

Environmental Assessment

FOR

I-29 and 85th Street Interchange Project

EM 1360(02), PCN 06JQ

IM 0292(88)74, PCN 07C6

IM 2292(104)0, PCN 07D0

Lincoln County, SD

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List of Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ACS	American Community Survey
APE	Area of Potential Effect
AST	Above Ground Storage Tank
ASTM	American Society for Testing and Materials
BMP	Best Management Practice
CAA	Clean Air Act
CE	Categorical Exclusion
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
COC	Community of Comparison
CR	County Road
dB	Decibel
DDI	Diverging Diamond Interchange
EA	Environmental Assessment
EJ	Environmental Justice
EO	Executive Order
ESM	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FFPA	Federal Farmland Protection Act
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
GFP	Games, Fish and Parks
GMP	Growth Management Plan

IJR	Interchange Justification Report
IPaC	Information for Planning and Consultation
JV	Joint Venture
LOS	Level of Service
L RTP	Long-Range Transportation Plan
MBTA	Migratory Bird Treaty Act
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NLEB	Northern Long-Eared Bat
NOA	Notice of Availability
NPDES	National Pollutant Discharge Elimination System
NPV	Net Present Value
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	Noise Sensitive Area
PAH	Polycyclic Aromatic Hydrocarbon
PBO	Programmatic Biological Opinion
PCB	Polychlorinated Biphenyls
PEM	Palustrine Emergent Wetland
PL	Public Law
PPP	Pollution Prevention Plan
PUB	Palustrine Unconsolidated Bottom Wetland
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RGU	Responsible Governmental Unit
ROW	Right of Way
SDARC	South Dakota Archaeological Research Center
SDDANR	South Dakota Department of Agriculture and Natural Resources (formerly SDDENR)
SDDENR	South Dakota Department of Environment and Natural Resources
SDDOT	South Dakota Department of Transportation
STIP	Statewide Transportation Improvement Program
SWD	Surface Water Discharge
SWPPP	Surface Water Pollution Prevention Plan
TIP	Transportation Improvement Program
TLE	Temporary Land Easement
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Policy Act
UST	Underground Storage Tank

VIA Visual Impact Assessment
VHT Vehicle Hours Traveled
VMT Vehicle Miles Traveled
WOUS Water of the United States

1.0 Introduction and Project Overview

This Environmental Assessment (EA) has been prepared in compliance with the requirements of the National Environmental Policy Act of 1969. The EA is a full-disclosure document which provides a description of the purpose and need for the proposed action, the existing environment, analysis of the anticipated beneficial or adverse environmental effects resulting from the proposed action and potential mitigation measures to address identified effects. This document also allows others the opportunity to provide input and comment on the proposed action, alternatives, and environmental impacts under consideration. Finally, it provides the decision maker with appropriate information to make a reasoned choice when identifying a preferred alternative.

1.1 Project Background

The stakeholders for this project include the City of Sioux Falls, The Sioux Falls MPO, The South Dakota Department of Transportation (SDDOT), the Federal Highway Administration (FHWA), and the 85th Street Joint Venture (JV) Group.

Within the study area, 85th Street began as an unimproved gravel surface road in Delapre Township with a typical section of 66 feet or less with right of way. The road was renamed 270th Street commensurate with 911 emergency system addressing and remains unimproved west of I-29. East of I-29, the roadway was paved as a two-lane rural section to accommodate rural residential properties. As the Sioux Falls area continues to grow and urbanize, and annex rural properties within its corporate limits, urban section (curb and gutter, storm sewer, traffic control, etc.) and roadway capacity and safety improvements have been made west of the 85th intersection with Louise Avenue.

Prior to initiating this study, the City of Sioux Falls, in cooperation with SDDOT and the Sioux Falls MPO, completed an Environmental Assessment (EA) in March of 2018 for the reconstruction of 85th Street between Sundowner Avenue and Louise Avenue and for the construction of an overpass at I-29 (the EA for that project will hereby be referred to as the Overpass EA).¹ A Notice of Availability (NOA) appeared in the Argus Leader newspaper on November 18 and 25, 2017. A public meeting was held on December 5, 2017. The comment period closed on December 18, 2017. FHWA determined that the proposed improvements would have no significant impact on the human environment and issued a Finding of no Significant Impact (FONSI) on March 1, 2018.²

The Overpass EA did not initially include analysis or consideration for an interchange at I-29 and 85th Street. When the project was initiated, an interchange at 85th Street was not identified in any regional planning documents (e.g., the Statewide Transportation Improvement Program, the Sioux Falls MPO Transportation Improvement Program or the Sioux Falls Capital Program). After the completion of the Overpass EA, updates to local plans (as discussed later in this document) identified the study area as a priority area for new development. Representatives of the 85th Street JV came forward with a request to evaluate an interchange at I-29 and 85th Street, with the understanding that it may provide an economic benefit to the study area. As previously stated, there was no local or regional support for an interchange prior to this request. Per the RGU's direction, the 85th Street JV then began the preparation of an operational and safety analysis and an Interchange Justification Report (IJR).³ The IJR documentation was submitted to FHWA for final review and approval in October 2018. FHWA is required to ensure any change in access to the Interstate system does not have a significant adverse impact on the safety and operation of the Interstate facility. In October 2018, the recommended interchange concept from the IJR was given Engineering and Operations Acceptance by FHWA. This action allowed the

project partners to proceed with the preparation of a new EA to evaluate the proposed interchange and associated transportation improvements.

The Sioux Falls Metropolitan Planning Organization (MPO) is required by federal law to prepare a long-range transportation plan and a four-year Transportation Improvement Program (TIP) in which estimated revenues and proposed investments are balanced. The Go Sioux Falls MPO 2040 Long-Range Transportation Plan (LRTP) refers to this balanced investment as the “fiscally constrained plan.”⁴ Since the issuance of the FONSI for the 85th Street Overpass project in March 2018, the City of Sioux Falls and SDDOT have determined: 1) that there is adequate funding for the interchange and the associated upgrades to the local street network, and 2) that the work can be completed on a schedule that is compatible with the previously planned overpass. In May 2018, the Sioux Falls MPO removed the overpass project and added the proposed interchange project to the Financially Constrained Capital Roadway Projects List in the LRTP. The current South Dakota STIP (2022-2025) lists 85th Street from Sundowner Avenue to Tallgrass Avenue (construction in 2023-2024). The current (2022-2025) Sioux Falls MPO TIP also lists the project with 85th street improvements from Sundowner Avenue to Tallgrass Avenue (construction in 2023-2024). Backed by local and regional plans, if an overpass is identified as the preferred alternative for the study, and a NEPA decision document (e.g., FONSI) is issued for the proposed interchange project, the interchange would be constructed in place of the previously studied overpass. If no FONSI is received, the LRTP would be amended accordingly to include the construction of the previously approved overpass project.

Given the context provided above, it is important to note that the terms “No Build Alternative” and “Existing Conditions” will have separate meanings in this EA and will not be used interchangeably. The former will include the construction of the previously approved overpass project and the latter will mean the current state of the natural and built environment in the project area. As such, “Existing Conditions” will serve as the baseline when analyzing the social, economic, and environmental impacts of other alternatives.

1.2 Project Location

The study area, as shown in Figure 1-1, is located in Lincoln and Minnehaha Counties in South Dakota, and includes area belonging to the Cities of Sioux Falls and Tea, as well as Delapre Township. The study area is the area used to evaluate the effects of the study alternatives on the environmental resources present. The study limits, which define the extent of the study area along the roadway network, include the following termini: 469th Avenue to the west, Louise Avenue to the east, the I-29/271st Street Interchange to the south and various northern termini including 69th Street at Sundowner Avenue, 57th Street at I-229, and the I-29/ 41st Street Interchange. The study area includes approximately 10.4 miles of roadway along I-29, I-229, 270th/85th Street, and Sundowner Avenue. The study area and limits do not indicate construction limits for any of the alternatives identified in this study, but rather, they define the area to be examined for potential impacts to resources and the transportation network which could result from any of the study alternatives. The study limits were chosen based on logical termini. Logical termini are defined as rational end points for a transportation project and corresponding environmental review. Three conditions must be met as set forth in 23 CFR 771.111(f) paraphrased as follows:

1. Connect logical termini and be of sufficient length to address environmental matters on a broad scope
2. Have independent utility or independent significance – that is, be usable and be a reasonable expenditure even if no additional transportation improvements are made

3. Not restrict the consideration of alternatives for other reasonably foreseeable transportation improvements.

Additionally, the project is referenced in the SDDOT Statewide Transportation Improvement Program (STIP) 2022-2025.

As shown on Figure 1-1, the study area includes the intersection of I-29 and the proposed 85th Street Corridor. This intersection is located between the service interchange of County Road (CR) 106 (271st Street) and I-29 (Exit 73) in the City of Tea and the system interchange of I-29 and I-229 (Exit 75) in the City of Sioux Falls.

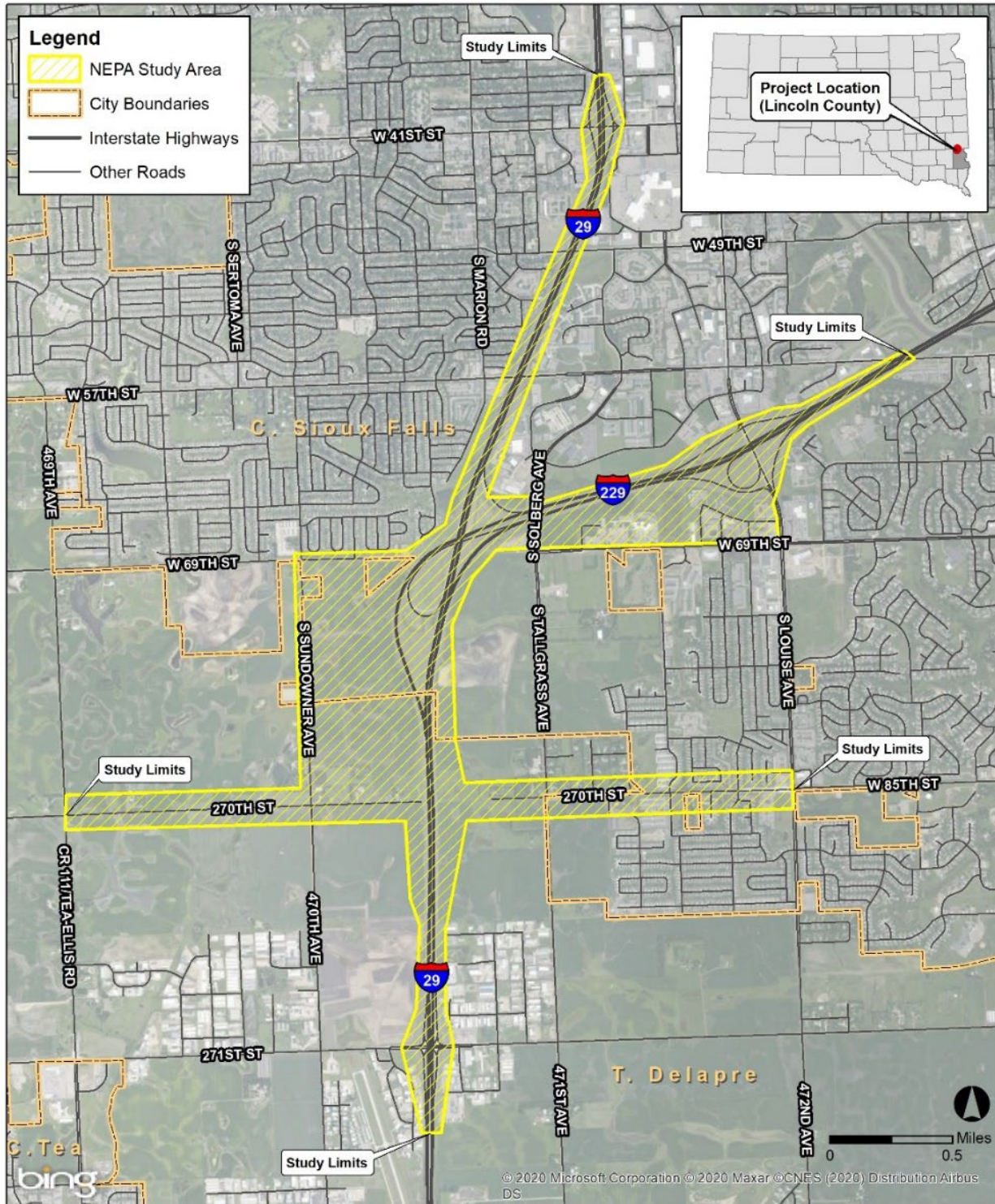
Within the study area, I-29 is a four-lane Interstate highway with auxiliary lanes between I-229 and CR 106. I-29 is a six-lane Interstate highway north of I-229. The system interchange of I-29/I-229 (I-29 Exit 75) is located approximately two miles south of 41st Street, one mile west of Louise Avenue and two miles north CR 106. This three-legged interchange is a trumpet design interchange. Between the I-29/I-229 system interchange and the local service interchange at 41st Street, both 57th Street and 49th Street cross over I-29, but do not have direct access to I-29.

I-229 in the project area has two-lanes eastbound and three-lanes westbound between the I-29 junction and the Louise Avenue interchange. Auxiliary lanes are provided east of the Louise Avenue interchange in both directions, resulting in a six-lane Interstate facility. Between the I-29/I-229 system interchange and the local service interchange at Louise Avenue, 471st Street/Solberg Avenue crosses over I-229 but does not have direct access to I-229.

85th Street is functionally classified as a minor arterial roadway. While it is an unpaved roadway, 85th Street is a continuous corridor from Tallgrass Avenue east to approximately 2.5 miles east of South Dakota State Highway 11. West of I-29, 85th Street is a continuous corridor from just west of the Interstate right of way (ROW) west to South Dakota State Highway 19. The corridor does not provide an access across I-29 between Sundowner Avenue and 471st Street/Tallgrass Avenue. The corridor is currently a two-lane, unpaved roadway adjacent to I-29 and intersections along the route are either uncontrolled or have stop sign control on two or all four approaches. CR 106/271st Street is part of the Lincoln County roadway system and is functionally classified as a minor arterial roadway between CR 111 and Louise Avenue. CR 106 is currently under construction converting it from a 3-lane roadway section to a 4-lane divided roadway section with turn lanes. Construction is anticipated to be completed in Summer 2022. CR 106 includes a single-point urban interchange with I-29.

The City of Tea, City of Sioux Falls, Lincoln County, SDDOT and the 85th Street JV have entered into a Pre-Annexation Agreement. This agreement has been informed by the operational and safety analysis that is included in the recent I-29 and 85th Street Interchange IJR. The EA will describe the environmental effects resulting from the construction of the immediate interchange, and the indirect environmental effects of the project on the adjacent interchanges and Interstate segments and surrounding arterial roadway network.

Figure 1-1: Project Location Map



	401 East 8th Street Suite 309 Sioux Falls, SD 57103 (605) 330-7000	Print Date: 12/2/2020 Source: Bing Maps. Map by: m/falk Projection: State Plane South Dakota S	<p align="center">Project Location Map I-29 and 85th Street Interchange Lincoln County, SD</p>
	<p align="center">© 2020 Microsoft Corporation © 2020 Maxar © CNES (2020) Distribution Airbus DS</p>		

The following roadways were included in the IJR and are also included in the EA analysis:

- I-29
- I-229
- I-29/I-229 system interchange (Exit 75)
- I-29/County Road 106 (271st Street) Interchange (Exit 73)
- I-29/41st Street Interchange (Exit 77)
 - Diverging diamond configuration was given traffic engineering and operations acceptance through an IJR study.
 - An IJR was approved which indicated that the proposed Alternative 1, Diverging Diamond Interchange, will not have a significant adverse impact on the safety and operation of either I-29 or I-229 facilities. Final approval for this change in access is given once the NEPA decision is made and is consistent with the IJR.
- I-229/Louise Avenue Interchange (Exit 1C)
- 41st Street
- 57th Street
- 69th Street
- 85th Street/270th street
- County Road 106 (271st Street)
- County Road 111/Tea-Ellis Road
- Sundowner Avenue
- Tallgrass Avenue
- Louise Avenue

Although improvements to a number of these adjacent roadways and intersections would improve system operations with the construction of an interchange, these improvements also have independent utility (meaning they would provide a benefit to the transportation network independently of any other transportation projects) and would not be included as part of the Build Alternative. Effects of the Build Alternative on these roadways and intersections would still be examined as appropriate and also discussed in the Indirect and Cumulative Impacts Analysis of the Environmental Assessment. Establishing independent utility is important for avoiding unexpected side effects of a project on its surroundings and ensuring that “segmentation” is avoided, meaning environmental impacts will be analyzed for the full area where they may occur rather than a smaller segment of that area.

1.3 Purpose and Need

1.3.1 Project Purpose

The purpose of this project is to improve mobility and connectivity while achieving planned economic growth near the intersection of I-29 and the planned 85th Street Corridor.

The City of Sioux Falls, in cooperation with SDDOT and the Sioux Falls MPO, originally initiated the need for a project in the study area, which was the basis for the Overpass EA. The purpose of that project was to address mobility and connectivity needs in the study area, which are also main components of this project’s purpose. Since the completion of the Overpass EA, the additional need of achieving planned economic growth has been identified. As a result, the Owner’s JV, in cooperation with SDDOT, the City of Sioux Falls, and the Sioux Falls MPO initiated the current study, which further expands the purpose of the project.

State agencies, federal agencies, and Native American tribes were mailed a draft of the project purpose and need and map and description of the project in the Early Agency Coordination process. They were also asked to provide comments. Responses were received from several agencies providing additional guidance during the environmental review process, but no major concerns with the project were expressed.

The public was offered the opportunity to provide input on the proposed action and project purpose and need at a Public Open House/Information Meeting held in April 2019. General support for the draft purpose and need was received and no concerns were expressed. Comments regarding the project have been considered throughout the environmental process and responses to the public were provided where appropriate.

1.3.2 Project Need

The Purpose of the project is to address the main needs identified in the study area. These needs, which are listed below and will be addressed with equal importance and priority in this study, are:

- **System Linkage (Connectivity)** – The project is needed to address route inefficiencies that will be introduced with planned development surrounding the current transportation system. The connectivity need of the study area will be met if the project demonstrates that vehicle hours traveled (VHT) within the study area throughout the 2045 design year of the project do not exceed 101.5 million hours. Supporting information for this need is included in EA Section 1.3.2.1.
- **Traffic Operations (Mobility)** – The project is needed to ensure adequate levels of operation are maintained throughout the transportation network under projected traffic conditions. Several roadway segments and intersections within the existing network are expected to fail operationally under the projected traffic volumes. The mobility need of the study area will be met if the project demonstrates that acceptable levels of service (LOS) will be maintained on all roadway segments and at intersections on the local transportation network, according to SDDOT and City of Sioux Falls standards, under the projected traffic conditions. Acceptable levels of service are defined as LOS C for all freeway sections of I-29, I-229, and all ramp terminals within the study area, and LOS D for all arterial roadway sections and signalized intersections in the study area. Supporting information for this need is included in EA Section 1.3.2.2.
- **Economic Development (Planned Economic Growth)** – The project is needed to achieve the planned development identified in local plans and proposals. The economic development need of the study area will be met if the project demonstrates a positive Net Present Value (NPV) will be achieved throughout its lifecycle. Supporting information for this need is included in EA Section 1.3.2.3.

Supporting information for the project needs is included in the remainder of this section.

1.3.2.1 System Linkage

Access along the segments of I-29 and I-229 in the study area currently consists of the I-29/I-229 System Interchange with local service interchanges 2.0 miles south at CR 106 (City of Tea), 1.8 miles north at 41st Street, and 1.2 miles east at Louise Avenue. The freeway distance along I-29 between the CR 106 and 41st Street access points is approximately 3.8 miles. In the developed portions of the City of Sioux Falls, Interstate highway interchanges are generally provided every mile, the minimum standard in accordance with the American Association of State Highway and Transportation Officials (AASHTO) guidance to maintain safety and traffic flow. The 85th Street Corridor meets these spacing standards with I-29 located approximately one mile north of CR 106 and one mile south of the I-229/I-29 Systems Interchange; however, there is currently no Interstate access.

Access between I-29 and the western portion of the study area requires drivers to travel north to the 41st Street interchange, or south to the CR 106 Interchange. Access between I-29 and the eastern portion of the study area also requires drivers to travel south to the CR 106 Interchange, or to travel north to the I-229 system interchange, then east to the Louise Avenue Interchange, and then south and west again on local roads. Local traffic can also cross I-29 via the 49th Street overpass and 57th Street overpass, both of which would require several additional miles of north/south travel. These routes are highly inefficient, as they require long trips to travel short distances and require travel through several roadway segments and intersections that currently experience frequent congestion or are anticipated to experience congestion under future traffic conditions.

A direct connection of both sides of 85th street at I-29 eliminates the most inefficient routes within the study area shortening the travel distance required between locations on opposite sides of I-29 by over 3 miles in many cases. The project's Interchange Justification Report (IJR) shows that such a connection, while balancing travel demand throughout the study area, results in 101.5 million cumulative vehicle hours traveled (VHT) within the study area through the design year (2045). While the range of alternatives should not be limited to any one type of improvement, the VHT resulting from the previously approved overpass can be used as a baseline for an effective VMT target of a transportation network within the study area that addresses system linkage inefficiencies.

To address system linkage/connectivity needs in the project area, VMT within the study area throughout the 2045 design year should not exceed 101.5 million.

1.3.2.2 Traffic Operations

LOS is a qualitative rating system used to describe the efficiency of traffic operations on a roadway segment or at an intersection. Six LOS ratings are defined, designated by letters A through F. LOS A represents the best operating conditions (no congestion), and LOS F represents the worst operating conditions (severe conditions) as shown in Table 1-1.

SDDOT has established a minimum level of service standard of LOS C on urban Interstate highway corridors, including ramp terminal intersections. The City of Sioux Falls has established a minimum level of service standard of LOS D on arterial roadways and arterial signalized intersections. Currently, mainline I-29 and I-229, including all existing ramp junctions within the study area, operate at acceptable service levels during the AM and PM peak hours according to SDDOT and City of Sioux Falls standards.

Table 1-1: Level of Service Definitions (SDDOT Road Design Manual)**Freeway Measures of Effectiveness**

Level of Service (LOS)	Description	Density (pc/mi/ln)
A	Free-flow operation	≤ 11.00
B	Reasonably free-flow operation; minimal restriction on lane changes and maneuvers	> 11.0 – 18.0
C	Near free-flow operation: noticeable restriction on lane changes and other maneuvers	> 18.0 – 26.0
D	Speed decline with increasing flows; significant restriction on lane changes and other maneuvers	> 26.0 – 35.0
E	Facility operates at capacity; very few gaps for lane changes and other maneuvers; frequent disruptions and queues	> 35.0 – 45.0
F	Unstable flow; operational breakdown	> 45.0

Signalized Intersection Control Measures of Effectiveness

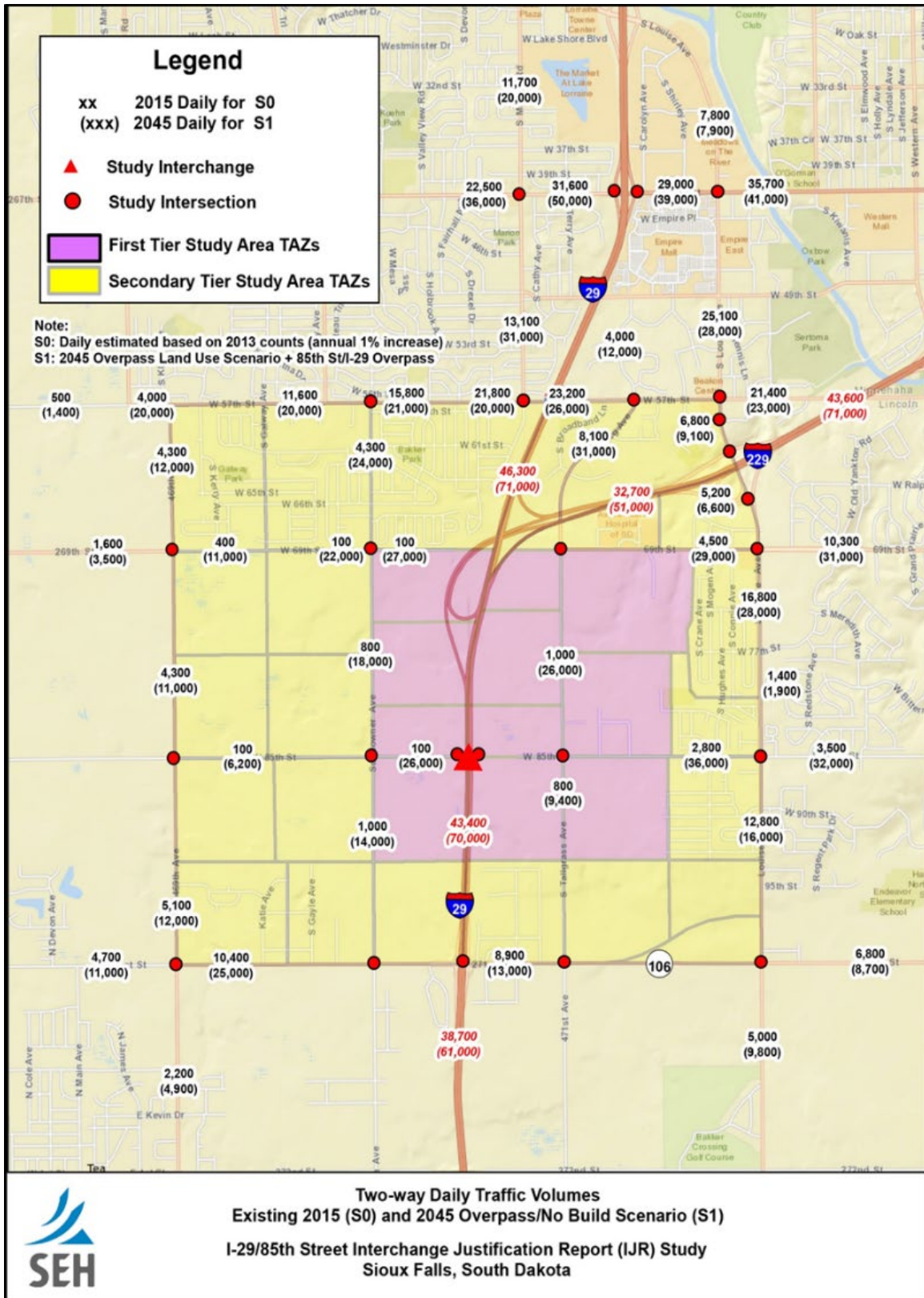
Level of Service (LOS)	Description	Density (pc/mi/ln)
A	Very minimal queuing; excellent corridor progression	< 10.00
B	Some queuing; good corridor progression	> 10.0 – 20.0
C	Regular queuing; not all demand may be serviced on some cycles (cycle failure)	> 20.0 – 35.0
D	Queue lengths increased; routine cycle failures	> 35.0 – 55.0
E	Majority of cycles fail	> 55.0 – 80.0
F	Volume to capacity ratio near 1.0; very long queues, almost all cycles fail	> 80.0

All-Way and Two-Way Stop Control Measures of Effectiveness

Level of Service (LOS)	Description	Density (pc/mi/ln)
A	Queuing is rare	≤ 10.00
B	Occasional queuing	> 10.0 – 15.0
C	Regular queuing	> 15.0 – 25.0
D	Queue lengths increased	> 25.0 – 35.0
E	Significant queuing	> 35.0 – 50.0
F	Volume to capacity ratio approaches 1.0; very long queues	> 50.0

The project's IJR identified 24 arterial intersections near the study area to include in its operational analysis. While many of these are located outside the study area of potential NEPA impacts, they would have the potential to be impacted operationally by improvements constructed within the study area. Operational analysis of these 24 intersections indicates that, under the existing traffic conditions, the majority of the intersections operate acceptably in the more rural southern portion of the project area. However, in the northern portion, where more urban land uses currently exist, the corridors of 41st Street, 57th Street, and Louise Avenue all have failing operations at the majority of their intersections based on City Standard Specifications⁵. Traffic operations are anticipated to worsen considerably between the current conditions and the 2045 planning period. Travel demand forecasts prepared for the IJR show that by 2045, traffic on the I-29 and I-229 Corridors is projected to increase to nearly twice the current volumes (from 43,400 to 70,000 daily trips on I-29, and from 32,700 to 51,000 daily trips on I-229). On currently developed portions of 85th Street, traffic volumes are anticipated to increase from 2,800 daily trips to 36,000. Increased traffic volumes would result in LOS values at or near LOS D on multiple roadway segments. The other arterial roadways in the southwest Sioux Falls city limits are also projected to see notable increases in traffic volumes between the current conditions and projected conditions in 2045. Without capacity enhancing improvements, congestion in the morning and afternoon peak travel periods is expected to increase substantially from current conditions for most of the arterial roadways within the southwest Sioux Falls Metropolitan Area. Current and future traffic forecasts are shown in Figure 1-2.

Figure 1-2: Current and Future Traffic Volumes



Under future conditions, 23 of the 24 study intersections examined would operate under failing conditions for at least one peak hour. Several roadway sections would also fail operationally without further improvement.

To address traffic operation needs in the study area, LOS C or better should be maintained along all sections of I-229 and all ramp terminals within the project area, and LOS D should be maintained on all arterial roadways and arterial signalized intersections within the project area through the project's design year.

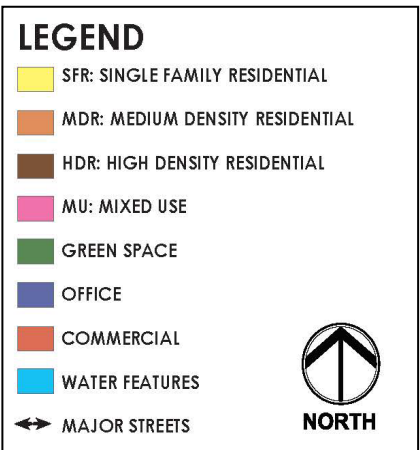
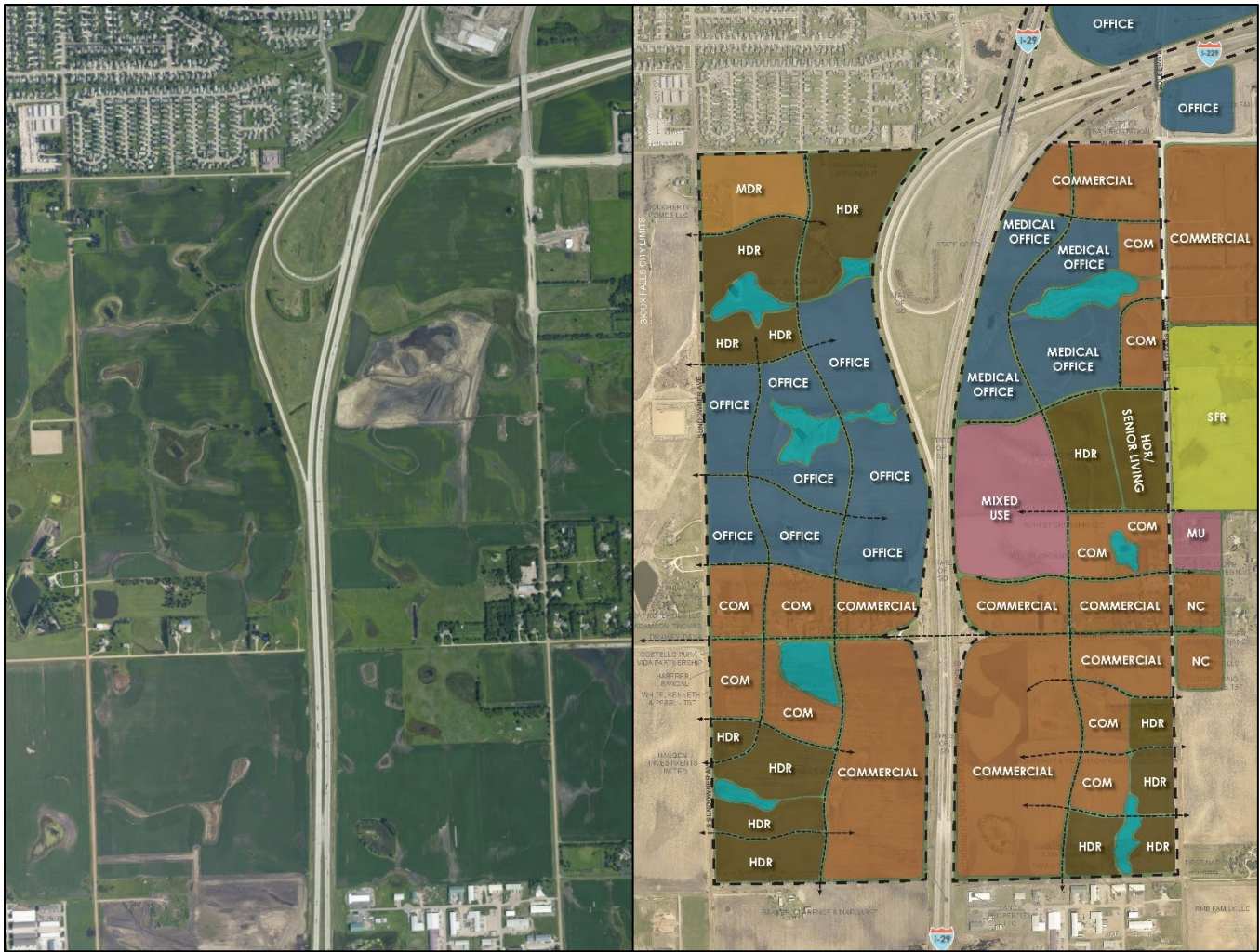
1.3.2.3 Economic Development

Sioux falls is the largest city in South Dakota, and also one of the fastest growing. The Shape Sioux Falls 2040 Comprehensive Plan shows that the city's population grew by 24 percent between 2000 and 2010. Between 2010 and 2015, employment grew by 16.4 percent, and the number of jobs grew by over 2,100. Sioux Falls platted an average of 504 acres per year between 2009 and 2015. The city is projected to continue growing in all of these areas through the year 2040. The Shape Sioux Falls 2040 Comprehensive Plan includes a Growth Management Plan (GMP) for the City, which indicates that the city will need to consume 944 acres for development per year on average to meet its growth needs for 2040. This includes approximately 500 acres of residential development, 100 acres of commercial development, and 80 acres of office development. The GMP shows that the I-29/85th Street Study Area is located within a "Tier 1 Growth Management Area." These are the highest priority areas for development within the city, which are intended to be used for development within the next few years, taking priority over other undeveloped areas within the city.

