

PURPOSE AND NEED



PROJECT DEFINITION:

Transportation system improvements needed due to the construction of the

LOGICAL TERMINI:

Rational end points for a transportation improvement and review of environmental impacts include:

- 278th Street from S.D. Highway 115 to S.D. Highway 11
- 276th Street & Highway 115 intersection
- 276th Street & Highway 11 intersection

PROJECT NEEDS:

Development, Traffic Capacity

PURPOSE OF THE PROJECT:

The purpose of the project is to improve the transportation system to accommodate the traffic generated from the planned men's correctional facility.

ANALYSIS INTERSECTIONS



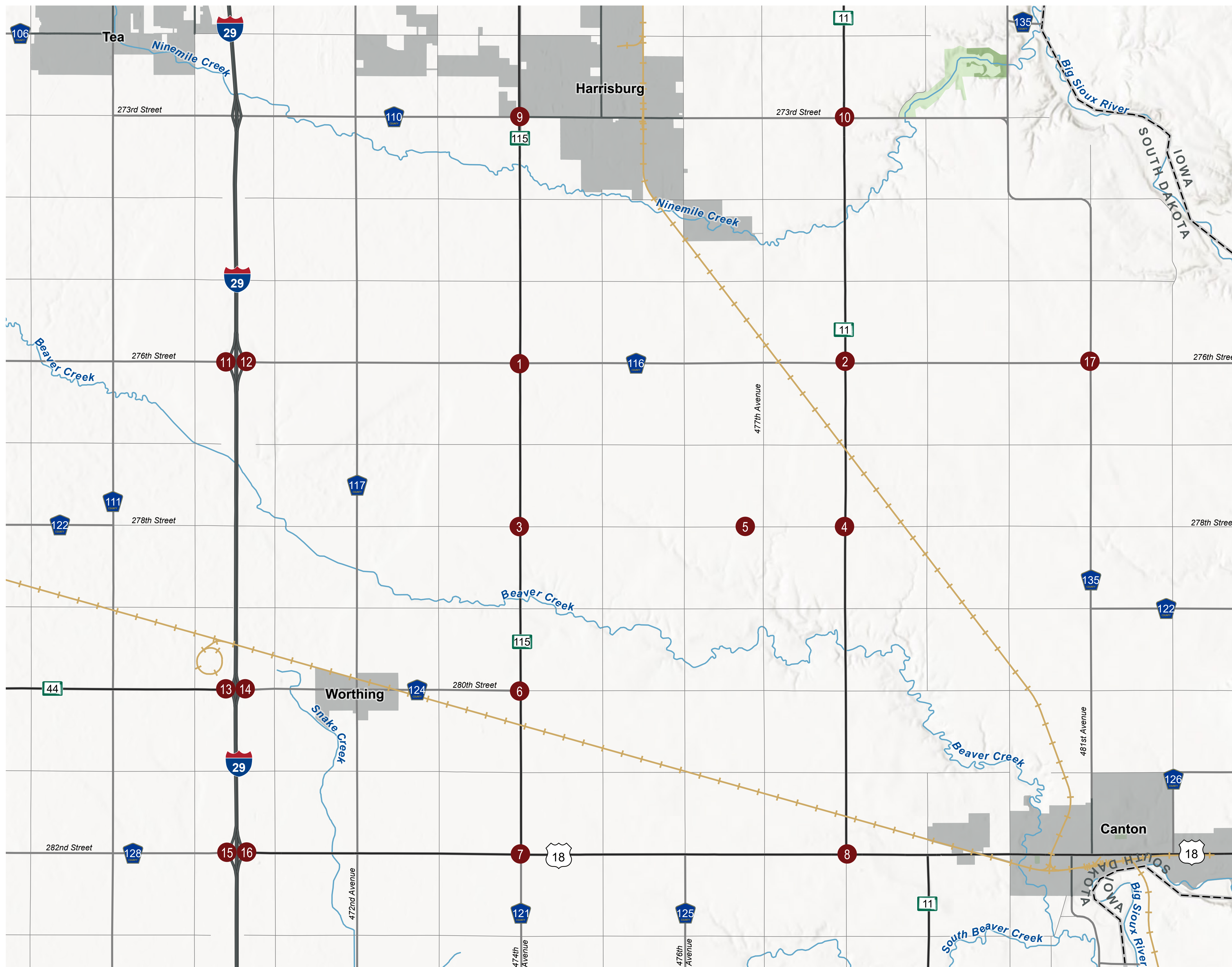
278TH STREET CORRIDOR STUDY

WHAT THIS FIGURE SHOWS:

Analysis intersections within the study area

LEGEND

- 22 Study Intersection



EXISTING AND FUTURE-YEAR (BACKGROUND) DAILY TRAFFIC VOLUMES

WHAT THIS FIGURE SHOWS:

Study area traffic growth without construction of the planned prison site

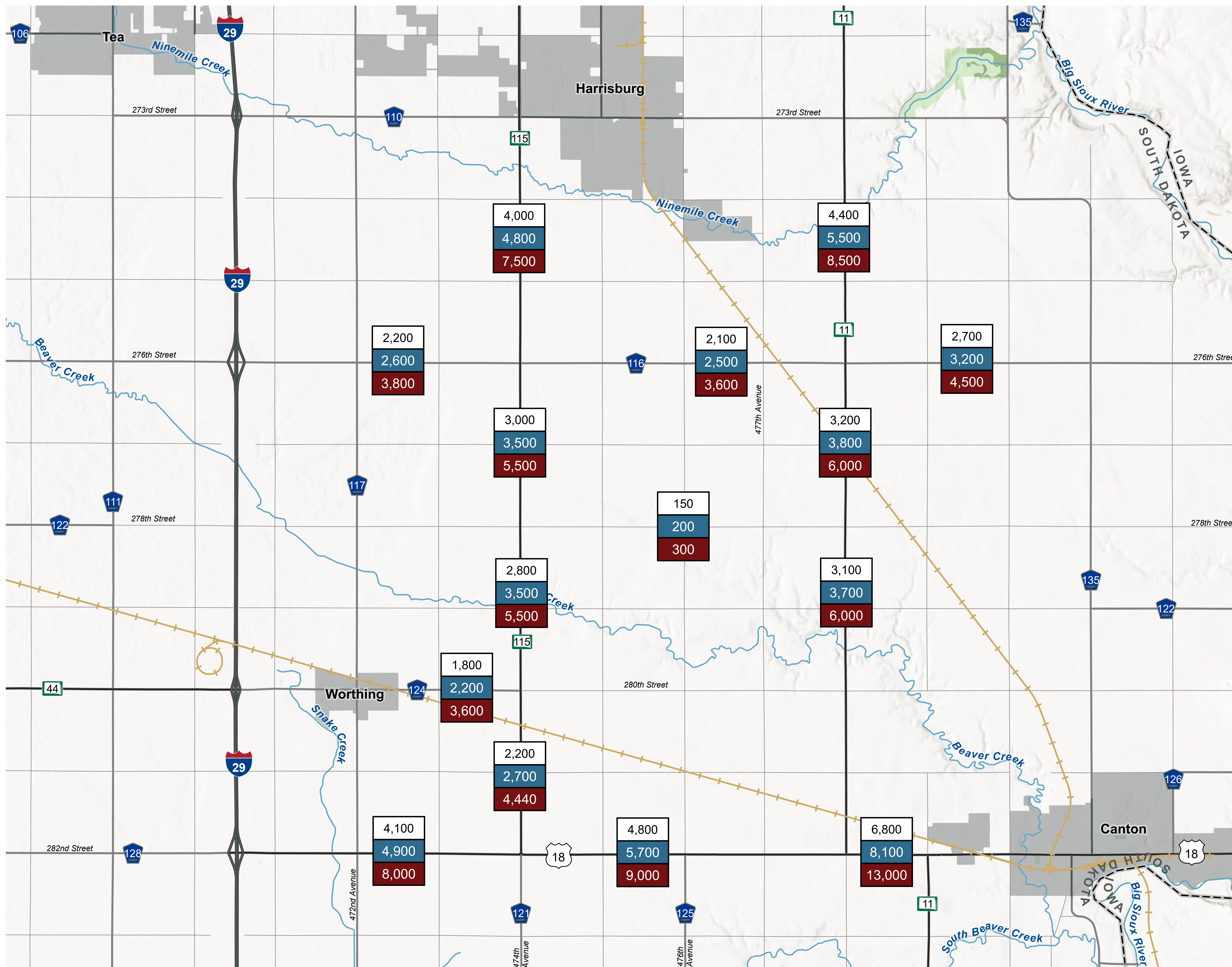
LEGEND

5,000	2024 Existing Traffic
10,000	2029 Background Traffic
15,000	2050 Background Traffic

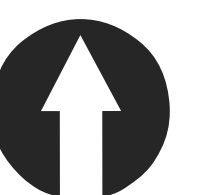
DESCRIPTION

EXISTING TRAFFIC: Year 2024 daily traffic volumes

BACKGROUND TRAFFIC: reflects the expected traffic growth throughout the area, regardless of whether planned men's correctional facility is constructed



0 2 Miles



FUTURE-YEAR DAILY TRAFFIC VOLUMES: SCENARIO 1

278TH STREET CORRIDOR STUDY

WHAT THIS FIGURE SHOWS:

Forecasted background and estimated site-generated (planned men's correctional facility) daily traffic volumes for Scenario 1

LEGEND

25,000	2029 Background Traffic
25,000	2050 Background Traffic
+800	Site Trip Generation

DESCRIPTION

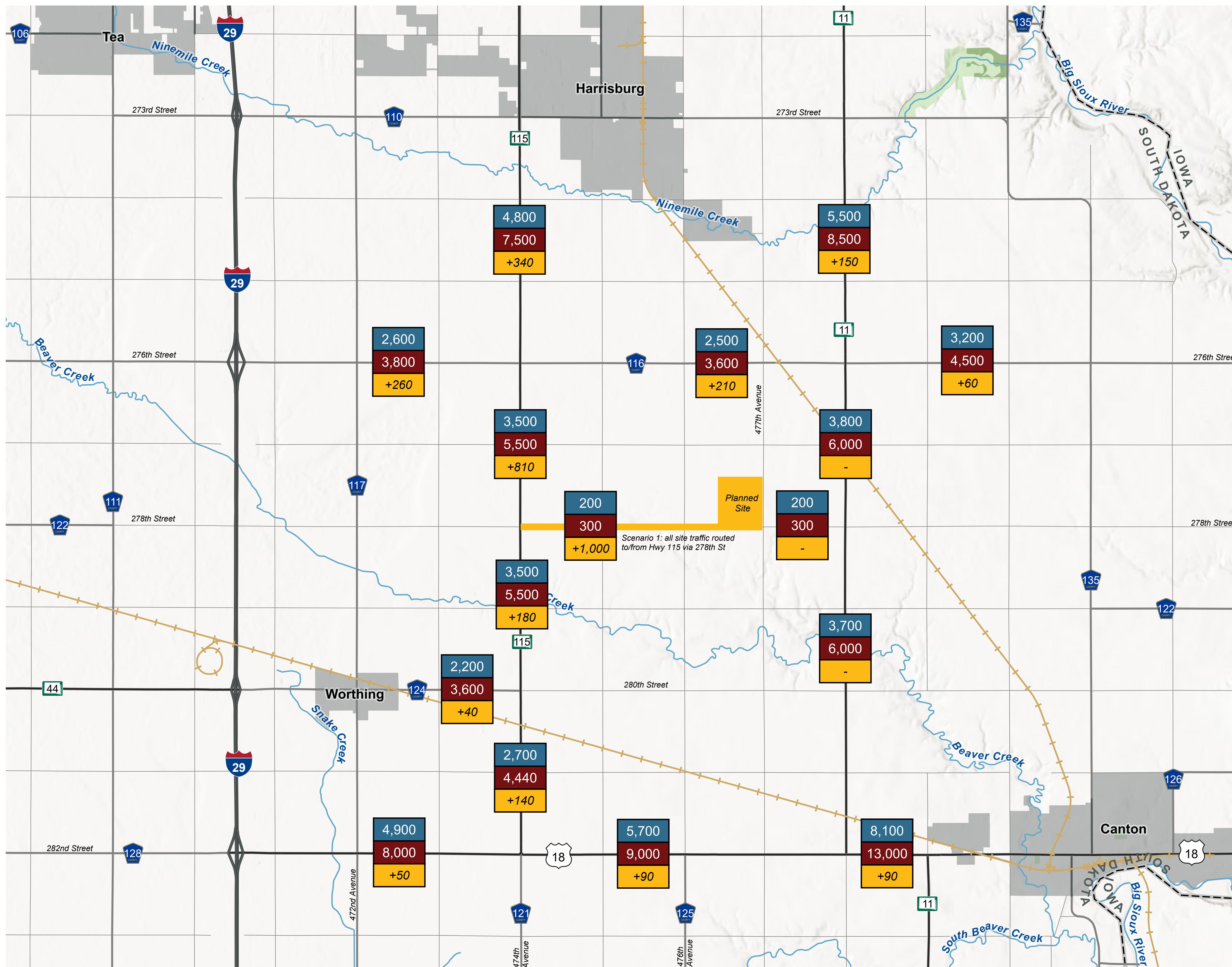
SCENARIO 1: all site-generated traffic routed to/from S.D. Highway 115 via 278th Street

BACKGROUND TRAFFIC: reflects the expected traffic growth throughout the area, regardless of whether the planned men's correctional facility is constructed

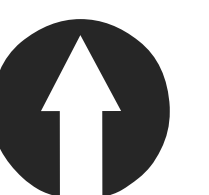
SITE TRIP GENERATION: expected trips generated by the planned men's correctional facility

BUILD CONDITION DAILY SEGMENT TRAFFIC VOLUMES:

- Opening Day (Year 2029) = 2029 Background Traffic + Site Trip Generation
- Planning Horizon (Year 2050) = 2050



0 2 Miles



FUTURE-YEAR DAILY TRAFFIC VOLUMES: SCENARIO 2

278TH STREET CORRIDOR STUDY

WHAT THIS FIGURE SHOWS:

