

Environmental Assessment and Section 4(f) Evaluation

FOR

I-229 and Exit 4 (Cliff Avenue) Interchange Reconstruction

Project Numbers:

IM-B 2292(101)4, PCN 05HN

Sioux Falls CIP #11100

Sioux Falls #7 (2023 Bike Plan)

Minnehaha County, South Dakota

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Environmental Assessment

I-229 Exit 4 Interchange (Cliff Avenue)

Minnehaha County, SD

IM-B 2292(101)4, PCN 05HN - Sioux Falls CIP #11100 - Sioux Falls #7 (2023 Bike Plan)

August, 2024



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References

*References are called out by number throughout this Environmental Assessment and listed numerically as endnotes at the end of the document.

List of Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ACS	American Community Survey
APE	Area of Potential Effect
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
BMP	Best Management Practices
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
CP	Capital Program
dB	Decibel
DDI	Diverging Diamond Interchange
EA	Environmental Assessment
EJ	Environmental Justice
EO	Executive Order
ESA	Endangered Species Act/Environmental Site Assessment
ESR	Environmental Scan Report
FEMA	Federal Emergency Management Agency
FFPA	Federal Farmland Protection Act
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
IJR	Interchange Justification Report
IPaC	Information for Planning and Consultation
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
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
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
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
ROD	Record of Decision
ROW	Right of Way
SDARC	South Dakota Archaeological Research Center
SDCL	South Dakota Codified Law
SDDENR	South Dakota Department of Environment and Natural Resources
SDDANR	South Dakota Department of Agriculture and Natural Resources
SDDOT	South Dakota Department of Transportation
SDGFP	South Dakota Game, Fish, and Parks
STIP	Statewide Transportation Improvement Program
SWD	Surface Water Discharge
SWPPP	Storm Water Pollution Prevention Plan
TIP	Transportation Improvement Program
TLE	Temporary Land Easement
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VIA	Visual Impact Assessment
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled
WOTUS	Waters of the United States

1.0 Introduction and Project Overview

1.1 Environmental Document Statement

This Environmental Assessment (EA) has been prepared in compliance with the requirements of the National Environmental Policy Act (NEPA) 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.

1.2 Project Background

The stakeholders for this project include the City of Sioux Falls, the Sioux Falls Metropolitan Planning Organization (MPO), South Dakota Department of Transportation (SDDOT), and the Federal Highway Administration (FHWA). The roles for these agencies are as follows:

- SDDOT – Lead Agency
- FHWA – Joint Lead Agency
- City of Sioux Falls – Participating Agency
- Sioux Falls MPO – Participating Agency

SDDOT, in partnership with the other project stakeholders, is completing an environmental study of the Interstate Highway 229 (I-229) interchange and its approach roadways at Exit 4 (Cliff Avenue) in Sioux Falls, South Dakota. This study will build on the work and findings of recently completed studies for the area, including, the 2010 Decennial Interstate Corridor Study, the I-229 Major Investment Study (MIS), and the I-229 Exit 4 Interchange Modification Justification Report (IMJR), and the I-229 Exit 4 Environmental Scan Report (ESR).

The Exit 4 interchange, in its current state, was identified as having safety and capacity problems in the 2010 Decennial Interstate Corridor Study, which identified the need for improvements at the interchange. The 2010 study also recommended the widening of I-229 in the study area to add an additional lane in each direction by the forecast year 2020.

The more recent I-229 MIS was completed in 2017 and included recommendations for interchange improvements at the Exit 4 interchange. The MIS allowed the City of Sioux Falls, the Sioux Falls MPO, the SDDOT, FHWA, and others to help determine the vision for the I-229 Corridor. The I-229 Exit 4 (Cliff Avenue) Corridor Study was a subarea study of the I-229 MIS. The MIS initially evaluated a broad range of alternative for I-229 and Cliff Avenue at the Exit 4 location, and ultimately recommended three alternatives to be carried forward for further evaluation.

SDDOT, along with other project stakeholders, initiated an IMJR for Exit 4 to evaluate the design, safety, operations, and policy and funding implications of modifying the Cliff Avenue (Exit 4) interchange along I-229 based on the recommendations of the MIS. The IMJR design year 2050 traffic forecasts show impacts to the interstate system due to regional growth in the metropolitan area. No adverse impacts to the interstate highway system are forecasted due to the proposed changes at the interchange. The IMJR was completed in in November 2020, and the interchange concepts from the IMJR were given Engineering and Operations Acceptance by FHWA. This action allowed the project stakeholders to proceed with the preparation of an environmental document for the study area to evaluate the impacts of alternatives considered in the IMJR. The IMJR is included as Appendix A.

Alongside the development of the IMJR, an ESR was completed for the project. The ESR established a foundation for the Purpose and Need statements with community input, defined the study limits of the project, and preliminarily screened alternatives for any that may be unreasonable. The ESR provided a planning level evaluation from which the EA could refine and build upon with additional analysis. The ESR is included as Appendix B.

1.3 Project Location, Logical Termini, Independent Utility, AND Reasonably Foreseeable Transportation Improvements

1.3.1 Project Location and Logical Termini

The I-229 Exit 4 interchange and adjacent Cliff Avenue Corridor is located in the eastern portion of the Sioux Falls Metropolitan Area in southeastern South Dakota. Federal regulations require that federally funded transportation projects have logical termini (defined as the rational end point for a transportation improvement and the rational end points for a review of the environmental impacts). 23 Code of Federal Regulations (CFR) §771.111(f)(1). Simply stated, this means that a project must have rational beginning and end points. Those end points may not be created simply to avoid proper analysis of environmental impacts. Logical termini were selected jointly between the SDDOT and City of Sioux Falls for this project. The SDDOT's I-229 mainline interstate study limits are Exit 3 (Minnesota Avenue) to the west and Exit 5 (26th Street) to the east. These were chosen because they are the nearest service interchanges in both directions along I-229. The City of Sioux Falls' Cliff Avenue study limits include 33rd Street to the north and 49th Street to the south. These were chosen because they are the closest major crossroads to Cliff Avenue near I-229, and major needs along Cliff Avenue primarily relate to the Exit 4 interchange. The rational end points of the environmental impact analysis include the SDDOT and City study area limits and the human or natural environment limits of the affected resource located within it. Generally, the study area contains urban land uses to the north of I-229, and open/vacant land or natural area to the south of I-229. A combination of physical buffering, natural habitat, and environmental features were used to determine the area of potential impacts. Project Location and Study Areas are shown on Figure 1-1.

1.3.2 Independent Utility

Federal regulations require that a project have independent utility. Independent utility is defined as having independent significance (i.e., it should be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; 23 C.F.R. § 771.111(f)(2)). This means a project must be able to provide benefit by itself and not be a waste of money or compel further expenditures to make the project useful. Stated another way, a project must be able to satisfy its purpose and need with no other projects being built. The project limits were selected such that independent utility of the proposed improvement would result, and that benefits could be achieved even without additional transportation improvements made near or adjacent to the study area. To meet this requirement, the project must meet three conditions:

1. It must not require other improvements to meet its Purpose and Need, and
2. It must not force a need for improvements beyond its termini or on intersecting roads.
3. It must not restrict consideration of alternatives for other reasonably foreseeable transportation improvement.

In order to achieve independent utility and meet the purpose and need of the project, interchange improvements would necessitate improvements along Cliff Avenue within the study area and would require temporary improvements along I-229. These have been identified as reasonably foreseeable future actions and are currently

fiscally constrained. The SDDOT 2024-2027 Statewide Transportation Improvement Program (STIP¹) includes Exit 4 interchange improvements (PCN 05HN). The City of Sioux Falls most recent 2024-2028 Capital Improvement Plan (CIP²) identifies improvements on Cliff Avenue from 38th Street to the Big Sioux River (Project 11100). Additionally, The City of Sioux Falls 2023 Bike Plan³ identifies an underpass within the study area (Project #7) as a project with “Very High Importance.” This has been identified as a project goal. Together, the three projects mentioned above work together to meet the project Purpose and Need without necessitating additional improvements or restricting consideration of other alternatives, and thus, are considered to have independent utility. Projects discussed in this section are shown on Figure 1-1. The project purpose, need, and goals are discussed in Sections 1.4 and 1.5 below. The range of alternatives considered, and evaluation of purpose and need are discussed in Section 2.

1.3.3 Other Reasonably Foreseeable Transportation Improvements

The following projects were also identified within or in close proximity to the study area of this project. These projects have their own independent utility, are fiscally constrained (and referenced by their capital plan project numbers), and do not represent components of the Exit 4 project. These other reasonably foreseeable actions are shown in Figure 1-1.