In previous versions of local and regional plans, land within the study area was not planned for short-term development. As a result, the potential for economic benefit was not considered to be a project need for the Overpass EA that was completed previously. Since the completion of the Overpass EA and the initiation of this one, coordination has been ongoing with developers and landowners. Changes to land use plans, continued coordination with landowners, and the introduction of preliminary local development proposals have identified the achievement of planned economic growth as an additional need within the study area.

Preliminary development plans brought forth by local developers for the area surrounding the intersection of I-29 and the planned 85th Street Corridor include commercial, residential, and office uses. This development is consistent with the City's future land use plans for the area. The Shape Sioux Falls 2040 Comprehensive Plan identifies "capacity of transportation facilities" as a key factor for promoting development in the city. Coordination with landowners within the study area further supports this element of the plan. Figure 1-3 shows existing land use in the study area (left) compared to planned development (right). Additional land use plans are discussed further in section 3.1 of this document.

Figure 1-3: Proposed Development



To meet the need of achieving planned economic growth, transportation improvements should demonstrate a positive local economic benefit, especially relative to the cost of any infrastructure that would be needed to provide that benefit. A commonly used metric for quantifying the economic benefits of an infrastructure project is the project’s expected Net Present Value (NPV). NPV considers the estimated gross regional product that would be anticipated over the lifecycle compared to the cost of construction.

To address the economic development needs of the study area, an alternative should demonstrate a positive net present value over the course of its lifecycle.

1.4 Project Goals/Other Desirable Outcomes

As part of the planning process for the project, a number of other goals were identified for the project. While project goals are not used for screening alternatives, these goals were identified early in the process and used to

help guide the development of alternatives, where possible, to provide additional desirable outcomes identified by the stakeholder representatives' Study Advisory Team through stakeholder, public, and agency coordination. The goals identified for the project are discussed further in this section.

1.4.1 Safety

Safety is an important consideration when planning improvements to any part of a transportation system. A full safety analysis of the study area was conducted as part of the IJR. The analysis included the most recent 5-years of crash history available from the SDDOT at the time of the analysis, which includes the five calendar years of 2010-2014. Seven intersections and three roadway segments near the study area were identified as having a critically high crash rate. Four study intersections along 41st Street (at Marion Road, SB I-29, NB I-29, and Louise Avenue) are among the intersections with a sustained crash problem, along with the CR 106/Tallgrass Avenue, 69th Street/Louise Avenue, and SB I-229/Louise Avenue intersections. Two segments along 41st Street (Marion Road to SB I-29, NB I-29 to Louise Avenue) and one section of Sundowner Avenue (85th Street to 69th Street) also exhibit a sustained crash problem.

The IJR study limits were chosen for the purpose of analyzing the impacts of the alternatives on the surrounding transportation network. While some safety concerns identified within the IJR are located within the EA study limits, none were identified along the 85th Street Corridor or along I-29 or I-229, the areas where transportation improvements would be needed to address the project needs. Therefore, safety was not considered a direct need for the project.

The alternatives considered in this EA may have an indirect effect on the safety of the surrounding transportation network, especially areas where safety concerns were identified. The indirect and cumulative effects section of this document includes a more detailed description of these potential effects.

1.4.2 Multimodal Transportation

Many local and regional plans for the area support the improvement of multimodal transportation facilities, especially when they can be included with the construction of other transportation facilities. These include:

- The City of Sioux Falls Complete Streets Policy
- The 2015 Sioux Falls Bike Plan
- The Sioux Falls MPO 2040 Long-Range Transportation Plan

While including bicycle and pedestrian facilities may not work directly toward the needs of the study area, it would potentially provide more consistency with local and regional plans and help garner additional public and local support. Considerations related to bicycle and pedestrian infrastructure, along with related local and regional plans, are discussed further in Section 3.6.

2.0 Alternatives

2.1 Range of Alternatives Considered

2.1.1 Existing Conditions Alternative

The Existing Conditions Alternative is a “no action” alternative. This alternative assumes that no interchange and no overpass would be constructed at I-29 and 85th Street. Any future construction would be limited to repaving and routine maintenance. The approved IJR acknowledges a phasing plan for many additional programmed and planned arterial network street projects to improve capacity, safety, and mobility in coordination with new

interchange access on I-29 at 85th Street. Many of these phasing plan projects would proceed on the local system and independently as development needs dictate if an interchange is not constructed.

Although the no action alternative typically does not meet the purpose and need of a proposed transportation project, it is always carried forward to serve as the baseline when analyzing the potential social, economic, and environmental impacts of other alternatives. Consideration of a no action alternative is required by Council of Environmental Quality regulations for implementing NEPA (40 CFR 1500-1508).

2.1.2 No Build Alternative

With the No Build Alternative, an interchange would not be constructed at I-29 and 85th Street. However, this is not a “no action” alternative. The No Build Alternative assumes that the previously planned overpass at I-29 and 85th Street would be constructed. The approved IJR acknowledges a phasing plan for many additional programmed and planned arterial network street projects to improve capacity, safety, and mobility in coordination with new interchange access on I-29 at 85th Street. Many of these phasing plan projects would proceed on the local system in conjunction with the construction of an interchange, or independently as development needs dictate if an interchange is not constructed.

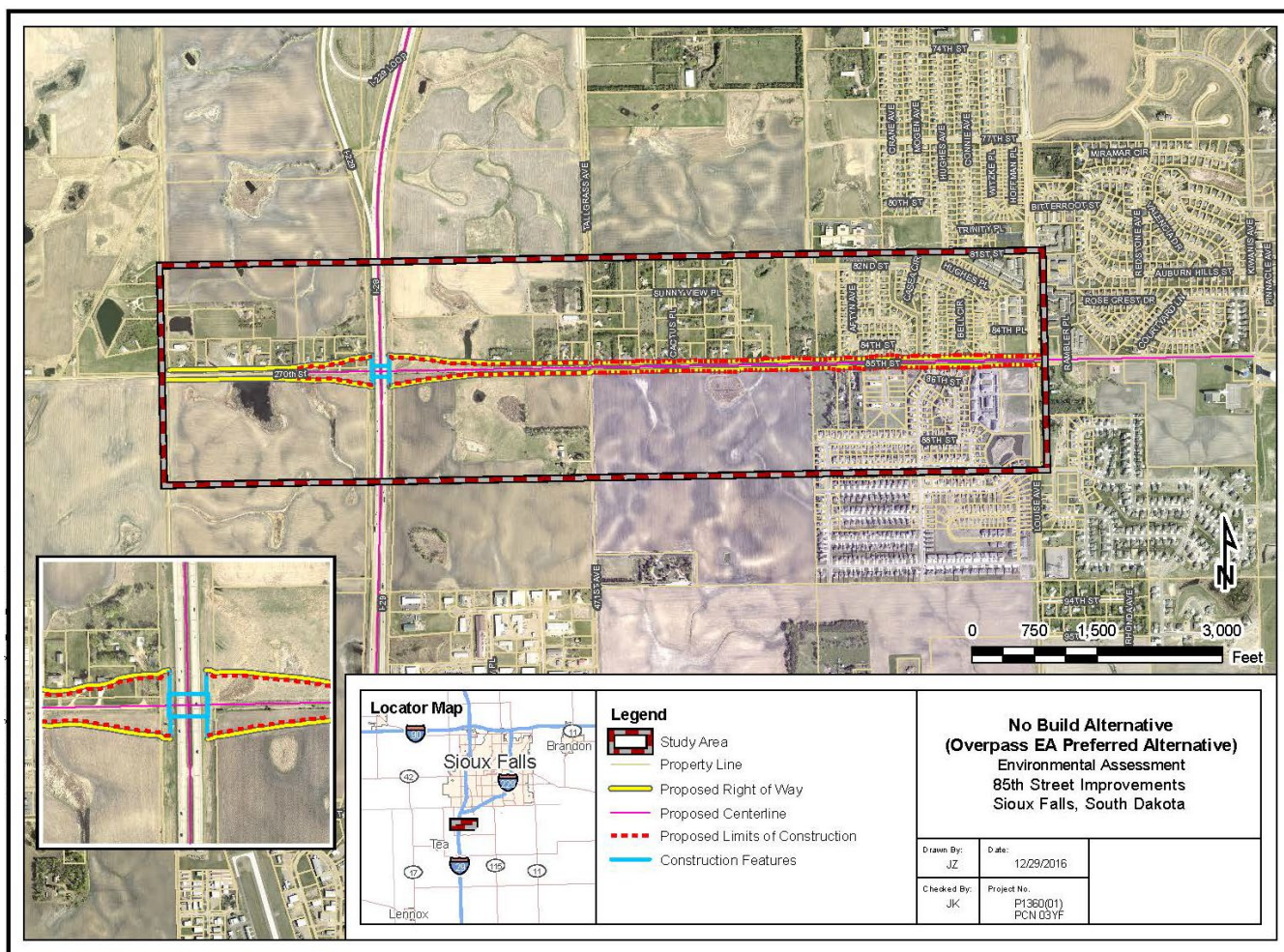
The environmental effects of the No Build alternative have been fully analyzed and documented in an EA completed and signed November 2017.¹ FHWA signed a FONSI in February 2018 based on the findings of the EA.² As a result, effects from this alternative will not need to be explored further in the I-29 and 85th Street Interchange EA unless otherwise indicated. The effects from this alternative would be compared to those of the Build Alternative when selecting a Preferred Alternative if it is determined that both alternatives satisfy the purpose and need of the project.

The No Build Alternative and its associated study area, as they were presented in the Overpass EA, are shown in Figure 2-1.

The direct impacts of the No Build Alternative are assumed to be confined within the study area of the Overpass EA. However, the footprint of the Build Alternative (discussed in the next section) extends outside of the Overpass EA study boundaries. A larger study area will be used in this document to assess the impacts of the Build Alternative (Shown in the next section, Figure 2-2). This larger study area encompasses all areas of potential impacts related to the No Build Alternative, and therefore, any environmental impacts documented for the No Build Alternative in the Overpass EA would also apply to the study for the Build Alternative, unless otherwise indicated.

Indirect and cumulative impacts, by nature, may occur outside of the area of direct impact associated with any individual alternative. Full consideration of Indirect and Cumulative Impacts for the Build and No Build Alternative would be discussed later in this document if it is determined that both alternatives satisfy the purpose and need of the project.

Figure 2-1: No Build Alternative and Overpass EA Study Area (As Shown in 85th Street Overpass EA)



2.2 Alternatives Considered but Eliminated from Further Consideration

This section describes other alternatives that were considered during the project development process but were eliminated before commencing the environmental phase of the project. Reasons for dismissing these alternatives are discussed further in this section.

2.2.1 85th Street Overpass EA Alternative 3

The EA for the 85th Street Overpass included one build alternative that was not selected for that study (Alternative 3). This alternative included an overpass of 85th street over I-29 on a new alignment, approximately 150 feet south of the existing roadway section line. This alternative was not selected for that study because of additional costs associated with utility relocation, and a reverse curve in the roadway alignment that would be inconsistent with driver expectations. Because the Overpass EA concluded that Alternative 3 was less viable than other overpass alternatives, it will not be considered further during the NEPA process.

2.1.3 Build Alternative

This EA will evaluate the environmental effects of the Recommended Alternative from the approved IJR (also referred to as the IJR Recommended Alternative).³ The Build Alternative includes the following components of the IJR Recommended Alternative:

- Construction of a Diverging Diamond Interchange (DDI) along I-29 at 85th Street. The configuration also includes a connector ramp from southbound I-229 to the 85th Street exit ramp and a braided exit ramp from southbound I-29 to the 85th Street Exit.
- Construction of a full auxiliary lane from 85th Street through the northbound I-229 Exit ramp, including the reconstruction of the existing Exit Ramp 1C at Louise Avenue.
- Two-lane pavement of 270th Street from its future interchange at I-29 west to 469th Avenue (Tea/Ellis Road).
- Two-lane pavement of Sundowner Avenue from 69th Street to 270th Street

Although improvements to a number of adjacent roadways and intersections which would improve system operations with the construction of an interchange were previously identified in the IJR, these improvements also have independent utility, and would not be included as part of the Build Alternative. Effects of the Build Alternative on these roadways and intersections would still be examined as appropriate and documented in the Indirect and Cumulative Impacts Analysis of the EA.

In addition to the above components, the Build Alternative would include $\frac{3}{4}$ access to 85th street from future local access roads that would be constructed as part of planned development in the area. This $\frac{3}{4}$ access would allow for right turns onto and off of access roads at 85th Street and would also allow for left turns onto the access roads from 85th Street. Left turns from access roads onto 85th street would not be permitted. The Build Alternative also proposes the expansion of 85th street to six lanes between the 85th Street east access intersection and Tallgrass Avenue.

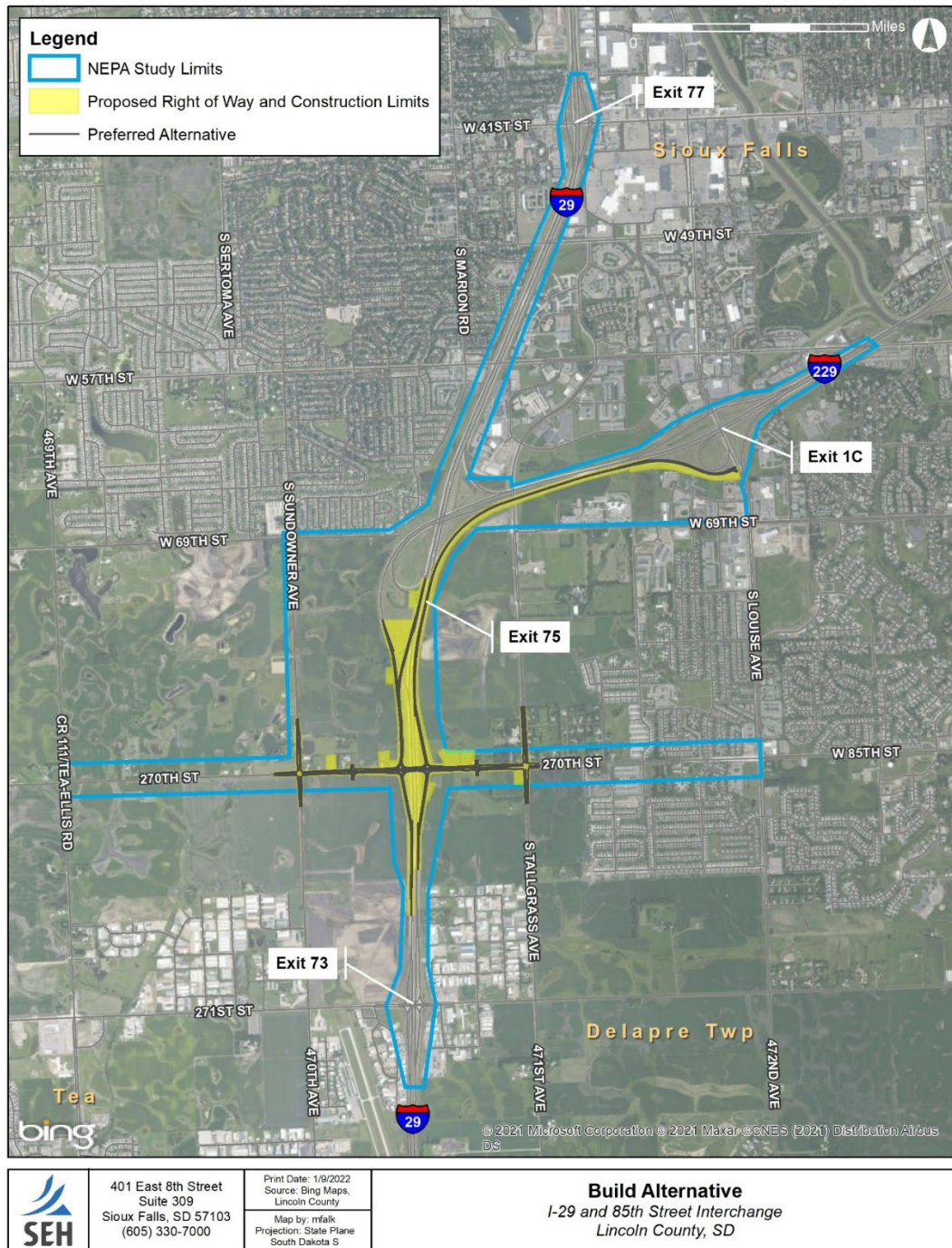
The Build Alternative was designed with the assumption that planned local roadway projects on Sundowner Avenue and Tallgrass Avenue would proceed to design and construction during the design and construction timeline of the Build Alternative. These local projects would include reconstruction of Sundowner Avenue and Tallgrass Avenue (gravel roads) to four-lane paved roads, and each of these projects would have independent utility. When considering impacts for the Build Alternative, this EA also looks at the potential impacts of intersection improvements on 85th Street at Sundowner Avenue and Tallgrass Avenue. Improvements to 85th Street at these intersections, including approaches from the local roads, would be needed to provide independent utility to the Build Alternative. These intersections have been conceptually designed for the purposes of environmental analysis of the Build Alternative. Their impacts will be considered as part of the NEPA process for this project to allow for an accurate impact comparison between alternatives. However, these approaches would be fully designed and constructed as part of the independent local roadway projects, as agreed upon by project parties in a pre-annexation agreement signed prior to the initiation of this study.

Coordination of the Build Alternative final design efforts and the design of local intersection improvement projects on Sundowner Avenue and Tallgrass Avenue with 85th Street will involve additional future coordination to improve efficiency in the design process. Currently, both projects are programmed in the Sioux Falls MPO's Transportation Improvement Plan (TIP) for design and construction in approximately the same timeframe as the Build Alternative.

The Build Alternative is shown in Figure 2-2. Additional details for 85th street are included as part of the traffic memorandum describing recommended access (Appendix B).

The Build Alternative would also include a grade-separated box culvert crossing for bicyclists and pedestrians just east of the proposed interchange. Details for this crossing would be determined as part of final design efforts.

Figure 2-2: Build Alternative



2.2.3 IJR Folded Diamond Interchange

A folded diamond interchange was also considered as an option that would reduce costs but maximize weaving distance. Although this alternative provided more distance for weaving than the diamond interchange with no ramp braids, the weaving distance still fell short of AASHTO standards and this alternative was also dismissed in the IJR as being infeasible. Because the IJR concluded that this alternative is not feasible, it will not be considered further during the NEPA process.

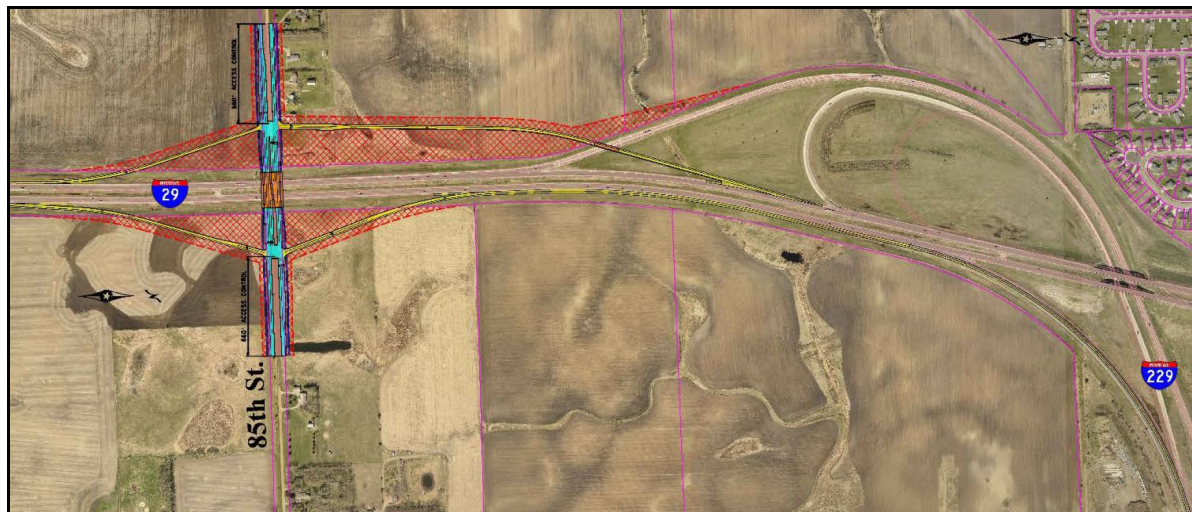
Figure 2-5: IJR Folded Diamond Interchange (Previously Dismissed)



2.2.4 IJR Diamond Interchange with Braided Ramp

A diamond interchange with a braid ramp was also considered in the IJR. The interchange did not provide a connection from I-229 to 85th Street. This lack of access did not meet the operational needs of the system, and as a result, this alternative was dismissed from further consideration in the IJR. Because the IJR concluded that this alternative does not meet transportation system needs, it will not be considered further during the NEPA process.

Figure 2-6: IJR Diamond Interchange with Braided Ramp (Previously Dismissed)



2.3 Evaluation Criteria Applied to the Study Alternatives

NEPA analyses are required to “rigorously explore and objectively evaluate all reasonable alternatives” (40 Code of Federal Regulations [CFR] 1502.14). The first step in evaluating alternatives for this project was to consider whether each of the identified viable alternatives meets the purpose and need of the study. Alternatives that do not meet the purpose and need for the project are not considered further during the NEPA process. For the alternatives that meet the purpose and need criteria, environmental considerations are used to further evaluate the alternatives and aid in the selection of a Preferred Alternative.

2.3.1 Purpose and Need

As discussed previously, to determine if the alternatives met the purpose and need, criteria for each of the project’s needs must be met. These criteria include:

- **System Linkage (Connectivity)** – The project must demonstrate that VHT within the study area throughout the 2045 design year of the project does not exceed 101.5 million hours.
- **Traffic Operations (Mobility)** – The project must demonstrate that LOS C or better will be maintained along all sections of I-229 and all ramp terminals within the project area, and LOS D should be maintained on all arterial roadways and arterial signalized intersections within the project area through the project’s 2045 design year.
- **Economic Development (Planned Economic Growth)** – The project must demonstrate a positive Net Present Value (NPV) will be achieved throughout its lifecycle.

2.3.1.1 System Linkage/Connectivity

Existing Conditions Alternative

The Existing Conditions Alternative would be a no action alternative. No action would be taken with this alternative to address any of the project’s system linkage/connectivity need, resulting in future transportation system deficiencies.

No Build Alternative

The No Build Alternative provides a direct connection of both sides of 85th street over I-29, which eliminates the most inefficient routes within the study area shortening the travel distance required between locations on opposite sides of I-29 by over 3 miles in many cases. The IJR analysis shows estimated VMT and VHT that would result from the alternatives considered in this study. The results are shown in Table 2-1 below.

Table 2-1: Yearly Vehicle Miles Traveled (VMT)/Vehicle Hours Traveled (VHT) Data

Metric	No Build Alternative	Build Alternative
2015 Existing VMT	1,523,405,780	-
2015 Existing VHT	48,947,860	-
2025 VMT	2,028,169,867	2,031,318,813
2025 VHT	66,481,133	65,958,880
2045 VMT	3,037,698,040	3,047,144,880
2045 VHT	101,547,680	99,980,920

Implementation of the No Build Alternative would result in approximately 101.5 million cumulative vehicle hours traveled (VHT) within the study area through the design year (2045). This is the Benchmark established for meeting the System Linkages/Connectivity need of the project, and therefore, the No Build Alternative meets this need.

Build Alternative

As shown above in Table 2-1, the Build Alternative would result in just under 100 million VHT throughout the project's lifecycle. This is below the target of 101.5 million, demonstrating that this project meets the system linkage/connectivity need of the project.

2.3.1.2 Operations/Mobility

Existing Conditions Alternative

The Existing Conditions Alternative would be a no action alternative. No action would be taken with this alternative to address any of the project's operation/mobility need, resulting in future transportation system deficiencies.

No Build Alternative

The IJR shows that the No Build Alternative could potentially meet operations requirements for the year 2045. This would require traffic signal control for all 24 study intersections. Additionally, a number of general lane improvements would need to be implemented, many of which are identified in current transportation plans. Additional general lane improvements that would be required include:

- 85th Street (Sundowner Avenue to Tallgrass Avenue) from two to four lanes, including the overpass over I-29 (Included in TIP at the time of IJR analysis)
- Tallgrass Avenue (69th Street to 85th Street) from two to four lanes (included in the TIP at the time of IJR analysis)
- 41st Street – Additional Lane between Marion Road and I-29 (Long Range Plan)
- 57th Street – Additional Lane between Sundowner Avenue and Solberg Avenue
- 69th Street – 4-lane roadway and I-29 Overpass between Sundowner Avenue and Louise Avenue (Long Range Plan)
- 85th Street – 4-lane between Sundowner Avenue and Tallgrass Avenue (Long Range Plan)
- 85th Street – 6-lane between Tallgrass Avenue and east of Louise Avenue
- CR 106 – Additional Lane between CR 111 and Sundowner Avenue (Long Range Plan)
- CR 106 – 6-lane between CR 111 and I-29
- Sundowner Avenue – Additional Lane between 57th Street and 85th Street (Long Range Plan)
- Tallgrass Avenue – Additional Lane between 69th Street and CR 106 (Long Range Plan)
- Louise Avenue – Additional Lane northbound from south of 69th Street to I-29

These additional roadway and intersection improvements are currently planned or will be planned as separate projects, as they would have independent utility without the construction of any interchange improvements at I-29 and 85th Street. As such, the direct impacts of these projects will not be analyzed in this EA. However, it is important to look at the transportation network as a whole when assessing the effectiveness of operations of any transportation improvement. Therefore, the traffic operations of these roadways and intersections were considered while assessing the operational effectiveness of this study's alternatives.

The IJR traffic operations analysis shows that mainline I-29 and I-229, including all existing ramp junctions, operate at a LOS C or better during the AM and PM peak hours with the implementation of the previously discussed improvements. With improved traffic control and geometrics, all of the arterial roadways and intersections also operate at an acceptable LOS (LOS D or better) in the project area. Based on these findings, the No Build Alternative would satisfy the Operations/Mobility need of the project.

Build Alternative

The IJR analysis of the Build Alternative includes the construction of the interchange and auxiliary lane, the same general lane improvements and intersection signal controls considered under the analysis of the No Build Alternative, and one additional lane addition on I-229 SB under the Louise Avenue Interchange (also to be constructed as part of a separate project). The traffic analysis shows that with the implementation of the Build Alternative, all intersections, and all sections of mainline I-29 and I-229, including all existing ramp junctions, operate at a LOS C or better during the AM and PM peak hours. However, due to shifting traffic patterns, two turn lanes were required to be extended. The southbound dual left turn lanes on Sundowner Avenue approaching 85th Street need to be extended to 500 feet and the northbound left turn lane on Tallgrass Avenue approaching 85th Street needs to be extended to 300 feet. These lane improvements would not otherwise have independent utility and were included in the preliminary intersection design for the purposes of determining the impacts of the IJR Recommended Alternative. The final design of the approaches to 85th Street from these two roadways would be refined as part of local roadway projects for Sundowner Avenue and Tallgrass Avenue. Construction would take place as part of the local roadway projects.

At the time of the IJR analysis, the 85th Street Corridor was planned to be constructed as a 4-lane, divided roadway between I-29 and Tallgrass Avenue. As development plans have started, more detailed traffic impacts were considered near the intersection of 85th Street and Tallgrass Avenue which have resulted in increased capacity needs at the intersection. Furthermore, to serve planned development, additional access options on 85th Street were explored between I-29 and Sundowner Avenue, and also between I-29 and Tallgrass Avenue. The additional traffic analysis identified one access location on each side of I-29 which would best comply with SDDOT and the City of Sioux Falls spacing standards. The analysis examined what the effects on traffic operations would be by implementing signal-controlled access at each intersection and by implementing $\frac{3}{4}$ access at each intersection. The analysis also studied how many lanes would be needed along various segments of 85th street.

The results of the additional 85th Street traffic and access analysis are documented in a separate traffic memorandum (Appendix B). Operating under the assumption that similar access treatments would be preferred on both sides of I-29, the memo recommends $\frac{3}{4}$ access on both sides of I-29, with expansion of 85th Street to six lanes between the planned east access intersection and Tallgrass Avenue, and the ability to accommodate additional expansion to six lanes on the section of 85th Street west of I-29 should the need arise. A preliminary recommended design for 85th Street is shown in Appendix B.

With inclusion of the elements described above, mainline I-29 and I-229, including all existing ramp junctions, operate at a LOS C or better during the AM and PM peak hours with the implementation of Build Alternative. With improved traffic control and geometrics, all of the arterial roadways and intersections also operate at an acceptable LOS (LOS D or better) in the project area. Based on these findings, the Build Alternative would satisfy the Operations/Mobility need of the project.

2.3.1.3 Economic Development

Existing Conditions Alternative

The Existing Conditions Alternative would be a no-action alternative. No action would be taken with this alternative to address any of the project's economic development need, resulting in lost potential for economic growth. This alternative therefore does not meet the economic development need of the project.

No Build Alternative

Prior to the initiation of this study, the SDDOT partnered with the University of South Dakota (USD) in 2009 to conduct an Economic Impact Analysis of constructing an overpass over I-29 at 85th Street as part of the SDDOT I-29 Corridor Study (Appendix C). The analysis also assessed the economic impacts of an interchange at this location. Although the projected dates of the projects analyzed do not align with currently proposed construction and design year dates of the No Build and Build Alternatives, the analysis concluded that the high levels of projected growth in the study area, and the lifecycle duration of the analyzed projects, would be like those currently documented with the No Build and Build Alternatives. Results of this analysis provided a reasonable preliminary estimate of the NPVs that could be expected from the No Build and Build Alternatives.

Based on the 2009 SDDOT/USD Economic Impact Analysis, constructing the No Build Alternative would result in a NPV of -\$20.47 million. This negative value indicates the project's economic benefits would not outweigh its costs over the lifecycle of the project. Because the updated NPV is negative, this alternative does not meet the economic development need for the project.

Build Alternative

As with the No Build Alternative, the Build Alternative's NPV was estimated based on the results of the SDDOT/USD 2009 Economic Impact Analysis. This analysis showed that an interchange at this location would provide a NPV of \$141.24 million in 2009 dollars (equating to \$204.95 million in 2021 dollars). This positive value was, in 2009, expected to represent an overall economic benefit to the City's economy.

To confirm that the Build Alternative would still be anticipated to provide a positive NPV under the current project schedule and with an update to the original analysis, HDR Engineering was retained by the City of Sioux Falls in late 2021 to update the 2009 SDDOT/USD economic study with current dates, costs, and land use conditions to provide more insight on potential economic benefits of the project (Appendix C). The updated study indicated that the Build Alternative would provide a NPV of \$845.98 million (year 2021 dollars). Because the expected NPV is positive, this alternative meets the economic development need for the project.

2.3.2 Project Goals /Other Desirable Outcomes

This project aims to address the project goals/other desirable outcomes of safety and multimodal transportation. Although these are not used as screening criteria, they are considered during the development of alternatives to work toward additional desirable outcomes identified by the stakeholder representatives' Study Advisory Team through stakeholder, public, and agency coordination.

Existing Conditions Alternative

The Existing Conditions Alternative is a no action alternative and would not work toward maintaining safety in the project area. It would not provide additional multimodal facilities that are supported by the local plans identified in Section 1.4.2.

No Build Alternative

The No Build Alternative was designed and evaluated as part of the Overpass EA process to ensure that safe conditions would be maintained throughout the project lifecycle. This alternative maintains consistency with the Sioux Falls MPO's bicycle and pedestrian multimodal transportation plans by including bike lanes and sidewalks along 85th Street, providing a new connection for these modes across I-29. These accommodations are also components of future bridge and minor arterial street system design plans and incorporated into typical sections of engineering drawings for the project, as required by the SDDOT and City of Sioux Falls.

Build Alternative

The Build Alternative would be designed to ensure that safe conditions would be maintained throughout the project lifecycle. The safety analysis conducted for this alternative in the project's IJR concluded that seven of the intersections in the project area were operating with a crash rate above the statewide average and documented a need for improved Interstate System highway access and overall system capacity. The Build Alternative design for the 85th Street Corridor includes a 6-foot sidewalk on the north side and 10-foot side path on the south side. These features would tie-in to existing sidewalk networks, making the area safer for including bike lanes and sidewalks along 85th Street, providing a new connection for these modes across I-29. This alternative also addresses a potential safety concern for bicyclists and pedestrians by including a grade-separated culvert crossing under the expanded 85th Street Corridor.

2.3.3 Environmental Considerations

NEPA dictates that the reasonable alternatives considered which meet the purpose and need of a project, as well as the No Action Alternative, be analyzed for environmental impacts as part of the screening process. The Build Alternative is the only alternative under consideration which meets the purpose and need of this project. The impacts of this alternative, along with the Existing Conditions Alternative, will be further analyzed in Section 3 of this document. Because the No Build Alternative does not meet the project's purpose and need, it will not be carried forward for Environmental Analysis.

NEPA considers the significance of environmental impacts for any alternative, rather than their size. Impacts for the Existing Conditions and Build Alternative and a discussion of their significance will be discussed further in Section 4 of this document.

