLISH	DESIGN TEAM Schrock/Gunderson	MARION COUNTY	PROJECT NUMBER NHSX-014-3(064)--3H-63	SHEET NUMBER D.6	

11:19:58 AM 6/25/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_D02.dgn

For Information Only

350+00 355+00 360+00 365+00 370+00 375+00 380+00

Resume Construction
378+40.00

0 100 FEET

IA-14

380+00 385+00 390+00 395+00 400+00 405+00

Gravel Driveway
UAC

Eagle Drive
UAC

Stop Construction
410+25.00

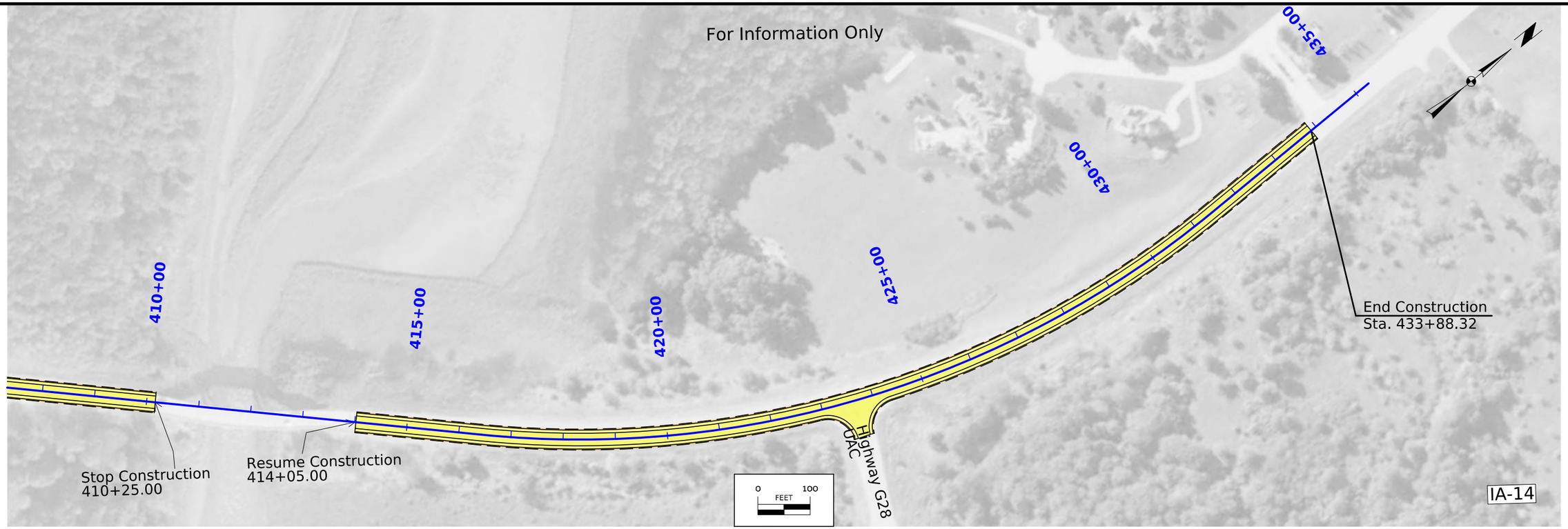
0 100 FEET

For Information Only

IA-14

FILE NO.	ENGLISH	DESIGN TEAM Schrock/Gunderson	MARION COUNTY	PROJECT NUMBER NHSX-014-3(064)--3H-63	SHEET NUMBER D.7	

11:20:05 AM 6/25/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_D02.dgn



FILE NO.	ENGLISH	DESIGN TEAM Schrock/Gunderson	MARION COUNTY	PROJECT NUMBER NHSX-014-3(064)--3H-63	SHEET NUMBER D.8	