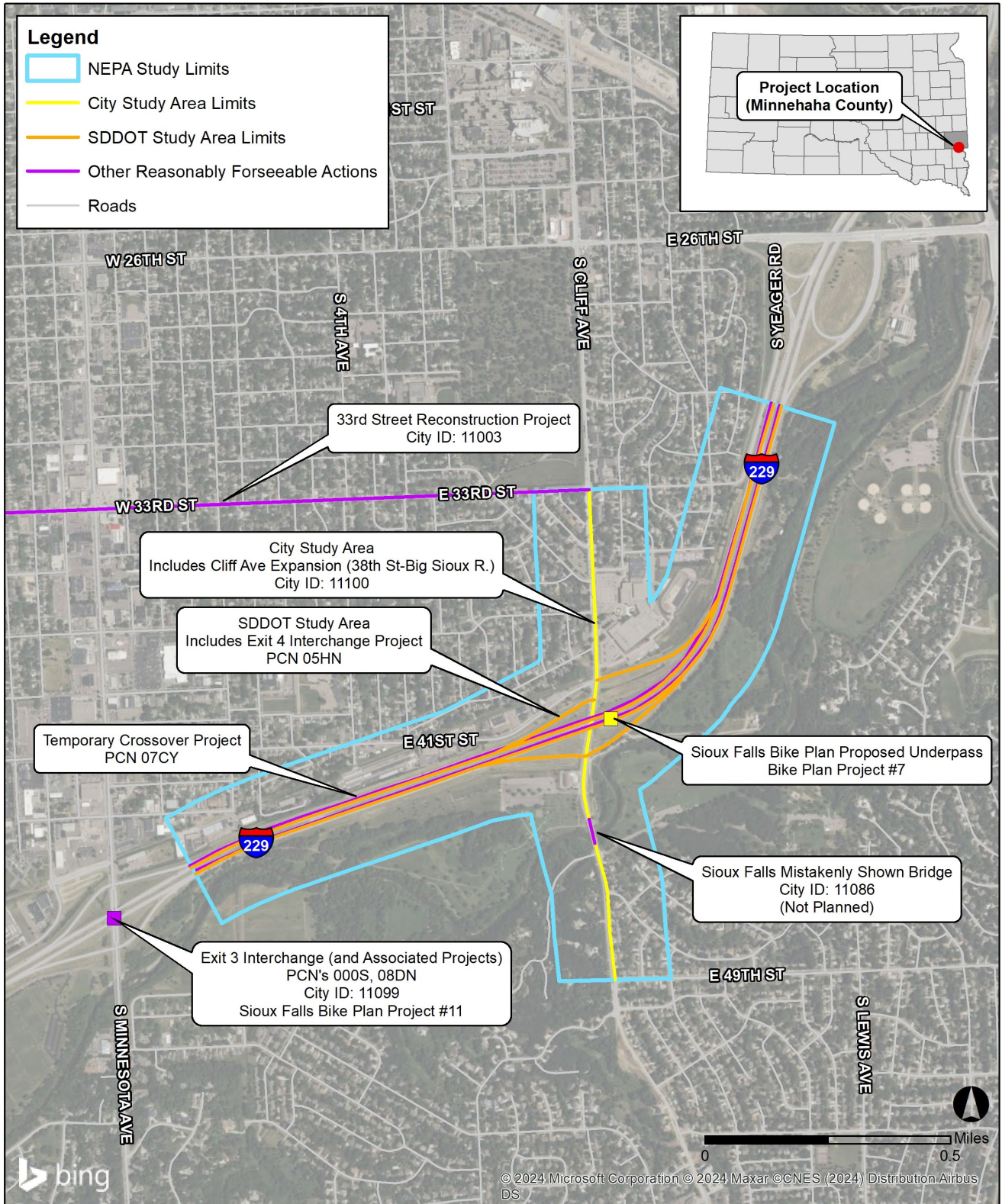
Temporary Crossover Project: The 2024-2027 STIP also includes an I-229 “crossover” project (PCN 07CY), which includes the modification of the median crossovers on I-229 and a new temporary bridge structure. This project has its own independent utility, has received NEPA approval, and is planned for construction in 2024. While the Exit 4 interchange project does not include the crossover project, it is a connected action. This interchange assumes the construction of the crossover project as a reasonably foreseeable action and has been designed to be compatible with the crossover project.

Exit 3 Interchange Project (and associated projects): The 2024-2027 Statewide Transportation Improvement Program (STIP) includes Exit 3 interchange improvements (PCN 000S), Minnesota Avenue Improvements (PCN 08DN). The City of Sioux Falls most recent 2024-2028 Capital Improvement Plan (CIP) identifies improvements on Minnesota Avenue from 41st Street to W Lotta Street (Project 11099). Additionally, The City of Sioux Falls 2023 Bike Plan identifies Minnesota Avenue with an underpass under I-229 within the study area (Project #11) as a “Very High Priority” improvement. These projects are currently being evaluated for impacts in NEPA as one project action. The combined project has an approved ESR, IMJR, and purpose and need and functions as a standalone project with independent utility.

33rd Street Improvements: This project (CIP #11003) includes street reconstruction and widening, most notably on 33rd Street from Grange Avenue to Cliff Avenue. This project abuts the NEPA study area for the Exit 4 project. However, proposed 33rd Street Improvements do not coincide with planned improvements on Cliff Avenue. 33rd Street improvements constitute an independent project that addresses needs on 33rd Street outside of the Exit 4 NEPA study area, and will have its own environmental analysis.

Cliff Avenue Bridge over the Big Sioux River: This project is shown on the City’s 2024-2028 CIP as one of several planned bridge projects (under project #11086); however, it is not included in the description for this project. The City has confirmed that this was a mistake on the map. A bridge project may occur here in the future, but the build alternative was designed to utilize the existing bridge and does not necessitate bridge improvements. Any potential bridge reconstruction at this location could be completed as an independent action.

Figure 1-1: Project Location Map



1.4 Purpose and Need

The project Purpose and Need were first developed in the planning phase of the project during the development of the ESR. State agencies, federal agencies, and Native American tribes were defined as stakeholders and mailed a map and description of the project during this process, and a draft of the project purpose and need prior to the ESR's first public involvement meeting. These stakeholders were asked to provide comments on the draft purpose and need statements at this time. Responses were received from several agencies providing additional guidance during the environmental review process, but no comments on the draft purpose and need or major concerns with the construction of the project were expressed. The public was first offered the opportunity to provide input on the project at a Public Open House/Information Meeting held on January 23, 2019 (In-person meeting). The preliminary purpose and need for the ESR was shared at this meeting, with the intent of receiving feedback to refine the purpose and need for NEPA. After the opportunity for comments, the Study Advisory Team made refinements to the purpose and need to include in the final draft of the ESR. The final draft of the purpose and need statement was shared with the public at the open house on November 6, 2020 (virtual online meeting), with the intent of sharing the purpose and need to be used during NEPA and receive any final comments. General support for the draft purpose and need statements was received and no concerns were expressed. The final ESR was approved by FHWA in April 2021.

The ESR process identified the main need factors (mobility and geometric deficiencies) of the project as well as the additional project goals (safety and non-motorized connectivity). With input and coordination from project stakeholders in the ESR process, the purpose, needs, and goals were used as a foundation for NEPA, and were carried forward to form the final Purpose and Need of project to meet NEPA requirements.

1.4.1 Project Purpose

The purpose of this project is to improve travel mobility and address geometric deficiencies at the I-229 Exit 4 interchange and along the Cliff Avenue corridor, while also considering potential additional desirable outcomes of improving safety and nonmotorized connectivity.

1.4.2 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:

- **Mobility** – LOS C or better should be maintained along all sections of I-229 and all ramp terminals (Per SDDOT standards) and LOS D or better should be maintained along all sections of Cliff Avenue within the project area (per City of Sioux Falls Standards) through the 2050 project design year with a preference for alternatives that meet these requirements under higher than anticipated demand. Supporting information for this need is included in EA Section 1.4.2.1.
- **Geometric Deficiencies** – Geometric deficiencies, including infrastructure condition deficiencies for roadways in the study area, should be addressed to meet current standards by the project's design year (2050). Supporting information for this need is included in EA Section 1.4.2.2.

These needs were initially identified in the ESR phase of the project. Since the approval of the ESR, the Study Advisory Team expressed a desire to consider whether any of the alternatives would meet the mobility needs of the project under higher than anticipated traffic volumes. The mobility need was updated from the ESR version to reflect this consideration.

1.4.2.1 Mobility

Traffic forecasts were prepared for all intersections and roadway segments within the project area using the regional travel demand model maintained by the City of Sioux Falls and the Sioux Falls MPO. The operational analyses of alternatives, including the No Build Alternative, were evaluated using appropriate Level of Service (LOS) evaluation techniques.

LOS is a qualitative rating system used to describe the efficiency of traffic operations on a roadway segment or at an intersection. Six levels of service 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 congestion), as shown in Table 1-1. SDDOT has established a minimum standard of LOS C on urban interstate highway corridors, including ramp terminal intersections. The City of Sioux Falls has established a minimum standard of LOS D on arterial signalized intersections and any intersection movement at LOS E or better. All alternatives were evaluated with forecast demands for the opening year of 2024, a mid-term year of 2035, and a design year of 2050.

Present day conditions show that existing traffic conditions are at LOS C or better for all segments of I-229 in the project area. These conditions are projected to continue through the year 2024. However, traffic volumes within the study area are anticipated to increase substantially between the present and the project's design year of 2050. During this time, traffic volumes along I-229 are expected to grow from 58,000 to 90,500 vehicles per day (VPD) and traffic volumes along Cliff Avenue are expected to grow from 21,600 to 32,800 VPD (See Figure 1-3). By 2050, the projected LOS under the no build scenario is expected to drop to LOS D during either the a.m. or p.m. peak hour for four of the ten northbound I-229 segments in the study area. By 2050, eight of the ten southbound I-229 segments in the study area will also drop to LOS D.

Traffic operations at ten intersections along Cliff Avenue were also examined as part of this study. Present day conditions show that of these ten intersections, six have a failing LOS or queue storage ratio. The number of failing intersections is expected to grow to eight under the No Build Alternative by 2050 (See Figure 1-2).

Figure 1-2: Intersection Level of Service – Present and Design Year 2050



Sioux Falls is one of the fastest growing cities in South Dakota. During the preliminary planning phase of this study, the City of Sioux falls expressed the need for future infrastructure improvements to operate acceptably, even if traffic experiences more growth than anticipated. When forecasting and modeling traffic volumes, there is always some level of uncertainty in the results of the analysis. To account for this, a sensitivity analysis is often completed to analyze system performance under increases in traffic volumes that are higher than anticipated. USDOT policy recommends the use of sensitivity analysis as part of sound practice in modeling.⁴ Traffic analysis for this study used Highway Capacity Manual, 6th Edition, techniques.

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 and LOS D or better should be maintained along all sections of Cliff Avenue within the project area through the 2050 project design year with a preference for alternatives that meet these requirements under higher than anticipated demand.

Table 1-1: Level of Service Definitions (Highway Capacity 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

1.4.2.2 Geometric Deficiencies

Since the interchange was constructed in the early 1960s, geometric design standards have changed. As a result, some of the existing geometric characteristics no longer meet current design standards. Deficiencies include:

- Substandard shoulder widths on the ramp connections; left and right shoulders.
- Control of access of adjacent intersections to the ramp terminal intersections are less than desirable. There are currently full access intersections on either side within the current standard of 250 feet of the ramp terminal intersections.
- Pavement condition varies throughout the study area, but conditions are either deteriorating or expected to deteriorate throughout the 2050 design year.
- The two I-229 bridge structures over Cliff Avenue have exceeded their design life.

The pavement on the existing I-229 mainline through the project area is continuously reinforced concrete pavement (CRCP). The roadway was resurfaced in 2001 and many of the ramp connections were also resurfaced at this time. The City of Sioux Falls uses a rating called the pavement condition index (PCI) to score the conditions of streets such as Cliff Avenue. This rating helps the City to make informed decisions about future repairs and street reconstruction. PCI scores range from 0 to 100 and generally fall into one of the following condition categories: “Very Poor” (0 to 25), “Poor” (25 to 40), “Marginal” (40 to 50), “Fair” (50 to 60), “Good” (60 to 70), “Very Good” (70 to 85) and “Excellent” (85 to 100). In general, pavement is need of resurfacing or rehabilitation if it has a PCI rating below 75 or 58 respectively. As identified in Table 1-2, the average PCI ratings for Cliff Avenue within the NEPA study limits (33rd Street to 49th Street) range from 41 to 64, with only one score at or above 60.