2.3.4 Evaluation Criteria and Preliminary Screening Summary

2.3.4.1 Existing Conditions Alternative

The Existing Conditions Alternative would be a no action alternative. No action would be taken with this alternative to address any of the project needs, resulting in future transportation system deficiencies and failure to achieve economic goals. Despite this, the Existing Conditions Alternative will be carried forward into the analysis of environmental impacts. It will serve as a baseline of comparison for other alternatives being considered.

2.3.4.2 No Build Alternative

The No Build Alternative meets the system linkage/connectivity need and the mobility need of the project. It does not meet the economic development need, and therefore, will not be carried forward for Environmental Analysis.

2.3.4.3 Build Alternative

The Build Alternative meets all of the identified study needs. It will be carried forward for environmental analysis.

3.0 Affected Environment and Environmental Impacts

The existing social, economic, and natural environment within the study area that may be directly impacted by the alternatives are described in this section. The permanent and temporary impacts, including consideration of construction, are discussed in each resource section where applicable. Construction impacts are short-term, occurring only during the period when construction personnel and equipment are operating. Indirect and cumulative impacts within and surrounding the study area are also considered.

Avoidance, minimization, and mitigation measures are summarized for each resource area, as applicable. All potentially relevant environmental resource categories were considered for analysis in this EA. Resources not present, or which did not require further consideration in this chapter, include climate change, coastal barriers, coastal zones, and wild and scenic rivers.

3.1 Land Use

Land use and transportation are closely linked. Land use decisions can affect transportation mobility, accessibility, and safety as well as the environment and quality of life. Likewise, transportation decisions can affect land use, the environment, and quality of life as well as mobility, accessibility, and safety (Center for Environmental Excellence by AASHTO 2010). Land use was evaluated by determining the direct and indirect effects of the project on existing land uses (for example, recreation, residential, commercial, and industrial) and by verifying the consistency of the project with development patterns and land use planning in the study area.

3.1.1 Existing Land Use

The study area is located in Lincoln and Minnehaha Counties in South Dakota including parts of the City of Sioux Falls, City of Tea, and Delapre Township. Existing land uses within the project area are shown on Figure 3-1.

In the City of Sioux Falls, land uses south of and immediately surrounding the I-29/I-229 system interchange are primarily agricultural and urban transition areas, with some single-family residential use along the included sections of 85th Street. North of the system interchange, land use is primarily single-family residential to the west of I-29 and includes a mix of commercial office/public service, institutional, and multi-family residential east of I-29 and around the I-229/Louise Avenue Interchange.

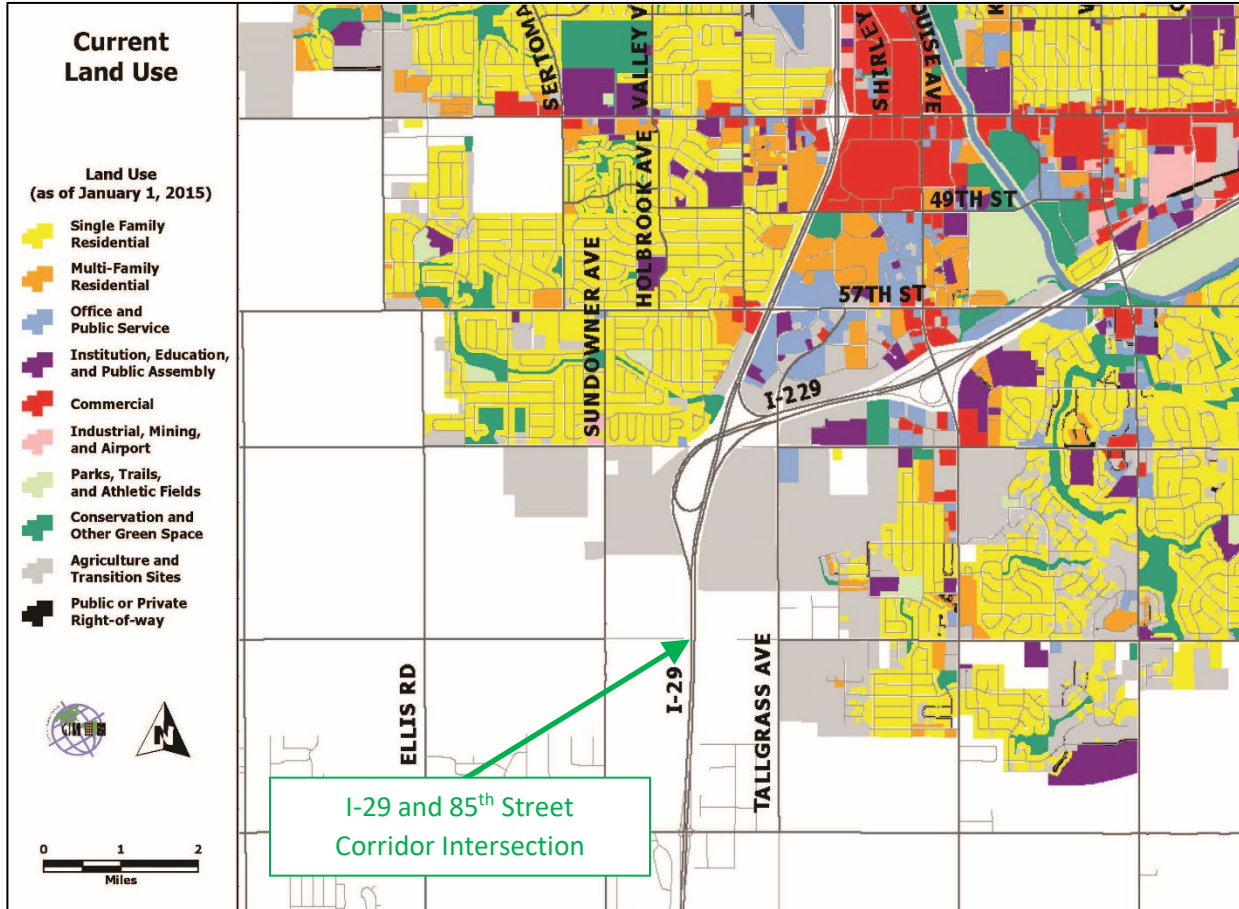
The southwest portion of the study area falls within the City of Tea and its current planning area. In 2018, the City of Tea annexed land in the southwest quadrant of the proposed I-29/85th Street interchange. No land use is shown for this area on the City's existing land use map, but the area is currently undeveloped and used for agriculture. Within the study area, I-29 and 270th Street run along parts of the City's planning area boundary. These areas are primarily agricultural with some industrial use located near the I-29/271st Street interchange. The Marv Sky Lincoln County Airport is located southwest of this interchange.

The area between the Sioux Falls and Tea city limits lies in Delapre Township and includes a thin strip of undeveloped agricultural land and some industrial use along 271st Street.

Recent developments within the project area include the development of townhomes on the north and south sides of 85th Street west of Brett Avenue, which includes the West Pointe Commons (10.4 acres) and Southwoods Town Homes & Villas (8.7 acres). Additionally, two single family residences have been acquired and removed on the north side of 85th Street (immediately west of I-29) and proposed for new land uses. New commercial development has occurred over the last several years in the study area between I-229 and W 69th Street (surrounding the Avera Hospital Campus). This includes a block of new commercial and retail buildings

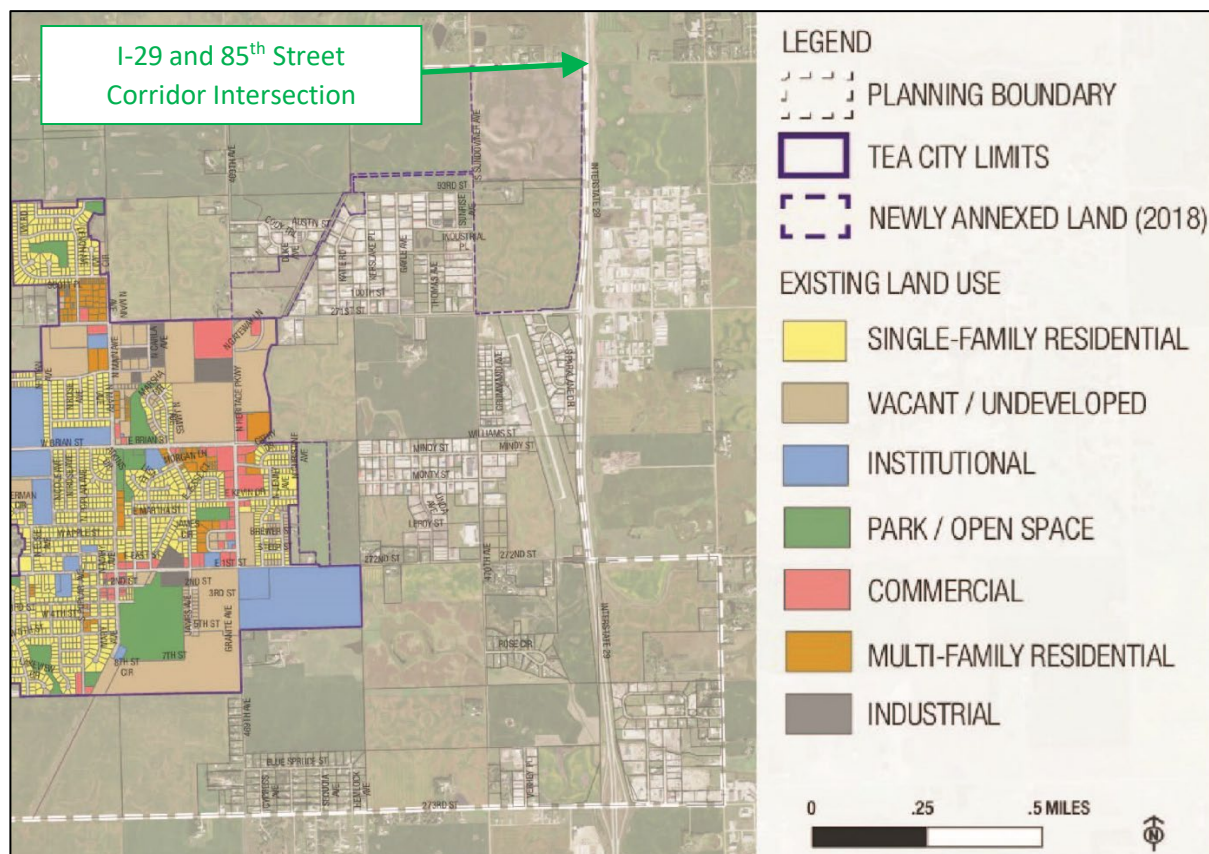
within the last few years (5.5 acres), and the Holiday Inn & Suites within the last decade (2.6 acres). All of this development lies within the City of Sioux Falls.

Figure 3-1: Existing Land Use (City of Sioux Falls, 2017)



Source: City of Sioux Falls 2017

Figure 3-1 (continued): Existing Land Use (City of Tea, 2018)



Source: City of Tea 2018

3.1.2 Future Land Use

The study area includes lands under the planning jurisdictions of the City of Sioux Falls, City of Tea, and Lincoln County (for the area in Delapre Township). Future land use maps for these areas show that substantial development is planned for the area immediately surrounding the study area, indicating a major shift in land use around the study area within the next 5-20 years from rural to urban land uses. Future land uses within the project area are shown on Figure 3-2.

The Sioux Falls future growth area extends from the current city boundary to include most of the study area north of 85th Street. The City's future land use map indicates that the proposed I-29/85th Street interchange lies within a planned regional employment center area, defined as highly commercial, with an emphasis on creating mixed-use options and appropriate transitions to low-density residential areas. The area surrounding this regional employment center and north of 85th Street is planned for business park use. The area west of the planned business park and along the entire 85th Street Corridor within the study area is planned for future residential.

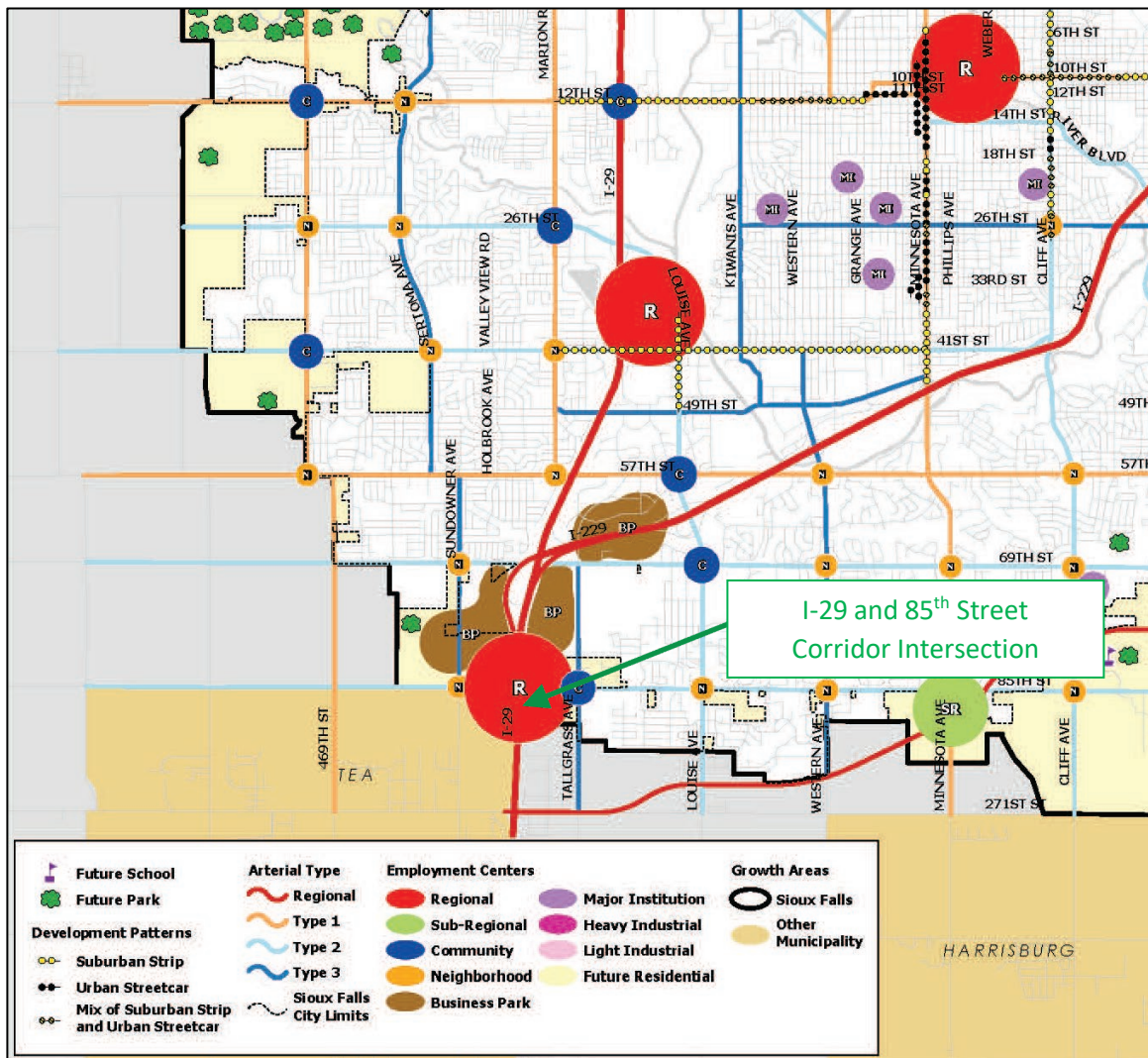
Preliminary development plans for the area surrounding the intersection of I-29 and the planned 85th Street Corridor include commercial, residential, and office uses (See Figure 1-3 located in Section 1.3.2.3, Project Need). Through coordination with developers in the area, the Study Advisory Team identified that development plans in the area have been based on the assumption that adequate transportation infrastructure will be constructed in the study area, and that without support from a functional transportation network, development

at the scale currently proposed would not be feasible. Development would still be anticipated to occur in this area regardless of which alternative is carried forward. Many specific development proposals would be informed by a potential build alternative in the study area, the access it would provide, drainage patterns, and overall footprint. In any case, development in this area would be consistent with the City’s future land use plans for the area.

The City of Tea’s planning boundary extends from the current city limits east to I-29 and north to 270th/85th Street, with 270th/85th Street serving as a shared boundary between the Sioux Falls growth area and the Tea planning boundary. Future land use in the City of Tea includes a mix of regional commercial, business park, and mixed-use community near the study area, maintaining consistency with the City of Sioux Falls’ plan for the area as a regional employment center.

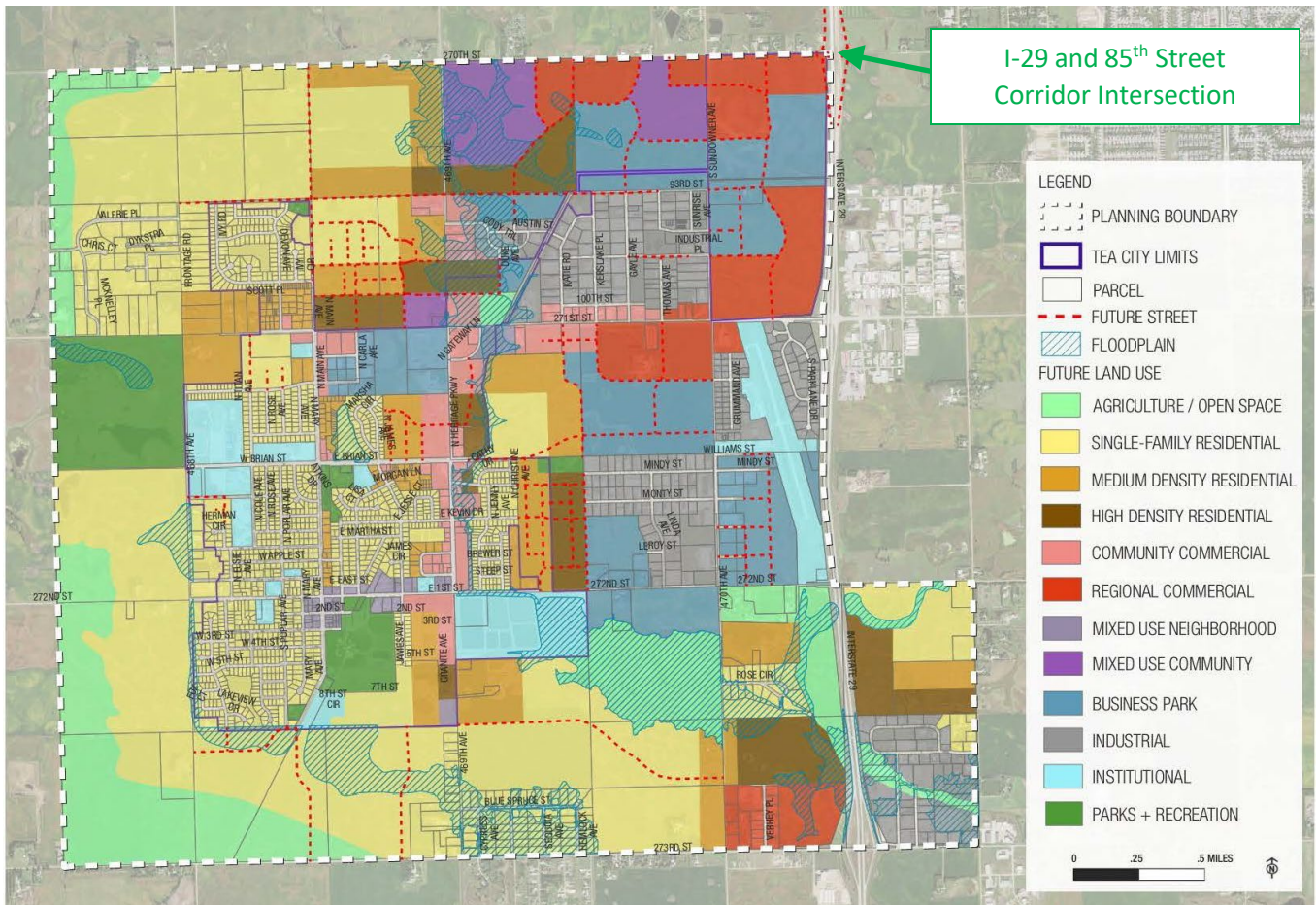
Land near the study area that is not within the Sioux Falls growth area or Tea planning area is discussed in the Lincoln County Future Land Use Plan as Joint Jurisdiction Area, which allows for a collaborative approach to future zoning of areas outside of currently incorporated areas.

Figure 3-2: Future Land Use (City of Sioux Falls)



Source: City of Sioux Falls

Figure 3-2 (cont'd): Future Land Use (City of Tea)



Source: City of Tea

3.1.3 Impacts of Alternatives

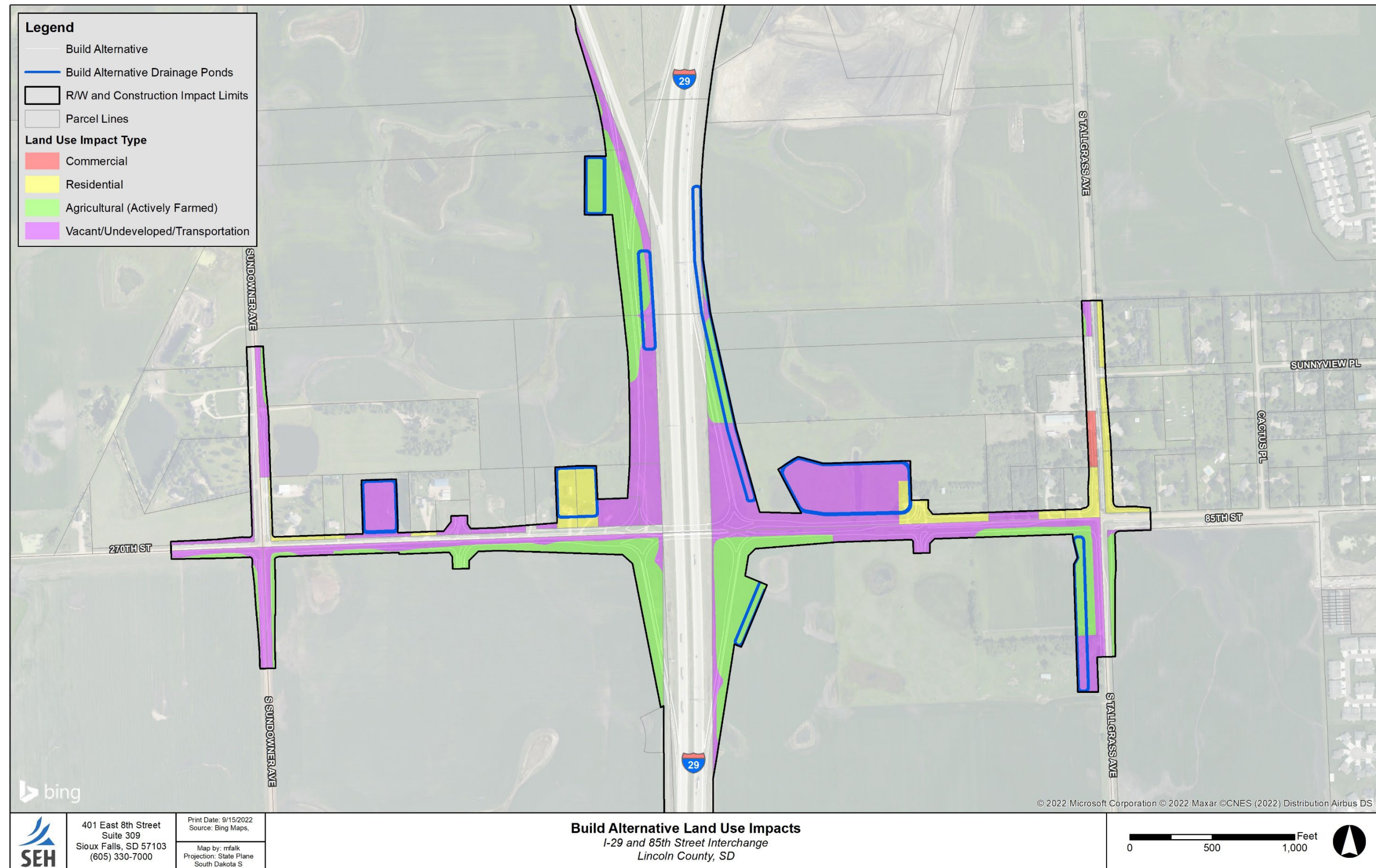
Existing Conditions Alternative

Lincoln County and the City of Tea planning documents indicate land use surrounding 85th Street is expected to change from the production of agricultural crops to developed urban areas by 2040. This area is planned to be developed for commercial and mixed-uses. The City of Sioux Falls is projected to continue growing in employment opportunities and population, similar to the growth in recent years. Therefore, development would occur even without the project, but likely at a slower rate and potentially at a reduced scale than with Build Alternative. With the Existing Conditions Alternative, no construction activities related to this project would occur along 85th Street and no land would be converted from the identified use to road ROW.

Build Alternative

The Build Alternative would require approximately 60.6 acres of new ROW for construction. This would include approximately 21.3 acres of land that is currently farmed, 6.0 acres of residential property, 0.5 acres of commercial property, and 32.8 acres of land that is currently vacant, undeveloped, or already used for transportation purposes. Impacted agricultural land includes land that is actively farmed, but is primarily already

Figure 3-3: Build Alternative Land Use Impacts



under ownership of private developers. Residential impacts include strip acquisitions adjacent to the current ROW, as well as the entire acquisition of three residential properties where access to the property would prohibit the construction of an interchange. Impacts to commercial property would not have a permanent effect on business operations in those locations but may require temporary disturbance to access during construction. The land use impacts for this alternative are shown in Figure 3-3. Acquisitions and relocations are discussed further in Section 3.3.

Preliminary drainage analysis indicates that approximately 16.6 acres of stormwater ponds would be required with the Build Alternative to meet drainage requirements. These ponds have been included in the preliminary design of the build alternative and are reflected in the land use impact numbers. A final drainage plan would be developed during the final design phase of the project. Efforts would be made to avoid impacts to any sensitive resources with the addition of drainage features, and all necessary coordination, permitting, and mitigation measures would occur.

Temporary land easements (TLEs) would be required for construction immediately outside of the proposed ROW boundary. TLE area would be designated as part of future design efforts. Land use impacts in TLE areas would be temporary with no long-term effects, as these areas would be returned to their previous land use after construction is complete. Direct impact land use changes associated with the alternatives are summarized in Table 3-1.

Table 3-1: Summary of Land Use Impacts

Land Use Type	Land Use Impacts (Acres) by Alternative	
	Existing Conditions	Build
Total permanent property acquisition	0	60.6
Residential	0	6.0
Commercial	0	0.5
Agricultural	0	21.3
Vacant/Undeveloped/Transportation	0	32.8

The Build Alternative is consistent with local and regional land use plans, which include:

- **Shape Sioux Falls 2040 Comprehensive Plan⁶** – This plan includes a future land use plan that shows the I-29/85th Street intersection as a planned regional employment center. Growth in this area was considered when evaluating projected traffic volumes which contribute to the failing operations discussed in the transportation demand section.
- **Go Sioux Falls 2045 Long-Range Transportation Plan⁴** – This plan includes “Connectivity and Economic Vitality” as an overarching Goal for the plan, which emphasizes the need for access to employment centers and regional links between communities. Planned growth in the study area would create a new regional employment center and residential community that would lack efficient access to the regional transportation network with no Interstate access provided within a mile in any direction. Again, growth in this area was considered when evaluating projected traffic volumes which contribute to the failing operations discussed in the transportation demand section. The I-29/85th Street interchange, along with

other improvements to 85th street in the study area, are included in the LRTP as having committed funds. This further exemplifies the plan's consistency with this project.

- **The City of Tea Comprehensive Plan (2018 Update)**⁷ – Updates to this plan note the relationship between transportation and development, highlighting the fact that new development takes place where the transportation system can accommodate it. The plan identifies the need for landowner funding for arterial roadways, and specifically mentions 85th street and 270th street improvements as short-term projects.
- **Lincoln County Master Transportation Plan**⁸ – This plan indicates the need for short-term improvements (corridor widening) on Tallgrass Avenue, as well medium-term improvements (corridor widening) on Sundowner Avenue based on traffic operation needs.

The following STIP and TIP documents show that there is state and local support for the Build Alternative and that it is fiscally constrained.

- SDDOT Statewide Transportation Improvement Program (STIP) 2022-2025⁹
- Sioux Falls 2022-2026 Capital Program¹⁰
- Sioux Falls MPO 2022-2025 Transportation Improvement Program¹¹

At this time, there are no specific development proposals or specific plans that have been submitted for plat review pending the successful completion of the project's NEPA analysis. Specific land use conceptual, preliminary, and final plats are expected to be submitted and approved in conformance with local and regional long-range and capital planning, zoning, and travel demand management tools used by the Sioux Falls MPO, as formally documented by adopted plans and agreements to develop the Study Area.

3.1.4 Avoidance, Minimization, and/or Mitigation Measures

Care was taken to minimize conversion of new land to ROW during the design of the Build Alternative by utilizing existing ROW.

Coordination of transportation and land use plans would need to occur between local units of government to plan for the implementation of the Build Alternative.

3.2 Farmland

Any federally-funded project which requires the acquisition of any amount of right-of-way must address the Farmland Protection Policy Act of 1981 (FPPA). The purpose of the FPPA is to minimize the extent that federal programs contribute to the unnecessary and irreversible conversion of prime and important farmland to non-agricultural uses. The FPPA requires federal agencies involved in projects that may convert farmland to determine whether the proposed conversion is consistent with the FPPA.

The Federal Farmland Protection Act (FFPA) was enacted in 1981 (Public Law [PL] 98-98) to minimize the unnecessary conversion of farmland to nonagricultural uses as a result of federal actions. In addition, FFPA seeks to assure federal programs are administered in a manner compatible with state and local policies and programs developed to protect farmland. The policy of the Natural Resources Conservation Service (NRCS) is to protect significant agricultural lands from conversions that are irreversible and result in the loss of an essential food and environmental resource.

The FPPA defines prime farmland as land that has the physical and chemical characteristics for producing food, feed, fiber, forage, and oilseed crops and is available for these uses. Prime farmland has the soil quality, growing

season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.

3.2.1 Affected Environment

There are a number of active farming operations with land that lies within the study area. Much of the actively farmed land from these operations lies near or adjacent to existing ROW.

Soils (Figure 3-4) within the proposed study area were identified using the NRCS Web Soil Survey.¹² Soils in the study area include the following:

- Alcester silty clay loam, channeled
- Orthents, loamy
- Chancellor-Tetonka complex, 0 to 2 percent slopes
- Chancellor-Viborg silty clay loams
- Egan silty clay loam, 3 to 6 percent slopes
- Egan-Chancellor silty clay loams, 0 to 4 percent slopes
- Egan-Shindler complex, 6 to 9 percent slopes
- Egan-Worthing complex, 0 to 6 percent slopes
- Huntimer silty clay loam, 0 to 2 percent slopes
- Baltic silty clay loam, ponded
- Tetonka silt loam, 0 to 2 percent slopes, frequently ponded
- Wentworth silty clay loam, 0 to 2 percent slopes
- Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes
- Worthing silty clay loam, 0 to 1 percent slopes

The NRCS's online database was also used to obtain a list of soils within Lincoln County which are considered prime farmland. Soils considered to be prime farmland in the study area are listed below.

- Chancellor-Tetonka complex, 0 to 2 percent slopes
- Chancellor-Viborg silty clay loams
- Egan silty clay loam, 3 to 6 percent slopes
- Huntimer silty clay loam, 0 to 2 percent slopes
- Tetonka silt loam, 0 to 2 percent slopes, frequently ponded
- Wentworth silty clay loam, 0 to 2 percent slopes
- Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes

The NRCS's online database also indicates which soils are considered farmland of statewide importance. This applies to the following soil types within the study area:

- Egan-Chancellor silty clay loams, 0 to 4 percent slopes
- Egan-Shindler complex, 6 to 9 percent slopes

Soil types representing prime farmland and farmland of statewide importance make up a majority of the soils in the study area.

Figure 3-4: Prime Farmland and Farmland of Statewide Importance



	401 East 8th Street Suite 309 Sioux Falls, SD 57103 (605) 330-7000	Print Date: 12/3/2019 Source: Bing Maps, Lincoln County	Prime Farmland and Farmland of Statewide Importance <i>I-29 and 85th Street Interchange</i> Lincoln County, SD
		Map by: mfallk Projection: State Plane South Dakota S	

3.2.2 Impacts of Alternatives

Existing Conditions Alternative

The Existing Conditions Alternative involves no construction activities related to this project. However, development in the study area would still occur. Therefore, the conversion of prime farmland, including prime farmland and farmland of statewide importance would occur with this alternative as these lands urbanize, although at a slower rate than would be expected with the Build Alternative.

Build Alternative

The Build Alternative would result in the conversion of approximately 21.3 acres of farmland to road ROW. Most of the converted farmland is also comprised of soils that are considered to be prime farmland and farmland of statewide importance.

The NRCS has developed criteria for assessing the effects of federal actions on converting farmland to other uses, including Farmland Conversion Impact Rating Forms (CPA-106 and AD-1006) that document a site-scoring evaluation process to assess its potential agriculture value. Prime farmland has been identified by NRCS as a significant agricultural resource that warrants protection.

Since prime farmland would be affected by the Build Alternative, a Farmland Conversion Impact Rating Form AD-1006 was completed for this project (See Appendix D). Multiple coordination efforts took place throughout the course of the study as refinements were made to the Build Alternative. The initial portion of the AD-1006, including information pertaining to the build alternative as it is currently proposed, was sent to NRCS for completion and approval. NRCS provided its final response on February 11, 2022, confirming that prime farmland does exist within the study area, and the build alternative received a final “significance score” of 140. NRCS provides significance scores to determine if further consideration is needed to protect agricultural land with the implementation of each alternative. An alternative with a score of less than 160 points does not need to be given further consideration for protection. Since this score is less than 160, the no further coordination with the NRCS would be required regarding prime farmland for this alternative. After review, FHWA approved and signed the AD-1006 form, completing the farmland coordination requirements for this study.