11:20:13 AM 6/25/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_D02.dgn

108-23A
08-01-08

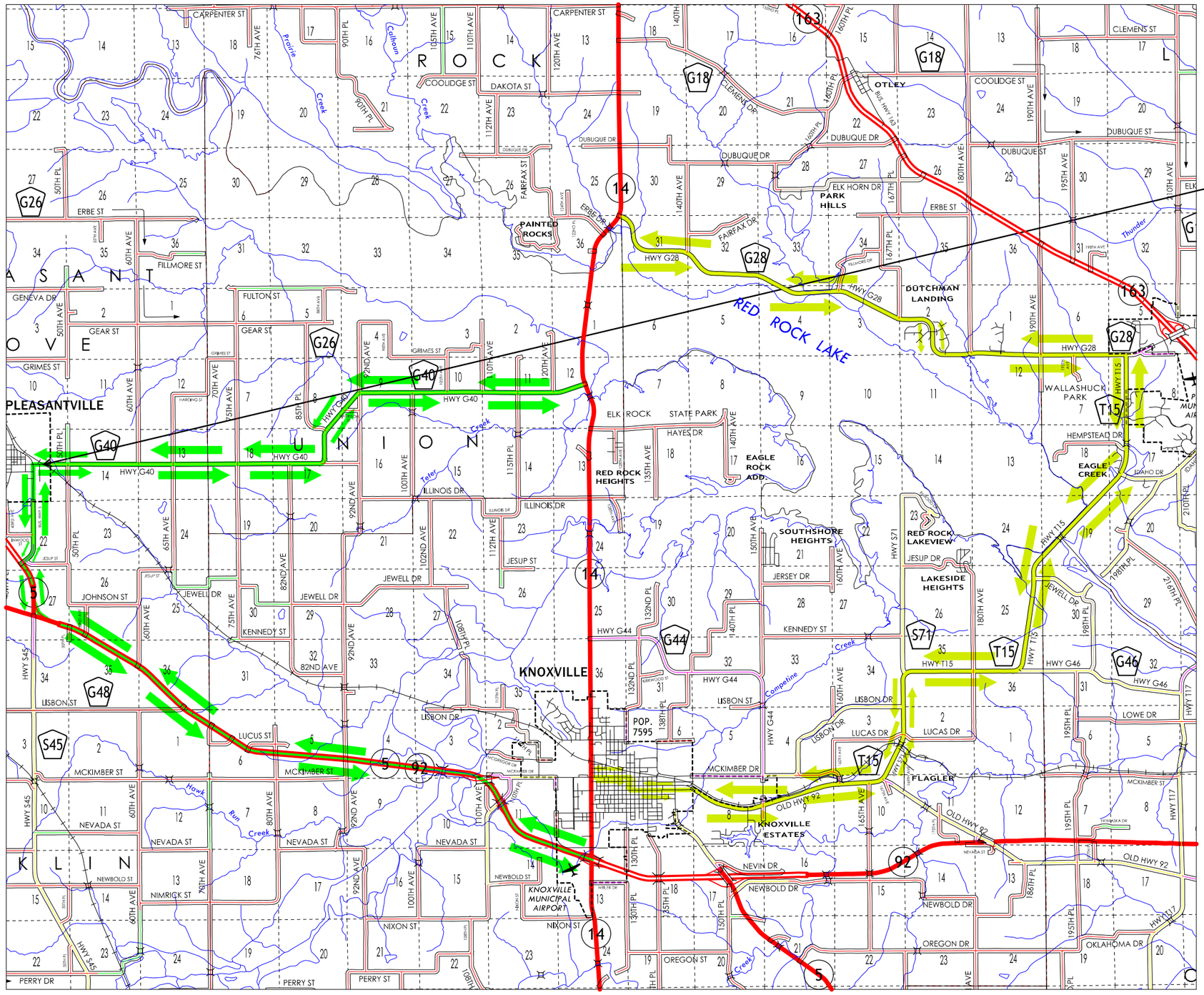
TRAFFIC CONTROL PLAN

IA-14 will be closed to thru traffic for the duration of construction.
Staged construction will be necessary throughout both projects in order to maintain access to residences and businesses.

108-25
10-21-14

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
				None Anticipated								



FILE NO.	ENGLISH	DESIGN TEAM **Schrock/Gunderson**	**MARION** COUNTY	PROJECT NUMBER **NHSX-014-3(064)--3H-63**	SHEET NUMBER **J.2**

11:21:29 AM 6/25/2025 bgunder pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\6301401024\Design\D2-D5_(063)_(064)\CADD_Files\Sheet_Files\SHT_63014064Z09_J01