Forecasted background and estimated site-generated (planned men's correctional facility) daily traffic volumes for Scenario 2

LEGEND

25,000	2029 Background Traffic
25,000	2050 Background Traffic
+800	Site Trip Generation

DESCRIPTION

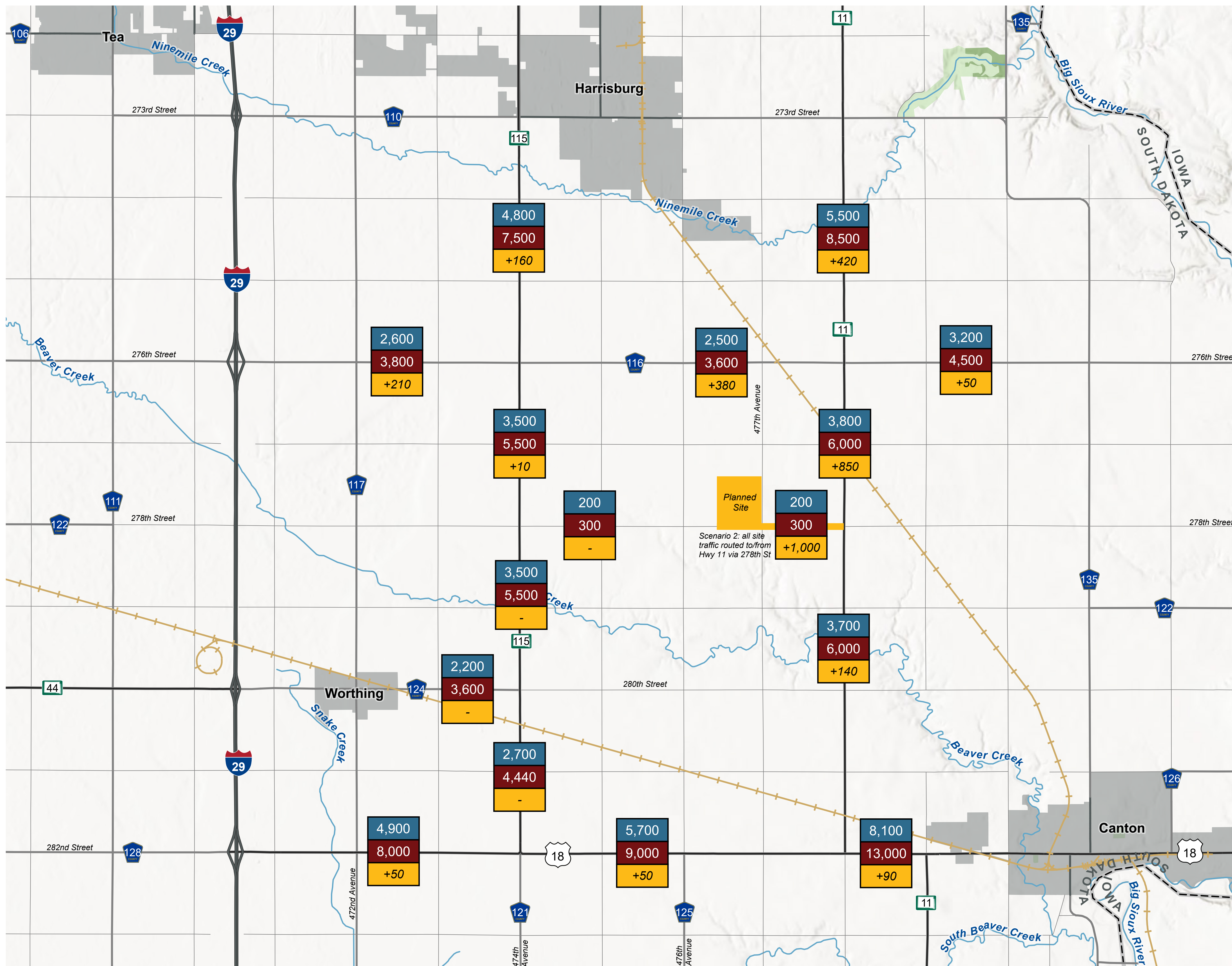
SCENARIO 2: all site-generated traffic routed to/from S.D. Highway 115 via 278th Street

BACKGROUND TRAFFIC: reflects the expected traffic growth throughout the area, regardless of whether the planned men's correctional facility is constructed

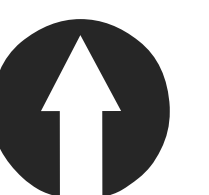
SITE TRIP GENERATION: expected trips generated by the planned men's correctional facility

BUILD CONDITION DAILY SEGMENT TRAFFIC VOLUMES:

- Opening Day (Year 2029) = 2029 Background Traffic + Site Trip Generation
- Planning Horizon (Year 2050) = 2050 Background Traffic + Site Trip Generation



0 2 Miles



FUTURE-YEAR DAILY TRAFFIC VOLUMES: SCENARIO 3

278TH STREET CORRIDOR STUDY

WHAT THIS FIGURE SHOWS:

Forecasted background and estimated site-generated (planned men's correctional facility) daily traffic volumes for Scenario 3

LEGEND

25,000	2029 Background Traffic
25,000	2050 Background Traffic
+800	Site Trip Generation

DESCRIPTION

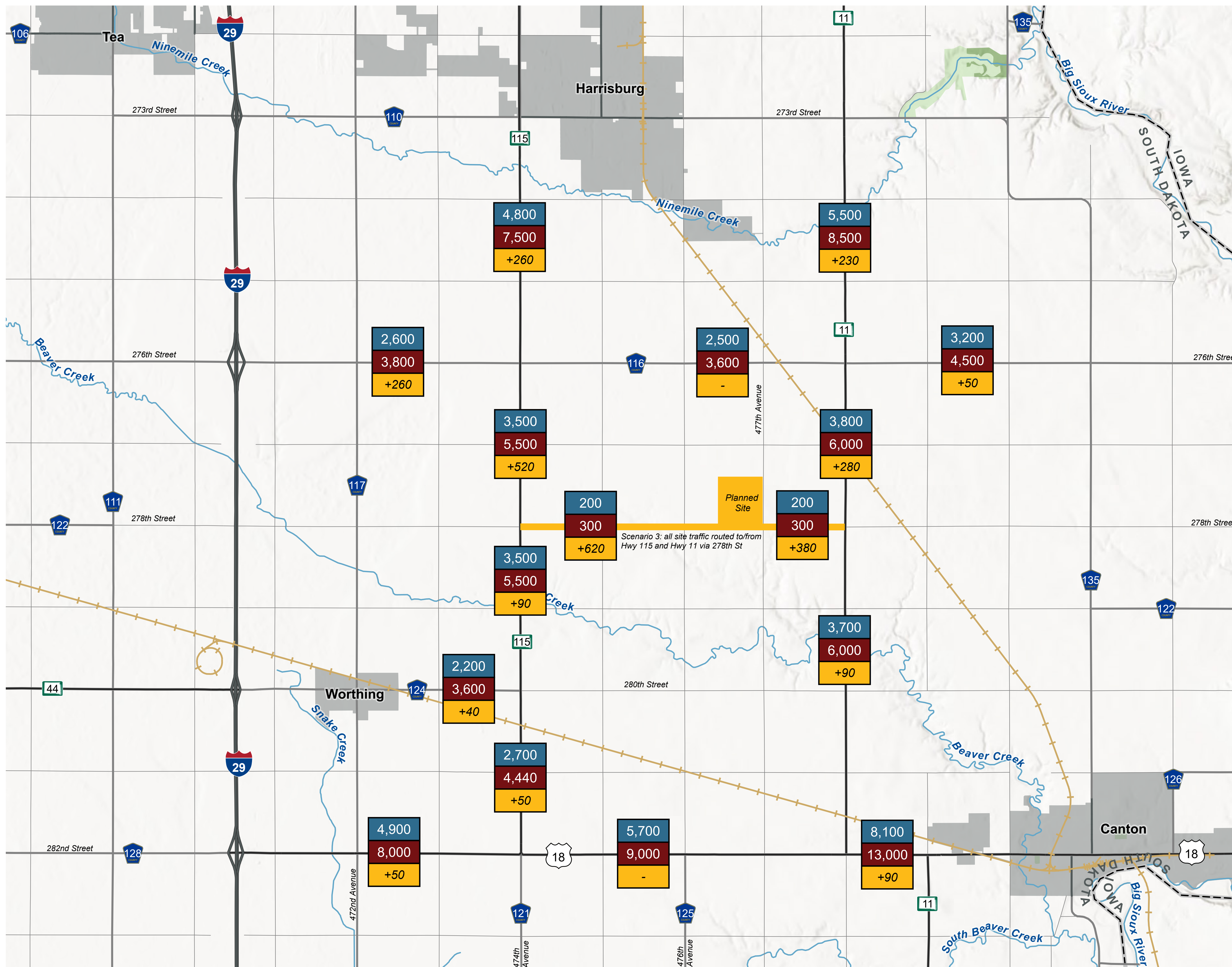
SCENARIO 3: all site-generated traffic routed to/from S.D. Highway 115 via 278th Street

BACKGROUND TRAFFIC: reflects the expected traffic growth throughout the area, regardless of whether the planned men's correctional facility is constructed

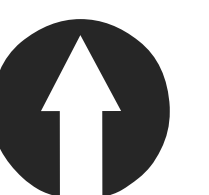
SITE TRIP GENERATION: expected trips generated by the planned men's correctional facility

BUILD CONDITION DAILY SEGMENT TRAFFIC VOLUMES:

- Opening Day (Year 2029) = 2029 Background Traffic + Site Trip Generation
- Planning Horizon (Year 2050) = 2050 Background Traffic + Site Trip Generation



0 2 Miles



TRIP GENERATION

Total daily round trips:

463

Total daily trips to/from site:

926

Total trips to/from site in morning (AM) peak hour:

356

Total trips to/from site in afternoon/evening (PM) peak hour:

364

Daily trip estimates provided by S.D. Department of Corrections. Peak hour volumes used in the analysis estimated by the corridor study team.

Trip Type	Daily Round Trips	Peak Hour Trips (One-way)			
		AM		PM	
		In	Out	In	Out
Security Staff: Shift 1 (Day)	87	87	0	0	87
Security Staff: Shift 2 (Night)	45	0	45	45	0
Non-Security Staff: Shift 1 (Day)	130	130	0	0	130
Vendors / Contractors	20	8	5	3	6
Volunteers	70	45	5	5	45
Visitors	100	25	0	25	10
Transports	4	1	1	2	2
Pheasantland Industries	7	2	2	2	2
TOTALS:	463	298	58	82	282

Vendors / Contractors: food and beverage, commissary, supplies, garbage and recycling, maintenance, mail and packages, and medical






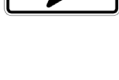



2029 NO BUILD CONDITION RECOMMENDATIONS

278TH STREET CORRIDOR STUDY

WHAT THIS FIGURE SHOWS:

Recommendations to address general background traffic growth, regardless of whether the planned men's correctional facility is constructed (No Build condition)

LEGEND

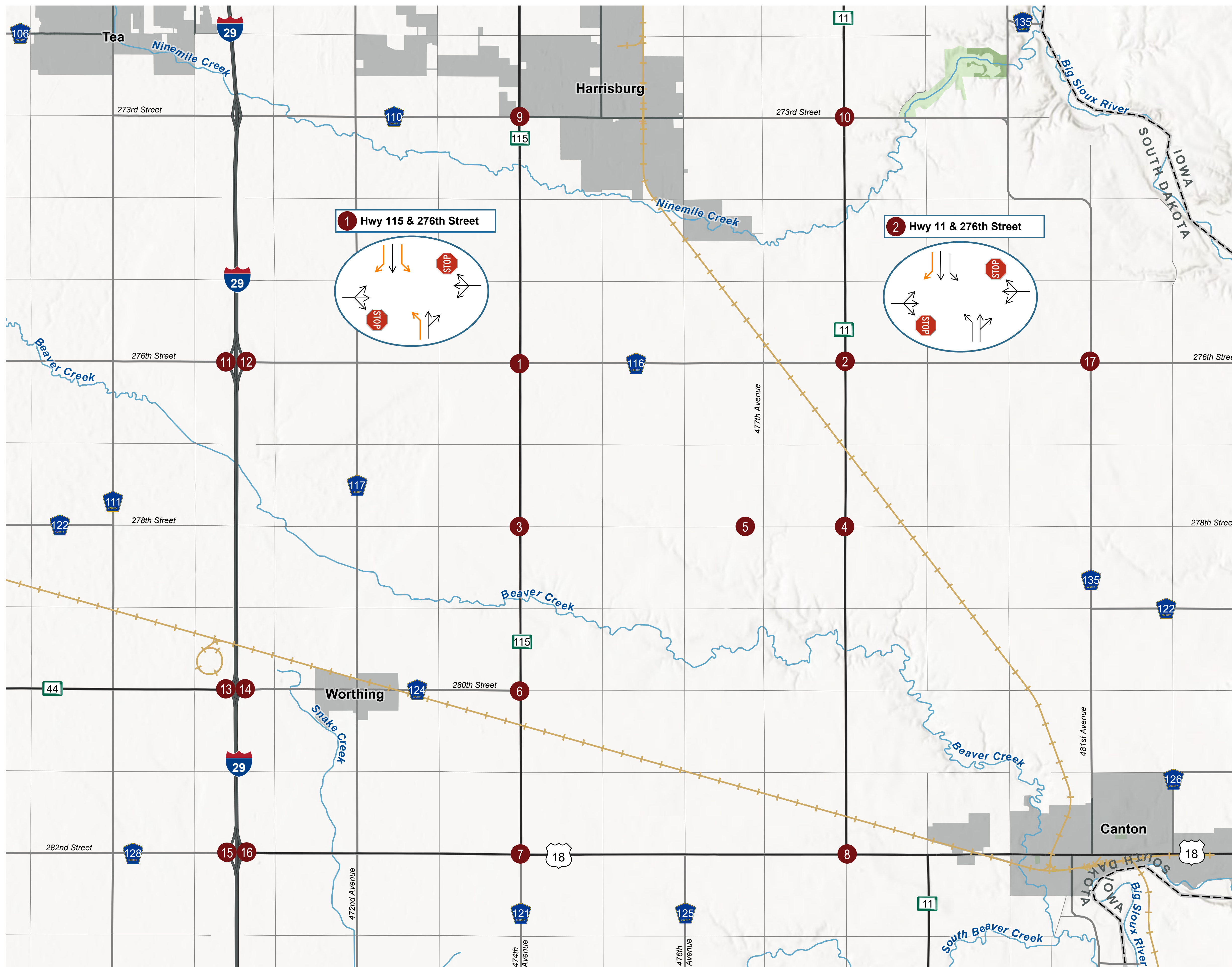
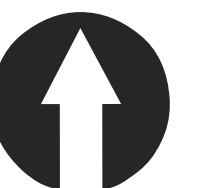
-  Study Intersection
-  Stop Sign
-  Yield Sign
-  Traffic Signal
-  Roundabout
-  Existing Lane Configuration
-  Recommended Lane Configuration
-  Recommended Change in Intersection Traffic Control
-  Recommendations from previous analysis periods

DESCRIPTION

Recommendations specific to this analysis period shown in **ORANGE**.