Soils comprising prime farmland and farmland of statewide significance that would be impacted by the Build Alternative are shown in Figure 3-4. Impacts to actively farmed lands are shown in Figure 3-5.

Figure 3-5: Build Alternative Agricultural Impacts



SEH
 401 East 8th Street
 Suite 309
 Sioux Falls, SD 57103
 (605) 330-7000

Print Date: 12/8/2021
 Source: Bing Maps
 Map by: mfk
 Projection: State Plane
 South Dakota S

Impacted Farm Operations Map
 I-29 and 85th Street Interchange
 Lincoln County, SD



3.2.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures related to farmland are required.

3.3 Acquisition and Relocation

Federal law requires that relocation assistance be provided to any person, business, or farm operation displaced because of the acquisition of real property by a public entity for public use (Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, PL-91-646 and amendments) (Uniform Act). In recognizing the rights of citizens displaced by transportation improvement projects, SDDOT has adopted policies that assure fair treatment and just compensation for owners and tenants of businesses and residential property. This compensation includes farms and all types of housing. All ROW acquisition and relocation would be in accordance with the Uniform Act, which require that just compensation be paid to the owner of private property taken for public use. The appraisal of fair market value is the basis of determining just compensation to be offered the owner for the property to be acquired. An appraisal is defined in the Uniform Act as a written statement independently and impartially prepared by a qualified appraiser setting forth an opinion of defined value of an adequately described property as of a specific date, supported by the presentation and analysis of relevant market information.

The Relocation Assistance Program requires that before a project can be constructed, a Replacement Housing Study must be completed to determine the needs of the people being relocated and the availability of replacement housing. In general, these requirements would ensure that displaced persons and families would be provided decent, safe, and sanitary housing that is comparable to the property being acquired and is within their financial means. Relocation payments may also be included to cover expenses involved with finding, purchasing, or renting, and moving to a new location. The potential relocation payments are available to both private residences and businesses.

No person shall be displaced from his or her residence unless a comparable replacement dwelling is available or provided for the displaced occupant. A displaced business would be offered a Relocation Assistance Program that meets all the criteria under federal and state laws governing displacements on publicly financed projects. This program is designed to offer advisory services and under many circumstances, to make payments to help offset some of the expenses and costs experienced by those who are displaced.

The City of Sioux Falls follows SDDOT acquisition and relocation guidelines and the Uniform Act.

3.3.1 Affected Environment

Relocation of residences to accommodate purchase of new ROW and subsequent construction of new roadway segments is an unavoidable consequence of reconstructing transportation systems in urban areas. In some instances, displacement would involve only a portion of an existing property. In other instances, it would involve the entire property. A field survey and aerial photos were used to identify business and residence locations in the project area. Numerous homes and businesses exist within the study area.

Coordination has taken place between the City, SDDOT, residents, and landowners in the study area as alternatives for the study have been developed.

3.3.2 Impacts of Alternatives

Existing Conditions Alternative

The Existing Conditions Alternative would not result in the acquisition or relocation of any residences or businesses.

Build Alternative

Some TLE area would also be needed with the Build Alternative during construction. Impacts, whether positive or negative for a particular piece of property, could include influences on free market prices that might be paid for certain properties and could make renting or leasing certain properties easier or more difficult. The positive and negative impacts cannot be quantified due to the number of variables that influence property values such as the economy, ease of access, condition of property, unemployment rate, and demand for housing. Though the type of buyers attracted to this area may change as a result of this project, it is unlikely property values would be negatively affected due to the growth and low unemployment rate currently experienced within the Sioux Falls Metropolitan Area.

The Build Alternative Build Alternative would result in the acquisition of two residential properties located west of I-29 and north of 85th Street and would also require the acquisition and relocation of one additional residence located east of I-29 and north of 85th Street. The western parcels include structures and are occupied. The ROW required for the overpass embankment would either directly impact the residences or not allow sufficient space for access to the homes. The property has already been purchased by a private developer and would not remain as land use in the area changes to meet future land use plans, but the residence is currently still occupied. This property would need to be acquired and the structure removed to accommodate the $\frac{3}{4}$ access planned for 85th street on the east side of the interchange, as interchange and intersection spacing requirements and planned lane configurations limit access location options on 85th street.

Additional property would need to be acquired from several and access modifications would be required in certain locations, but the structures and functional access would be maintained.

For those whose property and/or homes would be acquired, the project could be a negative effect. However, as identified in the Overpass EA, there is adequate housing and property available in the City of Sioux Falls and surrounding areas for those who would need to relocate.

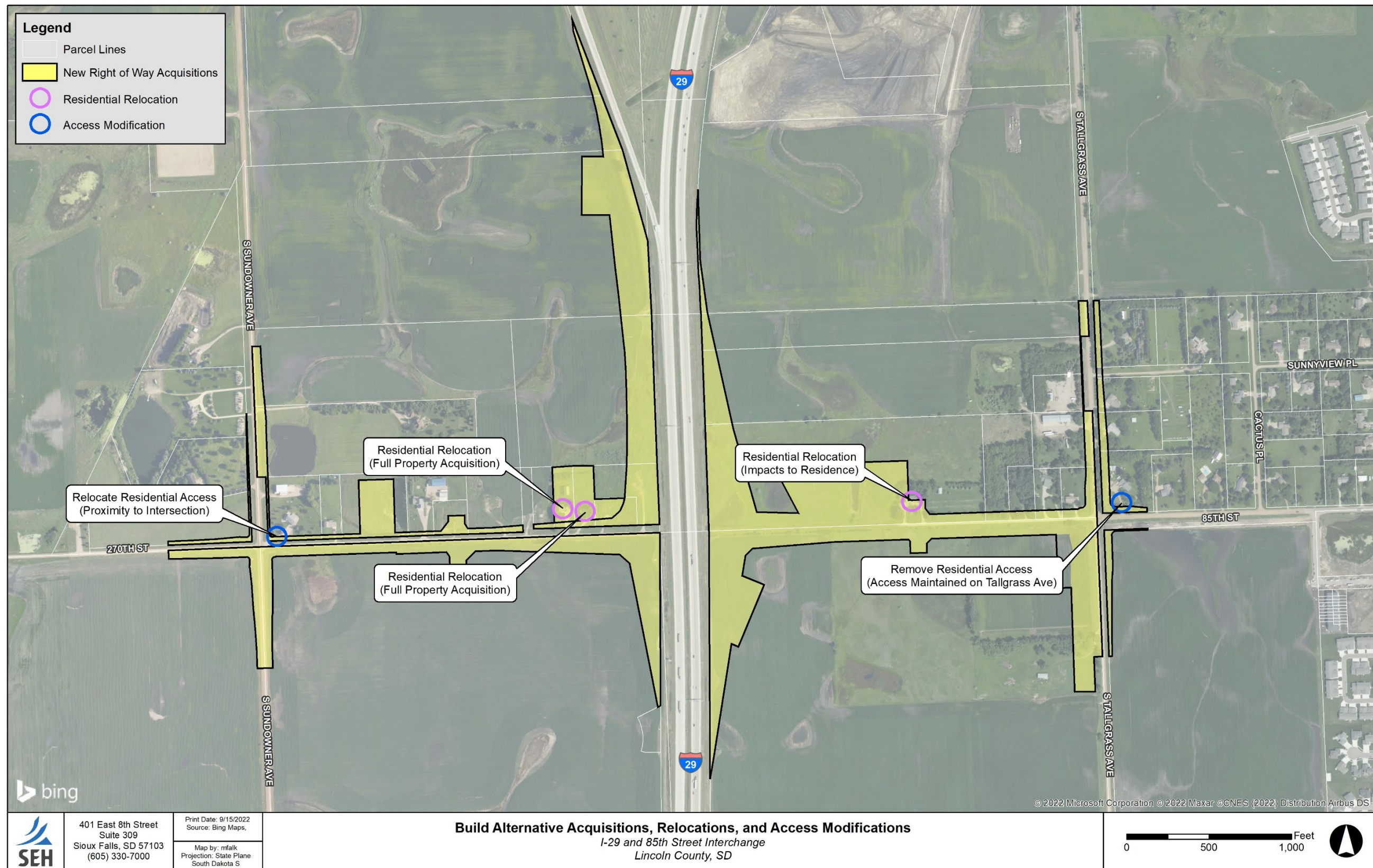
Figure 3-6 shows the location of property acquisitions, relocations, and access modifications.

No farms or businesses would be displaced with the Build Alternative.

3.3.3 Avoidance, Minimization, and/or Mitigation Measures

Acquisitions and relocations would be conducted in conformance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended by the Surface Transportation Assistance Act of 1987 and 49 CFR, Part 24, effective April 1989. Relocation assistance would be made available to all affected persons without discrimination.

Figure 3-6: Build Alternative Acquisitions, Relocations, and Modifications to Property Access



3.4 Utilities, Public Facilities, and Services

Public facilities include but are not limited to government buildings, schools, libraries, hospitals, and roadways. Coordination with utilities, public facilities, and services is an essential part of every transportation project. Coordinating improvements to the transportation network with these facilities and services help ensures that these services and facilities are accessible, more efficient, and can rely on the transportation network to properly function where applicable.

3.4.1 Affected Environment

Public facilities located in or near the study area include:

- Harrisburg Explorer Elementary
- Heidelberg Theological Seminary

The Sioux Falls School District also has a new facility planned in the study area just southwest of the system interchange.

Public services include police, fire, emergency services, and sheriff's department. None of these services has a facility located within the study area. Public services also include utilities such as electricity, natural gas, cable, internet, and telephone. Utility suppliers in the study area include Southeastern Electric, Lincoln County Rural Water, Lewis and Clark Regional Water, Century Link/Qwest, Midcontinent Communications, South Dakota Network (SDN), the City of Sioux Falls, WOW/Knology, Xcel Energy, Prairie Wave, and MidAmerican Energy.

Utility coordination began during the EA Overpass Study. Below is a description of utility features located in the 85th Street study area based on a utility survey and the coordination meetings from the Overpass EA.

- Lincoln County Rural Water services northern Lincoln County and has a waterline crossing the study area on the north side of 85th Street. Utility signs were noted in the northeast corner of Sundowner Avenue and 85th Street and on the north side of 85th Street at I-29.
- PrairieWave has a fiber optic cable located near the corner of Sundowner and 85th Street.
- Lewis and Clark Regional Water has a 36-inch waterline crossing the study area on the south side of 85th Street from Sundowner Avenue east toward Louise Avenue. It should be noted Lewis and Clark Regional Water coordinated the current alignment of this waterline with SDDOT and the City of Sioux Falls to avoid the likely alignment of a future 85th Street overpass. At the time of the coordination effort, the parties agreed the most likely 85th Street alignment would follow the section line and the waterline was located to the south of 85th Street to avoid this alignment.
- The City of Sioux Falls has plans to install a new water line crossing under I-29 near the Lewis and Clark Regional Water line along the south side of 85th Street and to install a new sanitary sewer line crossing under I-29 in the area between 85th Street and the I-29/I-229 interchange.
- Century Link/Qwest provides high speed internet, cable television, and telephone service to the study area. The company has both copper and fiber lines in the study area. There is a toll fiber on private easement along the west side of I-29 southbound from the CR 106 Interchange to 69th Street. In addition, CenturyLink/Qwest has a buried cable located in the northeast corner of the Sundowner Avenue/85th Street intersection. Qwest survey flags were noted in the southeast corner of Tallgrass Avenue and 85th Street.
- SDN, a partnership of 27 independent telecom providers, has fiber optic cable located along the east side of I-29 from the CR 106 Interchange to I-229.

- Xcel Energy has an overhead power line running along the east side of I-29 northbound from approximately CR 106 Interchange to 85th Street. At 85th Street, the line turns east to run along the south side of 85th Street.
- WOW, also known as Knology, provides high speed internet, cable television and phone service to the Sioux Falls area. The company has a 2-inch fiber cable running north along the west side of I-29 from north of the CR 106 Interchange to approximately 57th Street.
- CenturyLink/Qwest, WOW/Knology, SE Electric, MidAmerican, and Midcontinent survey flags are located on the west side of I-29 near the current terminus of 270th Street and I-29 . Utility meter boxes are also located in this area.

In addition to these specific utilities, several utility survey flags were located in the northeast and southeast corners of the Tallgrass Avenue and 85th Street intersection. A new fire hydrant is located on the south side of 85th Street approximately halfway between Sundowner Avenue and I-29.

Utility coordination has been ongoing during the environmental process for this study. Lincoln County is currently in the process of developing a county-wide drainage plan. Correspondence has taken place with Lincoln County throughout the environmental process. SDDOT and the Cities of Sioux Falls and Tea would continue coordination with Lincoln County during final design to ensure compliance with current drainage regulations.

SDDOT has continued coordination with Lewis and Clark Regional Water. The current water line was planned to avoid an overpass on the current 85th street alignment. Relocation of the water line would be costly, and alternatives should be designed to avoid relocation to the extent that it is practical. An additional Utility Coordination Meeting would be organized by the City of Sioux Falls and the SDDOT prior to any construction activities to verify utility locations.

3.4.2 Impacts of Alternatives

Existing Conditions Alternative

The Existing Conditions Alternative would not result in impacts to utilities. Community facilities would experience negative effects in the future resulting from the Existing Conditions Alternative. Increased traffic congestion would make access to these facilities more difficult and time consuming. Response times for emergency services would also likely decrease in the future with the Existing Conditions Alternative as a result of increased traffic congestion.

Build Alternative

The Build Alternative would not impact public buildings, or their access, in the vicinity of the study area. None of the identified facilities are located adjacent to the construction zones associated with the Build Alternative.

Several utilities would likely have to be relocated within the new ROW or into a new utility easement with the Build Alternative. The relocation of utilities would be a short-term negative impact associated with the Build Alternative. This impact would be considered a common impact associated with roadway and other development projects.

Emergency services would be accommodated through construction at all times, but response times along 85th Street could be negatively impacted during construction activities. This impact would be limited to the area in the immediate vicinity of the construction zone. Post-project, emergency response times in southwest Sioux

Falls, Tea, and northern Lincoln County would be shortened due to better access across I-29 and improvements to LOS. This would be positive long-term impact associated with the project.

3.4.3 Avoidance, Minimization, and/or Mitigation Measures

SDDOT and the City of Sioux Falls would continue to coordinate with the utility companies about specific utility relocations and avoidance measures during final design and prior to construction activities to minimize impacts.

During construction, the public would be informed of any service interruption prior to the loss of service. Interruptions would be temporary and minimized to the extent possible with the Build Alternative.

3.5 Economic Resources

As discussed earlier in this document, economic development is one factor contributing to the need of the project. The GMP in the Shape Sioux Falls 2040 Comprehensive Plan indicates that the city will need to consume 100 acres of commercial development and 80 acres of office development each year on average through 2040 to meet its growth needs. The GMP shows that the study area is located within a “Tier 1 Growth Management Area.” These are the highest priority areas for development within the city, which are intended to be used for development within the next few years, taking priority over other undeveloped areas within the city.

The Shape Sioux Falls 2040 Comprehensive Plan identifies “capacity of transportation facilities” as a key factor for promoting development in the city. As discussed previously, the current transportation network will not be able to support planned growth in the study area.

3.5.1 Affected Environment

Much of the area immediately surrounding the study area is undeveloped land that is planned for economically-oriented uses such as commercial and office, or has been recently developed. This includes several hundred acres of potentially developable land. Sioux Falls is one of the fastest growing cities in South Dakota and the study area is located within a high priority area for development within the city. Planned development in the area is anticipated to provide economic benefits to the city such as creating new jobs and growing the city’s tax base.

The City of Sioux Falls has experienced a steady growth of population, combined with an increase in land acquisition and development. As growth continues, commuter demands on existing and new roadway systems would continue to increase in the future. The City of Sioux Falls’ growth can be attributed to a number of reasons. The Sioux Falls Metropolitan Statistical Area (MSA) is the largest and fastest-growing labor market area in the state of South Dakota. Between 2005 and 2015, nearly 28,000 new jobs were created in the City of Sioux Falls. New employment opportunities continue to be created in many industries. From 2005-2015, new non-farm employment in the Sioux Falls MSA grew by over 22%. The following industries have seen employment growth by more than 20% during this time:

- Professional and Business Services (+56.52%)
- Health and Education Services (+44.83%)
- Transportation (+34.45%)
- Leisure and Hospitality (+20.28%)

Continued expansion of employment opportunities in the City of Sioux Falls is expected to sustain the level of immigration seen during the last two decades. Projections assume the national trend of large employers relocating or expanding into medium-sized Midwestern cities recognized as safe, clean communities with a high quality of

life will continue. Additionally, South Dakota's favorable tax climate is anticipated to remain a primary competitive advantage supporting further employment opportunities.

According to the 2017 American Community Survey (ACS) 5-year estimates, as shown in Table 3-2 the annual per capita income for the City of Sioux Falls and Lincoln County residents is \$31,161 and \$29,953, respectively. The annual median household income for the City of Sioux Falls and Lincoln County are \$56,714 and \$56,274, respectively. These values are slightly lower than the national average in these categories.¹³

Table 3-2: City and County Annual Income

Annual Income	City of Sioux Falls	Lincoln County
2017 Annual Per Capita income	\$31,161	\$29,953
2017 Annual Median Household Income	\$56,714	\$56,274

Sources of revenue for Lincoln County include general property taxes and revenue shared from the State of South Dakota. In 2017, current general property taxes produced approximately \$11.4 million for Lincoln County. The taxable value of Lincoln County in 2017 was more than \$5.6 billion. This includes over \$700 million in agricultural valuation, nearly \$3 billion in owner-occupied valuation, and over \$1 billion in other property valuation, as shown in Table 3-3.¹⁴

Table 3-3: Lincoln County Property Tax Income Information

Tax Metric	Value
Total Income from property Taxes	\$11.4 Million
Total County Taxable Value	\$5.6 Billion
Taxable Value (Agricultural)	\$700 Million
Taxable Value (Owner-Occupied)	\$3 Billion
Taxable Value (Other Property)	>\$1 Billion

3.5.2 Impacts of Alternatives

Existing Conditions Alternative

Regardless of which alternative is implemented, the City of Sioux Falls is projected to continue growing in employment opportunities and population, similar to the growth in recent years. The study area is zoned for commercial/mixed-use growth, with regional employment center, business park, and residential uses planned for future development.

Coordination with developers in the area has revealed that without a functional transportation network in the study area, development on the scale currently planned would not be considered feasible by developers. With the Existing Conditions Alternative, residential, commercial, and potentially some office development would occur within the Study area, but the scale would be less than with the Build Alternative. The exact scale and economic benefits of the Existing Conditions Alternative are unknown. This alternative and it is not included in or supported by any local or regional land use plans or economic studies, as it does not meet the future needs of

the study area. No local or public support for the Existing Conditions Alternative has been expressed during coordination efforts for this study.

Build Alternative

As discussed in Section 2.3.1, the Build Alternative would provide NPV of \$845.98 million. This positive value represents an overall economic benefit to the City's economy over the lifecycle of the project and means that the Build Alternative meets the economic need of the project.

In addition to meeting the project need directly, the Build Alternative provides a number of other economic benefits. The approved IJR for this study indicates that the Build Alternative would save users of the facility nearly \$80 million over 20 years by reducing VHT throughout the local traffic network.

Additional economic analysis of the Build Alternative was conducted for the purposes of pursuing potential funding for the project. This analysis quantified net savings from changes in travel time, vehicle operating cost, accident cost, greenhouse gas emissions, criteria air contaminant emissions savings, incremental operations, and maintenance. Results indicated that a benefit cost ratio of 3.71 would be achieved with the implementation of the Build Alternative. In other words, \$3.71 in savings would be realized for every dollar invested over the lifetime of the project.

An Economic Impact Analysis conducted by the SDDOT and University of South Dakota indicates that constructing an overpass over I-29 at 85th Street would have the potential to create jobs by increasing efficiencies in transportation. Total jobs created over the 20-year analysis period peaked at 207 jobs created. This study is included in Appendix C.

Coordination with local developers has indicated that much of the planned development in the area, at its current scale, is contingent upon the provision of an adequately functioning transportation network. The Build Alternative would provide adequate levels of service and help the City meet the capacity and development needs identified in its GMP.

During any construction that would take place with the Build and No Build Alternatives, residents, businesses, and visitors would likely encounter temporary impacts to economic resources including nominally increased travel times for brief durations. However, access to vital resources would be maintained throughout the construction period; therefore, impacts are expected to be minimal and short-lived.

The City of Sioux Falls and Lincoln County would experience a short-term beneficial economic impact due to the purchase of goods and services during the construction of the Build or No Build Alternatives. Post-construction, the construction of an interchange at I-29/85th Street would provide additional connectivity in the area and may hasten development in the area. There is a potential for long-term economic benefit to the City of Sioux Falls if the upgraded transportation system aides in the recruitment of businesses and associated jobs to the area. Additionally, development along 85th Street could provide an economic benefit to those currently living along the roadway, as their properties may become more desirable for development.

The tax base would initially decrease with the Build Alternative because of the acquisition of residences for conversion of land to non-taxable ROW. However, the overall impact on the study area would be minimal because the maximum loss in revenue would be less than 0.01 percent of the total county revenue. Furthermore, planned future development in the study area could significantly increase tax base. A long-term positive impact on the tax base would occur if development of the area occurs, especially commercial

development. This could be achieved relatively quickly because the study area is located in a Tier 1 Growth Management Area.

3.5.3 Avoidance, Minimization, and/or Mitigation Measures

Care was taken to minimize impacts to any businesses during the design of the Build Alternative.

Access would be maintained to surrounding businesses during construction. Construction would be phased to minimize traffic congestion impacts and overall time of construction in the project area.

3.6 Considerations Relating to Pedestrians and Bicyclists

Many local and regional plans support the improvement of multimodal transportation facilities, especially when they can be included with the construction of other transportation facilities. The City of Sioux Falls has a Complete Streets Policy that requires the needs of pedestrian and bicyclists be considered whenever reconstructing or constructing a new arterial roadway.¹⁵ The 2015 Sioux Falls Bike Plan includes the development of a complete bicycle network through the addition of on-street and trail facilities as a very high priority goal.¹⁶ The Sioux Falls MPO 2040 Long-Range Transportation Plan includes Multimodal Integration as one of its main guiding principles, which also includes several goals related to the inclusion of bicycle and pedestrian facilities.

Within the study area specifically, the 85th Street Corridor has been identified in the Sioux Falls Bicycle Plan as part of its long-range bicycle trail plan. The Sioux Falls MPO 2040 Long-Range Transportation Plan lists the 85th Street project from Sundowner Avenue to Tallgrass Avenue as a multimodal roadway project supporting the bicycle objective.

In addition to this project's needs, one major goal is to support multimodal transportation in a way that is consistent with local and regional plans.

3.6.1 Affected Environment

The City of Sioux Falls maintains approximately 28 miles of existing bicycle trails primarily located in the central part of the city. Platinum Valley Park is located next to Harrisburg Elementary School approximately 0.5 miles northwest of the 85th Street/Louise Avenue intersection.

Currently, there are no sidewalks along 85th Street throughout the corridor. Pedestrians and bicyclists must ride on the roadway and walk on the shoulders. Current facilities do not meet Americans with Disabilities Act (ADA) standards.

3.6.2 Impacts of Alternatives

Existing Conditions Alternative.

The Existing Conditions Alternative assumes no construction activities related to this project would occur related to the existing 85th Street Corridor. Therefore, no new bicycle trails would be constructed along 85th Street and no existing parks or bike trails would be impacted. The study area would continue to lack ADA accessibility. The opportunity to achieve multimodal goals established in local and regional plans would not be implemented, and the project's multimodal goal would not be supported.

Build Alternative

The Build Alternative design for the 85th Street Corridor includes a 6-foot sidewalk on the north side and 10-foot side path on the south side. These features would tie-in to existing sidewalk networks, making the area safer for

pedestrian by taking them out of the roadway. Although the path along 85th Street would not be directly connected to the existing trail system, the path would be in place for future tie-in by future projects. Crossing of 85th Street by bicyclists would take place using pedestrian facilities at intersections. All facilities would be built to meet ADA standards.

The expansion of 85th street would potentially create a safety concern for bicyclists and pedestrians when crossing 85th street. To mitigate this, the Build Alternative also will include a grade-separated culvert crossing for bicyclists and pedestrians just east of the proposed interchange.

No existing parks or bicycle trails are located adjacent to the construction zones associated with the Build Alternative. Therefore, construction of the No Build Alternative would not negatively impact the existing bicycle trails and parks system in the City of Sioux Falls or Tea.

Overall, the Build Alternative would have long-term positive impact for pedestrians and bicyclists. The Build Alternative would provide the greatest benefit for bicyclists and pedestrians by providing new facilities and eliminating the need for at-grade crossing on 85th Street.

3.6.3 Avoidance, Minimization, and/or Mitigation Measures

No existing bicycle and pedestrian facilities would be disturbed by any of the alternatives. No avoidance, minimization, or mitigation measures related to pedestrians and bicyclists are required.

3.7 Air Quality

The Federal Clean Air Act of 1970, as amended, required the adoption of National Ambient Air Quality Standards (NAAQS). These standards were established in order to protect public health and welfare from known effects of sulfur dioxide, particulates (10 microns to 2.5 microns [PM10], 2.5 microns and smaller [PM2.5]), carbon monoxide, nitrogen dioxide, ozone, and lead. The NAAQS define the allowable concentrations of pollutants that may be reached but not exceeded in a given time period to protect human health (primary standard) and welfare (secondary standard) with a reasonable margin of safety.

3.7.1 Affected Environment

The United States Environmental Protection Agency (USEPA) delegated the protection of the ambient air quality in South Dakota to the South Dakota Department of Environment and Natural Resources (SDDENR, now SDDANR) in 1972. The SDDENR adopted the federal air pollution control regulations by reference, and these are shown in Table 3-4. As part of the state's program, the SDDENR operates a network of air monitoring samplers. The samplers determine the existing concentrations of regulated pollutants for different areas in the state.

Currently, the City of Sioux Falls is considered an attainment area for all of the regulated air pollutants, meaning entities are in compliance with all of the NAAQS.¹⁷

Table 3-4: National Ambient Air Quality Standards

Pollutant	Averaging Time	Concentration
Sulfur Dioxide	Annual (1)	0.03 ppm
	Twenty-Four Hour (1)	0.14 ppm
	One Hour	0.075 ppm
Particulates (PM10)	Twenty-Four Hour (1)	150 µg/m ³
Particulates (PM2.5)	Annual (1)	12 µg/m ³
	Twenty-Four Hour (1)	35 µg/m ³
Carbon Monoxide	One Hour (1)	35 ppm
	Eight Hour (1)	9 ppm
Ozone	Eight Hour	0.070 ppm
Nitrogen Dioxide	Annual	0.053 ppm
	One Hour	0.100 ppm
Lead	Three Month Arithmetic Mean	1.5 µg/m ³

3.7.2 Impacts of Alternatives

Existing Conditions Alternative

No construction activities related to this project would occur with the Existing Conditions Alternative. The area surrounding the 85th Street Corridor, which is primarily zoned commercial, would develop and traffic volumes in the area would increase from this local development. The increased traffic volumes would have the potential to result in localized air quality impacts related to vehicle exhaust, especially during AM and PM peak hours. Due to size and scale of the study area and planned development, no long-term major impacts are anticipated as a result of the Existing Conditions Alternative and no air quality standard violations would be likely.

Build Alternative

The SDDANR indicated in a letter dated March 20, 2019 (Appendix D) that SDDOT projects could have a minor impact on air quality through point source and fugitive emissions. During construction, the Build Alternative would have temporary, minor impacts on air quality relating to increased dust levels and vehicle exhaust. Any adverse impacts would be short-term and localized, and it is not anticipated that a permit would be required. The Build Alternative would reduce traffic congestion and therefore lower emissions from projected increased traffic volumes. No long-term major impacts are anticipated with the Build Alternative and no air quality standard violations would be likely.

3.7.3 Avoidance, Minimization, and/or Mitigation Measures

Construction equipment with point source emissions in many cases are required to have an air quality permit to operate. Any such equipment used during construction would obtain any necessary air quality permits if applicable.

Fugitive emissions, although not covered under State air quality regulations, are a common source of public concern and may be subject to local or county ordinances. Fugitive emissions add to the deterioration of the ambient air quality and should be controlled to protect the health of communities within the construction areas.

3.8 Noise

The Federal Noise Abatement Criteria (23 Code of Federal Regulations (CFR) 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise) established the noise criteria for various land uses. Because this Project considers the construction of a new overpass or interchange, it is considered a Type I project per SDDOT guidance. Federal Noise Abatement Criteria (NAC) apply to all Type I projects requiring FHWA approval, regardless of funding source, or Type I projects requiring Federal-aid highway funds.

3.8.1 Affected Environment

In South Dakota, traffic noise impacts are evaluated by measuring and/or modeling the traffic noise levels that exceed the equivalent steady-state sound level of the time during the worst hour traffic volumes for the design year. This number is identified as the Leq level.

According to 23 CFR 772, a noise impact is defined as occurring when the predicted traffic noise levels:

- Approach or exceed the noise abatement criteria (see Table 3-5)
- Substantially exceed the existing noise levels

South Dakota DOT has defined “approach or exceed” as when the predicted Leq is within one dBA, or less, or exceeds the Leq given for the activity category in the NAC (Table 3-5), and “substantially exceed” as an increase of 15 dBA or more over existing noise levels.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible are incorporated into the plans and specifications for project.

Table 3-5: FHWA Noise Abatement Criteria

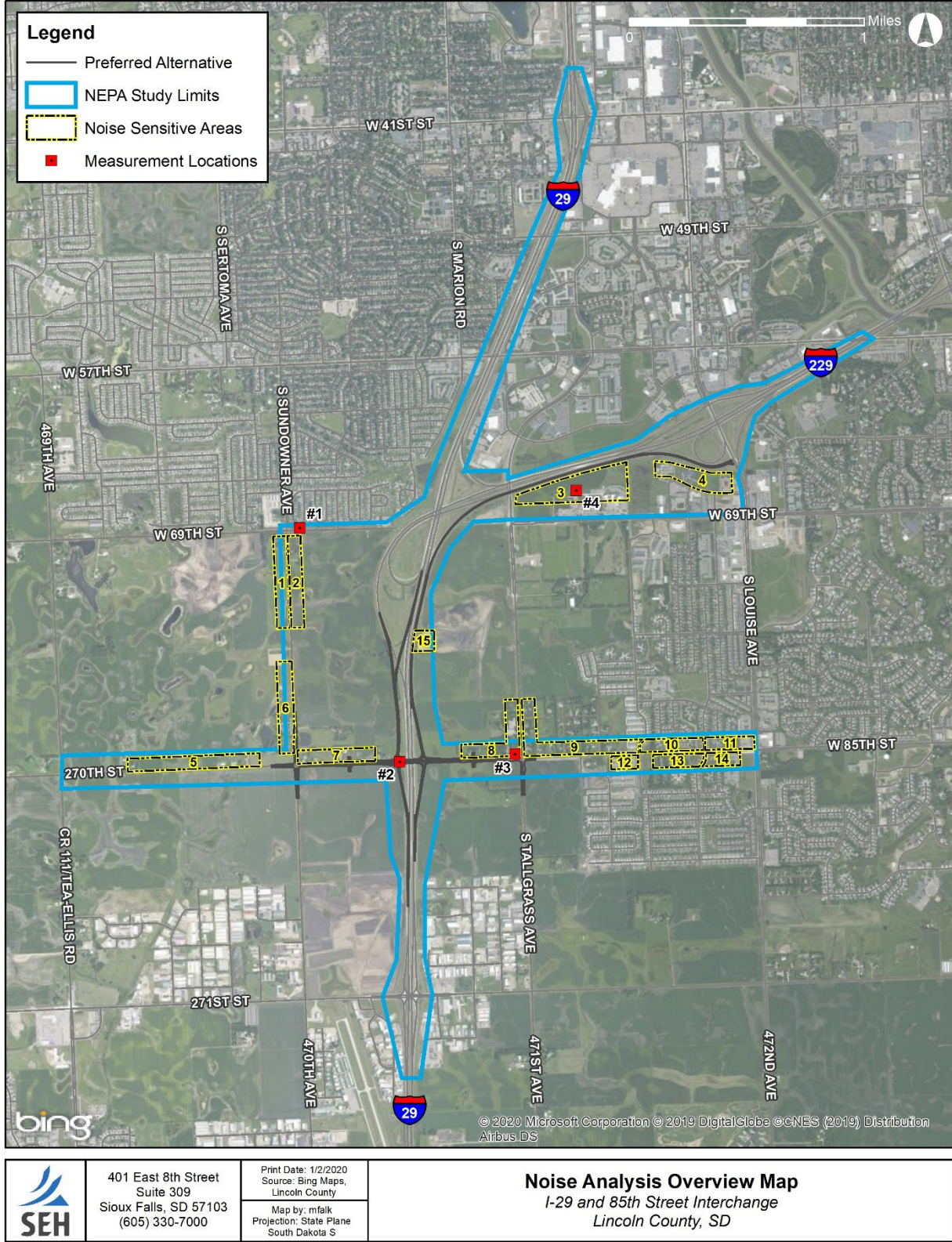
Activity Category	Activity Criteria ^{1,2} Leq(h) dBA	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B ³	67	Exterior	Residential
C ³	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E ³	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F
F	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing
G	--	--	Undeveloped lands that are not permitted.
Notes:			
(1) Leq(h) shall be used for impact assessment			
(2) Leq(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement			
(3) Includes undeveloped lands permitted for this activity category			

A traffic noise study, completed May 25, 2020, was conducted in accordance with the Noise Analysis and Abatement Guidance for SDDOT (2011) and Federal Highway Administration (FHWA) Noise Regulation found at 23 CFR 772. These resources help identify impacts the Build Alternative has on traffic noise levels in the immediate vicinity of the project at noise sensitive receptors, such as residences, businesses, etc. and to evaluate the feasibility and reasonableness of noise mitigation measures if there would be noise impacts associated with the project. See Appendix E of this EA for the full noise analysis report.