Table 1-2: Pavement Condition Data for Cliff Avenue in Sioux Falls

Cliff Avenue Segment	Pavement Condition Index (PCI) Score
33rd Street to Cook Road	52
Cook Road to 36th Street	46
36th Street to Arcadia Road	51
Arcadia Road to 38th Street	45
38th Street to Pam Road	42
Pam Road to 41st Street	41
41st Street to I-229 Ramp	52
I-229 Ramp to I-229 Ramp	64
I-229 Ramp to Twin Oaks Estates	56
Twin Oaks Estates to Otonka Trail	52
Otonka Trail to 49th Street	55

As shown in table 1-2, four of the eleven sections along Cliff Avenue have “Marginal” PCI scores, and an additional six have “Fair” PCI scores. The average daily traffic (ADT) on Cliff Avenue in 2050 is forecasted to be higher than it

is under existing conditions, therefore increasing wear on the existing pavement. The condition of the pavement is anticipated to degrade below “Good” PCI levels in all sections as the infrastructure ages and the ADT increases.

I-229 has two separate bridges over Cliff Avenue and both structures are currently in fair condition. The concrete bridges were constructed in 1959 and have exceeded their 50-year design life. The Federal Sufficiency Rating (FSR) for both the northbound I-229 and the southbound I-229 bridges are 85.9 according to the 2019 Bridge Inspection Reports; both are classified as fair.

To address geometric deficiency needs in the project area, substandard shoulder widths and access control deficiencies near ramps within the project area should be addressed to meet current standards by the design year. Pavement condition should also be maintained at a rating of at least “good” (PCI score 60+) on roadways in the project area through the project’s design year, and the life of the bridges should be extended through the project’s design year.

1.5 Project Goals/Other Desirable Outcomes

As part of the planning process for the project, several other goals were identified for the project. While project goals are not direct project needs and are therefore not a basis for eliminating an alternative based on meeting the purpose of the project, they can be considered as a factor in screening and selecting a preferred alternative. They should be considered when evaluating the alternatives, where possible, to achieve desirable outcomes. The goals identified for the project include safety and non-motorized connectivity. These goals are discussed further in this section.

1.5.1 Safety

Crashes in the project area were evaluated between 2013 through 2017. The crash records were segregated into crashes for each of the study intersections and the arterial and freeway segments. The type and severity of the crashes were reviewed, and crash rates and critical rates were calculated for each.

Crash rates are expressed as the number of crashes per million entering vehicles (MEV) at an intersection or along a segment. The critical crash rate is a statistical value that is unique to each intersection based on vehicular exposure and the average crash rate for a similar intersection or segment; a crash rate higher than the critical rates indicates a sustained crash problem. A critical crash rate index is calculated by dividing the crash rate by the critical rate; any value above 1.0 indicates a crash rate at or exceeding the critical rate.

The average crash rate for an urban freeway system, provided by SDDOT, was 1.09 crashes per MEV. The City of Sioux Falls provided the most recent average crash data, from 2015, for the varying arterial roadway and intersection traffic control types at the time of the analysis.

All freeway mainline segments are well below the calculated critical rates. There is only one existing Cliff Avenue intersection that exceeds the calculated critical rate (at 41st Street/I-229 SB, just north of the interchange) and one additional intersection approaching (within 15 percent) the critical rate (at Otonka Trail, just south of the Big Sioux River).

Safety is an important consideration for all transportation projects. With any new transportation project comes an opportunity to improve safety. Safety should be considered during the design of alternatives for this project. Alternatives should work toward reducing crashes within the study area below the No Build Levels, with a preference for alternatives that improve safety more than others.

1.5.2 Non-Motorized Connectivity

The Shape Sioux Falls 2040 Comprehensive Plan and the current edition of the City of Sioux Falls Engineering Design Standards include goals and policies to accommodate all potential transportation system users by improving streetscapes and multimodal access. Sidewalks currently exist on both sides of Cliff Avenue in areas further away from the I-229 overpass but have no separation from the roadway along these sections. Sidewalks exist only on one side of Cliff Avenue as it crosses under I-229, with little or no separation from the roadway. Crossings at intersections are not always marked and often require non-motorized travelers to cross many lanes of traffic. Many of the pedestrian curb ramps in the project area do not meet current Americans with Disabilities Act (ADA)/Public Rights-of-Way Accessibility Guidelines (PROWAG) guidelines. Cracked and uneven sidewalks are other ADA challenges within the project area.

Bicyclists' skills, confidence and preferences vary considerably. Some bicyclists are comfortable riding anywhere they are legally allowed to operate, including space shared with motorized vehicles. Some bicyclists prefer to use roadways that provide space separated from motorists. Although children may be confident bicyclists and have some level of bicycle handling skills, they most often do not have the experience of adults nor the training or background in traffic laws necessary to operate safely on the road. Bicycle and pedestrian facilities along Cliff Avenue are present, but connectivity is an issue in some locations, particularly where facilities for bikes and pedestrians are lacking on one or both sides of 41st Street and Cliff Avenue and crossings are sparse. While the existing 0.43 mile on-street signed bicycle route (Route #19, also shown later in Figure 3-7) along Cliff Avenue from Tuthill Park to Arcadia Road (traveling through a majority of Cliff Avenue within the study area) can work well for experienced bicyclists, many people in the community have indicated that they are not comfortable using the route, and many have expressed safety concerns for use by inexperienced riders. Numerous comments were received at the project's first public meeting (held in December 2019) regarding bicycle and pedestrian safety, particularly concerning safety improvements at intersection and crossing near Lincoln High School and surrounding intersections.

The City of Sioux Falls 2023 Bike Plan identifies an underpass at I-229 within the study area as a priority improvement. It also shows sidepath improvements on Cliff Avenue as a priority improvement. Other potential long-range improvements are shown on 49th Street and along the North side of I-229.

A goal of this project is to work toward the desirable non-motorized traveler-desired outcomes identified in local plans and through public outreach efforts discussed above. Design efforts of the study alternatives must consider the addition of sidewalks, trails, bicycle facilities, and marked crossings in key locations where there are gaps in these networks. New facilities should also aim to address current deficiencies in ADA standards on existing facilities in the project area and ensure new project-related sidewalks and trails also meet these standards.

2.0 Alternatives

Initial development of conceptual alternatives for this project started prior to the planning/ESR phase of the project. Initially, The I-229 Major Investment Study (MIS) conducted in 2017 examined the need for improvements along a larger length of I-229 and included eight interchange alternatives for the Cliff Avenue interchange with I-229. The MIS narrowed the number down to three alternatives recommended to be carried forward or further analysis.

For more information on the previously dismissed alternatives from the MIS, see the I-229 Exit 4 (Cliff Avenue) Crossroad Corridor Study located online at:

dot.sd.gov/media/documents/I229_SS1_FINALReportAppendices_June2017.pdf

The IMJR focused its analysis on the MIS-recommended alternatives. In addition to these, a modification to Alternative Cliff-6 was explored as part of this analysis. An offset SPUI design was explored with the SPUI intersection located near the existing southern ramp terminal intersection which became known as Alternative 6B. This design provides better intersection spacing and would require 41st Street to not be realigned; however, the design requires 6 separate bridge structures along I-229 to relocate the southbound I-229 ramps to the south side. Due to the increased number of structures, this alternative was removed from consideration.

The three remaining alternatives were evaluated in the planning phase of the project with the ESR. The ESR analysis determined that all three alternatives satisfied the project's preliminary Purpose and Need, and therefore, they should be carried forward for additional consideration and screening in NEPA. These alternatives, along with a No build Alternative, are described below. All build alternatives assume improvements to Cliff Avenue will be made, as most currently represented by Sioux Falls project 11100.

2.1 Range of Alternatives Considered in the Environmental Screening Process

2.1.1 No Build Alternative

The No Build Alternative is a "no action" alternative. This alternative assumes that no modifications would be made, and the interchange would be maintained in its current configuration. Continual maintenance and repairs would be performed to ensure the safety of the traveling public, and safety measures would be implemented to the extent feasible and practicable. Although the No Build Alternative typically does not meet the purpose and need of a proposed transportation project, it is always carried forward to serve as the baseline to which the other alternatives are compared 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 Alternative Cliff-1

Northbound Cliff to Southbound I-229 Loop Ramp Alternative

This alternative is carried forward from the I-229 Major Investment Study (MIS) recommendations. For this alternative, the northbound I-229 ramp terminal would remain a standard diamond configuration with additional turn lanes to improve capacity.

The southbound I-229 ramps would be significantly reconfigured. The I-229 entrance ramp would be split into two ramps with a new entrance ramp access on southbound I-229. The southbound Cliff Avenue ramp would be a free right turn movement and the northbound Cliff Avenue traffic would have a free right turn onto a new loop ramp connection. The southbound I-229 exit ramp would connect to the 41st Street intersection. This connection helps improve safety and relieves the closely spaced intersection issues.

Along Cliff Avenue, a 4-lane divided roadway would be provided directly to the north with the south Lincoln High School driveway access being reduced to a right-in/right-out access (RI/RO). To the south, a median would be constructed to just north of the Spencer Park intersection resulting in RI/RO access for the existing business driveways.

2.1.3 Alternative Cliff-6

Single Point Urban Interchange, 41st Street Realigned to Pam Road Alternative

This alternative is carried forward from the I-229 Major Investment Study (MIS) recommendations. The existing diamond interchange would be reconfigured to a Single Point Urban Interchange (SPUI). 41st Street would be realigned to the north to provide better intersection spacing with the proposed interchange design.

The 41st Street realignment creates a significant amount of right-of-way impacts and would require Pam Road to be closed to Cliff Avenue. The configuration creates a weaving condition along northbound Cliff Avenue between the southbound I-229 right turning vehicles wanting to use 41st Street to the west.

Along Cliff Avenue, a 4-lane divided roadway would be provided directly to the north with the south Lincoln High School driveway access being reduced to a RI/RO. To the south, a median would be constructed to just north of the Spencer Park intersection resulting in RI/RO access for the existing business driveways.

2.1.4 Alternative Cliff-7

Single Point Urban Interchange, Southbound I-229 Exit Ramp Through and Right Turns at 41st Street Alternative

This alternative is carried forward from the I-229 MIS recommendations. The existing diamond interchange would be reconfigured to a SPUI with a modified southbound ramp connection.

The northbound I-229 ramps are of typical SPUI design, and the southbound I-229 entrance ramp is also typical of a SPUI design.

The southbound I-229 exit ramp would be significantly reconfigured from a standard SPUI design. The I-229 exit ramp would be split into directional ramps for Cliff Avenue. The southbound Cliff Avenue traffic would tie into the traditional SPUI intersection. The northbound Cliff Avenue traffic would connect to the 41st Street intersection; this connection helps relieve the closely spaced intersection and weaving issues.