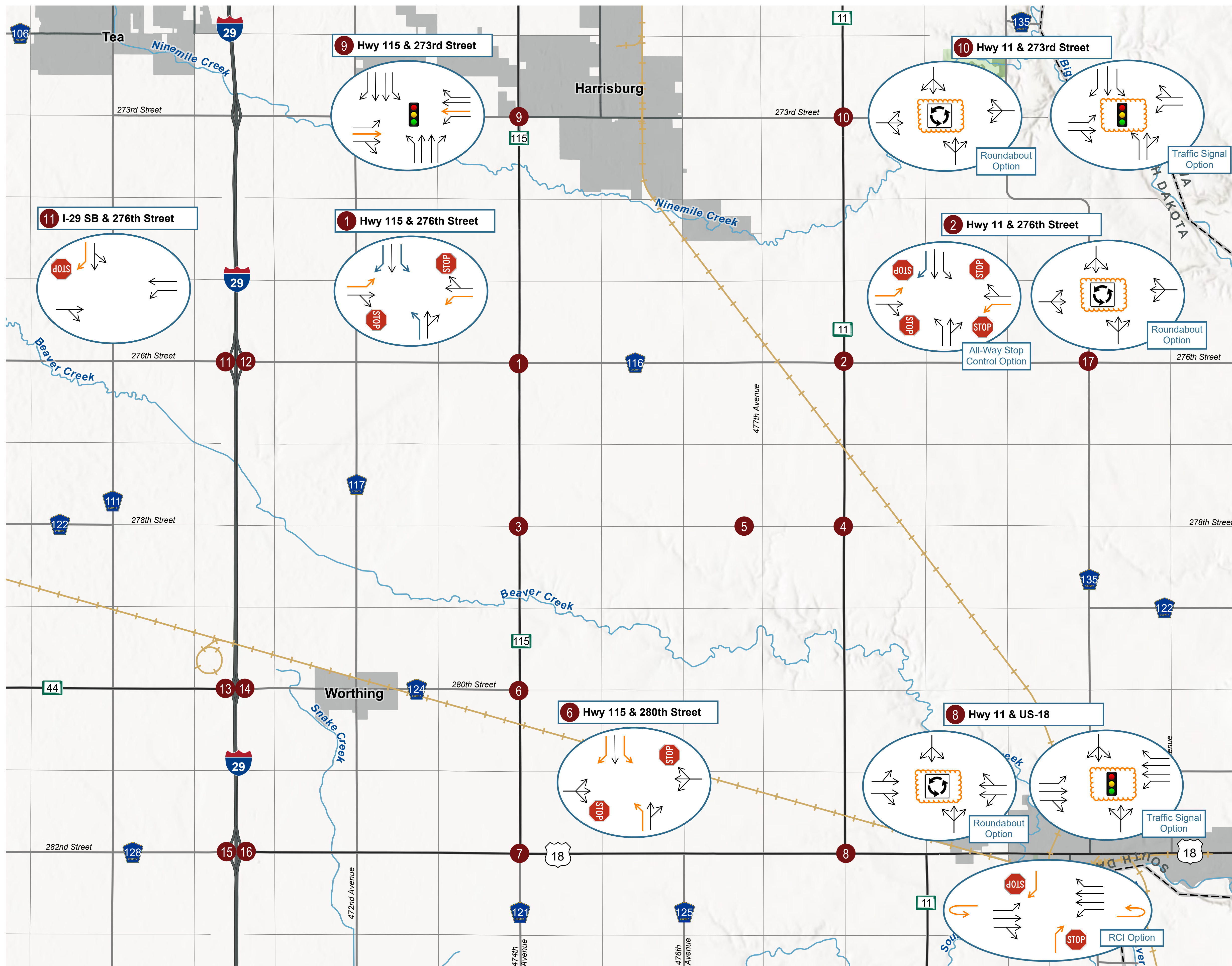
Recommendations carried forward from previous scenarios are noted in **BLUE**, where applicable.

0 2 Miles



2050 NO BUILD CONDITION RECOMMENDATIONS

278TH STREET CORRIDOR STUDY



WHAT THIS FIGURE SHOWS:
 Recommendations to address general background traffic growth, regardless of whether the planned men's correctional facility is constructed (No Build condition)

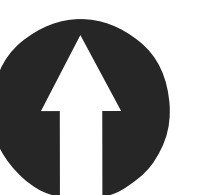
LEGEND

- Study Intersection
- Stop Sign
- Yield Sign
- Traffic Signal
- Roundabout
- Existing Lane Configuration
- Recommended Lane Configuration
- Recommended Change in Intersection Traffic Control
- Recommendations from previous analysis periods

DESCRIPTION

Recommendations specific to this analysis period shown in **ORANGE**.

Recommendations carried forward from previous scenarios are noted in **BLUE**, where applicable.



BUILD SCENARIO 1

Site-generated traffic routed to/from
S.D. Highway 115 via 278th Street



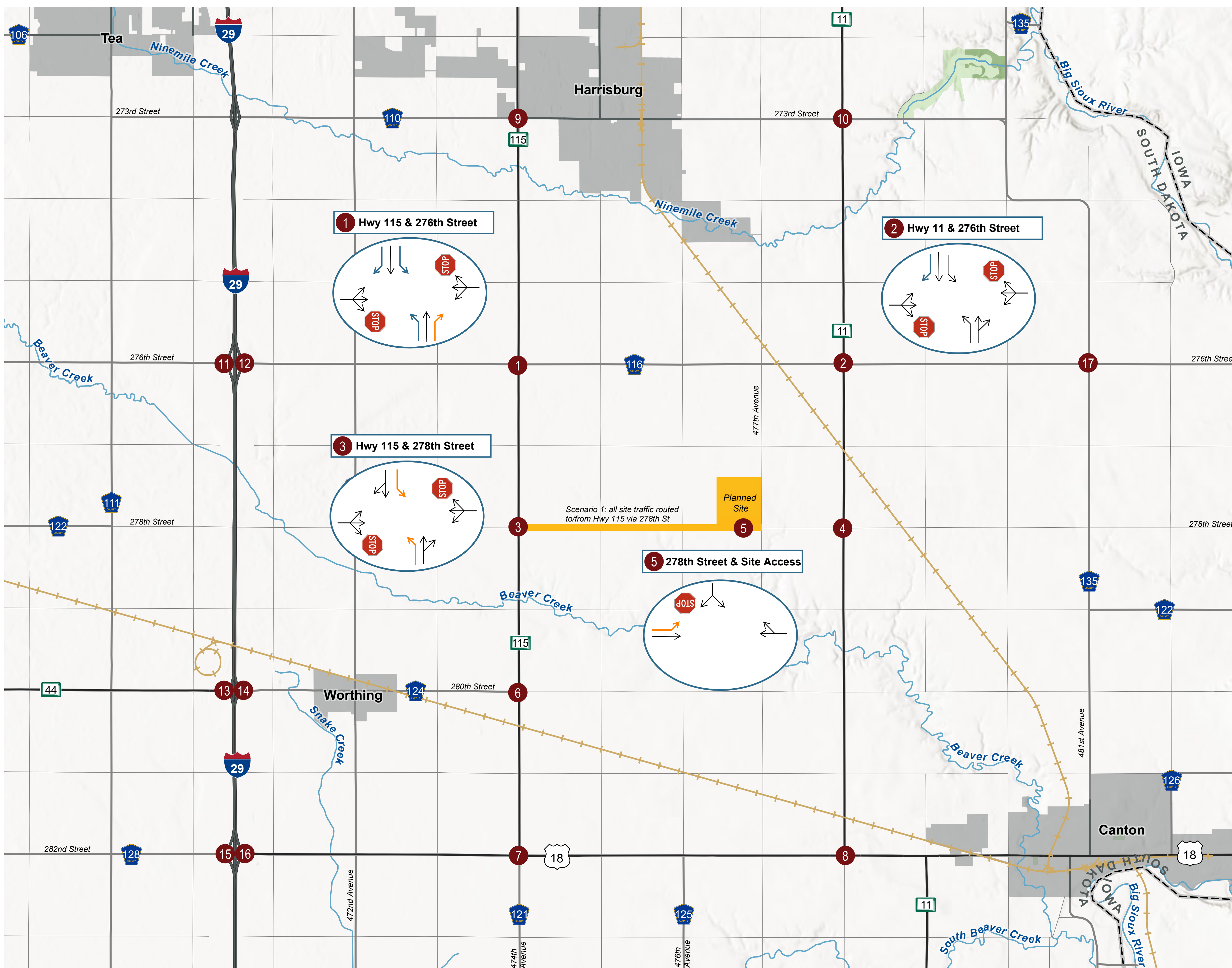
2029 BUILD CONDITION RECOMMENDATIONS

SCENARIO 1



278TH STREET

CORRIDOR STUDY



WHAT THIS FIGURE SHOWS:

Recommendations to address traffic needs generated by the planned men's correctional facility at opening day of the facility

LEGEND

- Study Intersection
- Stop Sign
- Yield Sign
- Traffic Signal
- Roundabout
- Existing Lane Configuration
- Recommended Lane Configuration
- Recommended Change in Intersection Traffic Control
- Recommendations from previous analysis periods

DESCRIPTION

SCENARIO 1: all site-generated traffic routed to/from S.D. Highway 115 via 278th Street

Recommendations specific to this analysis period shown in **ORANGE**.

Recommendations carried forward from previous scenarios are noted in **BLUE**, where applicable.

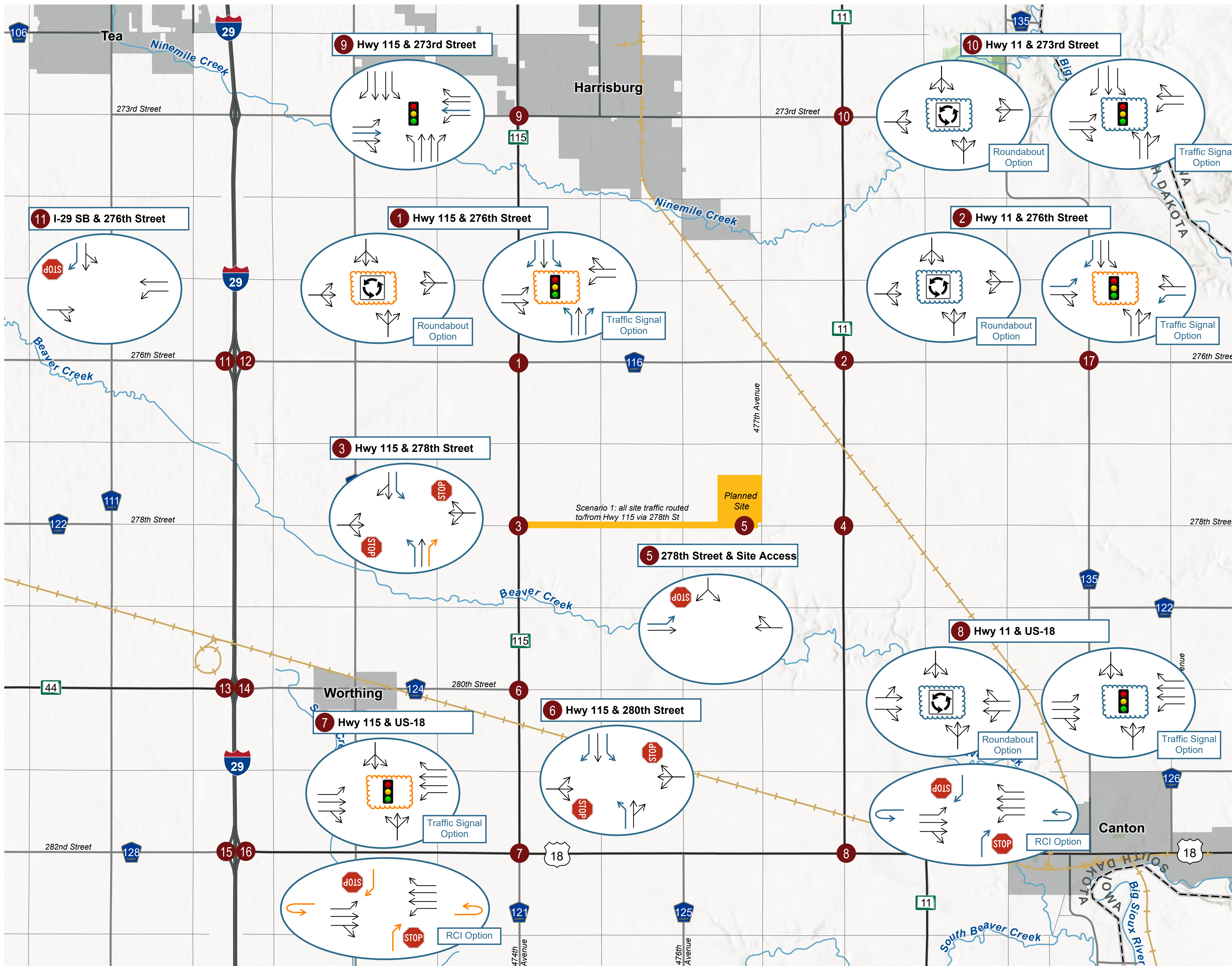


2050 BUILD CONDITION RECOMMENDATIONS

SCENARIO 1



278TH STREET CORRIDOR STUDY



WHAT THIS FIGURE SHOWS:

Recommendations to address traffic needs generated by the planned men's correctional facility through the study's planning horizon

LEGEND

- Study Intersection
- Stop Sign
- Yield Sign
- Traffic Signal
- Roundabout
- Existing Lane Configuration
- Recommended Lane Configuration
- Recommended Change in Intersection Traffic Control
- Recommendations from previous analysis periods

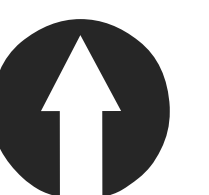
DESCRIPTION

SCENARIO 1: all site-generated traffic routed to/from S.D. Highway 115 via 278th Street

Recommendations specific to this analysis period shown in **ORANGE**.