The noise modeling for both the existing noise levels and Build Alternative noise levels was completed using the noise prediction program TNM 2.5, which was developed for FHWA. The model uses the roadway alignment (horizontal and vertical), traffic volumes, traffic speeds, vehicle classification, and the distances from the roadway center-of-lanes to the receptors as well as relative elevation differences. In general, higher traffic volumes, vehicle speeds, and numbers of heavy trucks increases the loudness of highway traffic noise.

Traffic noise impacts were assessed by modeling noise levels at noise sensitive receptor locations likely to be affected by the construction of the proposed project. SDDOT Noise Analysis and Abatement Guidance defines the noise study area for the Build Alternative to be from the beginning project construction point to the ending project construction point. The minimum distance to look for receptors is 300 feet from the edge of pavement. The project receptors were divided up into 15 separate noise areas based on proximity of adjacent receptors and roadway access locations, as shown in Figure 3-7. Using worst hour traffic volumes for the design year and future posted speed limits, traffic noise levels were modeled at a total of 167 representative receptor locations throughout the project area. The majority of the receptors represent residential receptors located throughout the project area, with the exception of two medical facilities, three commercial properties, and an elementary school. Resulting noise levels from the Existing Conditions and Build Alternative noise modeling can be found in the Noise Report (Appendix E, Table 3).

Figure 3-7: Noise Analysis Overview Map



3.8.2 Noise Model Results

In general, the construction of the I-29 interchange at 85th Street would result in increases in traffic noise levels compared to existing conditions. Future modeled Build Alternative noise levels at the modeled receptor locations range from 42.0 dBA (Leq) to 70.7 dBA (Leq). Modeled noise receptors exceeded FHWA criteria (Leq) at 65 of 167 modeled receptor locations under build (2045) conditions, with 29 of these being from a “substantial increase” in traffic noise due to the proposed project. Modeled build (2045) condition noise levels vary from 0.5 dBA to 20.7 dBA from existing (2015) conditions. A summary of noise model results is included in Table 3-6.

Noise levels surrounding the 85th Street project area exceed Federal NAC criteria for several single and multi-family receptors under the future build (2045) conditions, as well as at the outdoor soccer field at the Sioux Falls Lutheran School along I-29 Northbound.

Generally, traffic noise levels are increased with the proposed build project due to many factors.

Some of the major changes that influence the increases are as follows:

- Traffic demands will increase between the existing (2015) conditions and future (2045) conditions.
- The 85th Street Corridor will be widened to two through-lanes, plus left and/or right turn lanes at various side roads along the corridor. The construction of additional lanes along 85th Street shifts the traffic closer to the existing receptors, resulting in increased noise levels.

Table 3-6: FHWA Noise Model Results

Existing Conditions (2015)	
Range of existing noise levels at receptors	37.0 dBA (Leq) to 68.2 dBA (Leq)
Build Alternative (2045)	
Range of projected noise levels at receptors	42.0 dBA (Leq) to 70.7 dBA (Leq)
Range of increased noise levels for modeled receptors from 2015 to 2045	0.5 dBA to 20.7 dBA
Total noise receptors analyzed	167
Noise receptors exceeding FHWA criteria	65
Noise receptors demonstrating a “substantial increase” in noise levels	29

3.8.3 Noise Abatement Analysis

FHWA and SDDOT policy require that when noise impacts are identified, a noise barrier evaluation analysis must be performed. Noise barrier construction decisions are determined based on the evaluation of the feasibility and reasonableness of the noise barriers.

If noise abatement is found to be feasible and reasonable, it must be incorporated into the project. Feasibility of the noise barrier is determined by engineering feasibility (i.e., whether a noise barrier could feasibly be constructed on the site) and by acoustic feasibility (a minimum of 60 percent of front row receptors directly behind the noise wall achieve a 5 dBA noise reduction). Reasonableness is based on three factors determined by

the number of benefited receptors from the noise abatement that must be met. First, the noise barrier must meet the SDDOT cost effectiveness threshold of \$21,000 per individual benefited receptor. Also, at least 40 percent of benefited receptors must achieve a 7 dBA noise reduction. Finally, acceptance of the barrier must be received by the majority of benefited residents and owners, through the voting process outlined in the SDDOT Noise Analysis and Abatement Guidance.

For the Existing Conditions Alternative, there are no traffic noise impacts requiring a noise abatement analysis.

For the Build Alternative, a total of 10 barriers were modeled using TNM 2.5 to determine if they met feasibility and reasonableness requirements. Acoustic reasonableness and cost effectiveness were calculated for each of the 10 noise barriers that were evaluated for this study. One of the noise barriers (B9-3) was found to be reasonable and feasible after following a voting process for possible incorporation into the project, as outlined in the SDDOT Noise Analysis and Abatement Guidance (effective date: July 13, 2011). This barrier is located along 85th Street, west of Beal Avenue, providing traffic noise abatement for the multi-family buildings located to the north of 85th Street. This barrier is shown in Figure 3-8.

At least 50 percent of the vote points must be achieved in order to make a determination that a barrier could be considered reasonable from the public opinion standpoint. Through the voting process, a favorable outcome to build the proposed barrier achieved 67 percent of the vote points.

Based on the studies completed to date and input from the public, the Build Alternative intends to incorporate noise abatement in the form of a barrier along 85th Street, west of Beal Avenue, with respective lengths and average heights of 235 feet and six to seven feet. Calculations based on preliminary design efforts show that the barrier will reduce noise level by 7.0 dBA on average for five benefitted residences and will have an estimated cost of \$18,355.

3.8.4 Construction Noise

Elevated noise levels are, to a degree, unavoidable for roadway construction projects. Construction noise impacts would be short-term and limited to the duration of construction. SDDOT will require that contractors comply with the sound control requirements identified in the SDDOT 2015 Standard Specifications for Roads and Bridges. Construction noise abatement will be determined by weighing the duration of the project, benefits achieved, overall adverse social, economic, and environmental effects, and cost of abatement measures.

There is the potential for construction noise during both daytime and nighttime hours with the Build Alternative.

3.8.5 Summary of Noise Impacts

3.8.5.1 Existing Conditions Alternative

Because future traffic levels are projected to increase, noise levels are anticipated to increase with the Existing Conditions Alternative. As no construction would take place with this alternative, no mitigation measures for construction noise would be required.

3.8.5.2 Build Alternative

With the Build Alternative, noise levels in the study area are projected to increase. Additional noise impacts would result from constructions activities from this alternative, which would be short- term and limited to the duration of construction. This alternative would require the construction of a noise barrier.

3.8.6 Avoidance, Minimization, and/or Mitigation Measures

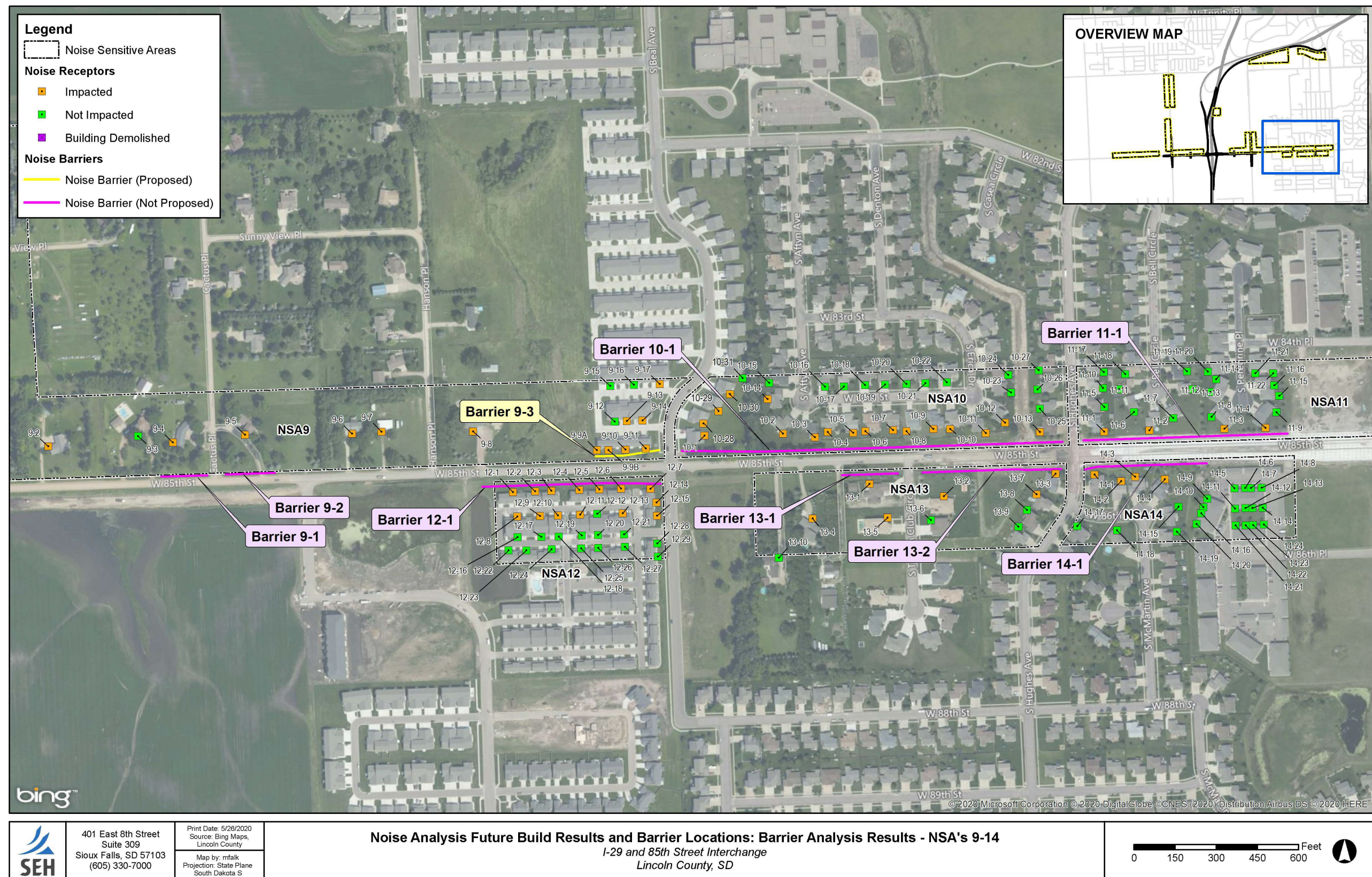
Because no construction would take place with the Existing Conditions Alternative, no mitigation measures would be required.

With the Build Alternative, one noise barrier will be incorporated into the design of the project to mitigate noise impacts to residences.

In conformance with SDDOT's Noise Analysis & Abatement Guidance document Section 14, local officials will be provided with information on noise compatible planning techniques that can be used to prevent future highway traffic noise impacts. To assist local officials within whose jurisdiction a Type I highway project is located, the SDDOT will provide information on future noise levels for each Activity Category located along the project. This will be accomplished by providing a copy of the noise analysis report to the local official. The local official will also be provided with an estimation of future noise levels for various distances from the highway (noise contours).

SDDOT will not be responsible for providing highway traffic noise abatement for undeveloped lands permitted after the Date of Public Knowledge. The Date of Public Knowledge of the location and potential noise impacts of a Type I project will be the approval date of the environmental document, i.e., CE (Categorical Exclusion), FONSI or ROD (Record of Decision).

Figure 3-8: Proposed Noise Barrier



3.9 Water Quality

The Federal Water Pollution Control Act, commonly referred to as the Clean Water Act, provides for the establishment of water quality standards, control of discharges, development of wastewater treatment management plans and practices, prevention or minimization of the loss or degradation of surface waterbodies and groundwater, the location with regard to an aquifer or sensitive ecological area, and the regulation of other issues concerning water quality. The purpose of this section is to determine if the project has the potential to exceed water quality standards from the discharge of surface water runoff, cause impact on the groundwater and water supply/drinking water sources or affect wastewater treatment management plans and practices.

The USEPA's National Pollutant Discharge Elimination System (NPDES) Program requires all construction activities that disturb more than one acre to receive a construction NPDES permit to conform to the Clean Water Act. The SDDANR issues the NPDES permits under its Surface Water Discharge (SWD) Program.

In 1992, the United States Environmental Protection Agency (USEPA) identified the City of Sioux Falls as a Phase I Stormwater community subject to stormwater regulations. In 1999, SDDENR issued a stormwater permit to the City of Sioux Falls. The stormwater permit required the City to develop programs to reduce the discharge of pollutants into the municipal separate storm sewer system (MS4). The City developed seven programs which included management practices, control techniques, and local standards to reduce the discharge of pollutants. The Public Works Environmental Division administers and manages associated Enforcement Response Plans to address any non-compliance with the City standards established by our stormwater programs.¹⁸

3.9.1 Affected Environment

The largest hydrological feature in the vicinity of the study area is Big Sioux River, which lies approximately 1.5 miles east-northeast of the study area. Skunk Creek, located approximately one mile north of the study area, flows into the Big Sioux River upstream of the study area. Two unnamed intermittent streams are located within the study area, crossing I-229 just west of the Louise Avenue Interchange. These streams ultimately flow into the Big Sioux River.

Lincoln County, SD has developed an Aquifer Protection Overlay (APO) District that indicates areas that are prone to groundwater contamination and requirements to prevent contamination within the specified areas. There are no protection areas within the project limits as indicated by the Lincoln County APO District.¹⁹

Various pollutants are commonly encountered in roadway runoff generated during storm events. These include eroded soil, nutrients, metals, and petroleum compounds. The SDDANR has identified the following beneficial uses of the Big Sioux River from its confluence with the Missouri River upstream to the Sioux Falls Diversion:

- Warm water semi-permanent fish life propagation waters
- Immersion recreation waters
- Limited-contact recreation waters

Based on the SDDANR Surface Water Quality Standards online mapping application accessed in 2019, the portions of Skunk Creek and the Big Sioux River Nearest to the study area are designated as impaired.

The SDDANR indicated in a letter dated March 20, 2019 (Appendix D of this EA) the office had no objections to the project with regards to surface water quality impacts, assuming the following requirements are met:

- All fill material shall be free of substances in quantities, concentrations, or combinations which are toxic to aquatic life.
- Removal of vegetation shall be confined to those areas absolutely necessary to construction.
- At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site. Any construction activity that disturbs an area of one or more acres of land must have authorization under the General Permit for Storm Water Discharges Associated with Construction Activities.
- All material identified as removed waste material, material stockpiles, dredged or excavated material shall be placed for either temporary or permanent disposal in an upland site that is not a wetland, and measures taken to ensure that the material cannot enter the watercourse through erosion or any other means.
- Methods shall be implemented to minimize the spillage of petroleum, oils and lubricants used in vehicles during construction activities. If a discharge does occur, suitable containment procedures such as banking or diking shall be used to prevent entry of these materials into a waterway.
- All newly created and disturbed area above the ordinary high-water mark which are not riprapped shall be seeded or otherwise revegetated to protect against erosion.
- Special construction measures may have to be taken to ensure that water quality standards are not violated for waters of the state.

Many of these conditions are required through the standard commitments established in the SDDOT Environmental Procedures Manual. A full list of project commitments is included in Section 5.

3.9.2 Impacts of Alternatives

Existing Conditions Alternative

Since the Existing Conditions Alternative involves no construction activities related to this project, there would be no construction-related water quality impacts with this alternative. However, indirect impacts to water quality could occur as the area surrounding the roadway develops. An increase in the amount of impermeable surface could cause increased storm-water runoff which has a negative impact on water quality downstream. As the area develops, governing bodies would need to assure appropriate stormwater sewer capacity is available to capture the runoff before it reaches downstream waters.

The SDDANR indicated in a letter dated March 20, 2019 (Appendix D of this EA) the office had no objections to the project with regards to surface water quality impacts, assuming basic procedures are followed, as described in Section 3.9.3.

Build Alternative

As discussed in section 3.1, construction of the Build Alternative would require the potential disturbance of approximately 59.5 acres, including 16.6 acres of impacted area resulting from stormwater ponds. While these ponds present a greater overall footprint for impacts resulting from the Build Alternative, they are an important element of the Build Alternative's design that would help to mitigate water quality impacts resulting from increased runoff. Since construction would occur within close proximity to water resources, and more than 1 acre would be disturbed, a number of mitigation measures would be necessary with this alternative, as described in section 3.9.3.

3.9.3 Avoidance, Minimization, and/or Mitigation Measures

All required permits, plans, and BMP's will be obtained and implemented to ensure all necessary minimization and mitigation efforts are carried out with the implementation of the Build Alternative.

To mitigate impacts to water quality impacts of the Build Alternative including its proposed stormwater ponding areas, permanent stormwater BMPs will be implemented for the 85th Street Interchange Project. The permanent stormwater BMPs will be designed in accordance with applicable City of Sioux Falls City Codes of Ordinance and Engineering Design Standards, including:

- Chapter 55 of the Sioux Falls City Code of Ordinances: This ordinance states that permanent structural and/or nonstructural BMPs shall be implemented to control and minimize stormwater runoff rates and volumes and to prevent, control, and minimize stormwater pollutants.
Chapter 11 of the City of Sioux Falls Engineering Design Standards: This includes design standards and design procedures for various permanent structural and nonstructural BMPs.

A full list of project commitments, including water quality commitments, is included in Section 5.

3.10 Floodplain

Potential encroachments on floodplains are coordinated under Executive Order (EO) 11988 on Floodplain Management. The EO requires floodplain impact assessment and coordination for all federally funded projects. The floodplain is defined as the area adjoining a watercourse that is within the 100-year flood, or regional flood zone, as mapped by the Federal Emergency Management Agency (FEMA).

3.10.1 Affected Environment

The City of Sioux Falls and Lincoln County both participate in the National Flood Insurance Program (NFIP). By participating in the NFIP, the City of Sioux Falls and Lincoln County have implemented controls, zoning, and development regulations, along with effective land use planning to reduce and control development that occurs within the 100-year floodplain. I-229 crosses a small section of the 100-year floodplain just east of the system interchange.

3.10.2 Impact of Alternatives

Existing Conditions Alternative

As a result of not requiring construction activities, the Existing Conditions Alternative would not encroach upon the 100-year floodplain.

Build Alternative

The construction of the auxiliary lane portion of the Build Alternative would occur partially within the 100-year floodplain. The portion of I-229 that intersects the 100-year floodplain is already graded for the proposed auxiliary lane and would not require additional fill.

A preliminary hydraulics analysis of the Build Alternative indicates that a "No-Rise" condition is anticipated. Stormwater ponds are proposed on the project, which are intended to reduce flow rates from the project to existing conditions (or less). As part of final design, it will be verified that the Build Alternative will achieve a "No-Rise" condition for all FEMA regulated floodplains.

No construction activities would occur on 85th street in the western portion of the study area where the floodplain crosses 85th Street, and no impacts would occur in that area.

3.10.3 Avoidance, Minimization, and/or Mitigation Measures

During final design of the Build Alternative, a Floodplain Development Permit would be acquired. Permits would not be required for other alternatives.

Figure 3-9: Rivers, Streams, and Floodplains



	401 East 8th Street Suite 309 Sioux Falls, SD 57103 (605) 330-7000	Print Date: 11/13/2020 Source: Bing Maps, FEMA, USGS Map by: mfaik Projection: State Plane South Dakota S	Rivers, Streams, and Floodplains I-29 and 85th Street Interchange Lincoln County, SD

3.11 Wetlands and Waters of the United States

Waters of the United States (WOUS) include all Interstate water, including Interstate wetlands and other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairies potholes, wet meadows, playa lakes, and natural ponds. In addition, tributaries to these waters are also considered to be WOUS. The study area is within the drainage of the Big Sioux River, which is a WOUS, but no defined stream is present within the study area. WOUS located within the study area are limited to numerous jurisdictional wetland areas.

Proposed action(s) that would affect jurisdictional wetlands or other WOUS are required to obtain a permit from the United States Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act of 1977 (33 United States Code. [U.S.C.] §1344). Delineations are required to verify wetland boundaries, which are valid for 5 years. Two types of authorization are available from the USACE for activities regulated under Section 404. Depending on the type of project and potential impacts, either an individual 404 Permit or a Nationwide General permit would be issued by the USACE. In addition, EO 11990, entitled Protection of Wetlands, requires federal agencies (in this case FHWA) to take action to minimize the destruction and/or modification of wetlands (both jurisdictional and non-jurisdictional). The Federal Aid Highway Program found at 23 CFR 777.11(g) has the objective of providing a “net gain of wetlands” program wide. In order to comply with EO 11990, a Wetland Finding is required if documented wetlands cannot be avoided by the project. Any specific conditions required for compliance with the South Dakota’s water quality standards would be specified in the Section 401 certification and in the permit conditions of the issued Section 404 permit.

Jurisdictional wetlands are a distinct subset of all WOUS and are legally defined as: “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions” (40 CFR 230.2 and USACE, 33 CFR 328.3) and are tributary to a WOUS water body. This definition emphasizes that under normal circumstances wetlands must possess three characteristics: a prevalence of hydrophytic vegetation, hydric soils, and wetlands hydrology.

3.11.1 Related Actions and Future Improvements in the Project Area

The Cities of Tea and Sioux Falls are planning to jointly improve 85th Street from 469th Avenue (Tea-Ellis Road/Heritage Parkway/CR 111) eastward to the western I-29/85th Street Interchange access control area. This project is tentatively scheduled for construction in 2024. Updates to the Sioux Falls MPO’s LRTP & TIP for the 2023-2026 period have been submitted for this project. No permits have yet been submitted for these improvements but permitting is expected to take place in 2023 for improvements planned for the 2024 construction year.

The one-mile segment of 85th Street between 469th and 470th Avenues is planned to be developed as a 2-lane rural (paved) road with a 3rd turning lane with major intersections at each end. The east ¼ mile (approaching the interchange) will be urbanized with lanes transitioning from the 3-lane to a 5/6 Lane layout to blend in with the interchange. Two-lane improvement segments are expected to conform to existing roadway sections and not result in wetland impacts.

Similar plans for future improvements to Sundowner Avenue for the one-mile segment extending north from Gateway Boulevard to its intersection with 85th Street. This segment is expected to develop as a three-lane rural road section. This will include some minor road and shoulder widening but impacts to the adjacent

roadside ditches are anticipated to be minimal. Sundowner Avenue, from 85th Street north to 69th Street is expected to be paved as a rural two-lane section, with minimal or no impact to roadside ditches.

This Environmental Assessment will only consider wetland impacts in the study area that are anticipated from this project and will not include impacts from other anticipated projects in the study area. Those impacts will be mitigated and permitted for as part of the projects they are associated with.

3.11.2 Affected Environment

A number of digital resources were examined, and a field review was conducted to determine wetland locations within the study area. Digital resources examined include:

- U.S. Geological Survey black and white aerial photographs (2016)
- U.S. Geological Survey LiDAR data for South Dakota
- The Natural Resources Conservation Service (NRCS) Soil Survey Geographic Maps (SSURGO) for Lincoln County
- U.S. Fish and Wildlife Service National Wetlands Inventory (NWI)

The primary field delineation site visit was conducted on November 13, 2018, and a follow-up field delineation site visit was conducted on July 25, 2019. The purpose of these visits was to identify areas meeting the technical wetland criteria in accordance with the U.S. Army Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE 2010). The wetlands for this project were evaluated as part of a larger study area. The numbering applied in the overall study is maintained in this document for consistency with the initial survey. However, this section discusses only those wetlands located within the 85th Street study area.

In total, 44 wetland areas were delineated within the 85th Street study area. These include newly delineated wetlands for this study, as well as wetlands delineated in the past five years for other projects and approved by USACE (Hereby referred to as wetlands delineated by others). Wetlands in the study area consist of primarily palustrine emergent wetlands (PEM), with one palustrine unconsolidated bottom (PUB) wetland. The Preliminary Wetlands Assessment for the current survey was provided to the USACE on January 6, 2020 and is included in Appendix F. USACE provided an Approved Jurisdictional Determination (AJD) on March 6, 2020 (Appendix G). The AJD states that there are jurisdictional and non-jurisdictional waters located within the review area. Therefore, any activity involving the discharge of dredged or fill material within the waters of the United States would require a permit from the Corps of Engineers.

On April 21, 2020, after the date the AJD was received for this study, the U.S. Environmental Protection Agency (EPA) and the Department of the Army (Army) published the Navigable Waters Protection Rule (NWPR) in the Federal Register to finalize a revised definition of “Waters of the United States” under the Clean Water Act. For the first time, these agencies have streamlined the definition so that it includes four simple categories of jurisdictional waters, provides clear exclusions for many water features that traditionally have not been regulated, and defines terms in the regulatory text that have never been defined before. Congress, in the Clean Water Act, explicitly directed these Agencies to protect “navigable waters.” The Navigable Waters Protection Rule regulates the nation’s navigable waters and the core tributary systems that provide perennial or intermittent flow into them. Under the final NWPR, four clear categories of waters are federally regulated:

- The territorial seas and traditional navigable waters,
- Perennial and intermittent tributaries to those waters,

- Certain lakes, ponds, and impoundments, and
- Wetlands adjacent to jurisdictional waters

The final rule also details 12 categories of exclusions (i.e., features that are not “Waters of the United States”), such as features that only contain water in direct response to rainfall (e.g., ephemeral features), groundwater, many ditches, prior converted cropland, and waste treatment systems.

The NWPR, or “new rule”, may benefit the proposed project if it can be determined that currently identified potential jurisdictional wetland impacts could possibly be reduced by a combination of applying the new rule for a new jurisdictional determination and/or design modifications prior to submitting the required USACE Section 404 permit. There are a number of potentially impacted ditch wetlands, for example that may be excluded under the new rule. Coordination will continue with USACE during the project’s final design to assess the potential benefits to the project if the new rule is applied.

3.11.3 Impacts of Alternatives

Existing Conditions Alternative

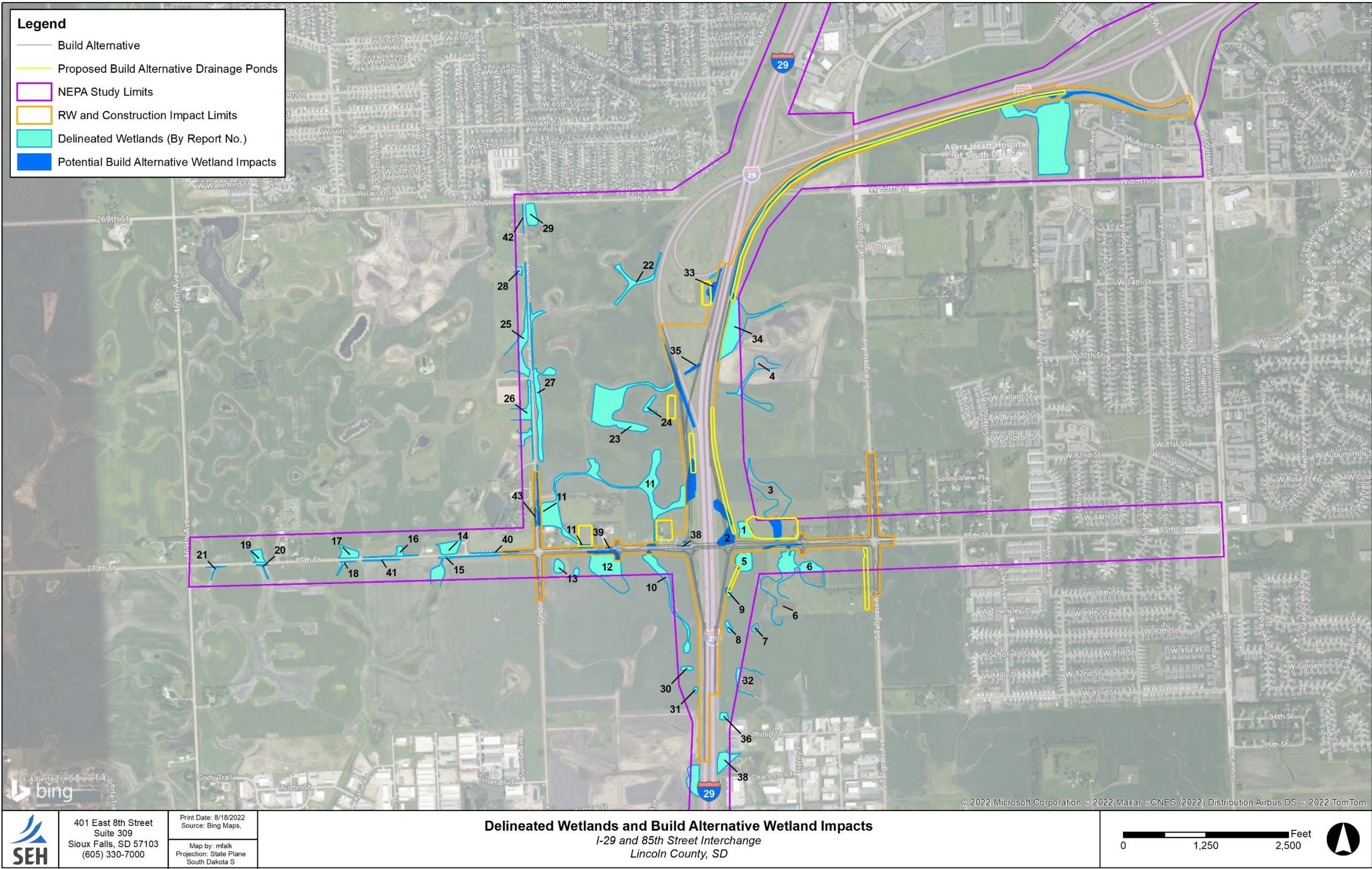
The Existing Conditions Alternative would involve no construction activities related to this project. However, some development in the area would be expected to occur, even under the Existing Conditions Alternative. This development would have the possibility of impacting wetlands in the area. These impacts cannot be quantified at this time. Additionally, private development is not bound by EO11990; therefore, impacts could potentially be greater than those associated with the Build Alternative.

Build Alternative

The Build Alternative would impact Jurisdictional and Non-jurisdictional waters. A Section 404 permit would be required for jurisdictional wetlands. Non-jurisdictional wetlands would need to be mitigated under EO 11990. Due to the large number of wetlands present with the general study area and the limited ability to modify the designs because of engineering constraints, it would be impossible to avoid all the wetlands. Completely avoiding wetlands would require the preferred alternative to be a no-build alternative, realignment alternative, or an alternative that creates a design exception (i.e. narrowing travel lanes or shoulders) on the Interstate Highway System. These are not practicable options. A no-build alternative would not address the project’s purpose and need. A realignment of I-229 would require unsafe curves in the alignment of the travel lanes and would likely require nearby I-229 bridge crossing relocations that would be prohibitively expensive. Narrowed travel lanes would not be acceptable due to potential safety and congestion issues that could result.

Because avoiding wetlands is a not a practicable option, a number of mitigation measures will be incorporated into the final design of this alternative and mitigation commitments for construction will be incorporated into the project plans. These commitments may include adjustments to ditch grading, and the use of silt fencing and barrier protection (potential solutions, to be determined during final design). Non-jurisdictional wetlands would be mitigated in accordance with FHWA regulation 23 CFR 777.9. With the implementation of the mitigation measures, there would be no net impact on wetlands. Delineated and impacted wetlands are shown in Figure 3-10 and listed in Table 3-7.

Figure 3-10: Delineated Wetlands and Build Alternative Wetland Impacts



Based on the preliminary design of the Build Alternative at the time of this report, the Build Alternative is anticipated to affect approximately 14.76 acres of wetlands (10.09 acres of jurisdictional wetlands and 4.67 acres of non-jurisdictional wetlands). This includes the 4.86 acres (3.23 acres of jurisdictional wetlands and 1.63 acres of non-jurisdictional wetlands) of impacts that would result directly from stormwater ponds integrated into the project's preliminary design.

Table 3-7: Delineated Wetlands and Potential Wetland Impacts

Wetland Number (SEH Delineated Wetlands)	Wetland Size (Acres in Study Area)	Potential Build Alternative Impacts (Acres)	Potential Impacts from Build Alternative Drainage Ponds (Acres)	Cowardin Classification	Jurisdictional (JD) Status
Wetland 1	1.04	0.12	0.09	PEM1C	Non-JD
Wetland 2	2.03	2.03	0.24	PEM1C	Non-JD
Wetland 3	1.00	1.00	0.97	PEM1B	Non-JD
Wetland 5	0.06	0.06	0.06	PEM1A	Non-JD
Wetland 6	3.15	0.32	-	PEM1C	Non-JD
Wetland 9	0.25	0.13	0.06	PEM1C	Non-JD
Wetland 10	1.82	0.07	-	PEM1A	JD
Wetland 11	11.50	2.58	0.47	PEM1B/PEM1C	JD
Wetland 12	3.94	0.79	-	PEM1B	JD
Wetland 15	1.29	< 0.01	-	PEM1A	Non-JD
Wetland 23	8.57	1.34	-	PEM1C	JD
Wetland 33	0.87	0.78	0.21	PEM1B	Non-JD
Wetland 34	21.30	5.09	2.76	PUBH	JD
Wetland 35	0.22	0.22	-	PEM1B	JD
Wetland 38	0.03	0.03	-	PEM1B	Non-JD
Wetland 39	0.02	0.02	-	PEM1C	Non-JD
Wetland 40	0.17	0.06	-	PEM1B	Non-JD
Wetland 43	0.11	0.11	-	PEM1B	Non-JD
Total Acreages		14.76 (10.09 JD, 4.67 Non-JD) Total Impacts	4.86 (3.23 JD, 1.63 Non-JD) Pond-Only Impacts		

3.11.4 Avoidance, Minimization, and/or Mitigation Measures

A wetland mitigation plan would be completed prior to construction of the Preferred Alternative. The mitigation plan for the proposed action would recommend purchasing credits from a mitigation bank. The EO 11990 Wetland Finding was signed on October 5, 2022 by SDDOT and FHWA and is documented in Appendix H. Off-site mitigation is being recommended because it is difficult to develop and maintain quality mitigation sites adjacent to roadways. For the proposed project, wetland mitigation for unavoidable impacts is planned to be accomplished through the purchase of mitigation bank credits from the Tetonka Wetland Mitigation Bank. A project participation commitment from the Tetonka Bank is appended to the Wetland Finding in Appendix H. USACE has confirmed that credits which were purchased for the prior, but not constructed, I-29 overpass project can be applied to the anticipated Section 404 permit for the current proposed interchange project. The final

amount of previous purchased credits that can be applied to this project will be determined in future discussions including the USACE and Tetonka LLP, including the amount and type of wetland credits that will be required.