Along Cliff Avenue, a 4-lane divided roadway would be provided directly to the north with the south Lincoln High School driveway access being reduced to a RI/RO. To the south, a median would be constructed to just north of the Spencer Park intersection resulting in RI/RO access for the existing business driveways.

Figure 2-1: Alternative Cliff-1



Figure 2-2: Alternative Cliff-6

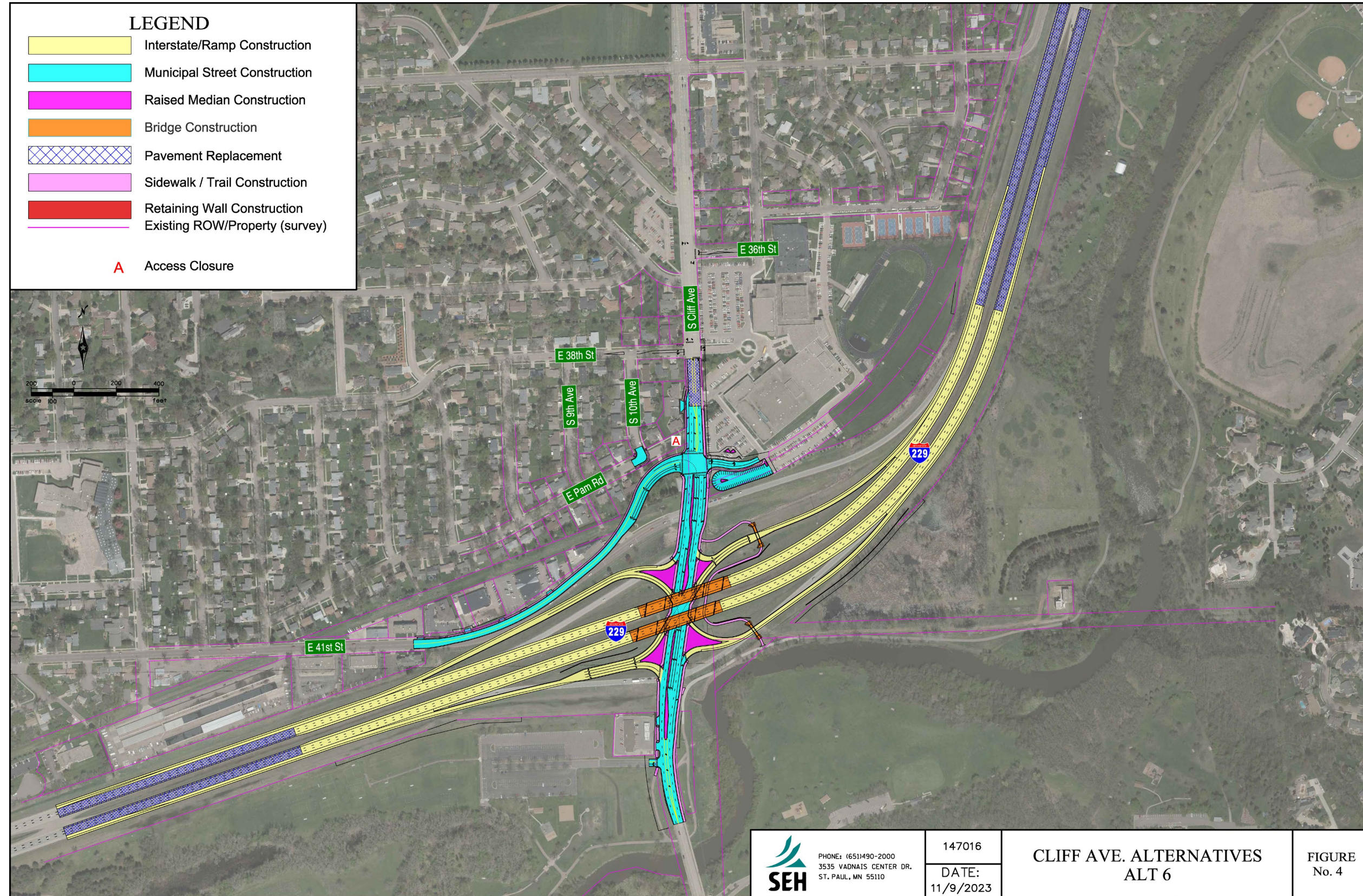
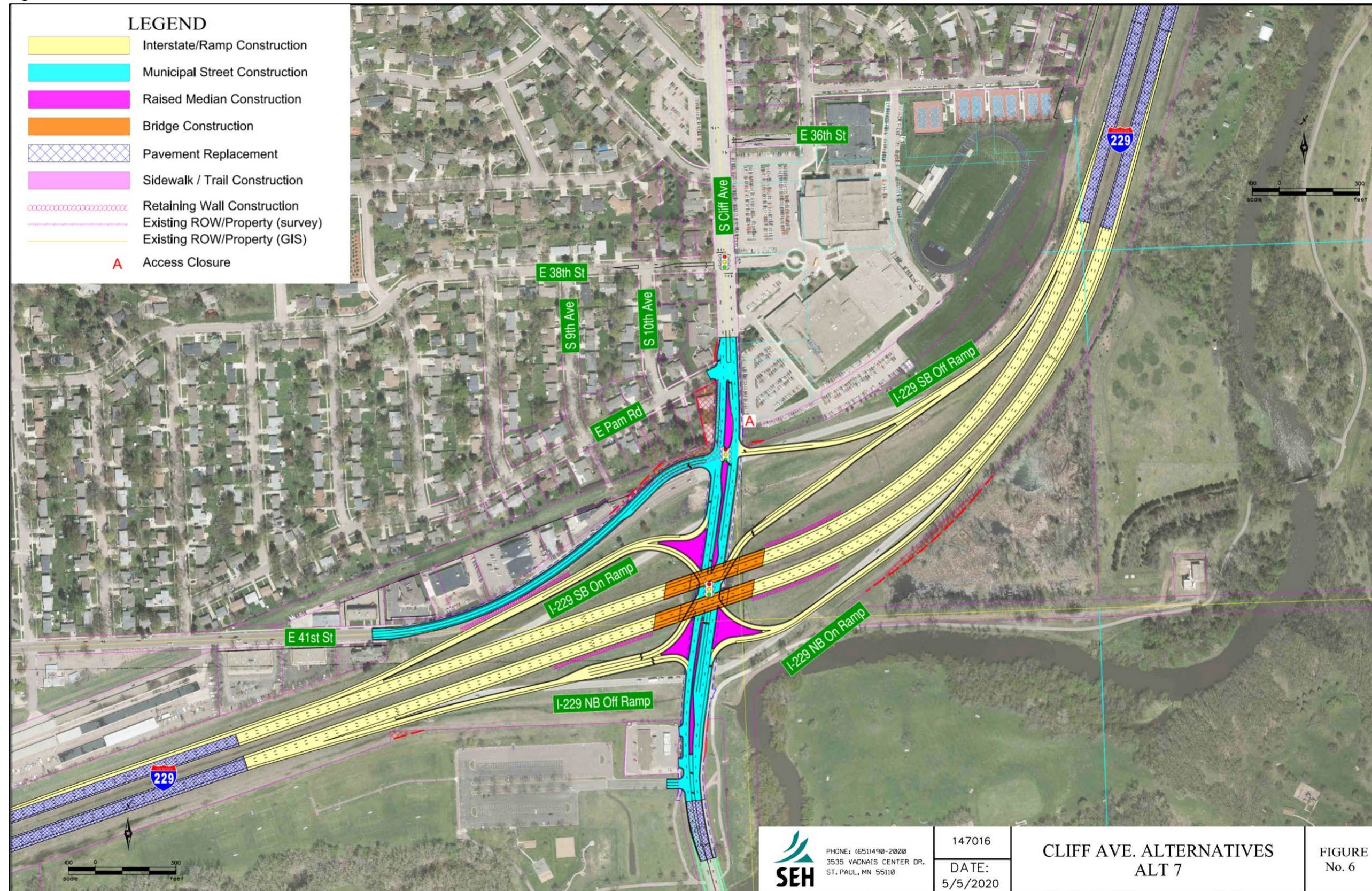


Figure 2-3: Alternative Cliff-7



2.2 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.

2.2.1 Purpose and Need

The ESR completed for the project initially concluded that all three alternatives would satisfy the preliminary Purpose and Need of the project. Since the approval of the ESR, the Study Advisory Team expressed a desire to consider whether any of the alternatives would meet the mobility needs of the project under higher than anticipated traffic volumes. The mobility need was updated to reflect this consideration in the NEPA process.

To determine if the alternatives met the purpose and need for NEPA requirements, criteria for each of the project’s needs must be met. These criteria include:

- **Mobility** – LOS C or better should be maintained along all sections of I-229 and all ramp terminals (Per SDDOT standards) and LOS D or better should be maintained along all sections of Cliff Avenue within the project area (per City of Sioux Falls Standards) through the 2050 project design year with a preference for alternatives that meet these requirements under higher than anticipated demand.
- **Geometric Deficiencies** – All shoulder widths and adjacent intersection spacing should meet current standards. In addition, a “Good” pavement condition score should also be maintained and the lifespan of deficient structures should be extended through the 2050 design year.

2.2.1.1 Mobility

As discussed previously in the Purpose and Need section, LOS is anticipated to fall below acceptable levels through 2050 in many places throughout the study area. Analysis in the study’s IMJR indicates that by 2050, projected LOS with existing transportation facilities is expected to drop to LOS D during either the a.m. or p.m. peak hour for four of the ten northbound I-229 segments in the study area and eight of the ten southbound I-229 segments in the study area will also drop to LOS D. Eight of ten intersection along Cliff Avenue will fall below LOS C during this timeframe as well. These anticipated future levels of service are a reflection of what would be expected under the No Build Alternative, and this alternative, therefore, does not meet the mobility needs of the study area.

With the build alternatives, operations and mobility would improve throughout the study area. All of the build alternatives would improve LOS to levels that meet the needs of the project at locations along I-229 and Cliff Avenue under peak conditions.