Recommendations carried forward from previous scenarios are noted in **BLUE**, where applicable.

0 2 Miles



SCENARIO 1 SUMMARY OF RECOMMENDATIONS



WHAT THIS TABLE SHOWS: Recommendations to address traffic needs generated by the planned men's correctional facility through the study's planning horizon. Recommended modifications for each analysis period noted in **ORANGE**

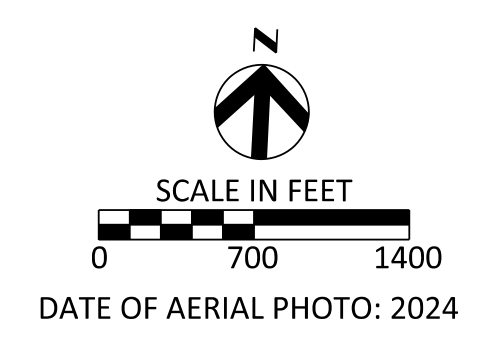
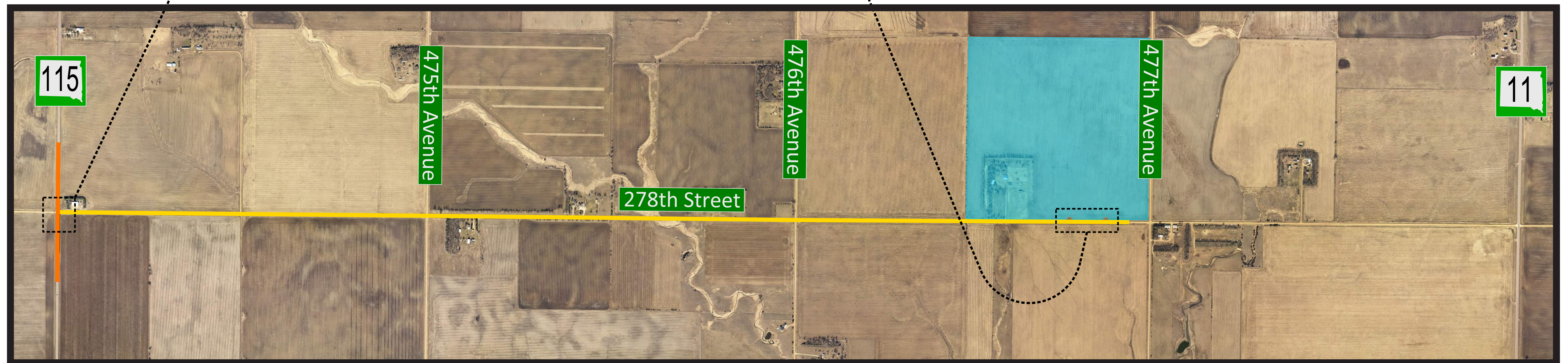
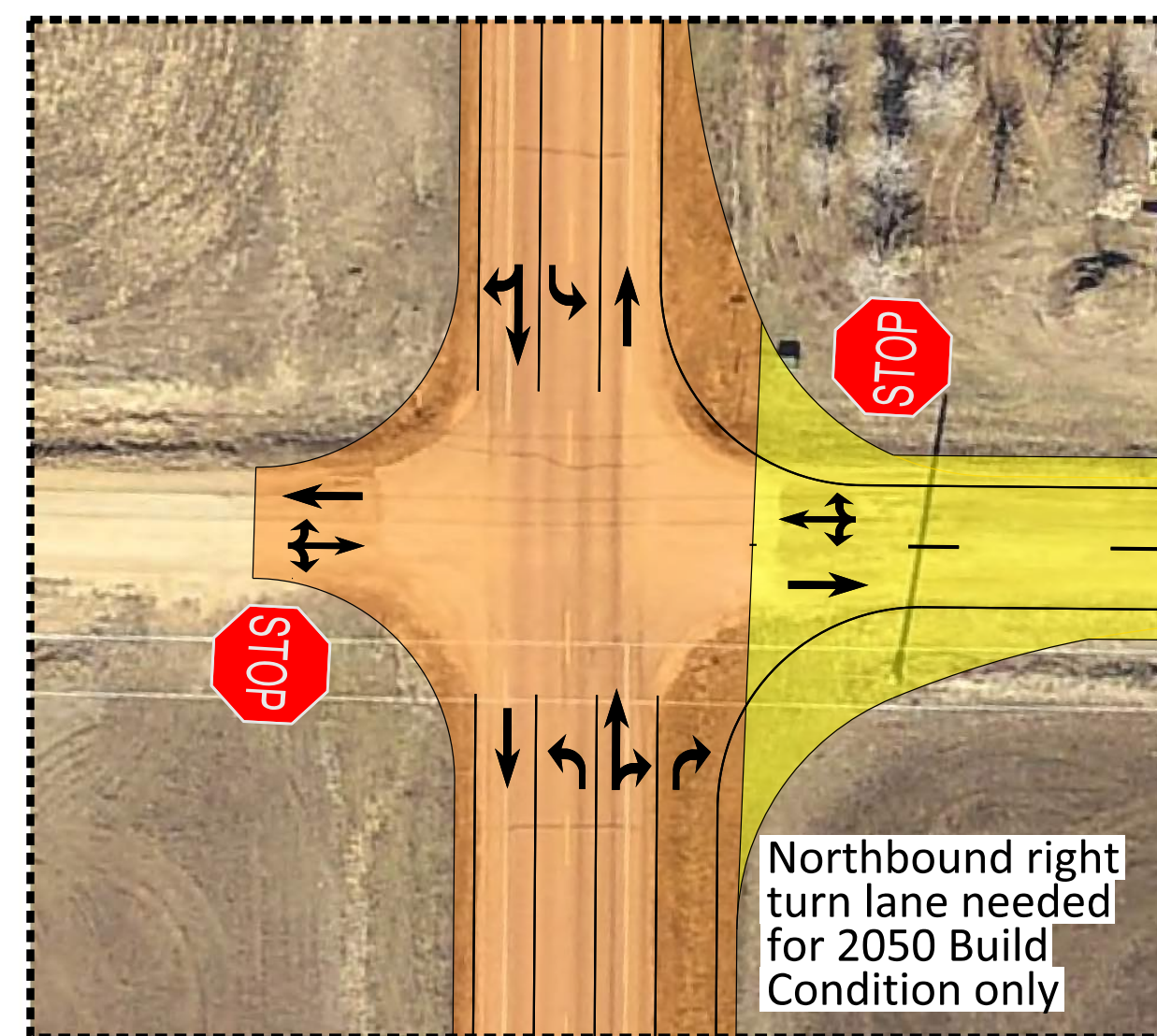
2029
Opening Day

2050
Planning Horizon

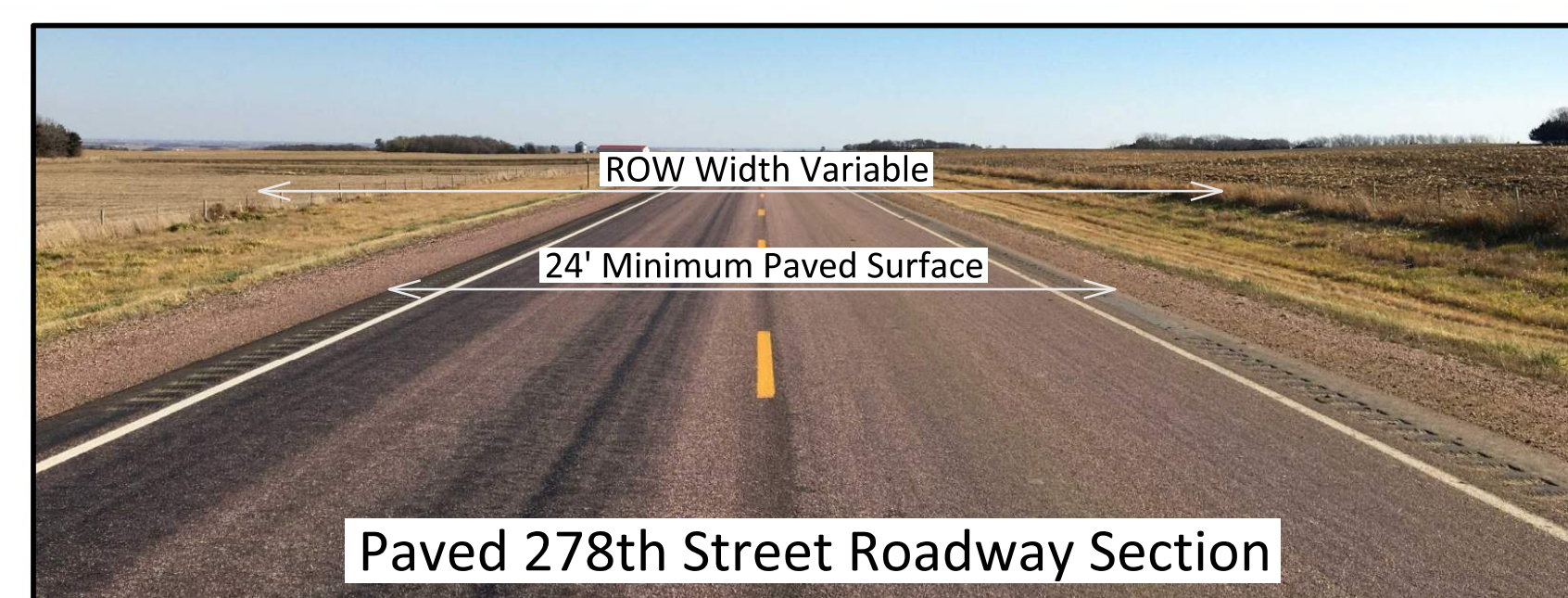
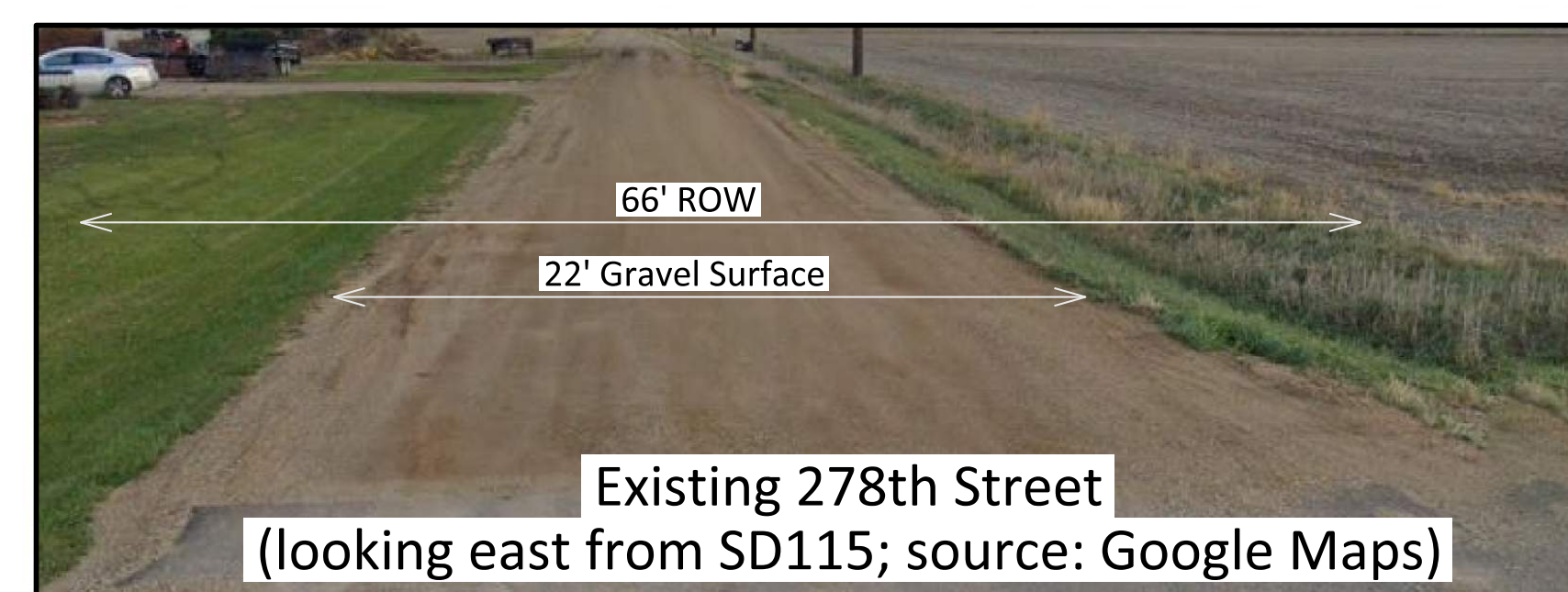
Year	Intersection	Lane Additions	Traffic Control	Need Addressed
2029 No Build	276th Street & Highway 115	SB right turn lane SB left turn lane NB left turn lane (match offset)	Maintain TWSC (EB/WB stop)	Volume-warranted turn lanes
	276th Street & Highway 11	SB right turn lane	Maintain TWSC (EB/WB stop)	Volume-warranted turn lane
2029 Build	276th Street & Highway 115	NB right turn lane	Maintain TWSC (EB/WB stop)	Volume-warranted turn lane
	278th Street & Planned Site Access	EB left turn lane	Maintain TWSC (SB stop)	Volume-warranted turn lane
	278th Street & Highway 115	SB left turn lane NB left turn lane (match offset)	Maintain TWSC (EB/WB stop)	Volume-warranted turn lane
2050 No Build	273rd Street & Highway 115	EB and WB through lanes	Maintain traffic signal	Two through lanes, both directions; operational need
	273rd Street & Highway 11	-	Single-lane roundabout or traffic signal	Change to intersection traffic control needed
	276th Street & Highway 115	EB and WB left turn lanes	Maintain TWSC (EB/WB stop)	Operational need
	276th Street & Highway 11	EB and WB left turn lanes	AWSC or single lane roundabout	Operational need
	Highway 18 & Highway 11	-	Multi-lane hybrid roundabout traffic signal, or Reduced Conflict Intersection (RCI)	Change to intersection traffic control needed
	280th Street & Highway 115	SB right turn lane NB left turn lane SB left turn lane (match offset)	Maintain TWSC (EB/WB stop)	Volume-warranted turn lanes
2050 Build	276th Street & Highway 115	-	Single-lane roundabout or traffic signal	Change to intersection traffic control needed
	276th Street & Highway 11	-	Single-lane roundabout or traffic signal	Change to intersection traffic control needed
	278th Street & Highway 115	NB right turn lane	Maintain TWSC (EB/WB stop)	Volume-warranted turn lanes
	Highway 18 & Highway 115	-	Traffic Signal or unsignalized Reduced Conflict Intersection (RCI)	Monitor need for traffic control change: SD115 stop control approach LOS F