Non-jurisdictional wetlands would be mitigated in accordance with FHWA regulation 23 CFR 777.9. The mitigation plan would be provided to the Tetonka Wetland Mitigation Bank as part of the process for purchasing credits. With the implementation of the mitigation measures there would be no net impact on wetlands.

3.12 Vegetation, Fish, and Wildlife

Biological resources considered in this section include vegetation, terrestrial wildlife, and aquatic wildlife. Several state and federal regulations on fish and wildlife coordination for environmental review have implications for this project. At the federal level, coordination regarding the Fish and Wildlife Coordination Act (1958), the Migratory Bird Treaty Act (MBTA), and the Endangered Species Act (ESA) is with the USFWS. At the state level, the South Dakota Department of Game, Fish and Parks (SDDGFP) regulates and manages certain fish and wildlife species including game, non-game, and state threatened or endangered species.

3.12.1 Affected Environment

A wide variety of vegetation presently exists within and adjacent to the study area: planted grasses within road ROWs, tilled cropland, pastureland, manicured lawns with planted grasses and ornamental type trees, wetlands, and idle land. All of the vegetation types listed above are present within and/or adjacent to the 85th Street study area. Two intermittent unnamed streams cross I-229 just west of the Louise Avenue Interchange within the study area. Additionally, the 85th Street Corridor includes trees which may be used as nesting sites for migratory birds, such as songbirds.

The quality of the wildlife habitat present within and adjacent to the study area is heavily influenced by existing vegetation and associated land use. The grassed road ROW, cropland, and manicured lawns are not the preferred habitat for most terrestrial wildlife species; however, wildlife species have adapted to use available habitat in urban areas. Additionally, the trees within manicured lawns have the potential to be used as nesting habitat by songbirds such as robins, finches, cardinals, etc. Depending on the amount of grazing that occurs, pastureland would be expected to provide fair habitat for wildlife species especially ground nesting birds, reptiles, and small mammals.

The idle land and wetland areas represent the best terrestrial wildlife habitat within the study area as these areas would provide nesting habitat for marsh type birds, and cover and foraging habitat for amphibians, reptiles, and small to medium sized mammals. Large mammals such as deer and coyotes would also be expected to utilize these areas on occasion. Wetlands with open water areas would also have the potential to be used by nesting and migration waterfowl. Proximity to existing urban features would limit the usage level of many wildlife species within all of the habitats. No publicly owned wildlife or waterfowl refuges exist within the study area.

Coordination occurred with SDDANR, DFP, and USFWS for this project. No specific concerns related to unique natural communities were raised by these agencies. Field surveys were conducted for wetlands and bat habitat for this study. No unique natural communities were identified as a result of the surveys. Additional survey information is included in Section 3.11 (Wetlands and other Waters of the United States) and Section 3.13 (Threatened and Endangered Species).

3.12.2 Impacts of Alternatives

Existing Conditions Alternative

With the Existing Conditions Alternative, there would be no construction activities related to this project. However, development would likely occur in the area. The expected land use changes associated with the development would be consistent with city and county development plans for the area. Any direct adverse impacts resulting from the implementation of this alternative to vegetation and terrestrial wildlife would be expected to be less than those associated with the Build Alternative.

Build Alternative

The Build Alternative would disturb vegetation located in the existing ROW, in newly acquired ROW, and on temporary construction easements.

Farmland conversion associated with the Build Alternative was determined to not require further consideration. Since vegetation within residential yards and the road ROW is generally planted grasses, conversion of residential yards to road ROW would not be considered a major effect on vegetation within the study area.

Projected land use in the project surrounding is primarily commercial and/or mixed-use; therefore, the land conversions discussed above are consistent with city and county development plans for the area.

Impacts to terrestrial wildlife involve both quantity and quality of usable habitat and both depend on expected changes in vegetation. As stated previously, disturbance to existing habitat would primarily include existing road ROW, lawns, and cropland. Much of this area would be maintained as new road ROW. Limited quantities of pastureland and idle land would be converted to road ROW. Depending on the alignment of the final design, some trees located within the study area may be designated for removal during construction of the roadway. These trees could be used as nesting habitat by migratory birds. Quantities of various land types that would be converted to new ROW are discussed in Section 3.1.

As discussed previously, the Build Alternative would result in the conversion of some wetland areas to roadway and road ROW. All wetland impacts would be mitigated in a manner that results in no net loss of wetlands. With the Build Alternative, there would be a minor reduction in the quality of terrestrial wildlife habitat within limited areas (pastureland and idle land) within the study area. Therefore, this alternative would only have minimal impact on the terrestrial wildlife species within the study area. Quantities of wetlands that would be converted to new ROW are discussed in Section 3.1.

3.12.3 Avoidance, Minimization, and/or Mitigation Measures

As discussed previously, impacts to wetlands would be mitigated by the purchase of credits in an existing wetland bank.

Adherence to the Migratory Bird Treaty Act (MBTA) and its amendments and USFWS regulations should result in the avoidance and/or minimization of most impacts to migratory birds. Vegetation removal, including the removal of trees would be timed to the extent possible to avoid the migratory bird breeding and fledging season (April 1 through July 15). If any trees need to be removed during this time period, the trees would be surveyed for nests by a qualified biologist and cleared prior to the initiation of work. If a nest is identified in any of the trees to be removed, a migratory bird nest depredation permit under the MBTA would be obtained from the USFWS, or appropriate inactive nest removal and hazing/exclusion measures would be incorporated into the work to avoid the need to disturb active migratory bird nests.

The bald eagle is no longer a federal-listed species; however, it is protected under the Bald and Golden Eagle Protection Act and the MBTA. Pre-construction surveys are recommended prior to construction to determine if any active bald eagle nests are located in the project area. The City of Sioux Falls would notify the USFWS if a bald eagle nest is located within one mile of the construction site at time of construction. The project engineer would be notified immediately so a course of action can be determined. Additionally, the project would comply with the National Bald Eagle Management Guidelines.

The City of Sioux Falls is taking a proactive approach to manage Emerald Ash Borers in Minnehaha & Lincoln Counties. Removal of ash trees by the project undertaking will need to coordinate an action plan in accordance with the City's approved quarantine data and restrictions.

The number of potential trees that could be impacted within the study area is less than 1 acre. Acreage of impacted trees and potential mitigation location will be determined during final design. Trees may be replaced but replacement is not required.

3.13 Threatened and Endangered Species

3.13.1 Potentially Affected Species

Through the USFWS Information for Planning and Consultation (IPaC) process, three federally listed species were identified within the project area. This includes one mammal, one bird, and one plant species.

- The Northern Long-eared Bat (*Myotis septentrionalis*, threatened) (NLEB) is a medium-sized bat about 3 to 3.7 inches in length but with a wingspan of 9 to 10 inches. As its name suggests, this bat is distinguished by its long ears. White-nose syndrome, a fungal disease known to affect bats, is currently the predominant threat to this bat, especially throughout the Northeast where the species has declined by up to 99 percent from pre-white-nose syndrome levels at many hibernation sites. During summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Males and non-reproductive females may also roost in cooler places, like caves and mines. This bat seems opportunistic in selecting roosts, using tree species based on suitability to retain bark or provide cavities or crevices. It has also been found, rarely, roosting in structures like barns and sheds. Northern long-eared bats spend winter hibernating in caves and mines, called hibernacula. They typically use large caves or mines with large passages and entrances; constant temperatures; and high humidity with no air currents.
- The Red Knot (*Calidris canutus rufa*, threatened) is a primarily brown and gray shorebird ranging from 25-28 centimeters in length. On wingspans of 20 inches, some knots fly more than 9,300 miles from south to north every spring and repeat the trip in reverse every autumn, making this bird one of the longest-distance migrants in the animal kingdom. The birds hopscotch along migration stopovers between wintering and breeding areas. A serious population decline occurred for the species in the 2000s, caused primarily by reduced food availability from increased harvests of horseshoe crabs. Knot numbers appear to have stabilized in the past few years, but they remain at low levels relative to earlier decades.
- The Western Prairie Fringed Orchid (*Platanthera praeclara*, threatened) is a smooth, erect, perennial herb that grows to 4 feet tall. Plants have two to five fairly thick, elongate, hairless leaves each. The open, spike-like flowering stalk bears up to 24 showy, 1-inch wide, white flowers. The lower petal of each flower is deeply 3-lobed and fringed, hence the common name. It is found most often on unplowed, calcareous prairies and sedge meadows. It has been cited that conversion of habitat to

cropland is the greatest remaining threat to southern populations. The persistence of western prairie fringed orchid is dependent on periodic disturbance by fire, mowing, or grazing, but these practices may also cause adverse effects and must be carefully implemented.

A map of the study area was provided to the South Dakota Game, Fish and Parks Department GFP as part of the Early Coordination process. In their response letter dated March 6, 2019, GFP stated that there no anticipated significant impact to state-listed threatened and endangered species.

3.13.2 Impacts of Alternatives

Existing Conditions Alternative

The Existing Conditions Alternative would involve no construction activities related to this project. However, some development in the area would be expected to occur. This development would have the possibility of impacting threatened and endangered species. These impacts cannot be quantified at this time.

Build Alternative

No impacts would occur to threatened and endangered species as a result of implementing the Build Alternative. Preferred habitat for the federal-listed/proposed for listing species and state-listed species does not occur within the study area. Support for this determination is included for each species:

- The Northern Long-eared Bat – The study area does not contain winter hibernacula (caves and mines) for the northern long-eared bat. Consultation with SDGFP via email further supported that there are no Hibernacula or known Maternity Roosts within three miles of the project. However, the potential for summer roosting sites exists within the area. Trees and manmade structures which could serve as roosting habitat occur within the study area. A habitat survey was completed on July 28, 2019 to determine if structures planned for removal within the project area (three houses and four sheds) are serving as roosting habitat for the northern long-eared bat. The survey concluded none of the structures were being used by the bats. The survey is provided in Appendix D. SDGFP also included in their coordination response letter dated March 6, 2019, that there no anticipated significant impact to fish and wildlife resources.

In December 2016, the USFWS completed a revised Programmatic Biological Opinion (PBO) for Transportation Projects in the Range of the Indiana Bat and the northern long-eared bat. Coordination for this project was initiated by submitting the online consultation form and habitat survey to the USFWS on April 4, 2019. A preliminary determination of “May Affect – Not Likely to Adversely Affect” was made for the NLEB for this project. A follow up-letter was sent to USFWS on April 26, 2019 listing SDDOT’s effect determinations for all species identified through the IPaC process, including the “May Affect – Not Likely to Adversely Affect” determination for the NLEB. USFWS requested that a new habitat survey be conducted (survey referenced above) since the survey conducted previously in the study area was conducted more than 12 months previously.

A habitat survey was conducted on July 28, 2019. The survey was approved by SDDOT and FHWA and then sent to USFWS on April 24, 2020. USFWS concurred with the survey findings and the “May Affect – Not Likely to Adversely Affect” determination for the NLEB in their final correspondence letter dated May 19, 2020. The IPaC online consultation process was updated on April 14, 2020 and an updated verification letter was issued. IPaC was revised on February 7, 2022 to update the projects expired

endangered species list, confirm that no new species may be present, and confirm that the NLEB Verification letter had not expired.

- The Red Knot - No project impacts are expected for the Red Knot. This species is migratory and is known to avoid inhabited, urbanized areas. Although no critical habitat has been defined for this species, no shallow water is available that would support feeding during migration, making the study area an unideal stopover site. A letter was sent to USFWS on April 24, 2020 with a preliminary determination of “No Effect” for this species. USFWS concurred with this determination in their correspondence letter dated May 19, 2020.
- The Western Prairie Fringed Orchid – No project impacts are expected for this species. Impacts would primarily occur on cropland and mowed rights of way, which are not suitable habitats for this species. A letter was sent to USFWS on April 24, 2020 with a preliminary determination of “No Effect” for this species. USFWS concurred with this determination in their correspondence letter dated May 19, 2020.

Based on the above findings, it has been determined that the Build Alternatives would not likely affect the NLEB, would not affect other federal listed or candidate species, and would have no impact on the state listed species.

3.13.3 Avoidance, Minimization, and/or Mitigation Measures

To avoid impacts to the NLEB, project activities that include tree removal, structure work, and/or work within 150 feet of a potential maternity roost tree should not occur between November 1st and March 31st.

3.14 Cultural (Historic and Archaeological) Preservation

In addition to review under NEPA, consideration of effects to cultural resources is mandated under Section 106 of the National Historic Preservation Act (NHPA), as amended through 2006 (16 U.S.C. 470 et seq.) and implemented by regulations found at 36 CFR § 800. Section 106 of the NHPA requires the federal agency to take into account the effect of an undertaking on any historic properties within the area of potential effects (APE). Historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). The APE is defined as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

3.14.1 Affected Environment

The study area was evaluated for cultural resources, and a survey was conducted in the APE, defined for this project as the area where project activities (i.e., grading, structure replacement, traffic light installation, etc.) are anticipated to occur. The APE for this project includes the area approximately ¼ mile immediately east and west on 85th Street, and the area including the ramp from I-29 SB to I-229 SB. Only those resources that have the potential to be affected by the study’s alternatives are discussed in this EA.

On April 25, 2019, the records maintained by the South Dakota Archaeological Research Center (SDARC) of the South Dakota State Historical Society were searched for all previous projects and known cultural resources within 1 mile of the NEPA study area. The records search revealed that within one mile of the survey and study areas, 54 previous surveys were completed between 1990 and 2017 which. Seven archaeological sites, five bridges, and 114 structures have been recorded for this area. Of these identified resources, the NEPA study area

includes, 24 cultural resources surveys, two archaeological sites, 14 standing structures, and one bridge. The APE includes six previous surveys and one previously recorded structure.

In April 2019, all built environment sites (historic buildings and structures) within the indirect APE were documented. An intensive cultural resources survey of the direct APE, which encompasses approximately 55 acres, was completed in June 2019 by SDARC. The survey resulted in the recordation of four structures. These include single family residences and associated outbuildings which were most likely built before 1977 but after 1958. The field survey confirmed the presence of one previously recorded structure, another single-family residence.

The survey also recorded one new archaeological site, a Euro-American artifact scatter with an associated depression. The site contains remnants of a house built between 1958 and 1997. It was torn down sometime between 1997 and 2017. The site's depression is located on the footprint of where the structure used to be. The sites artifact scatter consists of a destroyed homestead with the remnants of a gravel driveway still visible. The artifact scatter also includes: one complete colorless glass bottle; colorless curved glass; amber/brown curved glass; concrete fragments; cut wood; concrete blocks; a piece of a terracotta pipe; plastic fragments; segments of plastic piping; and aluminum cans.

3.14.2 Impact of Alternatives

Existing Conditions Alternative

The Existing Conditions Alternative would not result in any expansion of the roadways in the APE. No construction activities would occur, and no new ROW would be needed. This alternative would not impact historic structures or archaeological sites in the study area.

Build Alternative

The four recorded structures and one newly recorded archaeological site were recommended by SDARC as not eligible for the National Register. The previously recorded structures have already been determined as not eligible for the National Register through previous studies.

Letters were sent on February 27, 2019, to eight Native American Tribes that have expressed interest in highway projects in Lincoln County. A response was received from the Yankton Sioux Tribe on March 20, 2019, stating that the Tribal Historic Preservation Office had no interest in the project at that time. No other responses were received from the Native American Tribes. A list of the Native American Tribes that were consulted regarding the project is provided in Section 6.2. Documentation of Tribal Coordination is included in Appendix D.

FHWA and SDDOT made a determination of No Historic Properties Affected for this undertaking as stated in the correspondence letter received by the SHPO on September 27, 2019. SHPO coordination and response letters are included in Appendix D.

3.14.3 Avoidance, Minimization, and/or Mitigation Measures

During the construction of the Build Alternative, the contractor would be responsible for assuring any borrow brought in from outside the study area is obtained from an approved site. The Contractor will also be responsible for a cultural resource review of all clearing material processing sites, stockpile sites, storage areas, plant sites, and waste areas not designated in the plans.

If cultural resources are encountered during construction activities, construction would be stopped and the SHPO would be contacted. Construction would not be resumed until appropriate coordination has occurred and SHPO approval has been received.

All undertakings involving human remains are subject to applicable federal and state burial laws and ordinances, including the Native American Graves Protection and Repatriation Act (NAGPRA) when on federal lands and South Dakota Codified Law (SDCL 34:27:21-31) when on state or private lands. In the event of an inadvertent discovery of human remains or funerary objects on state or private land, the procedures outlined in SDDOT's Inadvertent Discovery of Human Remains guidance will be followed.

3.15 Environmental Justice

Title VI of the Civil Rights Act of 1964 and Executive Order 12898 require that agencies identify, and address disproportionately high or adverse impacts projects may have on low-income and minority populations. A full analysis of Environmental Justice (EJ) populations was conducted for this study, which first identified potential EJ populations in the study area and examined any potential disproportionate impacts to these populations.

3.15.1 Environmental Justice Analysis

Throughout the project, the public involvement process has been inclusive of all residents and population groups in the study area and did not exclude any individuals on the basis of age, color, creed, disability, gender identity, national origin, pregnancy, race, religion, sex, sexual orientation, or veteran's status.

An analysis of the presence potential Environmental Justice Populations was conducted as part of this study. American Community Survey 2017 five-year estimate data at the census block level indicates that approximately 92.3% of socioeconomic study area residents self-identified as white. Conversely, 7.7 % of people identified as something other than white alone, and 2.7% of people identified as white-alone and Hispanic or Latino, making the total minority population 10.4% of the total population. This is less than total percent minority population for the combined Lincoln and Minnehaha County areas (14.2%). Typically, a community is considered to have a disproportionately high concentration of minority populations if the percentage of its minority population exceeds 125% of a community of comparison (COC). In this case, the 125% minority population threshold for the study's COC (the combined Lincoln and Minnehaha County population) is 17.7%. Although some census block groups within the socioeconomic study exceed this threshold, the socioeconomic study area as a whole does not.¹³

Figure 3-11: Socioeconomic Study Area

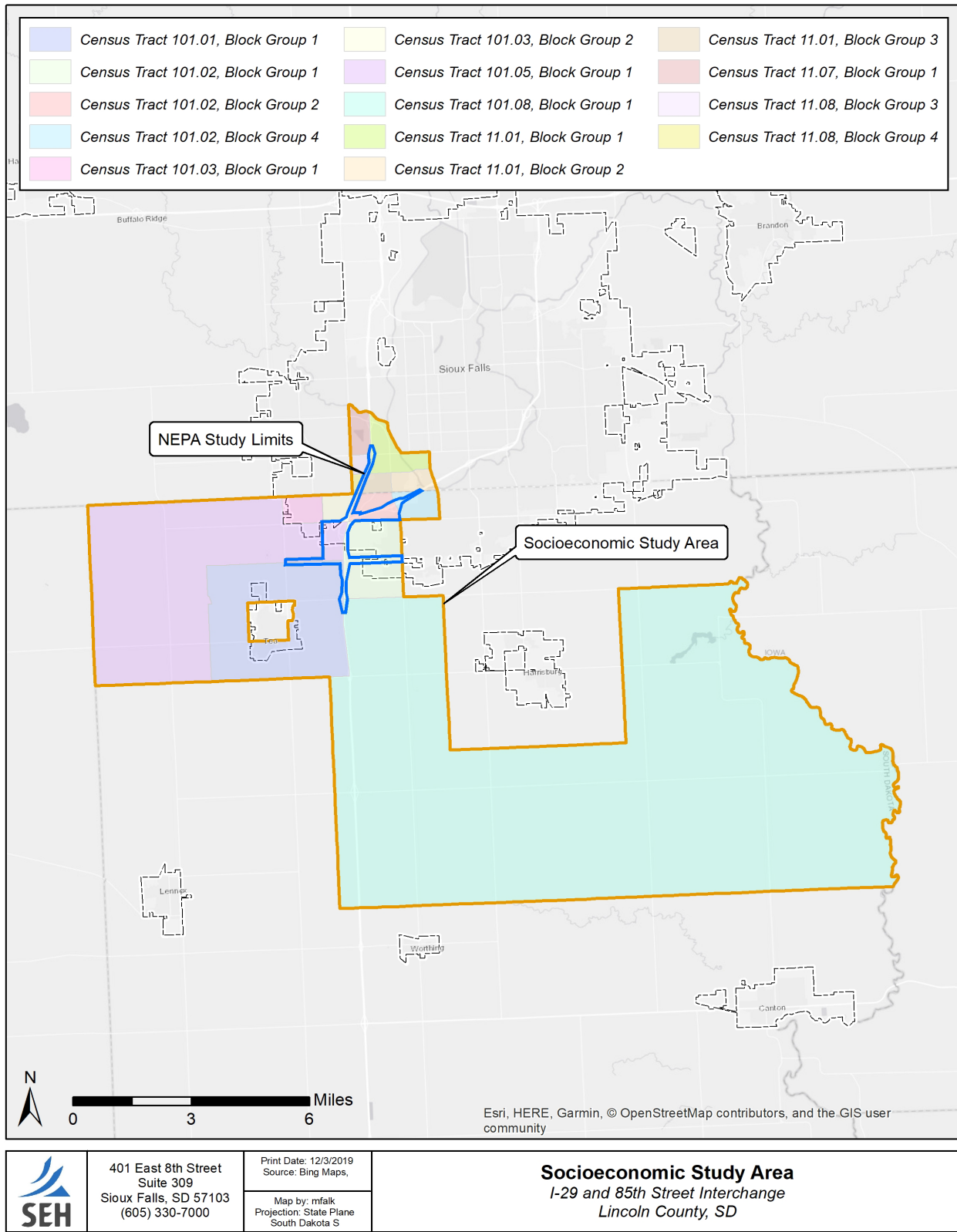


Table 3-8: Environmental Justice Analysis – Minority Populations

	All Socioeconomic Study Area Block Groups	All Socioeconomic Study Area Block Groups (%)	Community of Comparison (COC) Combined Lincoln and Minnehaha Counties
Total Population	24,620	100.0%	236,807
Population of one race:	24,044	97.7%	230,375
White	22,717	92.3%	208,834
Black or African American	588	2.4%	9,407
American Indian and Alaska Native	149	0.6%	4,695
Asian alone	268	1.1%	4,089
Native Hawaiian and Other Pacific Islander	27	0.1%	90
Some other race	295	1.2%	3,260
Population of two or more races:	576	2.3%	6,432
Hispanic or Latino - all races	979	4.0%	9,558
Hispanic or Latino - white alone	662	2.7%	5,570
Total Minority	2,565	10.4%	33,543
Percent Minority	10.4%	-	14.2%
125% of COC	-	-	17.7%
Potential EJ Concern?	No	-	-

Low-income populations are commonly identified as the percentage of the population living in poverty as defined by the U.S. Census Bureau. American Community Survey 2017 five-year estimate data indicates that the poverty status was determined for 24,424 residents in the socioeconomic study area, and 1,448 (5.9%) of were determined to be below the poverty level. This is lower than the combined population of Lincoln and Minnehaha Counties (9.2% below the poverty level) and the 125% COC threshold (11.4% below the poverty level), although there are some block groups in the study area that exceed this threshold.

Table 3-9: Environmental Justice Analysis – Minority Populations

	All Socioeconomic Study Area Block Groups	All Socioeconomic Study Area Block Groups (%)	Community of Comparison (COC) Combined Lincoln and Minnehaha Counties
Population for whom poverty status is determined	24,424	100.0%	231,488
Population below the poverty level	1,448	5.9%	21,200
Percent below poverty level	5.9%	-	9.2%
125% of COC	-	-	11.4%
Potential EJ Concern?	No	-	-

3.15.2 Impact of Alternatives

Existing Conditions Alternative

The Existing Conditions Alternative would not make any changes to the transportation system that would disproportionately impact environmental justice populations within the socioeconomic study area.

Build Alternative

The socioeconomic study area does not contain disproportionality high concentrations of Environmental Justice Populations that would be impacted by the Build Alternative relative to the surrounding area. Within the study area, concentrations of low-income and minority populations are not evenly distributed among census blocks, but the Build Alternative would not relocate persons protected by environmental justice policies, and no permanent impacts are anticipated that would disproportionately affect environmental justice populations. This alternative would provide a net benefit to the entire population within the socioeconomic study area by improving mobility and traffic operations. The Build Alternative designs for the 85th Street Corridor include improvements for bicycle and pedestrian facilities. While these would not immediately tie into regional trail and sidewalk networks, they would contribute to future regional routes currently planned by the City of Sioux Falls and MPO. These would provide improved transportation routes for low-income persons who may not be able afford a motorized vehicle. During construction, temporary disturbances to traffic, residences, and businesses, which could include including environmental justice populations, would likely occur. However, vehicular, and pedestrian access to these resources would be maintained throughout construction, and construction is not expected to disproportionately burden minority or low-income populations.

3.15.3 Avoidance, Minimization, and/or Mitigation Measures

No minority or low-income populations that would be adversely affected by the proposed project alternatives have been identified as determined above. Therefore, this project is not subject to the provisions of Executive Order 12898.

No avoidance, minimization, or mitigation measures related to Environmental Justice are required.

3.16 Section 4(f) and Section 6(f) Resources

Section 4(f) of the USDOT Act of 1966, now codified in 49 U.S.C. 303 and 23 U.S.C. 138, protects the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) provides that the Secretary of the USDOT shall not approve any program or project that requires land from a public park, recreation area, wildlife or waterfowl refuge, or historic (including archeological) sites of national, state or local significance as determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative to the use of such land and such program or project includes all possible planning to minimize harm resulting for the use.

The Land and Water Conservation Fund Act (Section 6[f]) established a land and water conservation fund to assist local, state, and federal agencies in meeting the demand for present and future outdoor recreation sites. This is done through grants for land acquisition, park amenities, and other park development costs. Once a city, county, or agency has used Section 6(f) for funds, either the land or the park appurtenances cannot be eliminated or acquired without coordination with the National Park Service and the substitution of the property proposed for replacement is of reasonable equivalent usefulness and location as that being converted.

Use of a Section 4(f) property occurs: (1) when land is permanently incorporated into a transportation project; (2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose;

or (3) when there is a constructive use (a project's proximity impacts are so severe that the protected activities, features, or attributes of a property are substantially impaired).

3.16.1 Section 4(f) and Section 6(f) Resources Present

No Section 4(f) resources exist within the study area. However, several parks, including Sertoma Park, Oxbow Park, and Yankton Trail Park lie adjacent to or are in close proximity to the study area. These parks qualify as protected section 4(f) resources.

Three parcels adjacent to I-29 and I-229 are identified on the Sioux Falls current land use map as being used for conservation and other green space (Parcel ID 280.50.08.007, 280.82.00.300, and 012136327006000). These parcels are all owned by the City of Sioux Falls and are used for stormwater management purposes. None of these properties are used for public parks or recreation, wildlife or waterfowl refuges, or are historic sites, and therefore do not qualify as Section 4(f) properties. No properties within the study area were identified as Section 6(f) lands.

Coordination with the City Parks department took place during the NEPA process, and no additional publicly owned land within the study area is planned for use that would cause it to function as a Section 4(f) land.

There are no historic sites, parks and recreational resources, wildlife or waterfowl refuges, which meet the definition of a Section 4(f) resource, within the project vicinity. Therefore, this project is not subject to the provisions of Section 4(f) of the Department of Transportation Act of 1966.

3.16.2 Impacts of Alternatives

Existing Conditions Alternative

The Existing Conditions Alternative would not result in any expansion of the roadways in the study area. No construction activities would occur, and no new ROW would be needed. This alternative would not impact any Section 4(f) or Section 6(f) resources.

Build Alternative

No Section 4(f) properties are located within the study area. No direct impacts would occur to any adjacent or nearby Section 4(f) resource as a result of implementing the Build Alternative, and no temporary occupancy of such a resource would occur. No disruptions to access would occur to these resources. No impacts to the use, features, or attributes of these Resources would occur.

Section 6(f) properties which could be impacted by any of the project's alternatives are not present within or adjacent to the study area.

3.16.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures related to Section 4(f) or Section 6(f) resources are required.

3.17 Regulated Materials and Hazardous Waste

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 USC 9601 et seq.), commonly referred to as "Superfund" established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste, and established a trust fund to cleanup when no responsible party could be identified.

The Resource Conservation and Recovery Act (RCRA) (42 USC §6901 et seq.) gives the U.S. Environmental Protection Agency the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled the U.S. Environmental Protection Agency to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

While CERCLA and RCRA are the primary federal laws governing regulated materials and hazardous waste, a number of other federal laws discussed in other sections, such as the CWA, CAA, and Safe Drinking Water Act, also apply.

The American Society for Testing and Materials (ASTM) Standard E 1527-05 defines a recognized environmental condition (REC) as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release. Or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property."

This section discusses the potential for soil, surface water, or groundwater contamination to be encountered during within the study area. This section discusses existing and potential environmental conditions in the study area that could affect the project. Environmental conditions include facilities and properties where hazardous material spills or leaks have occurred and may present risk to the purchaser of that property. Contaminated, or potentially contaminated, properties are of interest for transportation projects because of the potential liability associated with acquiring contaminated property for ROW, the potential cleanup costs, and the safety concerns related to exposure to contaminated media (i.e., soil, surface water, or groundwater).

3.17.1 Affected Environment

A Modified Phase I Environmental Site Assessment (ESA) was completed for this study in August 2019 (Appendix I of this EA). The ESA identifies potential soil, groundwater and soil vapor contaminated sites that may pose an environmental risk to the project. Activities conducted as part of the Phase I ESA include records review, site reconnaissance, and interviews. The project area includes property within a "buffer" around the project limits, as depicted on Figure 3-12. All parcels partially or wholly within the buffer were assessed during the Modified Phase I ESA. A total of 257 sites were identified within the buffer area, which required detailed review.

The SDDANR Spills, Leaks Tanks, and Wells website databases were used as the primary source of environmental site information for the records review portion of the ESA. An environmental database review was conducted within the buffer area. A third-party database, GeoSearch, was also conducted for the buffer area as a supplemental information source on March 15, 2019. Results of the records review are summarized in Table 3-10.

Table 3-10: Regulated Material Records Review Summary

Database Type	REC's Identified
Environmental Database Review	118 total database entries
Registered Tanks	54 tanks from 11 sites (2 current AST, 18 current UST, 36 removed UST)
Spills	31 spills from 20 sites
Monitoring Wells	3 monitoring wells from 3 sites

Additionally, a field survey or “windshield” survey was completed for the study area. No above ground storage tanks (AST) were visible from the roadway which might pose a risk of contamination to soil, groundwater, or surface water in the study area.

The Phase I ESA identified a number of area wide concerns for the study area. These concerns do not necessarily qualify as RECs but are worth noting as they may potentially affect aspects of the project. The following concerns were expressed in the ESA:

- **Railroad Corridors**

A former railroad corridor generally parallels I-229 through the project corridor. General concerns regarding railroads and adjacent properties include: facilities adjacent to railroad corridors have a risk of spills where loading/unloading of hazardous/regulated materials may have historically taken place. Additionally, railroads may have used herbicides for controlling encroaching vegetation along the tracks, and pesticides for rodent control. The potential exists for creosote or other chemically treated railroad ties to have been left in place during previous realignments/abandonment of rail lines. Rail yard/track areas where maintenance activities took place are often associated with petroleum and heavy metals contamination. Polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs), and other industrial products related to maintenance activities can also be associated with rail operations. Ash, coal slag, demolition debris and asbestos may be associated with rail yards from past storage/disposal practices.

- **Historical Structures and Non-native Fill**

Portions of the project corridor were observed to be built up. Fill material was historically placed for interchanges and developed properties to achieve the current grade. The origin of this fill material is not known. Historical structures such as residential properties, single family farms, apartment buildings, etc., may have remnants of historical structures, such as demolition debris or foundations associated with the removed buildings. The potential exists that buried materials are present within the project corridor that require management as solid waste or waste with hazardous materials or regulated substances. Additionally, farmsteads, churches, hotels, and other structures historically may have used undocumented heating oil tanks and/or farm ASTs. Farm dumps can also be associated with historical farmsteads. Portions of the project corridor are currently occupied by farms and likely have fuel ASTs for farming equipment.

- **Commercial Warehouses/Distributors and New Development**

Several locations (primarily in Tea) are developed with multiple commercial warehouses, building contractor businesses, and construction product distributors. Outdoor storage of building materials and equipment, as well as piles of aggregate or other grading materials are common at these sites. Potentially on-site equipment maintenance or light manufacturing may occur. Many of these sites are small quantity hazardous waste generators and likely use small quantities of petroleum or other hazardous substances on-site. These sites were not identified as environmental concerns solely for those purposes.