Table 2-1: Anticipated 2050 Levels of Service by Alternative

Level of Service Location/Type	No Build Alternative	Alternative Cliff-1	Alternative Cliff-6	Alternative Cliff-7
Worst Cliff Avenue Performance (Excludes Ramp Terminal Intersections)	LOS F	LOS C	LOS C	LOS C
Worst I-229 Performance (Within Project Limits)	LOS D	LOS C	LOS C	LOS C
Worst Ramp Terminal Performance in 2050	LOS F	LOS C	LOS C	LOS C
Worst Ramp Terminal Sensitivity Analysis Performance (10% increase)	LOS F	LOS D	LOS C	LOS D

A sensitivity analysis was also conducted and documented in the IMJR. The analysis shows that with a 10 percent increase in traffic volumes over anticipated levels, The No Build Alternative would still fail, and Alternative Cliff-6, would still maintain passing levels of service. Alternatives Cliff-1 and Cliff-7 would each have ramp terminals that fall to LOS D, causing them to fail operationally. While these failures would only occur under higher than anticipated traffic volumes, this is still a factor worth considering during the evaluation of alternatives.

Overall, the No Build Alternative does not meet the mobility need of the project. While all three alternatives meet the preliminary need established in the ESR process, Alternative Cliff-6 would provide the most confidence in meeting this need under higher than anticipated traffic volumes and best meets the mobility need established in NEPA.

2.2.1.2 Geometric Deficiencies

The No Build Alternative would take no action to address the geometric deficiencies of narrow shoulder widths and access control at adjacent intersection. Routine maintenance would still occur with this alternative and could include repaving. Overall, a majority of the existing geometric deficiencies would persist through the project design year with the No Build Alternative, and as a result, this alternative would not meet the project need for geometric deficiency improvements.

All three of the build alternatives were designed to address the project’s geometric deficiency needs. All three alternatives include widened shoulders and redesigned intersections adjacent to the ramp terminal intersections with improved access control. With the reconstruction of the interchange and Cliff Avenue within the study area, new pavement would be laid. Bridge structure design life would be extended through the project’s 2050 design year. Based on the above information, all three build alternatives would meet the geometric deficiency needs of the project.

2.2.2 Project Goals, Other Desirable Outcomes, and Other Factors

The goals for the project include safety and non-motorized connectivity. While project goals are not direct project needs and are therefore not a basis for eliminating an alternative based on meeting the purpose of the project, they can be considered as a factor in screening and selecting a preferred alternative. They should be considered when evaluating the alternatives, where possible, to achieve desirable outcomes.

An additional factor to consider when designing and evaluating alternatives is cost. If an alternative cannot be funded, then it would likely be an unfeasible alternative to move forward. Discussion related to the above goals, outcomes, and other factors, as they apply to the preliminary range of alternatives, is included below.

2.2.2.1 Safety

While not an immediate need within the study area, safety is an important consideration in the design of any transportation facility. With transportation improvements, it is important to avoid creating additional safety concerns, and improving safety is a desirable project benefit. Table 2-2 shows the effect each alternative would have on the surrounding transportation network, represented by total crashes. While safety would decrease in the future with the No Build Alternative, the three build alternatives would result in an increase in safety over anticipated future conditions, with Alternative Cliff-6 demonstrating the greatest safety improvement. A full safety analysis is included in the project’s IMJR (Appendix A).

Table 2-2: Anticipated Crashes by Alternative (2024-2050)

	No Build Alternative	Alternative Cliff-1	Alternative Cliff-6	Alternative Cliff-7
Safety Improvement (2024 through 2050 Crashes)	No (1733 crashes)	Yes (1624 crashes)	Yes (1431 crashes)	Yes (1465 crashes)

2.2.2.2 Non-motorized Connectivity

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. The policy includes a Phase I checklist for preliminary design to ensure that bicycle, pedestrian, and transit elements are incorporated into the project (sidewalks/paths, crosswalks, lighting, separation from vehicle traffic, transit signage, etc.). The City of Sioux Falls 2023 Bike Plan identifies an underpass at I-229 within the study area as a priority improvement (Project #7). The Sioux Falls MPO 2045 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.⁵

Sidewalks exist only on one side of Cliff Avenue as it crosses under I-229, with little or no separation from the roadway. Crossings at intersections are not always marked and often requires that non-motorized traffic must cross many lanes of traffic. Many of the pedestrian curb ramps in the project area do not meet current Americans with Disabilities Act (ADA)/Public Rights-of-Way Accessibility Guidelines (PROWAG) guidelines. Cracked and uneven sidewalks present other ADA challenges within the project area. Major opportunities for bicycle and pedestrian facilities include separating facilities from the roadway, improving facilities to meet ADA/PROWAG guidelines, creating more bicycle and pedestrian-friendly crossings, and providing connections to the Sioux Falls Bike Trail and local roadways to the north.

The No Build Alternative would not provide substantial improvements to bicycle and pedestrian infrastructure. While routine maintenance activities could potentially include repairing uneven sidewalks and pedestrian ramps, no new facilities or connections would be constructed allowing noted deficiencies to persist. All three of the build alternatives would allow for new multimodal infrastructure that would be consistent with local plans. Designs of

these alternatives would allow for separated bicycle/pedestrian facilities, grade-separated crossings of I-229, and direct connections to the Sioux Falls Bike Trail and local roadways to the north. While these facilities would be fully developed in final design, they are anticipated to be feasible additions to all build alternatives. As a result, all three build alternatives would meet the additional goal for non-motorized connectivity.

2.2.2.3 Cost

If an alternative cannot be funded, then it would not likely be a feasible alternative to move forward.

The 2024-2027 STIP includes preliminary engineering for Exit 4 improvements. The STIP also notes that construction would be let beyond the current dates of the STIP, and no construction funds are currently allocated.

The interchange reconstruction project is in the SDDOT’s developmental program and anticipated to be constructed in 2026. Current SDDOT budget estimates for interchange improvements are shown below.

Current construction cost estimates for the interchange, I-229 mainline, and local roadway improvement work are \$36.1 Million in 2018 dollars.

Table 2-3: Estimated Cost Comparison for Alternatives

Estimated Construction Costs	No Build Alternative	Alternative Cliff-1	Alternative Cliff-6	Alternative Cliff-7
Estimated Interchange Structure Costs (\$M)	n/a	\$5.0	\$14.0	\$14.0
Estimated Interchange Roadway Costs (\$M)	n/a	\$9.6	\$14.0	\$14.2
Estimated Arterial Roadway Costs (\$M)	n/a	\$3.8	\$3.6	\$3.9
Total Estimated Construction Cost (Millions)	n/a	\$19.1	\$32.5	\$32.7

Preliminary cost estimates for the build alternative indicate that construction costs would vary from approximately \$19M to \$33M. Alternatives Cliff-1 and Cliff-7 would be the most expensive, primarily due to interchange structure construction costs. Alternative Cliff-1 saves over \$12 million compared to other alternatives. However, it is anticipated that all three build alternatives would be fundable through a combination of resources, including the National Highway Performance Program, Surface Transportation Block Grant Program, and the City of Sioux Falls’ Capital Improvement Program.

2.3 Evaluation Results and Recommendations for Full NEPA Analysis

Results of the NEPA Screening process for each alternative are summarized in Table 2-4. Additional discussion for each alternative is included below.

Table 2-4: Screening Results Summary

Screening Criteria		No Build Alternative	Alternative Cliff-1	Alternative Cliff-6	Alternative Cliff-7
Mobility (Need)	Worst Cliff Avenue Performance (Excludes Ramp Terminal Intersections)	LOS F	LOS C	LOS C	LOS C
	Worst I-229 Performance (Within Project Limits)	LOS D	LOS C	LOS C	LOS C
	Worst Ramp Terminal Performance in 2050	LOS F	LOS C	LOS C	LOS C
	Worst Ramp Terminal Sensitivity Analysis Performance (10% increase)	LOS F	LOS D	LOS C	LOS D
Geometric Deficiencies (Need)	All geometric deficiencies addressed	No	Yes	Yes	Yes
Safety (Goal)	Anticipated 2024-2050 Crashes	1733	1624	1431	1465
Nonmotorized Connectivity (Goal)	Allows for I-229 Crossing, Sidewalk Improvements, Pedestrian Ramps	No	Yes	Yes	Yes
Cost (Other)	Total Project Cost (\$M)	n/a	\$19.1	\$32.5	\$32.7

2.3.1 No Build Alternative

With failing levels of service and unaddressed geometric deficiencies, the No Build Alternative does not meet the purpose and need of the project. Alternatives which do not meet the purpose and need of the project are not typically carried forward for consideration in the NEPA Process. Although the No Build Alternative does not meet the purpose the 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).

2.3.2 Alternative Cliff-1

Alternative Cliff-1 does not meet the purpose and need of the project. This alternative addresses the geometric deficiencies identified as project needs and improves LOS to acceptable levels in all locations. However, the sensitivity analysis indicated that this alternative could still fail operationally with higher than anticipated levels of traffic when compared to other alternatives.

This alternative achieves additional project goals by allowing for the addition of bicycle and pedestrian infrastructure and providing a safety improvement by reducing crashes in the study area. However, the reduction in crashes provided would be less than those provided by other alternatives.

Despite having benefits such as low cost and minimal acquisitions, this alternative is not recommended for further evaluation in the NEPA process. This alternative has the potential to fail operationally under higher traffic volumes, meaning it would not meet the purpose and need of the project. This alternative also has the least safety benefits compared to other alternatives. For these reasons, it is not considered a prudent and feasible option compared to other alternatives and will not be carried forward for further analysis in the NEPA process.

2.3.3 Alternative Cliff-6

Alternative Cliff-6 meets the purpose and need of the project. This alternative addresses the geometric deficiencies identified as project needs. It also improves LOS to acceptable levels in all locations, even under 10 percent higher traffic volumes than anticipated, and is the only alternative to do this.

Alternative Cliff-6 meets the safety goal of the project by reducing crashes, and it does this to a greater extent than any other build alternative. It also provides buffered sidewalks and trails, crosswalks, lighting, and transit signage; all of which are encouraged through the City's complete streets checklist. The city has signed off on the Phase I complete streets checklist (included in Appendix C) for this alternative's preliminary design, further demonstrating that this alternative supports the non-motorized connectivity goal of the project. The designer would complete the remaining phases of checklist in final design. Although this alternative among the most expensive of alternatives, it would still be fundable and would provide more benefits overall than other alternatives. For these reasons, this alternative will be carried forward for further analysis in the NEPA process.

2.3.4 Alternative Cliff-7

Alternative Cliff-7 does not meet the purpose and need of the project. This alternative addresses the geometric deficiencies identified as project needs and improves LOS to acceptable levels in all locations. However, the sensitivity analysis indicated that this alternative could still fail operationally with higher than anticipated levels of traffic when compared to other alternatives.

This alternative achieves additional project goals by allowing for the addition of bicycle and pedestrian infrastructure and providing a safety improvement by reducing crashes in the study area. However, it would not provide the greatest safety benefit among the alternatives.