SCENARIO 1 ROADWAY IMPROVEMENT OPTIONS

FIGURE DESCRIPTION: Pave 278th Street from Highway 115 to Correctional Facility Site



- Legend**
- 278th Street Improvement
 - SD115 and SD11 Improvements
 - Traffic Lanes
 - Correctional Facility Site



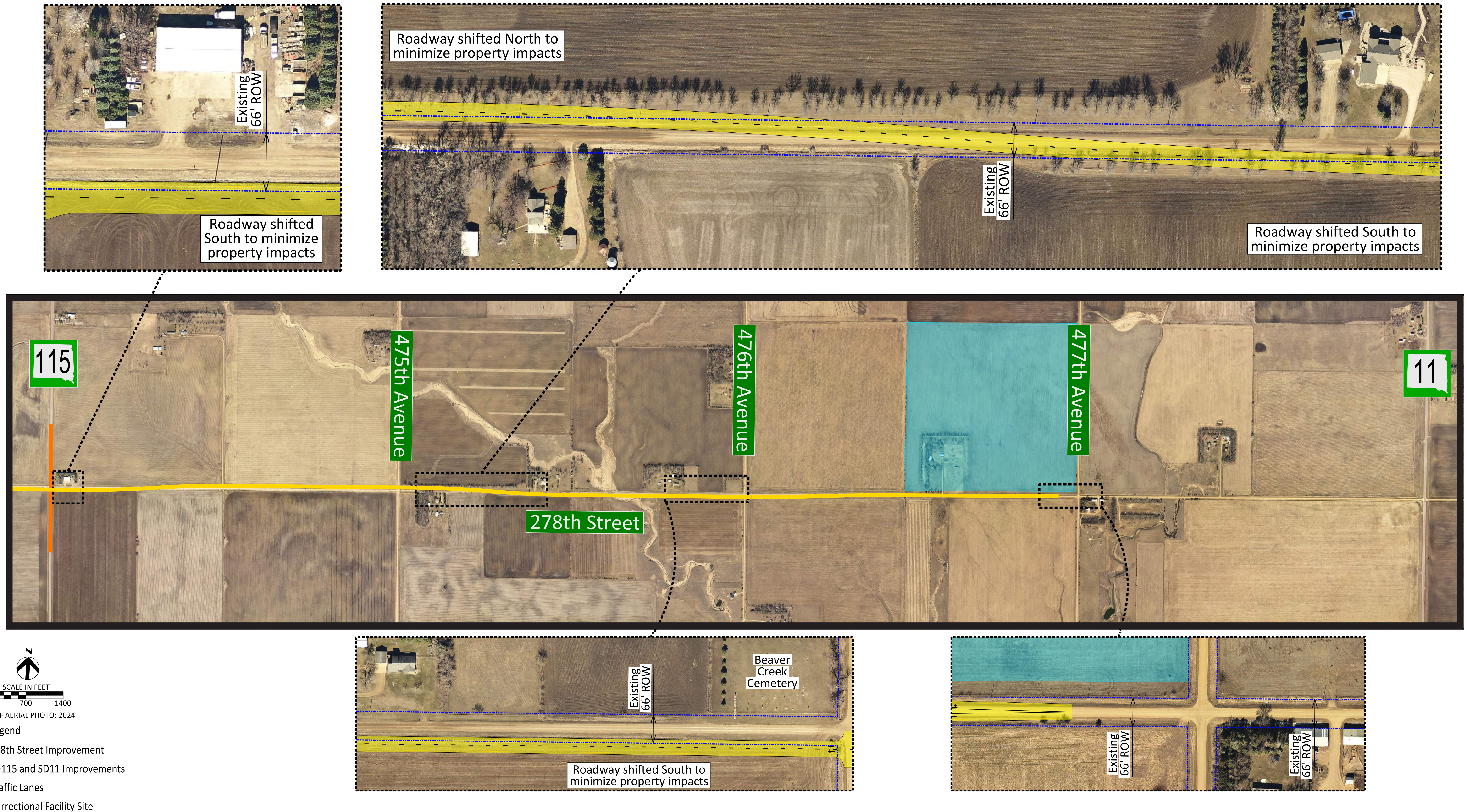
SCENARIO 1A ROADWAY IMPROVEMENT OPTIONS

CURVED ALIGNMENT

278TH STREET

CORRIDOR STUDY

FIGURE DESCRIPTION: Pave 278th Street from Highway 115 to Correctional Facility Site with Curved Alignment to Minimize Property Impacts



BUILD SCENARIO 2

Site-generated traffic routed to/from
S.D. Highway 11 via 278th Street



2029 BUILD CONDITION RECOMMENDATIONS

SCENARIO 2



278TH STREET CORRIDOR STUDY

WHAT THIS FIGURE SHOWS:

Recommendations to address traffic needs generated by the planned men's correctional facility at opening day of the facility

LEGEND

- Study Intersection
- Stop Sign
- Yield Sign
- Traffic Signal
- Roundabout
- Existing Lane Configuration
- Recommended Lane Configuration
- Recommended Change in Intersection Traffic Control
- Recommendations from previous analysis periods

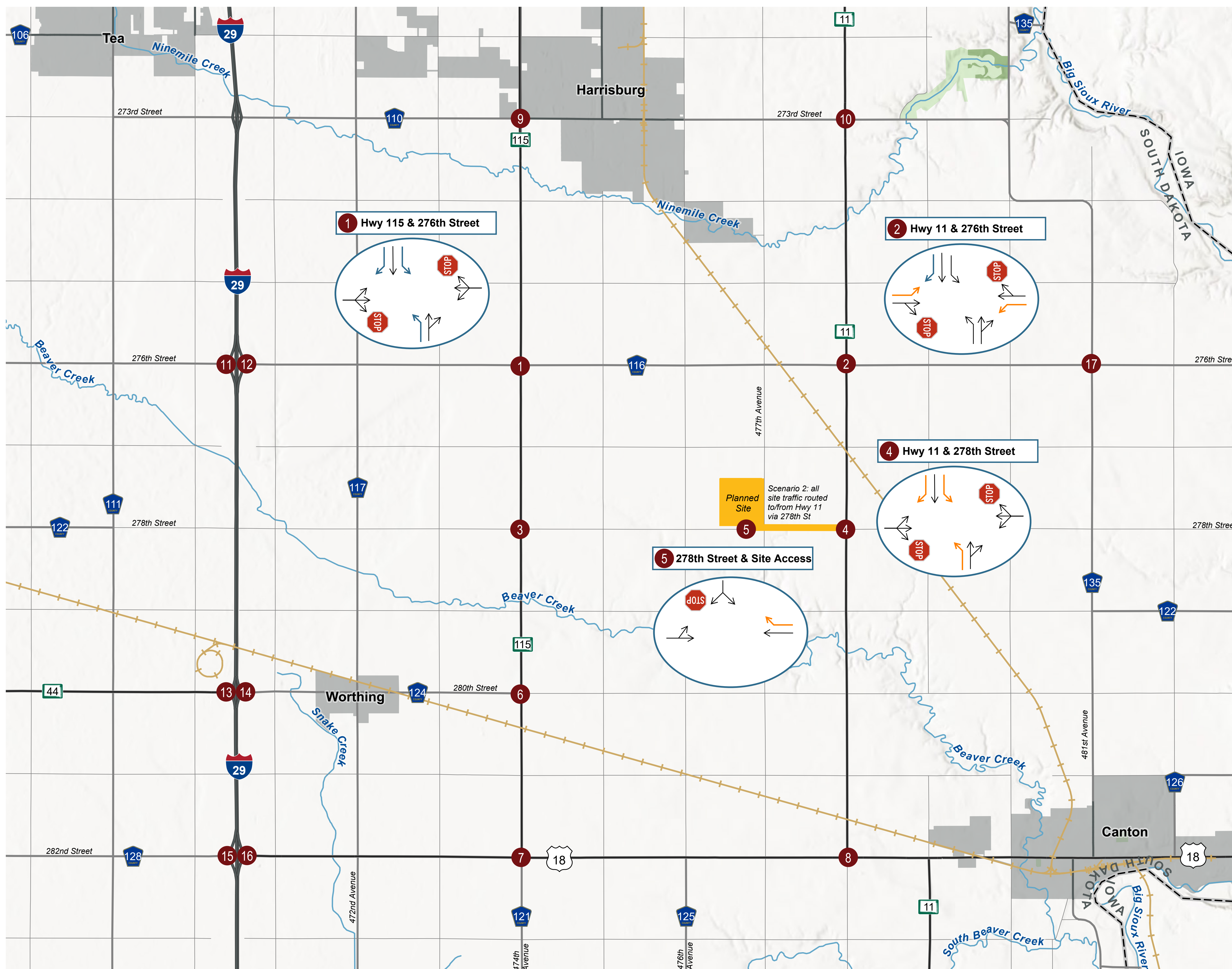
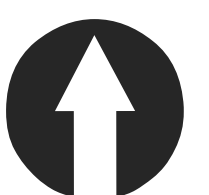
DESCRIPTION

SCENARIO 2: all site-generated traffic routed to/from S.D. Highway 115 via 278th Street

Recommendations specific to this analysis period shown in **ORANGE**.

Recommendations carried forward from previous scenarios are noted in **BLUE**, where applicable.

0 2 Miles

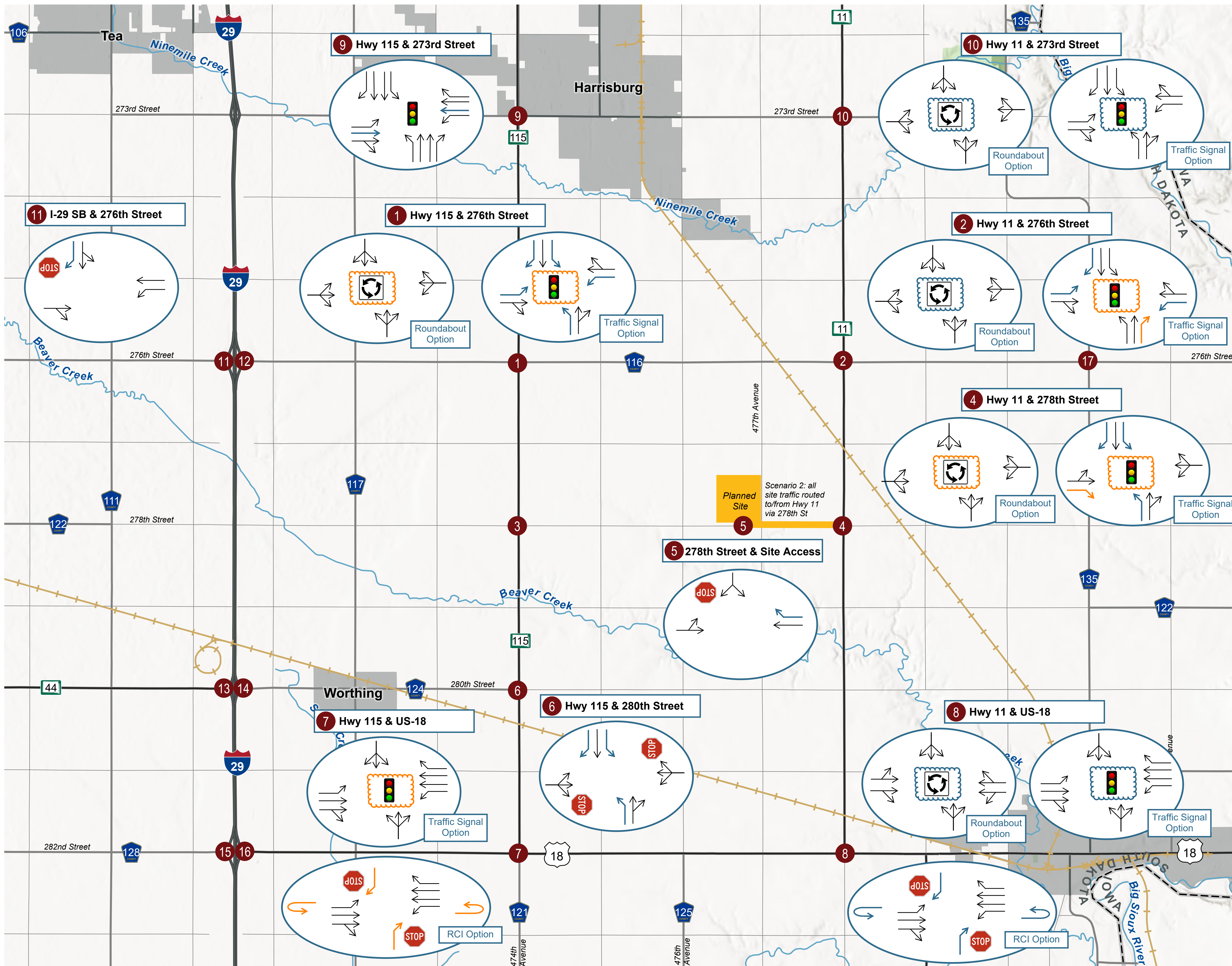


2050 BUILD CONDITION RECOMMENDATIONS

SCENARIO 2



278TH STREET CORRIDOR STUDY



WHAT THIS FIGURE SHOWS:

Recommendations to address traffic needs generated by the planned men's correctional facility through the study's planning horizon

LEGEND

- Study Intersection
- Stop Sign
- Yield Sign
- Traffic Signal
- Roundabout
- Existing Lane Configuration
- Recommended Lane Configuration
- Recommended Change in Intersection Traffic Control
- Recommendations from previous analysis periods

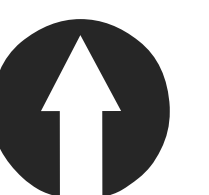
DESCRIPTION

SCENARIO 2: all site-generated traffic routed to/from S.D. Highway 115 via 278th Street

Recommendations specific to this analysis period shown in **ORANGE**.