- **Hazardous Liquid Pipelines**

Hazardous liquid pipelines were identified through the project corridor. The National Pipeline Mapping System public online viewer allows viewers to access general locations of pipeline accidents and incidents dating back to 2002. No liquid pipeline accidents or incidents were identified within the project corridor. Pipeline products can be released to the environment and are commonly the result of corrosion or accidental damage to the pipe system.

Of the 257 sites that required a detailed review for this study, 44 sites in the study area were identified as REC's for the purpose of this study. Not all of these are likely to impact the project. The Phase I ESA recommends that a Phase II Investigation work plan be developed prior to construction if impacts are anticipated to any open REC sites.

The SDDANR was contacted about this project by letter in February 2019 (Appendix C of this EA).

3.17.2 Impacts of Alternatives

Existing Conditions Alternative

The Existing Conditions Alternative would not involve any construction activities related to this project.

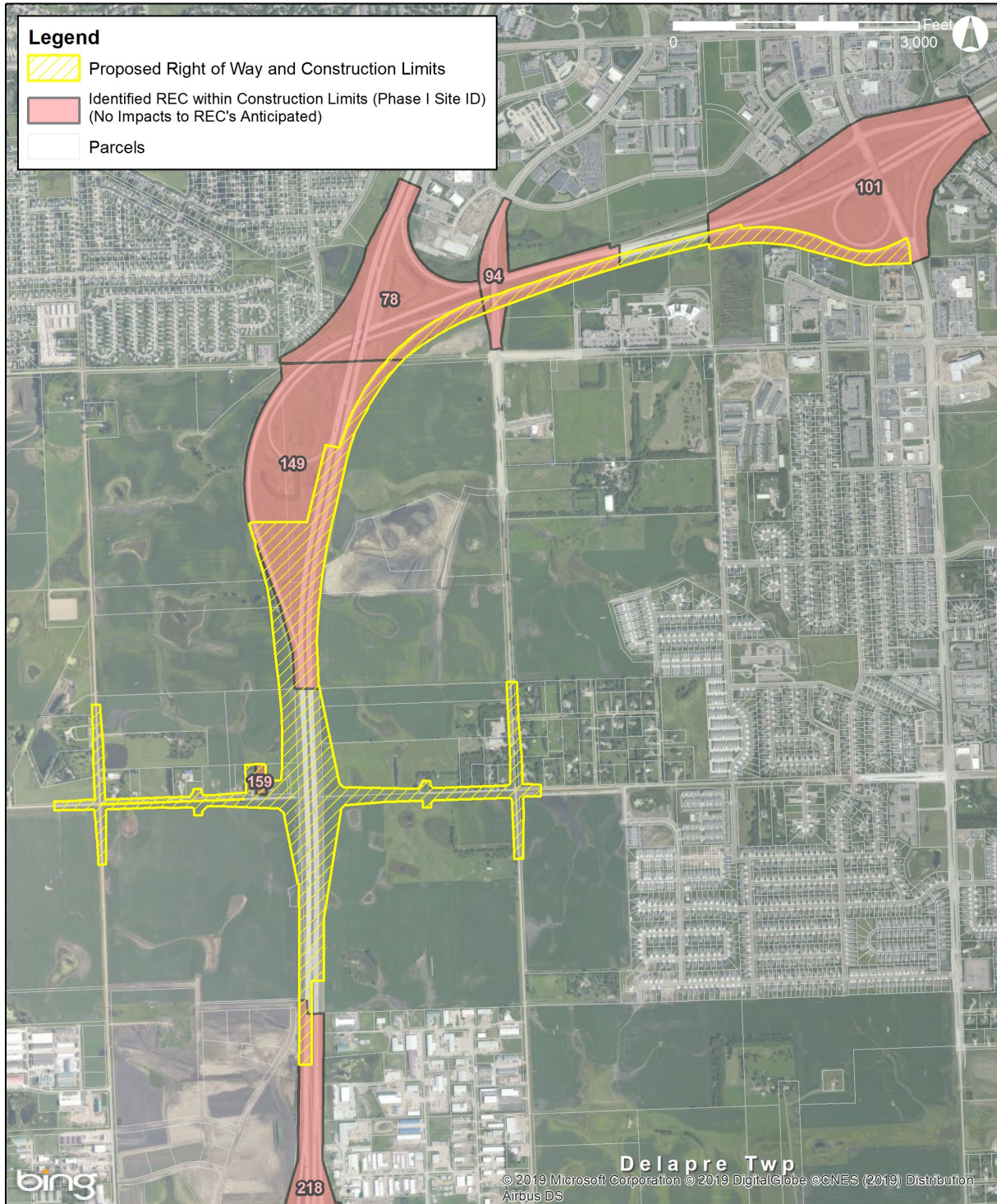
Build Alternative

Of the 44 sites identified as having potential environmental concerns for this study, six of them are located within the proposed construction limits of the Build Alternative. These sites are shown in Figure 3-13. No limitations to site investigations were noted in the Phase I ESA.

Of the six potential REC sites within the construction limits of the Build Alternative, four of these potential REC sites include the abandoned rail corridor that runs along I-229. The rail corridor would not be disturbed by construction activities resulting from the Preferred Alternative, and as a result, no impacts to any potential REC sites related to rail corridors would be anticipated with the construction of the Build Alternative.

All six of the potential REC sites located within the construction limits were identified for having at least one spill occur on the site. Table 3-11 shows more information on identified spills.

Figure 3-13: Potentially Impacted Recognized Environmental Conditions



	401 East 8th Street Suite 309 Sioux Falls, SD 57103 (605) 330-7000	Print Date: 12/4/2019 Source: Bing Maps, Lincoln County Map by: mfallk Projection: State Plane South Dakota S	<p align="center">Potentially Impacted Recognized Environmental Conditions I-29 and 85th Street Interchange Lincoln County, SD</p>
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Table 3-11: Spills Summary

Site No.	Spill	Actions taken	Site Status ¹
78	60 gallons of diesel fuel	Fuel absorbed and obtained with booms, contaminated soils removed.	Closed
094	25 gallons of diesel fuel	Contaminated soils were removed, screened, and disposed of in a landfill.	Closed
101	70 gallons of diesel fuel	Most of the product was recovered while the remaining was flushed out of the sewer system.	Closed
149	50 gallons of diesel fuel	DENR recommended closure of the site. No additional Information was available.	Closed
149	Saddle tank contents	Very little of the tanks contents released. Recommended for closure by DENR.	Closed
159	Sheen identified on water in residential sump	No source identified, site recommended for closure.	Closed
218	500-600 gallons of diesel fuel	Approximately 146 tons of contaminated soils were removed from the site.	Closed

As shown in Table 3-11, all spills in the construction area have been remediated as necessary, and all files on these sites are closed. It is not anticipated that construction of the Build Alternative would not result in any disturbance to REC sites related to spills.

3.17.3 Avoidance, Minimization, and/or Mitigation Measures

To avoid and/or minimize impacts on regulated materials sites in the environmental study area, a construction BMP would be implemented. The Contractor should be alert for large areas of soil staining, buried drums, ASTs, and USTs, and should coordinate with SDDOT and SDDANR if any obvious contamination is found prior to continuing work in those areas.

3.18 Visual Impacts and Aesthetics

NEPA was established, in part, to “assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings” Sec. 101 [42 U.S.C. § 4331]. NEPA is the primary governing rule that established the country's national environmental policy. NEPA requires Federal agencies to undertake an assessment of the environmental effects of their proposed actions prior to making decisions. Visual impacts are included among those environmental effects.

Other federal regulations exist which govern visual aesthetics as they relate to specific resources. These include National Scenic Areas, Wild and Scenic Rivers, the National Trails System, National Monuments, Historic Resources, and Sections 4(f) and 6(f).

The State South Dakota Environmental Procedures Manual observes FHWA guidelines for determining the need for a Visual Impact Assessment (VIA) and the level of assessment required.

Other local government plans, policies, and ordinances may also govern visual aesthetics. No such plans, policies, or ordinances apply to the study area.

3.18.1 Affected Environment

The viewshed surrounding the 85th Street Corridor includes undeveloped land or agricultural fields with approximately 25 single family residential housing units located primarily along the north side of 85th Street, and a residential neighborhood located northwest and southwest of the intersection of 85th Street and Louise Avenue.

FHWA's VIA scoping questionnaire is a helpful tool in determining whether a VIA should be completed for a project. Projects scoring in the 6-9 point range, and with no special needs/considerations do not require VIA's. A VIA was considered for this project, but ultimately deemed unnecessary for the following reasons. Note, each of these reasons corresponds to a question on the VIA Scope Questionnaire, and the associated point values are included with each reason. The total points scored for determining the need for a VIA was 9.

- 1) Low level of permanent/temporary change in physical environment characteristics (1 pt.)
- 2) High compatibility with the Visual character desired by the community (1 pt.)
- 3) No local concern for project features (0 pts.)
- 4) No extensive strategies/measures would be required for mitigating visual impacts (0 pts.)
- 5) No collective/aggregate adverse visual change (adverse cumulative impacts unlikely) (1 pt.)
- 6) No potential for project controversy within the community (0 pts.)
- 7) Low potential for viewer sensitivity (1 pt.)
- 8) High project compatibility with applicable aesthetic laws/ordinances (1 pt.)
- 9) Permits would be required by outside regulatory agencies (3 pts.)
- 10) No additional benefit for project sponsor/public would be anticipated from VIA (1 pt.)

The VIA Questionnaire is included in Appendix J.

3.18.2 Impact of Alternatives

Existing Conditions Alternative

Much of the area located along 85th Street is predicted to develop in the future. As this development occurs, the viewshed would be changed from a rural setting to an urban setting which is consistent with planned commercial and mixed-use development for the area. Lack of transportation improvements may impact and timing and density of urban development but would not be anticipated to alter the overall character.

Build Alternative

During the construction the Build Alternative, the viewshed would be temporarily altered by construction activities and construction equipment. Any bridge or ramp structures would add a new built feature to the general viewshed resulting in a minor change to the visual aesthetics of the area. I-29 already makes up part of the viewshed in the area, and additional transportation structures (such as bridges and entrance/exit ramps) would do little to change the current character. Modifications associated with the Build Alternative would occur adjacent to existing transportation corridors and would be typical for this type of roadway project. Views of the surrounding area, including existing and future businesses, would be maintained, or even enhanced by improved transportation facilities with this alternative, providing a net benefit to those businesses.

3.18.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures related to visual impacts and aesthetics are required.

3.19 Construction Impacts

The impacts of construction would be temporary and limited to the period of construction. Impacts during construction would be related to noise, air quality, visual resources, wetlands and other WOUS, water quality, habitat, fish, and wildlife. In addition, there would be temporary impacts on travel patterns and accessibility. Because detailed discussion of construction impacts is not feasible until final design has been completed for the Build Alternative, general impacts are discussed in this section. However, all practical precautions would be taken to limit and minimize the temporary impacts of construction activities. Construction-related impacts for the project would be minimized by compliance with the SDDOT 2015 Standard Specifications for Roads and Bridges and the City of Sioux Falls General Conditions, Specifications, and Policies.

3.19.1 Noise

Areas located adjacent to construction are likely to experience temporary noise impacts associated with construction activities, such as noise generated from machinery required for road and bridge construction. These construction activities may include excavating, filling, grading, pile driving, and other related activities. These construction-related noise impacts would be short-term and limited to the duration of construction.

During the construction, there would be overnight re-routing of I-29 traffic on to existing roadways (i.e., Louise, County Road 106). Traffic detours could create additional noise impacts to areas not directly adjacent to the construction area due to re-routing traffic. These impacts would be temporary, short-term, and minor and no mitigation would be necessary.

Previously identified noise best management practices (BMP's), in accordance with SDDOT 2015 Standard Specifications and the City of Sioux Falls General Conditions, Specifications, and Policies, would be used to mitigate construction related noise impacts.

3.19.2 Air Quality

Short-term air quality impacts during construction would occur for the following reasons:

- Vehicle delays during construction would increase exhaust emissions.
- Construction vehicles and related equipment would increase exhaust emissions.
- Disruption of ground covers by grading and other activities would generate dust.

Emissions caused by vehicle delays, construction vehicles, and related equipment and activities generating dust would be minimized to the extent possible and are not expected to change the attainment air quality status of the project or surrounding areas.

To minimize air quality impacts during construction, the following BMP's would be implemented:

- Construction contractors would be required to comply with the statutory regulations for the State for air pollution control and to receive permits, as needed.
- Construction contracts would stipulate adherence to requirements regarding open burning of grub material, fugitive dust, visible emissions, and permits.
- A schedule of water sprinkling would be developed and followed to control dust.

3.19.3 Visual Resources

Impacts on visual resources during construction would be temporary and negligible. For any construction areas that would remain un-vegetated for an extended period of time, such as over the winter, temporary seeding would be required in accordance with the SWPPP. This would be required around residential areas and any other area where fugitive dust over an extended period of time would be considered an unacceptable visual impact.

3.19.4 Wetlands and Other Waters of the United States

Construction of the Build Alternative would result in the filling of wetlands. Approximately 14.42 acres would be impacted with the construction of the Build Alternative.

Per EO 11990, a wetland finding has been approved and a mitigation plan will be prepared to address impacts to non-jurisdictional wetlands. Impacted wetlands would be mitigated in accordance with FHWA guidelines (23 CFR 777.9). The Wetland Finding is included in Appendix H.

Future development would create additional ground disturbance, which can contribute to degradation of water quality of receiving waters during precipitation events. A SWPPP would be prepared for each project disturbing at least one acre. The SWPPPs would outline the measures that would be taken to control soil erosion and sedimentation related to stormwater runoff during construction activities. Temporary and permanent erosion and sediment control measures would be employed in appropriate locations. Typically, the plans would include installation of silt fences, detention basins, buffer strips or other BMP's as appropriate. Disturbed areas would be sided to re-establish permanent vegetation. These environmental commitment measures would minimize potential cumulative impacts to surface water resources within and down gradient from the project areas.

3.19.5 Water Quality

The Big Sioux River is located approximately 1.5 miles east-northeast of the study area and Skunk Creek is located approximately one mile north of the study area. Although these waterbodies would not be directly impacted by the Build Alternative, construction activities could discharge sediment and other potential pollutants into intermittent small drainageways within the study area and ultimately into the Big Sioux River or Skunk Creek. Dewatering may be required during construction, and sediment collection would take place on site.

The contractor would be required to implement BMP's in accordance with SDDOT 2015 Standard Specifications and the City of Sioux Falls construction standards to minimize temporary impacts on water quality during construction. The SDDANR administers the Federal NPDES program and issues general permits for stormwater discharges from construction activities. The purpose of the program is to improve water quality by reducing or eliminating contaminants in stormwater and reducing stormwater runoff into streams and other WOUS. The NPDES program requires preparation of a SWPPP for construction sites of more than one acre, which would be applicable to the Build Alternative.

The specific sediment control, erosion control, and spill prevention measures would be developed during the detailed design phase and would be included in the plans and specifications. The SWPPP would address SDDOT 2015 Standard Specification requirements and the City of Sioux Falls General Conditions, Specifications, and Policies. Because the impacted area is in a wellhead/aquifer protection zone, the SWPPP would include such BMP's as installation of silt fences, buffer strips, or other features to be used in various combinations as well as the stipulation that drums of petroleum products be placed in secondary containment to prevent leakage onto

ground surfaces. As part of standard construction BMP's, water detention basins could also be constructed to minimize pollutant loading of surface waters. Another standard construction BMP is revegetation and stabilization of roadside ditches to provide opportunities for the runoff from the impermeable area to infiltrate, reduce velocities, and minimize increases in sedimentation.

Prior to construction, the City of Sioux Falls and the SDDOT would submit a NOI to SDDANR for coverage under the General Storm Water Permit for Construction Activities.

3.19.6 Habitat, Fish, and Wildlife

Construction activities would disturb terrestrial wildlife near the ROW. Therefore, wildlife within the ROW would likely seek sanctuary in nearby habitat during grading operations. Although the Big Sioux River and Skunk Creek are located within 1.5 miles from the study area, construction could also temporarily impact fisheries because of activities up-gradient of these water bodies.

Impacts on fisheries in the Big Sioux River and Skunk Creek would be reduced by implementation of BMP's identified in the SWPPP to minimize impacts on the water quality of these streams. These BMP's would be employed during the project construction.

As discussed in Section 3.13.3, a May Affect, Not Likely to Adversely Affect determination applies to the northern long-eared bat for the Build Alternative. To avoid impacts to the NLEB, project activities that include tree removal, structure work, and/or work within 150 feet of a potential maternity roost tree should not occur between November 1st and March 31st. This is included as a project commitment.

SDDOT 2015 Standard Specifications and the City of Sioux Falls General Conditions, Specification, and Policies; and BMP's would also be employed for minimizing impacts on disturbed upland habitat, which would be restored by seeding the disturbed areas with a native grass and forb mixture. The seeding would stabilize soil and decrease soil erosion.

With the planned BMP's and other stipulations in the NPDES construction permit required for the project, Build Alternative would not have an indirect adverse effect on the Big Sioux River and associated aquatic resources.

3.19.7 Construction Phasing, Schedule, and Work Hours

Redirection of traffic would be required during construction, temporarily altering travel patterns and access. Also, short-term traffic delays might result from the movement of construction equipment and vehicles.

A traffic control plan would be developed prior to construction, and details would be developed during future roadway design. As part of this process, the traffic redirection plan developed during design would minimize the amount of disruption to traffic while ensuring the safety of motorists. This would include using appropriate signage and construction barriers to alert motorists to altered traffic conditions. In addition, coordination with emergency service providers and schools would be conducted prior to changing any access.

Temporary and/or overnight closures may be necessary during construction. Detours would potentially be required along other roadways such as Highway 106, Louise Avenue, and I-229. Impacts would be temporary in nature.

3.20 Indirect and Cumulative Impacts

The CEQ regulations (40 CFR §§ 1500 -1508) define the impacts and effects that must be addressed and considered by federal agencies in satisfying the requirements of the NEPA process. This includes indirect and cumulative impacts.

Indirect impacts are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. (40 CFR § 1508.8)

Cumulative impacts are the impacts on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR § 1508.7)

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

The resources considered in the indirect and cumulative impact assessment were determined by analyzing the types of environmental resources outside, but near the study area. While there are no guidelines or regulations establishing a specific distance from the study area within which resources must be considered for indirect and cumulative impacts, the study team worked to identify potentially impacted resources outside of the study area that could be impacted based on their knowledge of the alternatives. Resources that are present and would potentially be impacted by the alternatives are discussed in this section. Resources that would not be adversely or permanently affected by the project are not discussed further in this section.

3.20.1 Affected Environment

A number of past, present, and reasonably foreseeable future actions have been identified within are near the study which may contribute to indirect and cumulative impacts of the project.

3.20.1.1 Past Actions

Agricultural activity since the settlement of the area has resulted in the conversion of native prairie to cropland. Commercial and industrial development has occurred along Louise Avenue, Solberg Avenue, Sundowner Avenue, Tallgrass Avenue, 69th Street, 85th Street, and I-29 at the CR 106 Interchange. Residential development (typically single family and two-family residential subdivisions) has occurred along both sides of Louise Avenue south of I-229, extending approximately 0.5 miles west toward I-29 and further east as well. Substantial residential development has also occurred north of 69th Street in the City of Sioux Falls.

Other types of development, including construction roads and utilities, have also occurred in the area. Numerous local, county and state highways exist near the study area. Many of these are paved while others have a gravel surface. Interstates I-29 and I-229 also run through the study area, with exits on several local roads

and a system interchange near the 69th Street Corridor. The Lewis and Clark Water line runs through the project area and crosses I-29 south of the 85th Street Corridor.

3.20.1.2 Present Actions

Present actions near the project corridor include commercial development independent of the proposed roadway improvement. As indicated in the project's purpose and need, this project is needed in part to improve access and mobility under future conditions in the southwestern area of the City of Sioux Falls. Development is occurring regardless of the alternative implemented from this project. Recent developments within the project area include the construction of townhomes on the north and south sides of 85th Street west of Brett Avenue. These development activities are subject to compliance with various environmental protection laws and requirements, including avoidance, minimization, or mitigation of impacts.

3.20.1.3 Reasonably Foreseeable Future Actions

The 85th Street extension project is one of several transportation projects/studies under consideration within the southwest portion of the Sioux Falls Metropolitan Area. Projects in the vicinity of this study area which are included in the SDDOT 2022-2025 STIP, Sioux Falls MPO 2022-2025 TIP, City of Sioux Falls 2022-2026 Capital Improvements Program (meaning they are fiscally-constrained) are listed below and shown in Figure 3-14:

- 85th Street: 49th Street to Louise Avenue (various projects)
- I-29 / 85th Street Grade Separation Structure
- I-29: 49th Street to 57th Street
- I-29/41st Street Interchange
- Sundowner Avenue: 67th Street to 85th Street
- Tallgrass Avenue: 69th Street to 85th Street
- 69th Street: Tallgrass Avenue to Louise Avenue
- 41st Street: Marion Road to Kiwanis Avenue

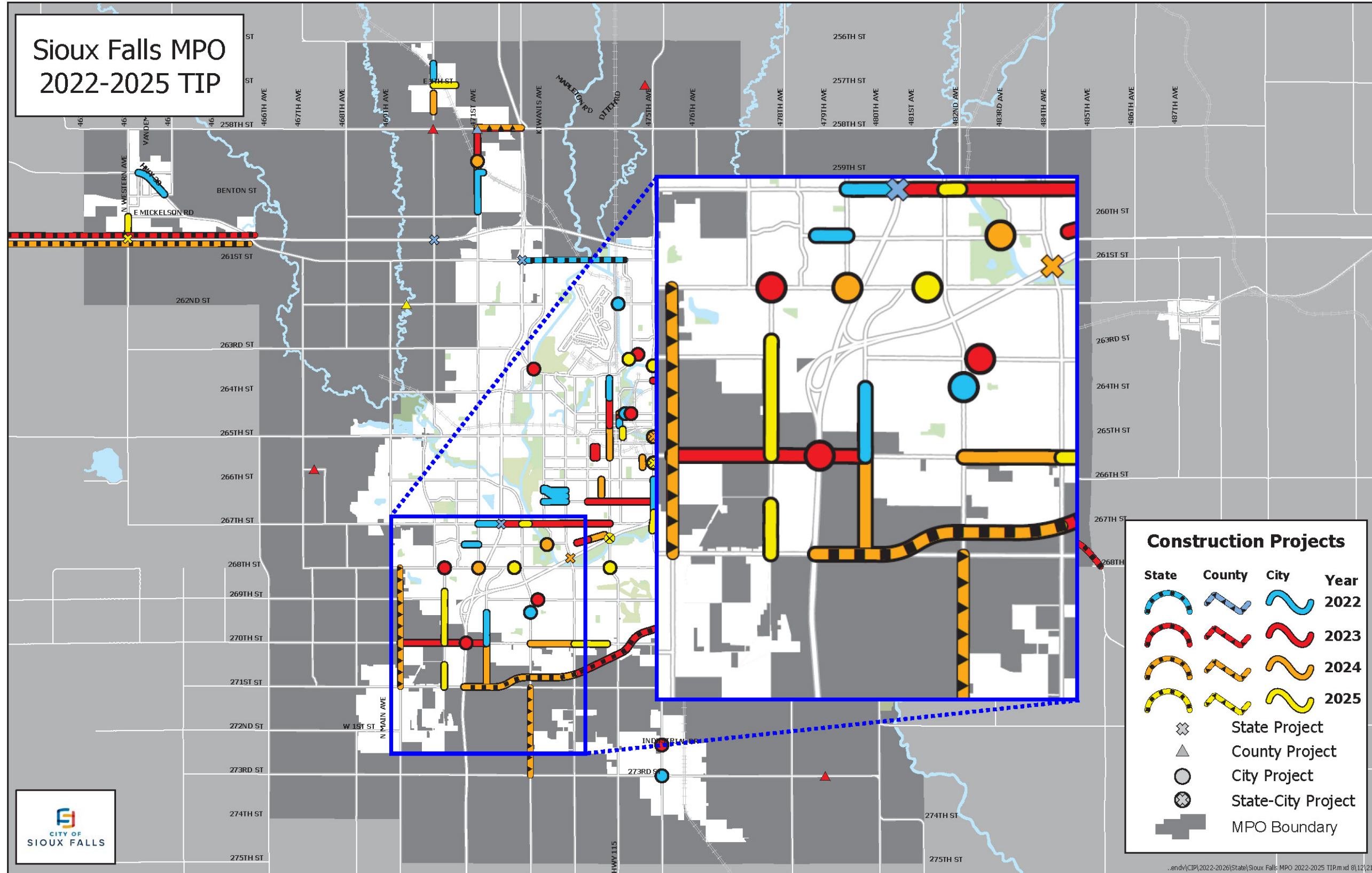
The following is a brief list of the improvements assumed to be in place for the project area based on the long-range planning. This list was also used in the IJR future traffic analysis. None of these were fiscally constrained projects at the time of the IJR but have since been included in part or in whole in the list of fiscally constrained projects above.

- 85th Street – Sundowner Avenue to Tallgrass Avenue; 2-lane to 4-lane (including overpass)
- 41st Street – Capacity Improvement between Marion Road and Louise Avenue
- 69th Street – CR 111 to Solberg Avenue; 2-lane to 4-lane (including overpass)
- CR 106 – 468th Street to I-29; 2-lane to 4-lane
- CR 111/Tea-Ellis Road – CR 106 to 85th Street; 2-lane to 4-lane
- Sundowner Avenue – 272nd Street to 57th Street; 2-lane to 4-lane
- Tallgrass Avenue – CR 106 to 69th Street; 2-lane to 4-lane
- Louise Avenue – CR 106 to 95th Street; 2-lane to 4-lane

As part of the IJR traffic analysis, 24 intersections were examined for future operations in 2045. Under existing conditions, 23 out of 24 operate at failing conditions for at least one peak hour. Therefore, it is assumed that the following intersections would receive traffic signal control treatments by the 2045 design year:

- 41st Street/Marion Road
- 41st Street/I-29 SB Ramp Terminal
- 41st Street/I-29 NB Ramp Terminal
- 41st Street/Louise Avenue
- 57th Street/Sundowner Avenue
- 57th Street/Marion Road
- 57th Street/Solberg Avenue
- Louise Avenue/57th Street
- Louise Avenue/59th Street
- Louise Avenue/SB I-229 Ramp Terminal
- Louise Avenue/NB I-229 Ramp Terminal
- CR 111 (Tea-Ellis Road)/69th Street
- Sundowner Avenue/69th Street
- 471st Ave/Solberg Avenue/69th Street
- Louise Avenue/69th Street
- CR 111 (Tea-Ellis Road)/85th Street
- Sundowner Avenue/85th Street
- 471st Avenue (Solberg Avenue)/85th Street
- Louise Avenue/85th Street
- CR 106 CR 111/(Tea-Ellis Road)
- CR 106/Sundowner Avenue
- CR 106/I-29 Ramp Terminal (Single Point)
- CR 106/471st Avenue (Tallgrass Avenue)
- CR 106/CR 117(Louise Avenue)

Figure 3-14: Fiscally-Constrained Transportation Projects Identified in Sioux Falls MPO 2019-2022 TIP¹¹



A new rehabilitation center is currently planned for the Avera Health Campus just west of its current facilities south of I-229. Additionally, a new private school (Sioux Falls Lutheran High School) with private recreation facilities currently under construction and located approximately 0.5 miles north of 85th Street on the east side of I-29. While private, and not considered a Section 4(f) resource, this development may have impacts that could be considered cumulative with those of the study alternatives.

Residential and commercial development in this area of the City of Sioux Falls and Tea is projected to increase substantially and would include roads and utilities to serve this development. These cities have received a number of plats and/or preliminary planning work from developers for properties along the 85th Street Corridor. These projects include mixed-use and commercial developments.

3.20.2 Land Use Impacts

Density in the southwestern Sioux Falls Metropolitan Area is expected to increase over the project planning period due to anticipated development. Constructing the Build Alternative would provide an additional access between the regional transportation network to currently undeveloped areas immediately adjacent to it. This would provide a benefit for planned land uses in this area, especially for industrial and commercial businesses who rely on highway access for the transportation of goods and visibility from the highway for passing vehicles who may be potential customers. Planned residential development would have the potential to house employees of new developments in the area, and direct Interstate highway access would also connect residences to other jobs in the region. Typically, impacts to land use resulting from new transportation infrastructure may be considered indirect effects of the transportation project. Because new development is already planned in the study area and is likely to take place regardless of whether the Build Alternative is constructed, it would not be considered an indirect effect of the Build Alternative.

3.20.3 Traffic Operations

As discussed previously, numerous transportation projects have been identified which are planned for construction by 2045. Individually, these projects would do little to improve overall regional traffic operations. The IJR traffic analysis shows that acceptable levels of operation can be achieved and maintained throughout the network with the implementation of the Build Alternative. This would be a cumulative net benefit for the transportation system.

3.20.4 Safety

As discussed previously, there are no pressing safety concerns on the transportation network within the study area. However, the traffic analysis conducted in the IJR identifies seven intersections and three roadway segments near the study area as having a critically high crash rate. Four study intersections along 41st Street (at southbound I-29, northbound I-29, Louise Avenue, and Marion Road) are among the intersections with a sustained crash problem, along with the CR 106/Tallgrass Avenue, 69th Street/Louise Avenue, and Louise Avenue/SB I-229 intersections. Two segments along 41st Street (Marion Road to southbound I-29, northbound I-29 to Louise Avenue) and one section of Sundowner Avenue (85th Street to 69th Street) also exhibit a sustained crash problem. These safety concerns would be addressed with other local roadway projects which would have independent utility. The Build Alternative would not directly improve safety in these locations. However, the Build Alternative would be designed to operate at acceptable safety levels even under future traffic conditions with higher volumes. Maintaining future safety on the transportation network within the study area, along with safety improvements to surrounding areas, would provide a cumulative safety improvement to the regional transportation network.

3.20.5 Water Quality, Wetlands, and Other Waters of the United States

Development is anticipated to occur near the study area regardless of the alternative that would be implemented for this project. While private development may not be held to the same standards of wetland mitigation as transportation projects, all wetland impacts for this project would be mitigated, and would therefore not contribute to overall cumulative impacts to wetlands.

Current development has increased impervious surface in the area. Continued development would also impact water quality and WOUS, through increased impervious surface. This would cause a cumulative increase to stormwater runoff that would need to be managed by the stormwater sewer, and result in less groundwater recharge to aquifers. Impacts to these resources would be limited by the size of the developments and regulatory requirements, such as limits on stormwater runoff under NPDES permits. Impacts to wetlands and WOUS would be further limited by permit and mitigation requirements. Most of the impacts would be short-term, primarily during construction.

Due to either time, space separation, or mitigation requirements, the impacts associated with anticipated future development would not be anticipated to have a substantial cumulative effect. As future projects are designed, assessment of adjacent development would be conducted and the potential for impacts to water quality would be evaluated in order to obtain permits for the roadway improvements or development approval.

3.20.6 Noise

Noise levels increase as traffic volumes or travel speeds increase. Noise levels also increase in areas near commercial and residential development. The cumulative impact of the identified projects would be an increase in local noise levels. A noise barrier is recommended with the construction of the Build Alternative, which would limit the contribution of this alternative to increase cumulative noise levels. Local officials will be provided copy of the noise analysis report to assist those local officials with an estimation of future noise levels and aid their noise-compatible designing is used for development after date of public knowledge of project's noise abatement.

3.20.7 Threatened and Endangered Species

Much of the planned development surrounding the study area would have the potential to impact Threatened and Endangered Species. These impacts, like the impacts of this project, would be limited by federal regulations that include permits and mitigation requirements, depending on the species. Overall cumulative impacts on threatened and endangered species are not anticipated to be significant assuming development will comply with regulations.

4.0 Preferred Alternative

4.1 Preferred Alternative Selection Criteria

As discussed in Section 2.3, the main considerations for selecting a Preferred Alternative include:

- 1) Ability of the alternative to satisfy the project purpose and need, and;
- 2) Consideration of environmental impacts for each alternative.

4.1.1 Purpose and Need

In Section 2.3.1, it was determined that of the initial range of alternatives considered, only the Build Alternative would satisfy the purpose and need of the project. This alternative was carried forward into environmental review. The Existing Conditions Alternative was also carried forward into environmental review, despite not satisfying the Purpose and Need, so it could serve as a baseline of comparison for other alternatives. The No Build Alternative did not satisfy the project purpose and need and was eliminated from further consideration.

4.1.2 Environmental Considerations

Section 3 goes into greater detail on the environmental considerations for the Existing Conditions Alternative and the Build Alternative. Impacts of the alternatives are summarized in the following section (Section 4.2), which will ultimately aid in selecting a Preferred Alternative, which is discussed further in Section 4.3.