Because of the potential for this alternative to fail operationally under higher traffic volumes, and the fact that other alternatives provide a greater safety benefit, it is not considered a prudent and feasible option compared to other alternatives. Because of this, Alternative Cliff-7 will not be carried forward for further analysis in the NEPA process.

2.3.5 Evaluation Summary

Among the build alternatives, Alternative Cliff-6 is the most prudent and feasible. It is the most likely to meet the purpose and need of the project through the design year (2050), while also providing the greatest safety benefit. This alternative will be further evaluated for environmental impacts in the next section of this environmental analysis. Conversely, Alternatives Cliff-1 and Cliff-7 will not be carried forward. Alternative Cliff-6 will be referred to as the "Build Alternative" for the analysis of environmental impacts. The Build Alternative includes the three previously identified project components: the I-229 Exit 4 Interchange (PCN 05HN), the expansion of Cliff Avenue (City ID #11100), and the bike/pedestrian underpass (Sioux Falls Bike Plan Project #7). Other reasonably foreseeable actions will not be evaluated in this EA, as separate environmental evaluations would be required for those projects.

In addition to the Build Alternative, the No Build Alternative will also be carried forward for further evaluation and to serve as a baseline for comparison for environmental impacts of the Build Alternative.

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. The ESR process examined all regulated environmental resources to determine their applicability and potential to be impacted by the project. Resources not present, or which did not require further consideration in this EA, include climate change, coastal barriers, coastal zones, farmland, and wild and scenic rivers. The elements discussed in this section represent the items identified in the ESR which would require further evaluation in NEPA.

The section will focus on anticipated impacts from the No Build and Build Alternative within the NEPA study limits. Unless otherwise noted, the impacts associated with the build alternative include potential impacts of the I-229 Interchange and associated Cliff Avenue improvement projects. Typically, alternatives are developed to a “preliminary” level of design for their analysis in NEPA. In some cases, advancement of design is necessary in order to sufficiently examine potential impacts in some areas. Any advance design in this section was deemed necessary for the evaluation of environmental impacts. Completion of the “final design” of the recommended alternative would occur after the approval of the environmental decision document.

As the project, including preliminary design of the build alternative, developed throughout the NEPA process, additional potential impacts from the project were identified which would occur outside of the study area. A potential “borrow site” for fill material was identified which could be used for construction of the build alternative if it is needed. Because the need for this site would not be determined until final design, this site is classified by SDDOT standard specifications as a Department Designated Option borrow site. This requires that the site also undergo all required environmental clearances. Additional coordination took place with all required agencies for clearance of the borrow site, and potential impacts resulting from use of the site were analyzed. The site has been previously disturbed by its use for other construction projects, and impacts related to many of the resources discussed in this section will not apply. Additional discussion related to the borrow site is included only where applicable. The borrow site is shown in Figure 3-1.

In addition to the borrow site, impacts to section 6(f) resources were identified which would require the conversion of non-park land to park land as a mitigation measure. A proposed replacement property was identified (200 W Rose Street) which falls outside the NEPA study area of the project. This property would be converted to city park land as an addition to Tomar Park, and all environmental clearances were required as part of the conversion process. Additional coordination took place with all required agencies for clearance of the replacement property, and potential impacts resulting from use of the site were analyzed. The site is currently undeveloped and is proposed to remain that way when incorporated into Tomar Park and as a result, impacts related to many resources discussed in this section will not apply. Additional discussion related to the replacement property is included only where applicable. Impacts to Section 6(f) resources are discussed in section 3.15. The proposed replacement property is shown in Figure 3-2.

Figure 3-1: Designated Option Borrow Site

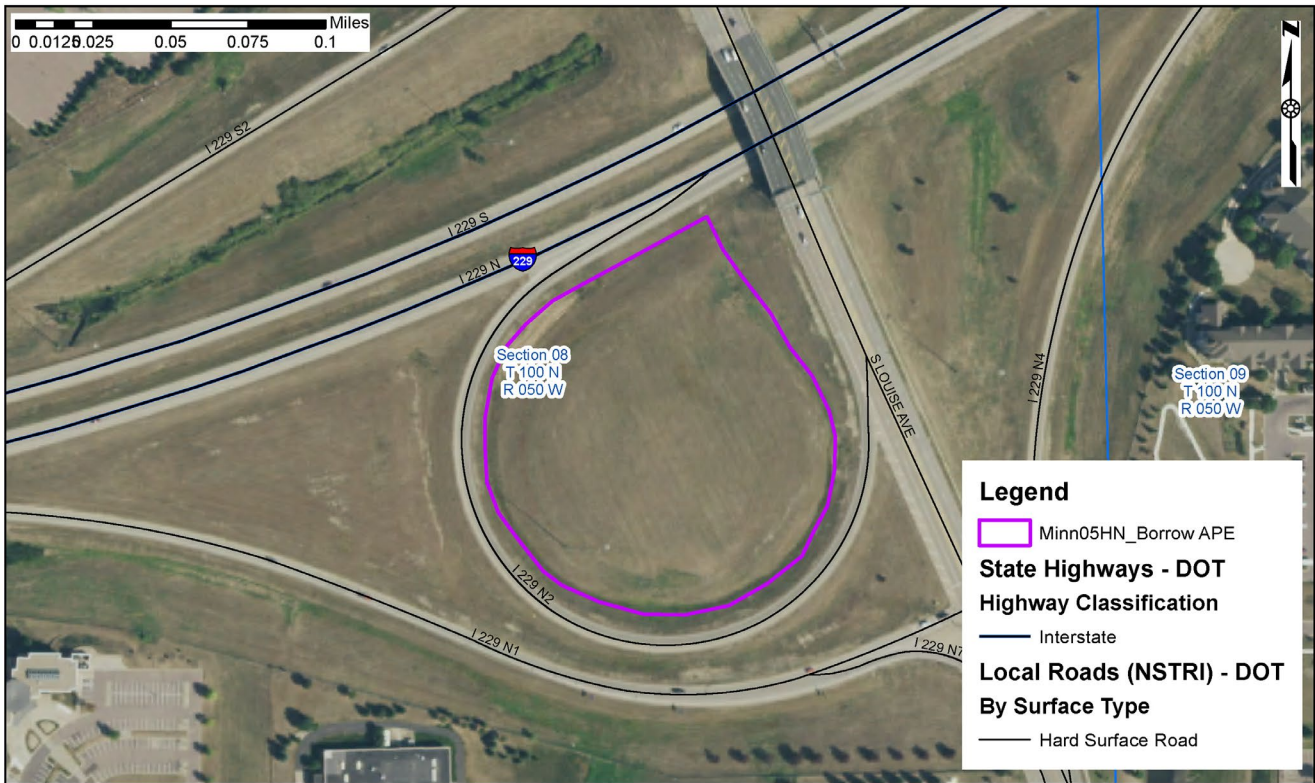
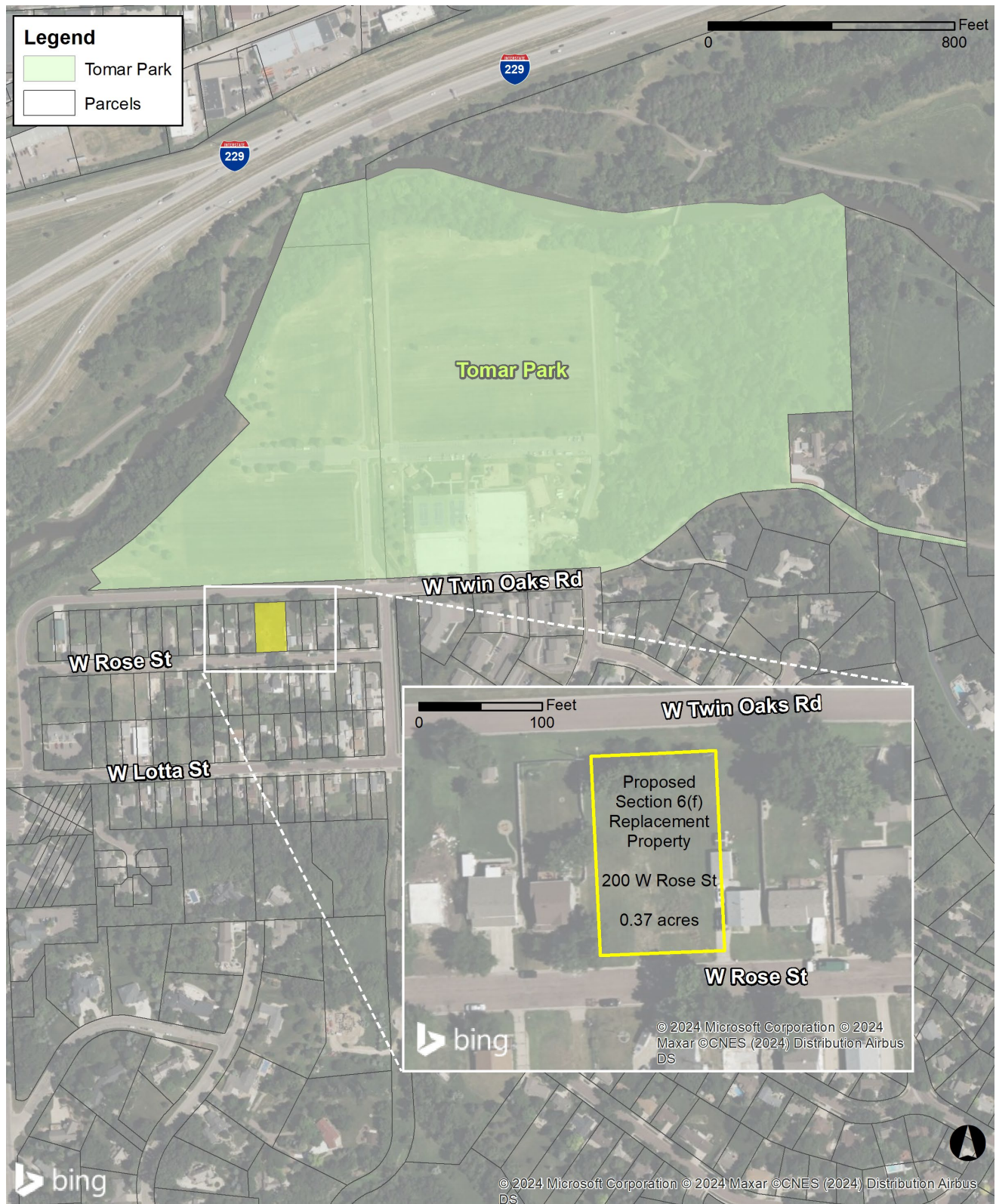


Figure 3-2: Proposed Section 6(f) Replacement Property



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.