Recommendations carried forward from previous scenarios are noted in **BLUE**, where applicable.

0 2 Miles



SCENARIO 2 SUMMARY OF RECOMMENDATIONS



WHAT THIS TABLE SHOWS: Recommendations to address traffic needs generated by the planned men's correctional facility through the study's planning horizon. Recommended modifications for each analysis period noted in **ORANGE**

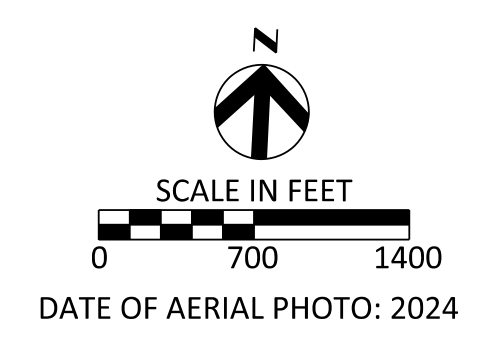
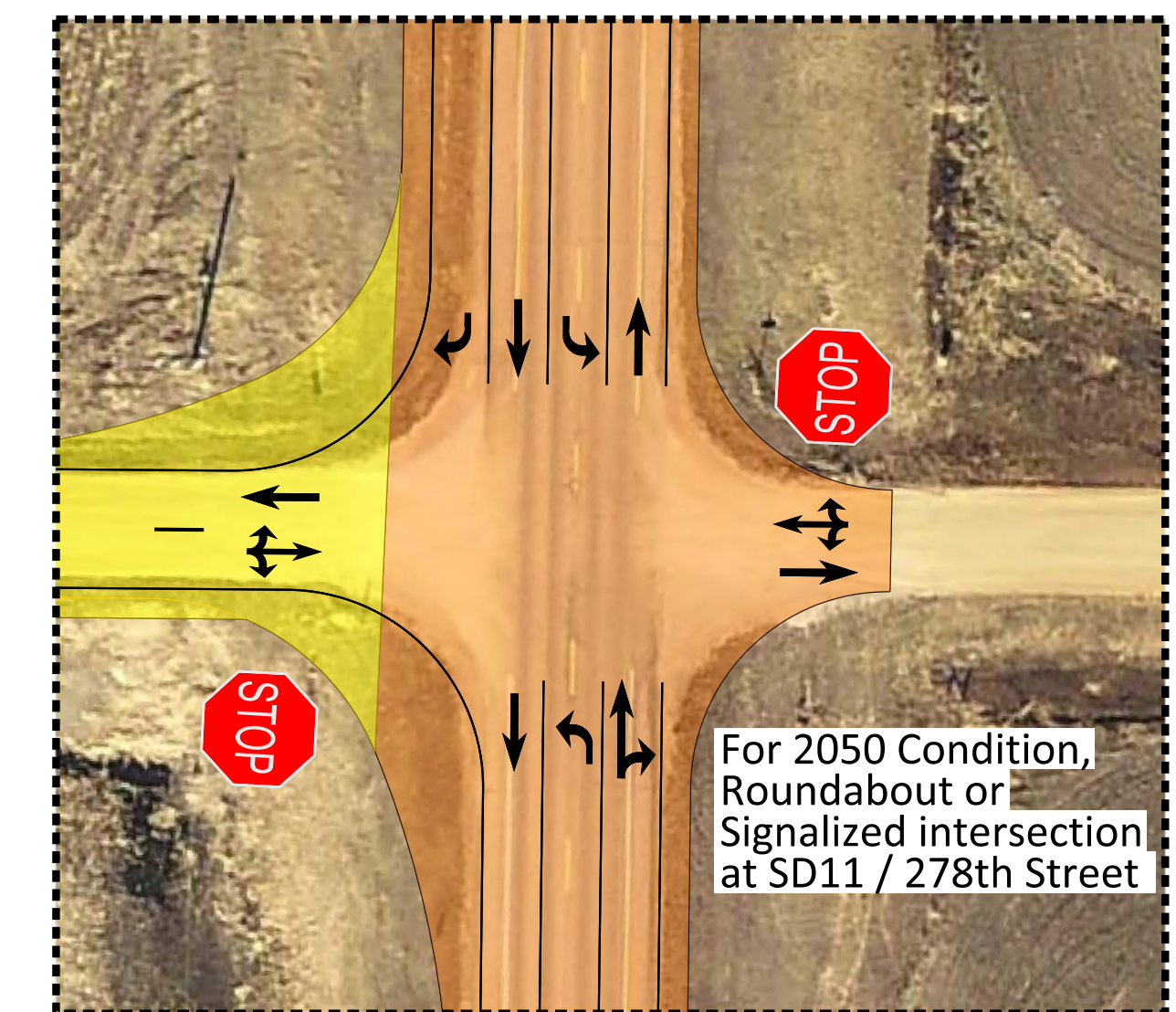
2029
Opening Day

2050
Planning Horizon

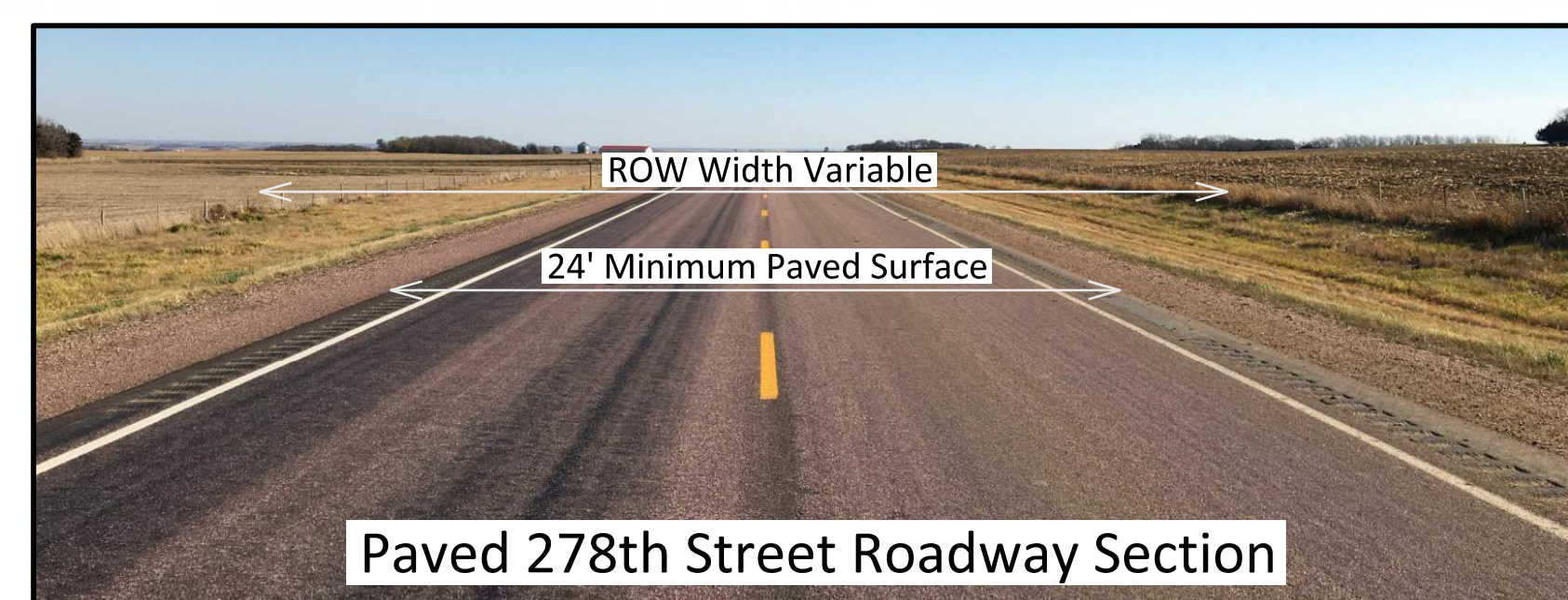
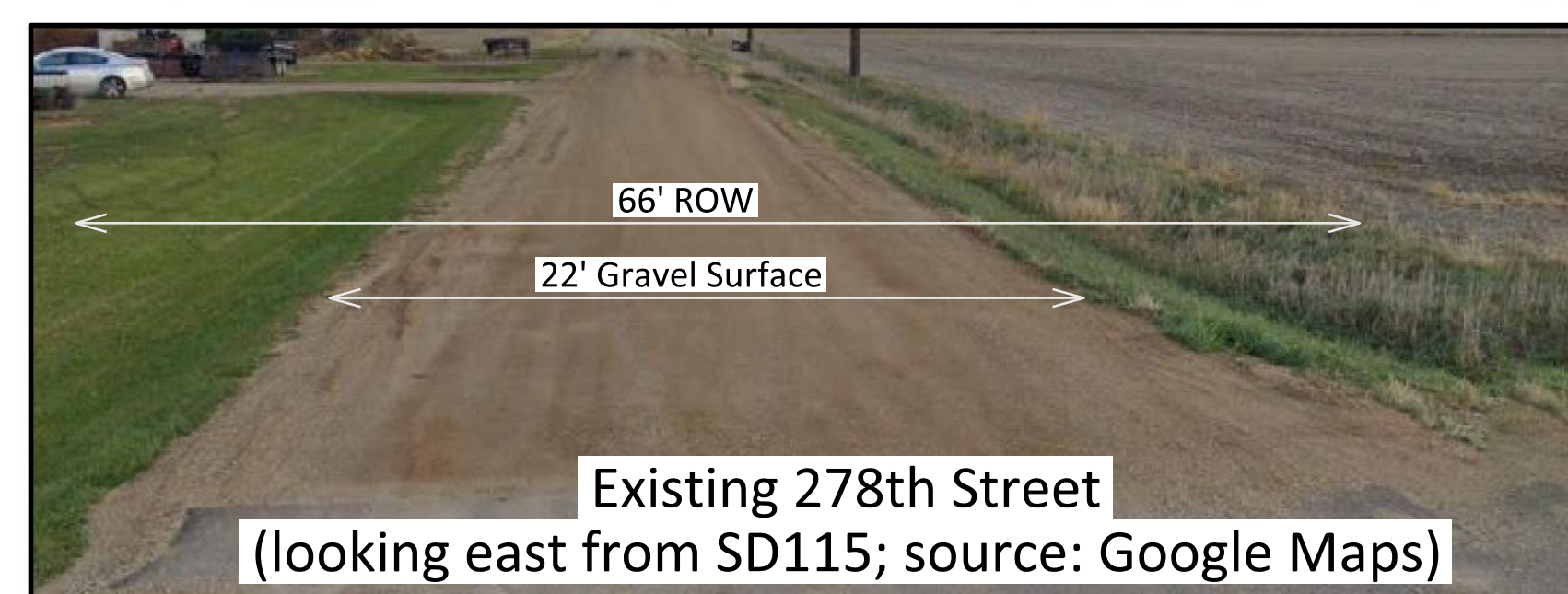
Year	Intersection	Lane Additions	Traffic Control	Need Addressed
2029 No Build	276th Street & Highway 115	SB right turn lane SB left turn lane NB left turn lane (match offset)	Maintain TWSC (EB/WB stop)	Volume-warranted turn lanes
	276th Street & Highway 11	SB right turn lane	Maintain TWSC (EB/WB stop)	Volume-warranted turn lane
2029 Build	276th Street & Highway 115	EB and WB left turn lanes	Maintain TWSC (EB/WB stop)	Operational need
	278th Street & Planned Site Access	WB right turn lane	Maintain TWSC (EB/WB stop)	Volume-warranted turn lane
	278th Street & Highway 115	NB left turn lane SB left turn lane (match offset) SB right turn lane	Maintain TWSC (EB/WB stop)	Volume-warranted turn lanes
2050 No Build	273rd Street & Highway 115	EB and WB through lanes	Maintain traffic signal	Two through lanes, both directions; operational need
	273rd Street & Highway 11	-	Single-lane roundabout or traffic signal	Change to intersection traffic control needed
	276th Street & Highway 115	EB and WB left turn lanes	Maintain TWSC (EB/WB stop)	Operational need
	276th Street & Highway 11	EB and WB left turn lanes	AWSC or single lane roundabout	Operational need
	Highway 18 & Highway 11	-	Multi-lane hybrid roundabout, traffic signal, or unsignalized Reduced Conflict Intersection (RCI)	Change to intersection traffic control needed
	280th Street & Highway 115	SB right turn lane NB left turn lane SB left turn lane (match offset)	Maintain TWSC (EB/WB stop)	Volume-warranted turn lanes
2050 Build	276th Street & Highway 115	-	Single-lane roundabout or traffic signal	Change to intersection traffic control needed
	276th Street & Highway 11	NB right turn lane	Single-lane roundabout or traffic signal	Change to intersection traffic control needed Volume-warranted turn lane (NB)
	278th Street & Highway 115	EB right turn lane	Single-lane roundabout or traffic signal	Change to intersection traffic control needed Operational need (EB right turn)
	Highway 18 & Highway 115	-	Traffic Signal or unsignalized Reduced Conflict Intersection (RCI)	Monitor need for traffic control change: Highway 115 stop control approach LOS F