Environmental Resource	Existing Conditions Alternative	Build Alternative
Land Use	<ul style="list-style-type: none"> Development and land use changes would occur at a slower rate than with other alternatives but are still anticipated to occur as identified in future plans. 	<ul style="list-style-type: none"> Approximately 59.5 acres of new ROW converted from its existing use to transportation use: <ul style="list-style-type: none"> 6.0 residential acres. 0.5 commercial acres. 21.3 agricultural acres. 32.8 vacant/undeveloped/transportation acres. Additional TLE during construction, with no long-term impact. Development surrounding the proposed interchange is already planned and would not be an indirect impact of the Build Alternative. However, the Build Alternative could result in faster and or more robust development.
Farmland	<ul style="list-style-type: none"> Conversion of farmland due to development activities would occur at a slower rate than with the other alternatives. 	<ul style="list-style-type: none"> Farmland Conversion Impact Rating Form AD-1006 score below 160. Approximately 21.3 acres of cropland and pastureland converted to a transportation corridor. Conversion of farmland anticipated to occur at a faster rate compared to Existing Conditions Alternative.
Acquisitions, Relocations, and Access	<ul style="list-style-type: none"> No structures or land would need to be acquired or relocated. 	<ul style="list-style-type: none"> A total of three structures located on three residential parcels would need to be acquired for this alternative. Two additional parcels with no structures would also need to be acquired. One residence has already been purchased by a private developer and is anticipated to be redeveloped for commercial use with or without the implementation of the Build Alternative.
Utilities, Public Facilities, and Services	<ul style="list-style-type: none"> No Impact to utilities. 	<ul style="list-style-type: none"> Several utilities would likely have to be relocated within the new ROW or into a new utility easement. These utilities could include cable, phone, fiber optic, and water lines. The Lewis and Clark water line would not need to be relocated with this alternative. Relocations of utilities represent a short-term negative impact. SDDOT and the City of Sioux Falls would coordinate with the utility companies about specific utility relocations prior to construction activities. During construction, the public would be informed of any service interruption prior to the loss of service. Interruptions would be temporary and minimized to the extent possible.
Economic Resources	<ul style="list-style-type: none"> Income, employment opportunities, and tax base would remain similar to existing conditions, and changes would be in response to development activity in the surrounding area. Growth of income, jobs, and tax base could be hindered by inefficient traffic operations and congestions. 	<ul style="list-style-type: none"> Project Net Present Value of \$845.98 million. Projected Peak increase of 207 Jobs. Total user savings of \$80M over the course of the project lifecycle from reduced VMT in comparison to the No Build Alternative. Estimated benefit-cost ratio of 3.71. Short-term beneficial economic impact due to the purchase of goods and services during construction. Initial slight tax base decrease due to conversion of land to non-taxable ROW. Maximum loss in revenue would be less than 0.01 percent of the total county revenue. Potential for faster development could result in a net increase in tax income over a longer period. With improved access, this return would likely be achieved earlier. During construction, temporary impacts to economic resources including nominally increased travel times for brief durations.
Considerations Relating to Pedestrians and Bicyclists	<ul style="list-style-type: none"> No new bike lanes or sidewalks along 85th Street Corridor. 	<ul style="list-style-type: none"> Bike lanes along east and west bound lanes of 85th Street Corridor. Safety improved for bicyclists and pedestrians crossing 85th Street with the inclusions of a grade-separated culvert crossing. Assists Sioux Falls MPO in achieving goal of accommodating all modes of traffic.
Air Quality	<ul style="list-style-type: none"> Increased traffic volumes would have the potential to result in localized air quality impacts related to vehicle exhaust, especially during AM and PM peak hours. 	<ul style="list-style-type: none"> Temporary, minor impacts on air quality relating to increased dust levels and vehicle exhaust during construction. Impacts would be short-term and localized, and no permit would be required. No long-term major impacts are anticipated, and no air quality standards would be violated.

Noise	<ul style="list-style-type: none"> No impacts related to noise. 	<ul style="list-style-type: none"> Construction noise impacts would be short-term and limit to the duration of construction. Modeled noise receptors exceeded FHWA criteria at 65 of 167 modeled receptor locations, with 29 of these being from a substantial increase in traffic noise resulting from the Build Alternative. Noise barrier required. A 300 ft. long, 10 ft. high barrier wall will be constructed west of the intersection of 85th Street and Beale Avenue . Detour traffic for I-29 traffic for 85th Street bridge construction would result in elevated noise levels that would be short-term and temporary.
Water Quality	<ul style="list-style-type: none"> Potential for indirect impacts to quality water could occur as the area surrounding the roadway develops. Increased impermeable surface could cause increased storm-water runoff which has a negative impact on water quality downstream. 	<ul style="list-style-type: none"> NPDES Permit (General Permit for Storm Water Discharges Associated with Construction Activities) under the South Dakota SWD program would be required. Development of a SWPPP that outlines the BMP's. Potential for indirect impacts to quality water could occur as the area surrounding the roadway develops. Increased impermeable surface could cause increased storm-water runoff which has a negative impact on water quality downstream.
Floodplain	<ul style="list-style-type: none"> No impact to floodplain. 	<ul style="list-style-type: none"> No impact to floodplains is expected; however, if during final design the potential for floodplain impacts occurs, a Floodplain Development Permit may be required.
Wetlands and other Waters of the United States	<ul style="list-style-type: none"> Development in the area would be expected to occur. This development would have the possibility of impacting wetlands in the area. These impacts cannot be quantified at this time. Additionally, private development is not bound by EO11990; therefore, impacts could potentially be greater than those associated with the other alternatives. 	<ul style="list-style-type: none"> Approximately 14.76 acres of wetlands, including 10.09 acres of jurisdictional wetlands and 4.67 acres of non-jurisdictional wetlands, will be impacted by the project. These numbers include impacts from the stormwater ponds integrated into the project's conceptual design. Impacts resulting directly from stormwater ponds account for 4.86 acres of the project's total wetland impacts. Of the total impacted wetlands resulting from stormwater ponds, 3.23 acres are jurisdictional and 1.63 acres are non-jurisdictional. Non-jurisdictional wetlands mitigated under EO11990 and FHWA regulation 23 CFR 777.9. No net loss of wetlands. Any impacts to jurisdictional wetlands would require a Section 404 Permit.
Vegetation, Fish, and Wildlife	<ul style="list-style-type: none"> BMP's, such as silt fences and/or bales, and other stipulations in the NPDES construction permit required for all projects disturbing one acre or more, the Existing Conditions Alternative would not have any indirect adverse effects on the Big Sioux River and associated aquatic resources. The expected land use changes associated with the development would be consistent with city and county development plans for the area. Therefore, any adverse impacts to vegetation and terrestrial wildlife would be expected to less than those associated with the other alternatives. 	<ul style="list-style-type: none"> Habitat loss (prairie grass, mowed lawn, crops, and wetlands) would occur as a result of implementing the Build Alternative. This would be largely associated with the conversion of 32.8 acres of vacant/undeveloped/transportation R/W and 21.3 acres of agricultural land. These habitats are considered to be of poor-quality and are plentiful in areas surrounding the study area. This would result in a negligible impact to wildlife. With the use of BMP's, such as silt fences and/or bales, and other stipulations in the NPDES construction permit required for the project, no indirect adverse effect on the Big Sioux River and associated aquatic resources. Adherence to the MBTA and its amendments and USFWS regulations should result in the avoidance and/or minimization of most impacts to migratory birds. Vegetation removal, including the removal of trees would be timed to the extent possible to avoid the migratory bird breeding and fledging season (April 1 through July 15).
Threatened and Endangered Species	<ul style="list-style-type: none"> Potential for impact to federal and state-listed species due to private development. Impacts cannot be quantified at this time. Private development not bound by regulations. 	<ul style="list-style-type: none"> Preferred habitat for the federal listed/ proposed for listing species and state listed species does not occur within the study area. No Effect determination for all federal listed and candidate species, except the northern long eared bat. The bat determination was Not Likely to Adversely Affect. No impact on state listed species.
Cultural (Historic and Archaeological) Resources	<ul style="list-style-type: none"> No impact to cultural resources. 	<ul style="list-style-type: none"> No historic properties affected.
Environmental Justice	<ul style="list-style-type: none"> No direct adverse impact to low-income and/or minority populations. 	<ul style="list-style-type: none"> No disproportional impact to low-income and/or minority populations. Improvements to alternate modes of transportation would potentially benefit low-income populations.
Section 4(f) and Section 6(f) Resources	<ul style="list-style-type: none"> No impact to Section 4(f) or Section 6(f) Properties. 	<ul style="list-style-type: none"> No Section 6(f) properties occur within the study area and no Section 4(f) properties would be directly affected by project activities.
Regulated Materials and Hazardous Waste	<ul style="list-style-type: none"> No Impacts related to regulated materials and hazardous waste. 	<ul style="list-style-type: none"> No regulated materials would be disturbed by construction.

<p>Visual Impacts and Aesthetics</p>	<ul style="list-style-type: none"> As this development occurs, the viewshed would be changed from a rural setting to an urban setting. 	<ul style="list-style-type: none"> Temporarily altered by construction activities and construction equipment. Post-construction minor changes due to the proposed interchange. The indirect residential and commercial development projected to occur in the surrounding areas would present a greater change in the viewshed than the proposed roadway changes. Visibility of the surrounding area from the Interstate system would be improved with the interchange.
<p>Indirect and Cumulative Impacts</p>	<ul style="list-style-type: none"> This alternative would contribute to a cumulative negative effect on traffic by not addressing future demand needs. 	<ul style="list-style-type: none"> Would potentially spur development more quickly than the Existing Conditions Alternative. Cumulative benefits to traffic operations and safety are anticipated with this alternative. Bicycle and pedestrian facilities would, in conjunction with future projects, contribute to more complete multimodal routes in the region. Other indirect and cumulative impacts are not anticipated to occur or would be fully mitigated.
<p>Consistency with Local and Regional Plans</p>	<ul style="list-style-type: none"> This alternative is largely inconsistent with local and regional plans. It does not address transportation or economic need identified in these plans. 	<ul style="list-style-type: none"> The Build Alternative is consistent with goals identified in many local and regional plans and policies including: <ul style="list-style-type: none"> Go Sioux Falls 2040 Long-Range Transportation Plan – consistent with connectivity and economic vitality goal, addresses operations needs on roadways identified in the study area. The Shape Sioux Falls 2040 Comprehensive Plan – capacity of transportation facilities goal. The Shape Sioux Falls 2040 Growth Management Plan – supports residential/commercial/office development acreage targets. City of Sioux Falls Complete Streets Policy – incorporates bike and pedestrian infrastructure with new transportation project. City of Sioux Falls Bike Plan – supports multimodal facilities City of Tea Comprehensive Plan (2018 Update) – addresses operations needs on roadways identified in the study area. Lincoln County Technical Memos – addresses operations needs on roadways identified in the study area’ Sioux Falls 2021-2025 Capital Program – financial support for the project Sioux Falls MPO 2021-2024 Transportation Improvement Program – financial support for the project.

4.2 Comparison of Selection Criteria

The Existing Conditions Alternative would have the least impact on the physical environment; however, this alternative would not satisfy the purpose and need for the project. As discussed in Section 2.3.1, this Alternative does not meet the VMT criterion for System Linkage, the LOS criterion for Operations, or the NPV criterion for Economic Development.

The Build Alternative meets all criteria established in the purpose and need. The Build Alternative would require new ROW to accommodate the construction of the interchange. Although more farmland would be converted with this alternative, the impacts still scored low enough as not to require additional NRCS coordination. Wetlands would also be converted with the Build Alternative, but these impacts would be fully mitigated, resulting in no net loss of functional wetland area. Three residential relocations would be required with the Build Alternative, but this area is anticipated to be redeveloped regardless of the Build Alternative. The Build Alternative, though more costly, would satisfy the project's purpose and need while limiting environmental impacts to those that would be considered insignificant.

4.3 Selection of the Preferred Alternative

Based on the selection criteria identified in this section, the Preferred Alternative is the Build Alternative. The Build Alternative was selected as the Preferred Alternative for the following reasons:

- The Build Alternative satisfies the project's purpose and need, while other alternatives do not.
- The Build Alternative provides numerous social and economic benefits over the Existing Conditions Alternative. While the Build Alternative does have environmental impacts, these impacts can be largely avoided, minimized, and mitigated, and any impacts resulting from the Preferred Alternative are not anticipated to cause significant environmental effects.

In addition to passing the project's screening criteria, there are a number of other benefits provided by the Build Alternative. These include:

- **Project Goal of Safety:** The Build Alternative was designed to meet all safety requirements for transportation projects and not impose additional safety issues on the surrounding network.
- **Project Goal of Increasing Multimodal Transportation Opportunities:** The Build Alternative includes sidewalks and trails sections, with a grade-separated crossing, which will provide infrastructure for bicyclists and pedestrians that is currently lacking.
- **Transportation Planning Support:** The Build Alternative addresses and meets transportation goals already in place locally and regionally.
- **Local Support:** The Build Alternative is largely supported by the public. Through the various public and agency meetings, the study team has observed virtually no opposition to the project, amongst overwhelming support from landowners and local agencies.

5.0 Environmental Commitments

The SDDOT Environmental Procedures Manual identifies environmental commitments which may be required for transportation projects in South Dakota. The commitments which apply to this project are discussed below, using the numbering system established in Section A of the Environmental Procedure Manual.

Commitment A: Wetlands

Jurisdictional and non-jurisdictional wetlands will be mitigated in accordance with EO 11990 and FHWA regulation 23 CFR 777.9. Credits will be purchased from the Tetonka Wetland Mitigation Bank prior to letting the contract. Temporary impacts will not be mitigated as original grades would be re-established. The final number of wetland credits needed would be determined during final design with the Tetonka Bank mitigation bank.

Section 404 requires a permit before dredged or fill material may be discharged into WOUS, including jurisdictional wetlands. Section 404 Permit commitments are included as Commitment N.

In addition, a wetland pre-construction commitment to avoid or minimize harm to a USACE Section 404 permitted wetland mitigation site that is unrelated to the project – but may be impacted by the project (Wetland 34) – shall be considered and incorporated where practicable. This will include avoidance and minimization measures that may include ditch slope adjustments, silt fencing, and barrier (cable, concrete or steel) protection.

Commitment B: Federally Threatened, Endangered, and Protected Species

Commitment B4: Bald Eagle

Bald eagles are known to occur in the Sioux Falls vicinity. The bald eagle is no longer a federal listed threatened or endangered species; however, it is protected under the Bald and Golden Eagle Protection Act and the MBTA and is a state listed species. If an occupied bald eagle nest is observed within one mile of the construction site, the Project Engineer will be notified immediately so a course of action can be determined. Additionally, the project will comply with the National Bald Eagle Management Guidelines. Sioux Falls and SDDOT will preserve any trees with active or unoccupied eagle nests.

Commitment B5: Northern Long-Eared Bat

Potential summer roosting sites exist within the area. Live and dead trees as well as several manmade structures which could serve as roosting habitat occur within the study area. Because habitat surveys are only valid for 2 years, a follow-up habitat survey will be completed by a qualified biologist within one year of construction to verify the presence or absence of structure use for roosting by the bat if necessary. Tree removal activities would occur in accordance with the requirements of the Avoidance and Minimization Measures identified as part of the Range-wide Programmatic Consultation between the USFWS and FHWA for the Indiana Bat and Northern Long-eared Bat. Tree removal activities would occur outside of bat roosting period. Tree removal would occur after October and before April. Trees to be removed will be clearly demarcated prior to removal to assure no additional trees will be accidentally removed from the project area. Therefore, potential bat roosting habitat would be removed during the hibernation period when the roosting sites are not being used by the bats.

Commitment B6: Migratory Birds Work Restriction

The study has the potential to be used for migratory birds for nesting, which primarily occurs from April 1 to July 15. If any trees need to be removed during this time period, the trees will be surveyed for nests and cleared by a qualified biologist prior to the initiation of work, and a migratory bird nest depredation permit under the MBTA will be obtained (if necessary), or appropriate inactive nest removal and hazing/exclusion measures will be incorporated into the work to avoid the need to disturb active migratory bird nests.

Commitment C: Water Source

Before work begins that requires water for construction, the Contractor must obtain a water right, through the application of SD E Form – 2052LD Request for Temporary Permit to Use Public Waters.

The water source note is required for projects that have a potential to withdraw (extract) water from waters within the state. The Contractor must apply for and obtain this permit from SDDANR and USACE prior to any extraction of water.

If the water is being extracted from streams in the James, Big Sioux, and Vermillion Watersheds, the Wildlife Biologist in the EO must be contacted to verify pump size and screen size to ensure fish are not caught in pumps or pipes related to the water.

Commitment D: Water Quality Standards

This Commitment includes both surface water quality and surface water discharge.

Commitment D1: Surface Water Quality

Commitments related to Surface Water Quality which have been stipulated by SDDANR through coordination effort will be adhered to, as described below.

- 1) All fill material shall be free of substances in quantities, concentrations, or combinations which are toxic to aquatic life.
- 2) Removal of vegetation shall be confined to those areas absolutely necessary to construction.
- 3) At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site. Any construction activity that disturbs an area of one or more acres of land must have authorization under the General Permit for Storm Water Discharges Associated with Construction Activities. Contact the Department of Environment and Natural Resources for additional information or guidance at 1-800-SDSTORM (800-737-8676) or <https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/default.aspx>
- 4) All material identified in the application as removed waste material, material stockpiles, dredged or excavated material shall be placed for either temporary or permanent disposal in an upland site that is not a wetland, and measures taken to ensure that the material cannot enter the watercourse through erosion or any other means.
- 5) Methods shall be implemented to minimize the spillage of petroleum, oils and lubricants used in vehicles during construction activities. If a discharge does occur, suitable containment procedures such as banking or diking shall be used to prevent entry of these materials into a waterway.
- 6) All newly created and disturbed area above the ordinary high-water mark which are not ripped shall be seeded or otherwise revegetated to protect against erosion.
- 7) This project may be in the vicinity of multiple streams and wetlands. These waters are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that water quality standards are not violated.

Commitment D2: Surface Water Discharge

If construction dewatering is required, the Contractor shall obtain the General Permit for Temporary Discharge Activities from the SDDANR Surface Water Program prior to the preconstruction meeting. The Contractor shall provide a copy of the approved permit to the Project Engineer.

Commitment E: Storm Water

A stormwater permit, which requires revegetation of disturbed areas, is required for this project. Removal of vegetation shall be confined to those areas necessary for construction. A site-specific sediment erosion control plan would be implemented to provide interim control prior to re-establishing permanent vegetation cover on the disturbed site. If riparian vegetation is lost, it should be quantified and replaced on site. Seeding of indigenous species should occur immediately after construction to reduce sediment and erosion.

A final drainage plan would be developed during the final design phase of the project. Efforts would be made to avoid impacts to any sensitive resources with the addition of drainage features, and all necessary coordination, permitting, and mitigation measures would occur.

Commitment G: Dewatering and Sediment Collection

This project would impact more than one acre of land; therefore, the contractor will be required to implement BMP's in accordance with the SDDOT specifications and Sioux Falls construction standards to minimize temporary impacts on water quality during construction. The SDDANR administers the Federal NPDES program and issues general permits for stormwater discharges from construction activities.

The Contractor is responsible for creating a Pollution Prevention Plan (PPP) for dewatering and sediment collection if the Contractor chooses to discharge water into "Waters of the US" or "Waters of the State."

Commitment H: Waste Disposal

The Contractor will furnish appropriate sites for the disposal of construction and/or demolition debris generated by this project. Any waste disposal sites will be managed and reclaimed in accordance with the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal under the South Dakota Waste Management Program issued by SDDANR.

Any waste disposal sites will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

Commitment I : Historic Preservation Office Clearances

FHWA/SDDOT has obtained concurrence with the SHPO for all work included within the project limits. The contractor will be responsible for all earth disturbing activities not designated within the plans obtaining a cultural resource review prior to scheduling the pre- construction meeting. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas

If cultural resources are encountered during construction activities, construction will be stopped and the SHPO would be contacted. Construction will not be resumed until appropriate coordination has occurred and SHPO approval has been received.

In the unlikely event that human skeletal remains or associated funerary objects are inadvertently discovered during construction activities, all work in the immediate area of the find will immediately cease and the following protocol be followed, pursuant to the provisions of South Dakota Codified Law 34-27.

Commitment L: Contaminated Material

Commitments stipulated by SDDANR in their coordination letter dated March 20, 2019 will be adhered to:

- Should any hazardous waste be generated during the implementation of this project, the generator must abide by all applicable hazardous waste regulations found in ARSD 74:28 and 40 CFR Part 262.
- If any contamination is encountered during construction activities, the contractor, owner, or party responsible for the release must report the contamination to the department. Any contaminated soil encountered must be temporarily stockpiled and sampled to determine disposal requirements.
- If road construction is planned for areas within a city or town, the DOT or contractor should contact this Department prior to construction.
- Any solid waste generated that will not be reused in some beneficial manner must be disposed or managed at a permitted solid waste facility. Only Regional landfills are permitted to accept all wastes generated.
- The SDDANR Asbestos Coordinator should be contacted prior to the demolition or renovation of a building structure.

A Phase II Investigation work plan may be developed based on the findings of the Phase I Environmental Site Assessment and with anticipated construction and property acquisitions if satisfactory contaminated material remediation and disposal is not identified in property appraisal or acquisition documents prepared for project-related right of way purchases.

Commitment N: Section 404 Permit

Jurisdictional wetlands are located within the study area. Should any of these wetlands be impacted by the final design of the Preferred Alternative, a section 404 permit would be required. Dredge, excavation, and fill activities outside the project limits, affecting wetlands or waters of the United States associated with staging areas, borrow sites, waste disposal sites, or material processing sites require that the Contractor obtain a 404 permit from USACE.

Commitment T1: Acquisitions, Relocations, Access

Property will be acquired or relocated in accordance with the Uniform Act (PL-91-646 and amendments). SDDOT and Sioux Falls will coordinate any temporary relocation of billboards with owners.

Commitment T2: Utilities, Public Facilities and Services

Utilities located within the new roadway alignment would be relocated. SDDOT and Sioux Falls would coordinate with the utility companies regarding utility relocations prior to construction activities. The public would be informed of any service interruption prior to the loss of service.

Commitment T3: Air Quality

Construction equipment with point source emissions in many cases are required to have an air quality permit to operate. Any such equipment used during construction would obtain any necessary air quality permits if applicable.

Construction contractors would be required to comply with the State statutory regulations for air pollution control and obtain appropriate permits. Contractors will adhere to requirements regarding open burning of grub material, fugitive dust, visible emissions, and permits.

Additionally, fugitive emissions would be monitored during construction. If dust were to become a problem, the contractor would be required to implement dust control procedures (i.e., water down the work area). A dust control plan would be established prior to construction to minimize potential short-term dust impacts.

Commitment T4: Noise

One noise barrier will be incorporated into the design of the project to mitigate noise impacts to residences.

In conformance with SDDOT's Noise Analysis & Abatement Guidance document Section 14, local officials will be provided with information on noise compatible planning techniques that can be used to prevent future highway traffic noise impacts. To assist local officials within whose jurisdiction a Type I highway project is located, the SDDOT will provide information on future noise levels for each Activity Category located along the project. This will be accomplished by providing a copy of the noise analysis report to the local official. The local official will also be provided with an estimation of future noise levels for various distances from the highway (noise contours).

SDDOT will not be responsible for providing highway traffic noise abatement for undeveloped lands permitted after the Date of Public Knowledge. The Date of Public Knowledge of the location and potential noise impacts of a Type I project will be the approval date of the environmental document, i.e., CE, FONSI or ROD. SDDOT will not be responsible for providing highway traffic noise abatement for undeveloped lands permitted after the Date of Public Knowledge.

During construction, contractors would be required to comply with sound control requirements identified in the SDDOT Standard Specifications for Roads and Bridges (SDDOT 2015). Construction noise abatement would be reviewed and specifically applied for this Project.

All equipment used will have sound-control devices no less effective than those provided on the original equipment. No equipment shall have unmuffled exhaust. All equipment shall comply with pertinent equipment noise standards of the USEPA. The public will be notified in advance of construction activities that may generate particularly high noise levels. Noise created by truck movement shall not exceed 88 dBA at a distance of 50 feet. When working between 7:00 PM and 10:00 PM, equipment will use "smart alarms" instead of standard re-verse signal alarms or use spotters. When working between 10:00 PM and 7:00 AM, contractors will use spotters. Contractors will have portable noise meters on the job at all times for noise level spot checks on specific operations. Contractors will limit construction to greater than 1,000 feet from an occupied dwelling unit on Sundays, legal holidays, or between the hours of 10:00 PM and 6:00 AM on other days without approval of the Sioux Falls/SDDOT Project Engineer. No pile driving or blasting operations would be performed within 3,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 8:00 PM and 8:00 AM on other days without approval of the Sioux Falls/SDDOT construction project manager.

Nighttime detour traffic noise on other roadways will be reduced by only closing one direction of I-29 at a time during 85th Street bridge construction activity.

Strategic placement of material stockpiles between the operation and affected dwellings or by other means only by approval of the Sioux Falls/SDDOT construction project manager. Stationary construction equipment will be located as far from nearby noise-sensitive properties as feasible. Idle equipment will be shut off.

If there is a noise complaint, construction operations will be rescheduled, to the extent practical, to avoid periods of noise annoyance identified in the complaint. Nearby residents will be notified whenever extremely noisy work will be occurring. The contractor may install temporary or portable acoustic barriers around stationary construction noise sources to minimize noise levels. Contractors may also operate electrically powered equipment using line voltage power or solar power.

Commitment T5: Work within Floodplain

Although no impacts are currently anticipated, during final design of the Build Alternative, a Floodplain Development Permit may be needed if project-related ground disturbances occur within designated flood plains within the Study Area.

Commitment T6: Visual Impacts

For any construction areas that would remain un-vegetated for an extended period of time, such as over the winter, temporary seeding would be required in accordance with the SWPPP.

Commitment T7: Access, Operations, and Safety

A Traffic Control Plan, including appropriate signage and construction barriers to alert motorists to altered traffic conditions, will be prepared. SDDOT, Cities of Sioux Falls and Tea, and Lincoln County will coordinate with emergency service providers and schools as necessary during the project. Access to all residences and businesses will be maintained throughout the construction period.

Temporary and/or overnight closures may be necessary during construction. Detours would potentially be required along other roadways such as Highway 106, Louise Avenue, and I-229.

Commitment T8: Wetland Mitigation Credits

USACE has confirmed that credits which were purchased for the prior, but not constructed, I-29 overpass project can be applied to the anticipated Section 404 permit for the current proposed interchange project. The City of Sioux Falls will coordinate with USACE and Tetonka LLP during final design/permitting to determine the final amount of previous purchased credits that can be applied to this project, and the number of additional credits that will be needed.

Commitment T9: Considerations Relating to Pedestrians and Bicyclists

The Build Alternative will include a grade-separated culvert crossing for pedestrians and bicyclists just east of the proposed interchange, to connect to planned shared-use trails between the communities of Sioux Falls and Tea and alleviate safety concerns related to crossing 85th Street.

Commitment T10: Emerald Ash Borer Management

The City of Sioux Falls is taking a proactive approach to manage Emerald Ash Borers in Minnehaha & Lincoln Counties. Removal of ash trees by the project undertaking will need to coordinate an action plan in accordance with the City's approved quarantine data and restrictions.

6.0 Comments and Coordination

This chapter includes a summary of agency coordination and public involvement that has taken place during development of this EA.

6.1 Agency Coordination

Federal, state, and local agencies that were included in project coordination efforts include:

- South Dakota Department of Environment & Natural Resources (renamed South Dakota Department of Agriculture & Natural Resources during this study)
- South Dakota Department of Game, Fish and Parks
- U.S. Fish and Wildlife Services – South Dakota Field Office
- Natural Resources Conservation Service
- State Historic Preservation Office
- U.S. Army Corps of Engineers

The consultation letters sent to each agency and the agency responses are provided in Appendix D and summarized in Table 5-1.

Table 5-1: Agency Coordination Summary and Status

Government Agency	Type of Approval or Permit	Status
Federal		
Federal Highway Administration	EA Approval	Pending
	EIS Need Decision	Pending
	Wetland Finding	Approved
U.S Army Corps of Engineers	Jurisdictional Determination	Received
	Section 404 Permit	Final design will determine need
USFWS	Concurrence with No Effect and May Affect, not Likely to Adversely Affect Determinations	IPAC up-to-date, effects determination sent to USFWS, concurrence with effect determinations received.
USDA NRCS	Minor Impacts to Farmland	Form AD-1006 sent by NRCS. Completed and signed by FHWA.
State		
SD Department of Transportation	EA Approval	Pending
	Wetland Finding	Approved
SD Department of Environment and Natural Resources	National Pollutant Discharge Elimination System Permit	Required Prior to Construction
SD Department of Game, Fish, and Parks	No Impact on State Listed Species	Received
State Historic Preservation Office	Concurrence with No Historic Properties Affected	Received
Tetonka Wetland Mitigation Bank	Purchase of Wetland Mitigation Credits	Pending with final design
Local		
Sioux Falls MPO	Receive/File EA	Pending
Tetonka Wetland Mitigation Bank	Purchase of Wetland Mitigation Credits	Pending with final design

6.2 Tribal Coordination

In accordance with Section 106 of the NHPA (36 CFR Part 800), the SDDOT solicited comments on this project from the following tribes:

- Flandreau Santee Sioux Tribe
- Iowa Tribe of Oklahoma
- Ponca Tribe of Nebraska

- Lower Brule Sioux Tribe
- Sisseton-Wahpeton Oyate Tribe
- Standing Rock Sioux Tribe
- Yankton Sioux Tribe
- Three Affiliated Tribes of North Dakota

Consultation letters were sent to each tribe on February 27, 2019 (Appendix D). One response letter was received from the Yankton Sioux Tribe on March 27, 2019 stating that the Tribal Historic Preservation Office does not have an interest in the proposed project but would like to be notified if any cultural artifacts are found. No other responses from tribes have been received.

6.3 Public Involvement

6.3.1 Public Open Houses

Open House style public meetings were held throughout the project, which helped the study team identify impacts and obtain input on the alternatives. Stakeholders were notified of the meetings through postcard mailings, the project website, press release, local newspaper ads, and social media. The following Open Houses were held for the project:

- Open House #1, April 17, 2019 – The focus of this meeting was to introduce the project and provide an overview of the scope and schedule, present a draft purpose and need, and present a draft range of alternatives. A presentation was provided by project staff, and poster-board exhibits were set up at the meeting. Comment forms were provided, and members of the study team were on hand to answer questions. Postcard invitations were mailed directly to 158 properties surrounding the project area. Approximately 120 individuals signed in at the meeting.
- Noise Abatement Analysis Meeting, August 7, 2020 – This meeting was held to share the results of the noise analysis with stakeholders who rent or own property in the study area. This study shared concepts for the noise barrier proposed by the Build Alternative and commenced the balloting process for the barrier.
- Open House #2 – An additional public information meeting will be held to present the findings of the EA. The details of this public meeting, public comments received, and responses to these comments, if needed, will be published at a later date.

6.3.2 Other Stakeholders

The 85th Street JV, for the purposes of the Environmental Documentation process, were members of the public with special interest in the project due to land ownership and proximity to proposed improvements. Regular quarterly update project meetings were held with SDDOT, FHWA, , and the 85th Street JV. These meetings allowed the LGU to provide regular updates on the project status and allowed JV members to provide input and ask questions. Meetings with the JV were held beginning in November 2018 to present.

6.3.3 Previous Public Involvement

Numerous public involvement activities were also conducted prior to this study during the EA Overpass study. This included four open house style meetings to discuss the project throughout various stages of completion, and an additional public meeting to discuss the noise study. A presentation was given at each meeting and project staff were present to answer questions.

A Public Meeting/Open House for the I-29/I-229 Interchange Reconstruction and 85th Street Extension was also held prior to this study. A presentation was made to review the EA process, the purpose of the project, the proposed improvements and alternatives, and potential impacts.

6.3.4 Future Public Involvement

The EA will be made available to public agencies and the general public for review and comments. The EA will be available for a 30-day comment period at the following locations:

- SDDOT Website
- Sioux Falls City Hall, Engineering Department
- SDDOT Sioux Falls Area Office
- Siouxland Library, Caille Branch
- SDDOT Office of Project Development in Pierre
- FHWA Division Office, Pierre

FHWA will take into consideration all verbal and formal comments received during the comment period in determining whether the Preferred Alternative would or would not result in significant social, economic, and environmental impacts. If it is found that project does not result in significant impacts, a Finding of No Significant Impact (FONSI) document will be prepared and submitted to FHWA. The FHWA would take into consideration all verbal and formal comments received during the comment period in determining whether the Preferred Alternative would or would not result in significant social, economic, and environmental impacts. If a FONSI is determined, this document will be posted on the SDDOT and other project websites. If not, the agencies would consider whether the project will be pursued under an Environmental Impact Statement (EIS).

References

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<https://dot.sd.gov/media/documents/85thStEAforPublicAvailability85th1192017.pdf>
- ² Federal Highway Administration Finding of No Significant Impact (FONSI), 85th Street Improvements: Sundowner to Louise Avenue, March 2018.
<https://dot.sd.gov/media/documents/FONSIapprovalLinc03YF-85thSt312018.pdf>
- ³ Interchange Justification Report, Interstate 29 at 85th Street – Exit 74, October 2018.
- ⁴ Go Sioux Falls 2045 Lang Range Transportation Plan, November 2020
https://siouxfallsmpo.org/files/1616/0504/0635/SiouxFalls_2045_LRTP_FINAL.pdf
- ⁵ City of Sioux Falls Engineering Design Standards for Public Improvements
<https://www.siouxfalls.org/public-works/engineering/construction-mgmt/resources/design-standards>
- ⁶ Shape Sioux Falls 2040 Comprehensive Plan, September 2016
www.siouxfalls.org/shape-sf
- ⁷ City of Tea Comprehensive Plan Update 2018, September 2018
<https://fliphtml5.com/udkk/qfvn/basic>
- ⁸ Lincoln County Master Transportation Plan, November 2019
<https://lincolncountysd.org/DocumentCenter/View/729/Master-Transportation-Plan-PDF>
- ⁹ South Dakota Department of Transportation, 2022-2025 STIP, Statewide Transportation Improvement Program
<https://dot.sd.gov/projects-studies/planning/stip>
- ¹⁰ Sioux Falls 2022-2026 Capital Program
<https://www.siouxfalls.org/finance/capital-programs/2022-2026-cip/2022-2026-Capital-Program>
- ¹¹ Sioux Falls MPO 2022-2025 Transportation Improvement Program
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- ¹² United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, November 2019
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<https://www.siouxfalls.org/planning-dev/planning/transportation-planning/highlights/bicycle-planning>
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- ¹⁹ Lincoln County Official Aquifer Protection Map, Accessed November 2020 (application no longer available)