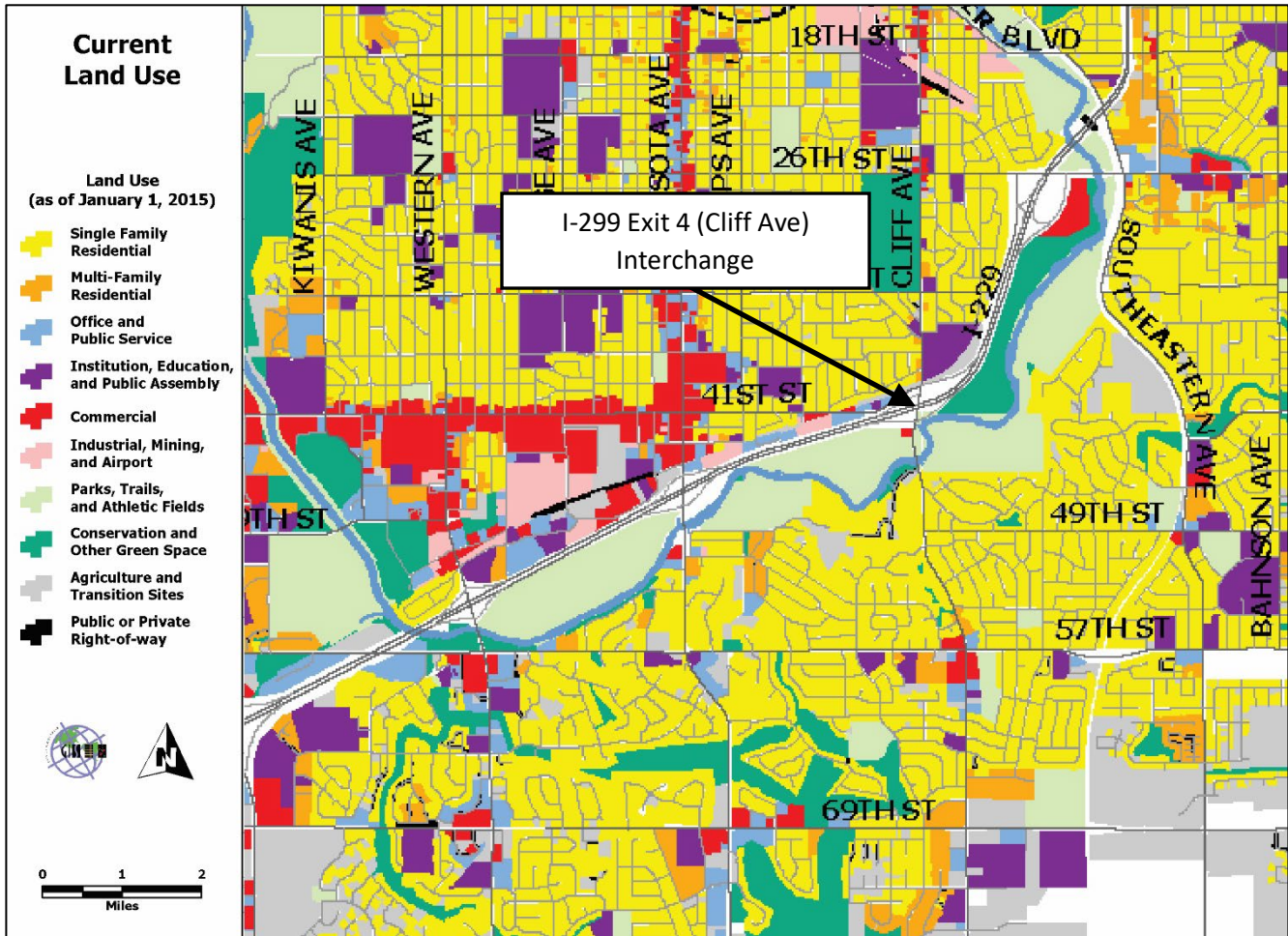
The ESR process identified the current comprehensive development and land use plans discussed in this section. These plans formed the basis land use impact analysis of alternatives considered in NEPA.

3.1.1 Existing Land Use

The study area is located in a fully urbanized area of Sioux Falls. The land use adjacent to SDDOT and City transportation right-of-way is a mix of single- and multi-family residential, commercial/retail, office, industrial, public/institutional, parks/open space and undeveloped. Residential and parks are the most prominent uses immediately surrounding the interchange. Lincoln High school is located adjacent to the interchange in its northeast quadrant. Businesses are primarily located north of I-90 and west of Cliff Avenue. Figure 3-3 shows existing land use, based on The City of Sioux Falls most recent land use map.

Adopted plans for the area include the City of Sioux Falls Shape Sioux Falls 2040 Comprehensive Plan and the Sioux Falls MPO's Go Sioux Falls 2045 Long-Range Transportation Plan. This plan supports multimodal transportation throughout the city, but especially by offices and other employment areas. It also supports the city's complete streets policy, which states that all modes of transportation should be considered when constructing transportation projects. The Sioux Falls MPO's Go Sioux Falls 2045 Long-Range Transportation includes operational efficiency, multimodal integration, safety and security, and system preservation as guiding principles.

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

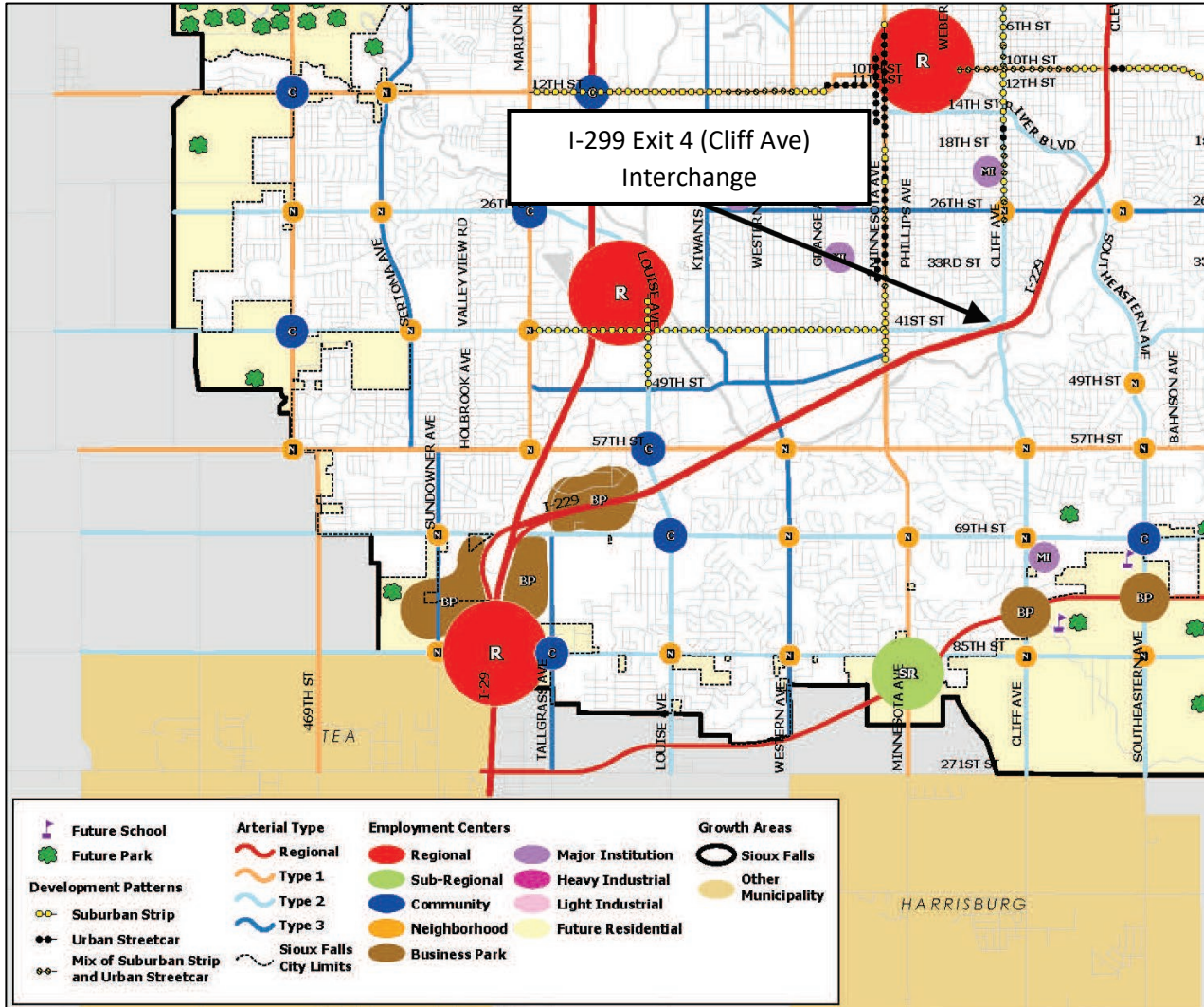


Source: City of Sioux Falls 2017

3.1.2 Future Land Use

The City of Sioux Falls’ adopted comprehensive plan, Shape Sioux Falls, plans for future land use to the 2040 planning horizon. The city does not anticipate substantial changes to land uses surrounding the study area, as it is already a fully-developed urban area. Figure 3-4 shows future land use from the Shape Sioux Falls plan.

Figure 3-4: Future Land Use (City of Sioux Falls)



Source: City of Sioux Falls

The City of Sioux Falls has a voluntary buyout program for property owners with structures/property in the FEMA Floodplain/Floodway that are prone to flooding, causing damage to structures. Acquisition of residential properties for flood storage use represents one possible change in land use within the study area. The city has already acquired many properties within the flood buyout area (additional discussion provided in section 3.2). While this change in land use is anticipated to occur regardless of any potential nearby transportation improvements, impacts to any residential properties from the build alternative have been included as direct project impacts, as flood storage in this case would serve the transportation network.

3.1.3 Impacts of Alternatives

No Build Alternative

Apart from the conversion of residential property to flood storage use, no conversion of land use would take place with the No Build Alternative. The No Build Alternative would be consistent with planned land uses, as minimal change is anticipated. However, the ability of the transportation system to serve these land uses will diminish as mobility and safety decrease under anticipated conditions. The No Build Alternative will not support surrounding land uses in the future.