SCENARIO 2 ROADWAY IMPROVEMENT OPTIONS

FIGURE DESCRIPTION: Pave 278th Street from Correctional Facility Site to Highway 11



- Legend**
- 278th Street Improvement
 - SD115 and SD11 Improvements
 - Traffic Lanes
 - Correctional Facility Site



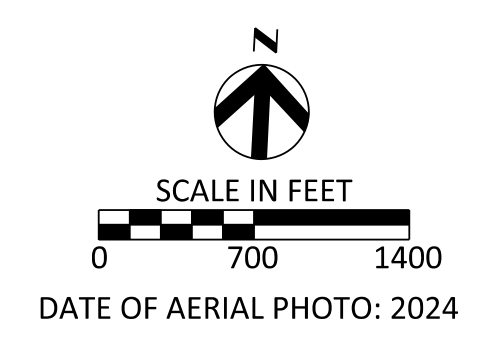
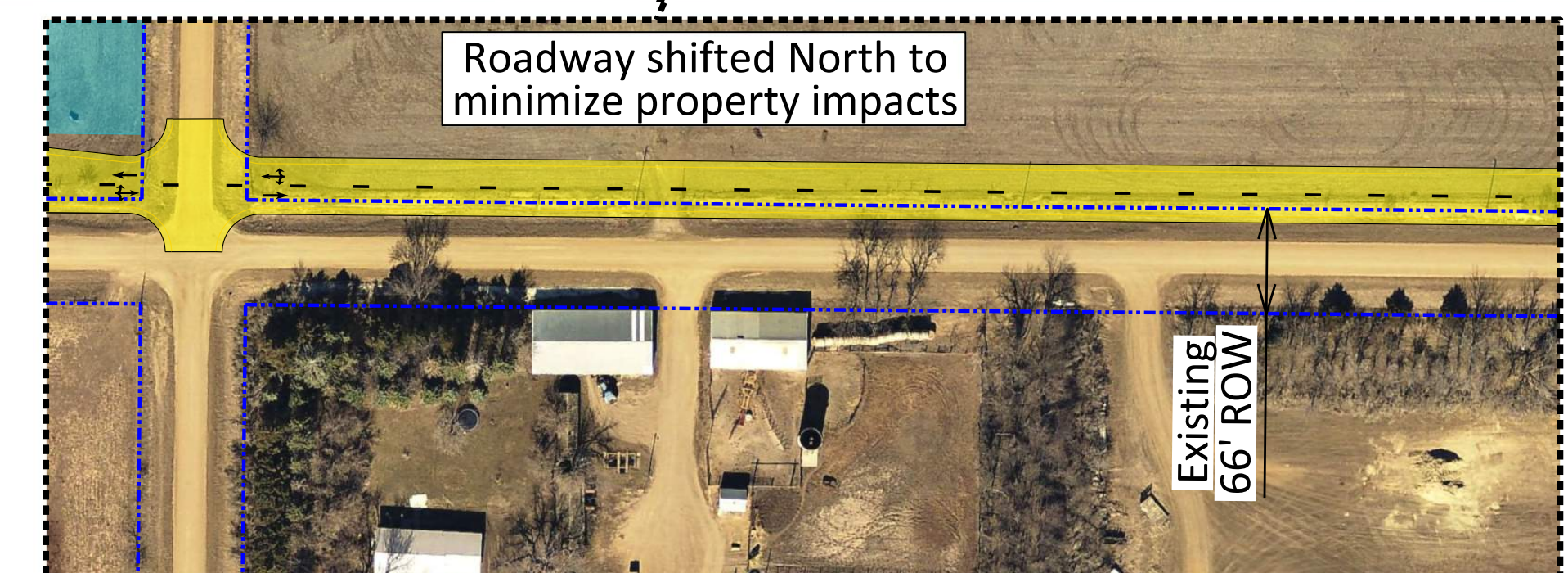
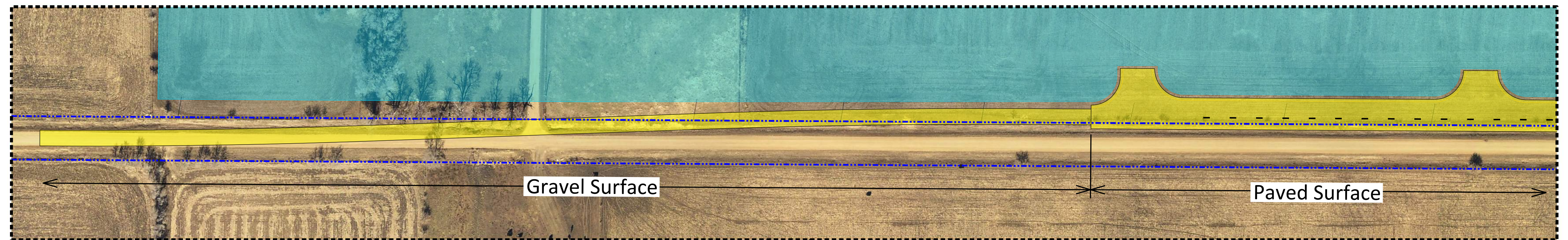
SCENARIO 2A ROADWAY IMPROVEMENT OPTIONS

CURVED ALIGNMENT

278TH STREET

CORRIDOR STUDY

FIGURE DESCRIPTION: Pave 278th Street from Correctional Facility Site to Highway 11 with Curved Alignment to Minimize Property Impacts



- Legend
- 278th Street Improvement
 - SD115 and SD11 Improvements
 - Traffic Lanes
 - Correctional Facility Site

BUILD SCENARIO 3

Site-generated traffic routed to/from
S.D. Highway 115 and S.D. Highway 11 via 278th Street

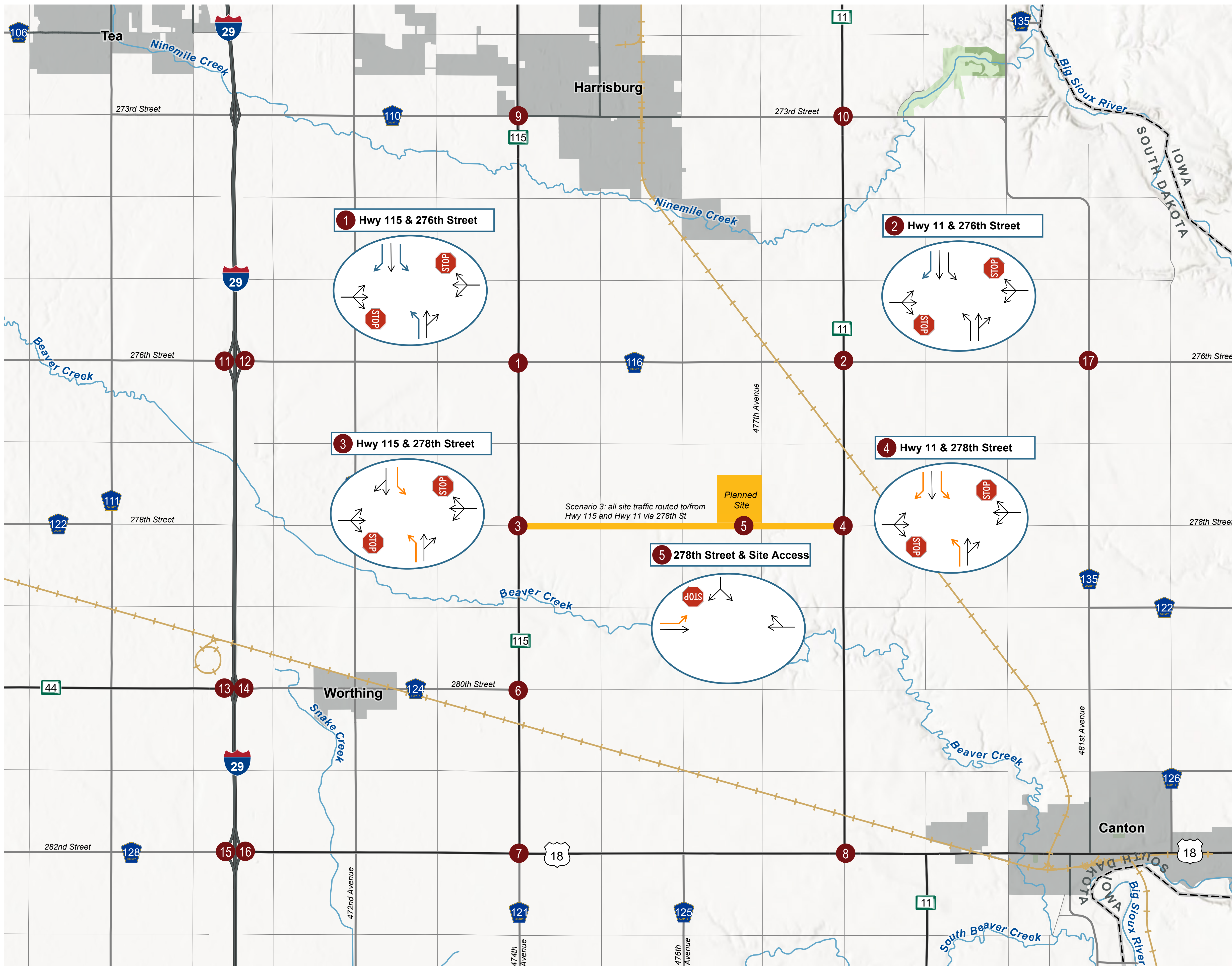


2029 BUILD CONDITION RECOMMENDATIONS

SCENARIO 3



278TH STREET CORRIDOR STUDY



WHAT THIS FIGURE SHOWS:

Recommendations to address traffic needs generated by the planned men's correctional facility at opening day of the facility

LEGEND

- Study Intersection
- Stop Sign
- Yield Sign
- Traffic Signal
- Roundabout
- Existing Lane Configuration
- Recommended Lane Configuration
- Recommended Change in Intersection Traffic Control
- Recommendations from previous analysis periods

DESCRIPTION

SCENARIO 3: all site-generated traffic routed to/from S.D. Highway 115 via 278th Street

Recommendations specific to this analysis period shown in **ORANGE**.

Recommendations carried forward from previous scenarios are noted in **BLUE**, where applicable.

0 2 Miles

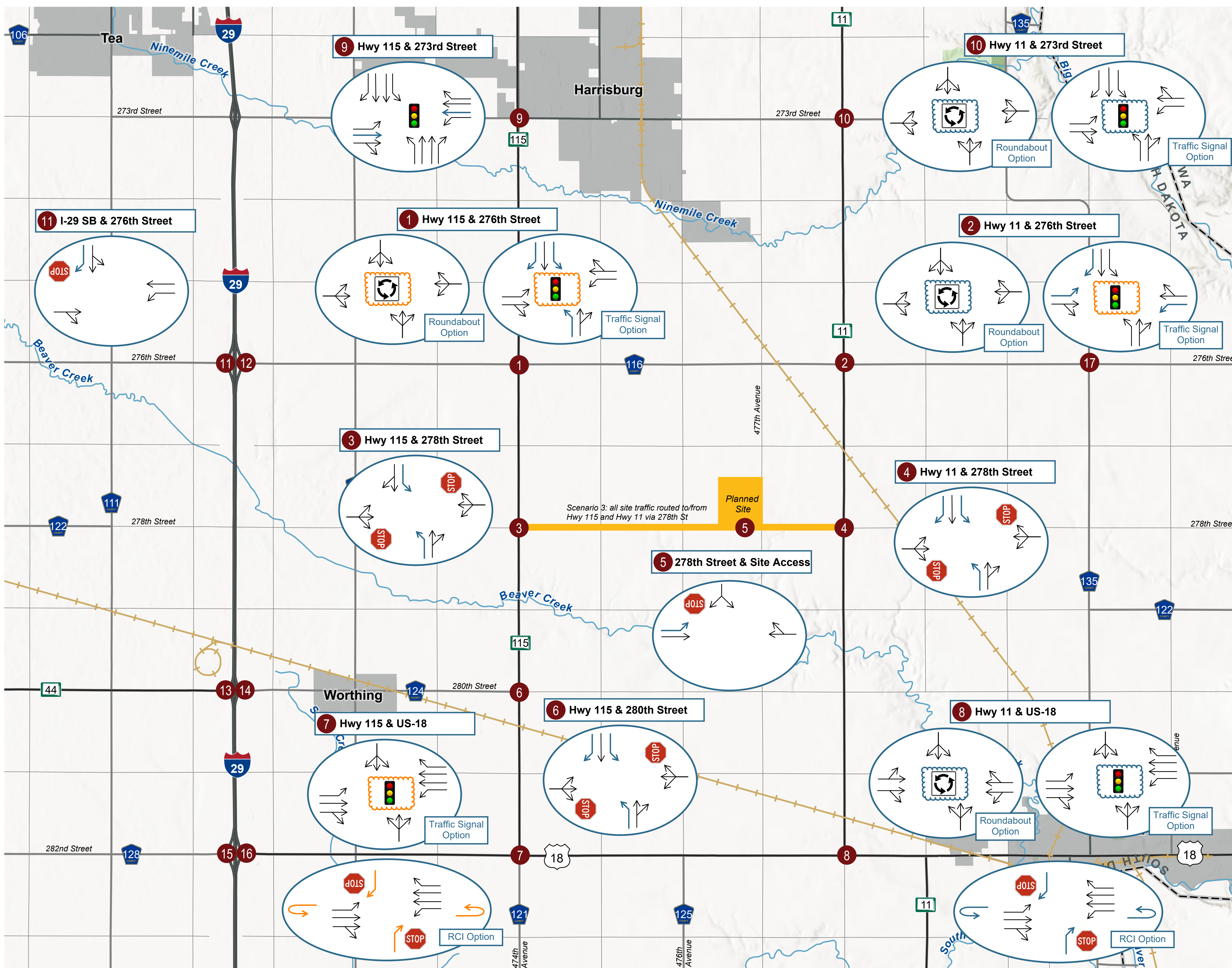


2050 BUILD CONDITION RECOMMENDATIONS

SCENARIO 3



278TH STREET CORRIDOR STUDY



WHAT THIS FIGURE SHOWS:

Recommendations to address traffic needs generated by the planned men's correctional facility through the study's planning horizon

LEGEND

- Study Intersection
- Stop Sign
- Yield Sign
- Traffic Signal
- Roundabout
- Existing Lane Configuration
- Recommended Lane Configuration
- Recommended Change in Intersection Traffic Control
- Recommendations from previous analysis periods

DESCRIPTION

SCENARIO 3: all site-generated traffic routed to/from S.D. Highway 115 via 278th Street

Recommendations specific to this analysis period shown in **ORANGE**.

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0 2 Miles



SCENARIO 3 SUMMARY OF RECOMMENDATIONS



WHAT THIS TABLE SHOWS: Recommendations to address traffic needs generated by the planned men's correctional facility through the study's planning horizon. Recommended modifications for each analysis period noted in **ORANGE**

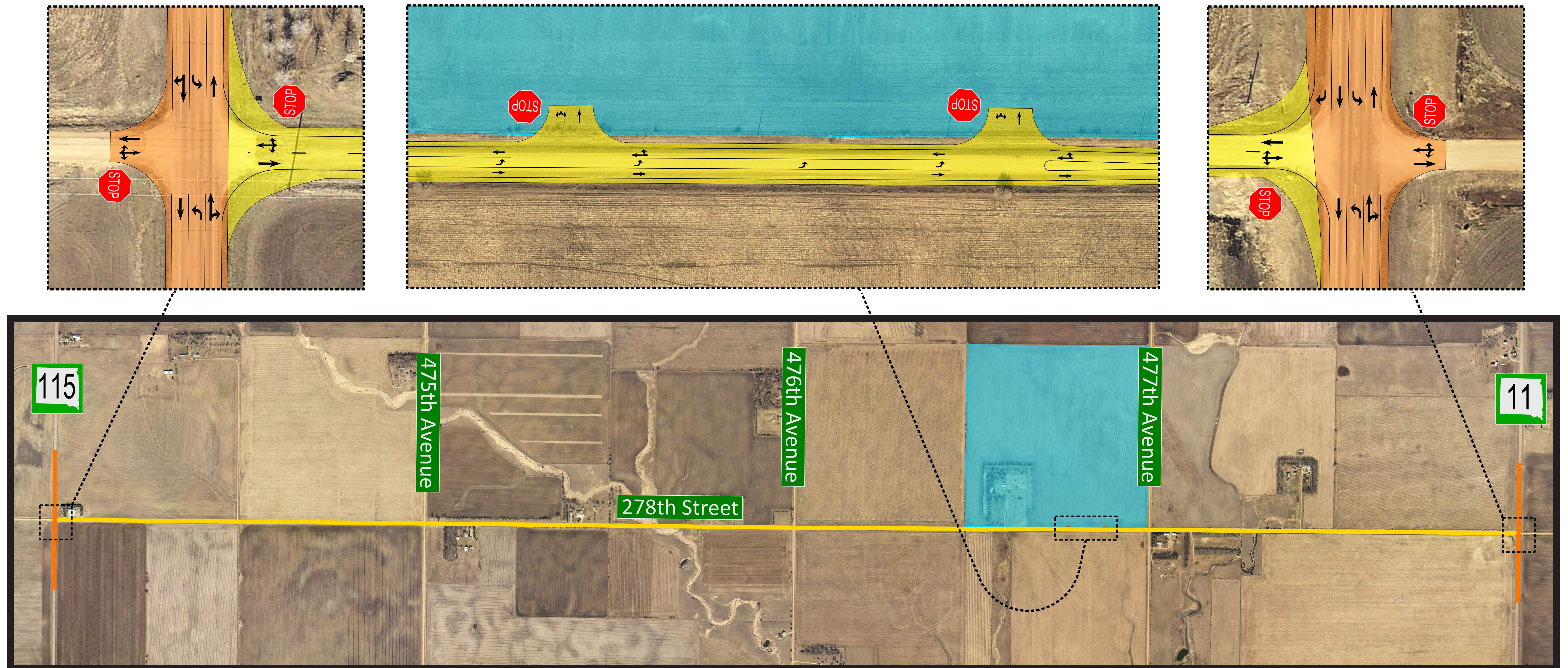
2029
Opening Day

2050
Planning Horizon

Year	Intersection	Lane Additions	Traffic Control	Need Addressed
2029 No Build	276th Street & Highway 115	SB right turn lane SB left turn lane NB left turn lane (match offset)	Maintain TWSC (EB/WB stop)	Volume-warranted turn lanes
	276th Street & Highway 11	SB right turn lane	Maintain TWSC (EB/WB stop)	Volume-warranted turn lane
2029 Build	278th Street & Highway 115	SB left turn lane NB left turn lane (match offset)	Maintain TWSC (EB/WB stop)	Volume-warranted turn lane
	278th Street & Planned Site Access	EB left turn lane	Maintain TWS (SB stop)	Volume-warranted turn lane
	278th Street & Highway 11	NB left turn lane SB left turn lane (match offset) SB right turn lane	Maintain TWSC (EB/WB stop)	Volume-warranted turn lanes
2050 No Build	273rd Street &. Highway 115	EB and WB through lanes	Maintain traffic signal	Two through lanes, both directions; operational need
	273rd Street & Highway 11	-	Single-lane roundabout or traffic signal	Change to intersection traffic control needed
	276th Street & Highway 115	EB and WB left turn lanes	Maintain TWSC (EB/WB stop)	Operational need
	276th Street & Highway 11	EB and WB left turn lanes	AWSC or single lane roundabout	Operational need
	Highway 18 & Highway 11	-	Multi-lane hybrid roundabout, traffic signal, or unsignalized Reduced Conflict Intersection (RCI)	Change to intersection traffic control needed
	280th Street & Highway 115	SB right turn lane NB left turn lane SB left turn lane (match offset)	Maintain TWSC (EB/WB stop)	Volume-warranted turn lanes
2050 Build	276th Street & Highway 115	-	Single-lane roundabout or traffic signal	Change to intersection traffic control needed
	276th Street & Highway 11	-	Single-lane roundabout or traffic signal	Change to intersection traffic control needed
	Highway 18 & Highway 115	-	Traffic Signal or unsignalized Reduced Conflict Intersection (RCI)	Monitor need for traffic control change: Highway 115 stop control approach LOS F

SCENARIO 3 ROADWAY IMPROVEMENT OPTIONS

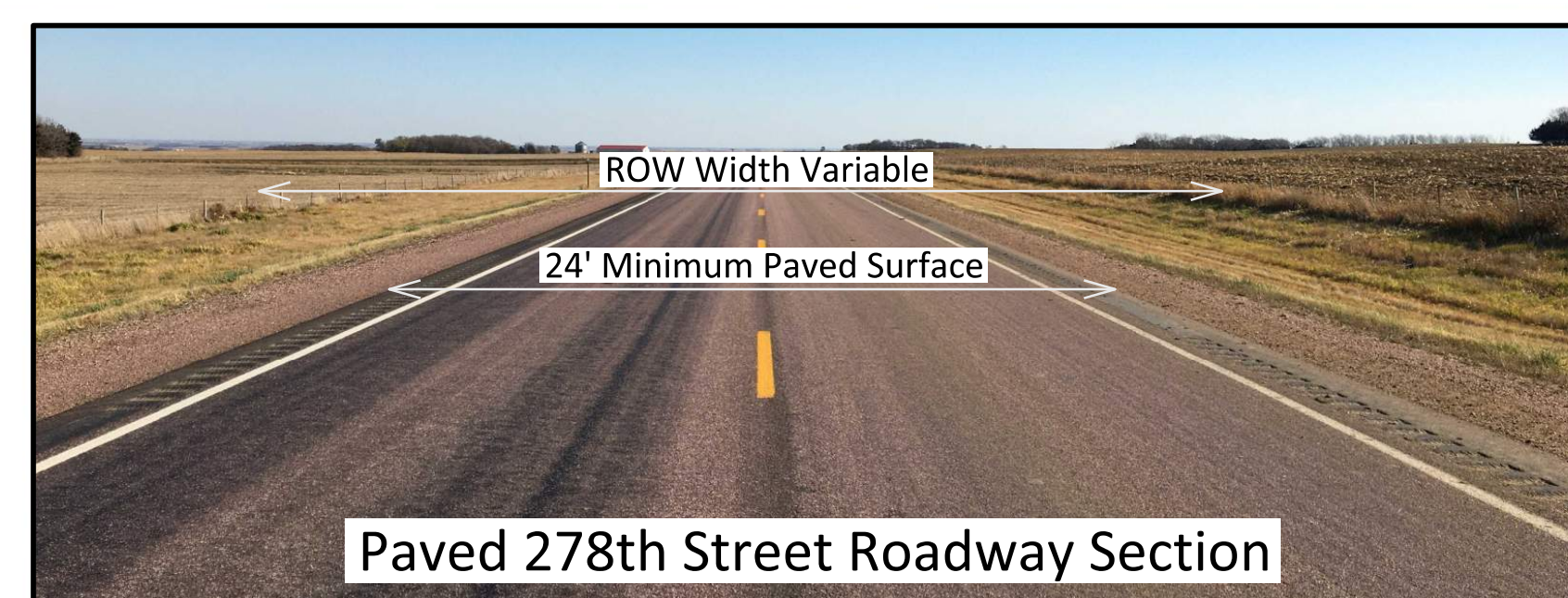
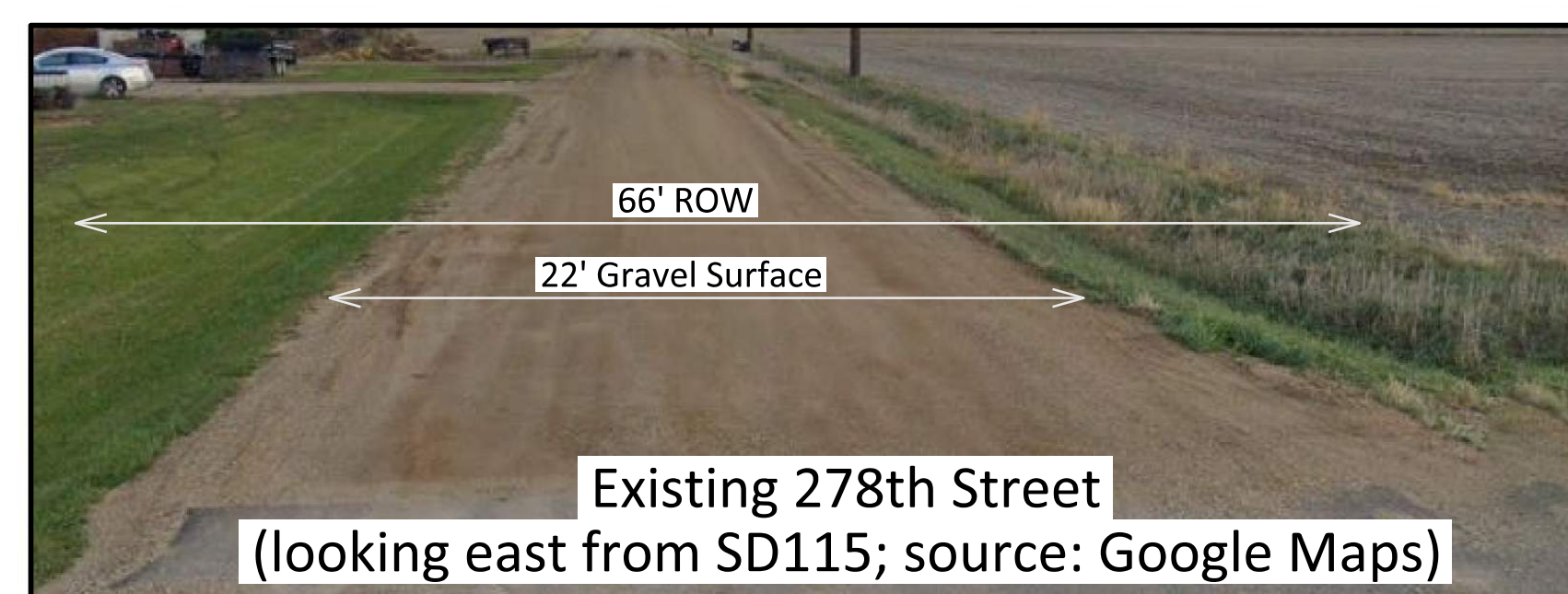
FIGURE DESCRIPTION: Pave 278th Street from Highway 115 to Highway 11



SCALE IN FEET
0 700 1400
DATE OF AERIAL PHOTO: 2024

Legend

- 278th Street Improvement
- SD115 and SD11 Improvements
- Traffic Lanes
- Correctional Facility Site



SCENARIO 3A ROADWAY IMPROVEMENT OPTIONS

CURVED ALIGNMENT

FIGURE DESCRIPTION: Pave 278th Street from Highway 115 to Highway 11 with Curved Alignment to Minimize Property Impacts