Build Alternative

The Build Alternative would require approximately 4.2 acres of new ROW for construction. This would include approximately 1.9 acres of residential property, 0.7 acres of commercial property, 0.1 acres of parks/recreational land, and 1.5 acres of land that is currently used for public or institutional purposes. Residential impacts include strip acquisitions adjacent to the current ROW, as well as the entire acquisition of eight residential properties. Impacts to commercial properties include a music business, a veterinary clinic, and a small property with a self-service ATM, all of which have been acquired and relocated. Public/institutional impacts include partial use of an area currently used for city flood storage (formerly a vacated rail corridor) and impacts to the Lincoln High School parking lot/access. The former rail corridor would remain in use for compensatory flood storage. The impacted portion of the high school parking lot and access would be redesigned but would ultimately maintain its current functionality and maintain compatibility with the transportation network. No long-term negative impacts to the school are anticipated. The land use impacts for this alternative are shown in Figure 3-5. Acquisitions and relocations are discussed further in Section 3.2.

Temporary land easements (TLE’s) 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

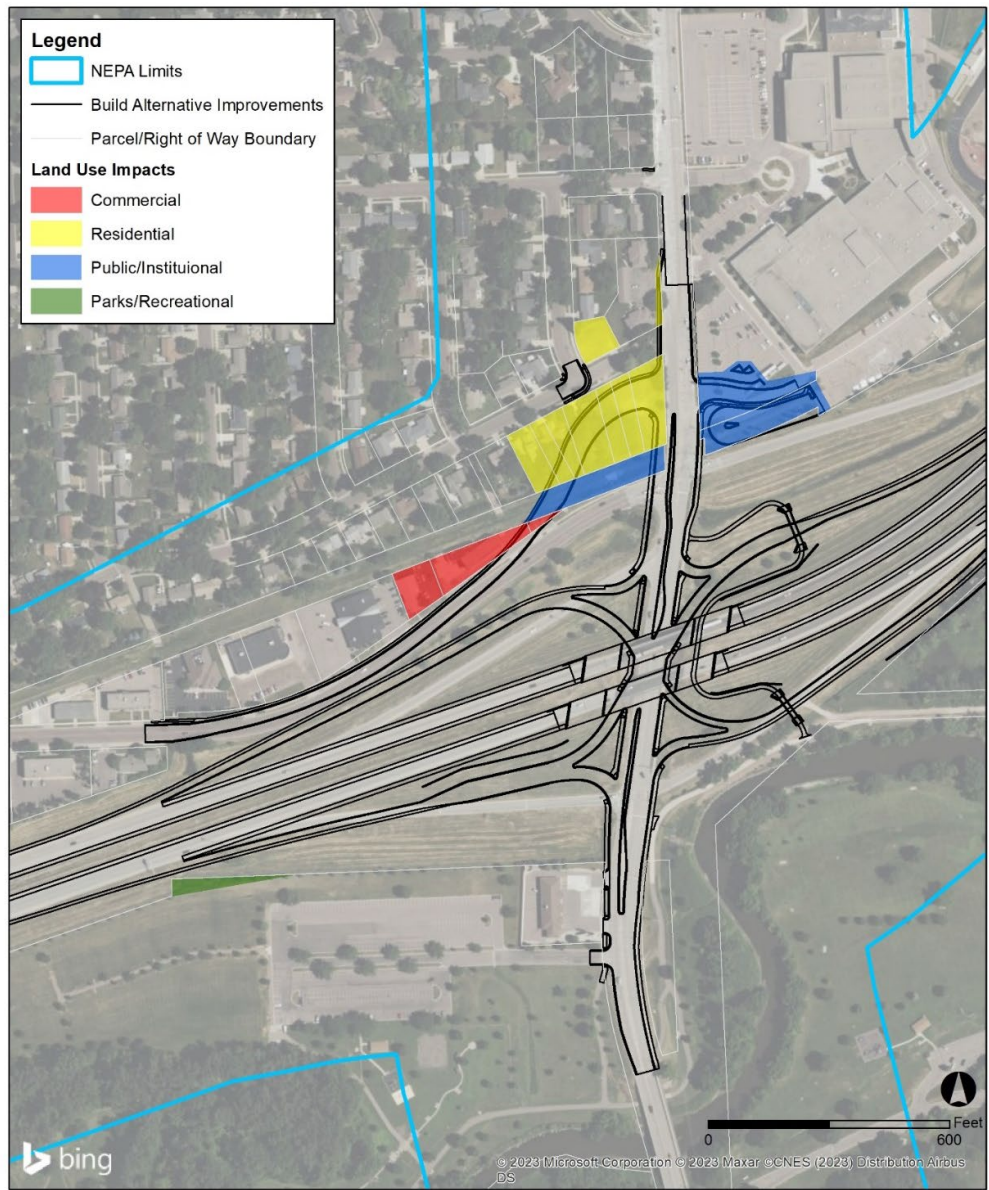
Land Use Type	Land Use Impacts (Acres) by Alternative	
	No Build	Build
Total permanent property acquisition	0	4.2
Residential	0	1.9
Commercial	0	0.7
Public/Institutional	0	1.5
Parks/Recreational	0	0.1

Direct impacts to parkland would have the potential to constitute a Section 4(f) and Section 6(f) impact. In addition to the direct conversion of land to RW, the project would also convert 0.37 acres of vacant land to park land as a mitigation measure for impacts to section 6(f) resources (previously shown in figure 3-2). Additional discussion for these impacts is included in Section 3.15.

Apart from these changes, no additional changes in land use would be anticipated with the implementation of the Build Alternative. While additional capacity would be added to Cliff Avenue, access to surrounding properties would be maintained, and no additional indirect effects are anticipated. The Build Alternative includes reasonably foreseeable future projects within the study area, and no additional cumulative impacts from other projects were identified.

The Build Alternative is consistent with the City of Sioux Falls Shape Sioux Falls 2040 Comprehensive Plan and the Sioux Falls MPO's Go Sioux Falls 2045 Long-Range Transportation Plan. This project would maintain consistency with these plans by maintaining operations and safety on the transportation network, improving bicycle and pedestrian facilities, and improving deteriorating pavement within the project area.

Figure 3-5: Build Alternative Land Use Impacts



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 between SDDOT, FHWA, The City of Sioux Falls, and the Sioux Falls MPO began early in the planning process/during the creation of the ESR and continued throughout the NEPA process. After the approval of the environmental document, prior to construction, SDDOT will inform The City of Sioux Falls and Sioux Falls MPO of the availability of the environmental document and proposed project action.

3.2 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 Federal 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.

3.2.1 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.

The City of Sioux Falls has a voluntary buyout program for property owners with structures/property in the FEMA Floodplain/Floodway that are prone to flooding, causing damage to structures. The funds used for these acquisitions are derived from storm drainage user fees, sales tax, and water reclamation user fees. The City of Sioux Falls Parks and Public Works Departments both participate in this program to acquire properties. Appraisals are sometime completed if no comparable sales near the area are available or if there are special circumstances pertaining to the property. As the IMJR and preliminary design for the I-229 Exit 4 interchange progressed, these voluntary buyouts were also occurring. The buyouts aligned with areas which would have required property acquisitions for roadway purposes, particularly compensatory storm water mitigation areas, also now required by the City of Sioux Falls for the floodplain impacts of the project. Use of these properties for proposed improvements from this project will be considered direct project impacts for the build alternative, as flood storage on these properties would ultimately serve the transportation network. However, these purchases were made voluntarily by the owners, who approached the city regarding acquisition. These buyouts would have occurred regardless of any transportation improvements in the area on account of the flood burdens to the property owners and residents have already relocated. A formal relocation study was not required for the flood buyout program. Because all buyouts were voluntary with the purpose of flood relief, demographic characteristics of the owners/occupiers of the properties were not considered. The flood relief buyouts would be considered a net benefit for its participants rather than an impact that could have disproportionate negative impacts on any one demographic group.

Table 3-2 includes a summary of the properties that have been acquired (or in process) for the voluntary buyout program in the vicinity of the Exit 4 project. These properties are illustrated on Figure 3-6.

Figure 3-6: Project Relocations



Table 3-2

Properties Acquired Near I-229 Exit 4 for Sioux Falls Voluntary Flood Buyout Program

Address	Activity / Date	Type of Property	Eligibility for Buyout Program	Funding Source	Relocation?
1205 E. Pam Road	Property owner voluntarily approached the City for acquisition and property was appraised, review appraised, and settlement reached in February 2020.	Residential (Four Plex)	Within the FEMA Floodplain boundary.	SDDOT/City split the purchase 50/50 and the property was purchased with City local funds and State Funds.	Yes; Uniform Act Compliance
1201-1203 E. Pam Road	Property was listed for sale and the owner voluntarily approached the City for total acquisition (September 2020)	Residential (Duplex)	Within the FEMA Floodplain boundary.	Local Funds	No
1113-1115 E. Pam Road	The property owner voluntarily approached the City for total acquisition. Purchased November 2022.	Residential (Duplex)	Within the FEMA Floodplain boundary.	Local Funds	No
1109-1111 E. Pam Road	Properties were listed for sale and the owners voluntarily accepted the offer from the City for total acquisition (September 2020 and March 2022)	Residential (Duplex)	Within the FEMA Floodplain boundary.	Local Funds	No
1105 E. Pam Road	Owner voluntarily approached the City. Total acquisition (April 2023).	Residential (Single Family)	Within the FEMA Floodplain boundary.	Local Funds	No
3016 – S. 10 th Avenue	Property was listed for sale and owner voluntarily approached the City. Total acquisition (December 2021).	Residential (Single Family)	Within the FEMA Floodplain boundary.	Local Funds	No
1100 E.41 st Street	City approached the owner and the owner voluntarily agreed to sell for total acquisition. The property was appraised and purchased (September 2022).	Commercial (ATM Bank Drive-Up Machine)	Within the FEMA Floodplain boundary.	Local Funds	No
1020 E. 41 st Street	Owner voluntarily approached the City for total acquisition (completed in September 2022)	Commercial	Within the FEMA Floodplain boundary.	Local Funds	No
1010 E. 41 st Street	Property owner voluntarily approached the City due to needing additional space needs for business. (Purchase completed June 2023).	Commercial	Within the FEMA Floodplain boundary.	Local Funds	No
3005 Cliff Avenue	Property acquisition negotiations continue between City and SDDOT. If the property is not totally acquired, a partial property taking will still be needed for the project.	Residential (two four plex units)	Property is half in the FEMA Floodplain	To Be Determined during final design.	Yes; Uniform Act Compliance is planned

3.2.2 Impacts of Alternatives

No Build Alternative

The No Build Alternative would not result in the acquisition or relocation of any residences or businesses.

Build Alternative

Although there are no residential or business impacts associated with the roadway-related infrastructure of the proposed project, the City's voluntary flood buyout project removes 20 residential units located on seven residential properties and three commercial properties (see Table 3-2). The flood buyout properties will be used for compensatory flood mitigation required by the City's Floodplain Development Permit for the project, and they are therefore included as right-of-way impacts in this analysis. It is noted that many of the properties purchased by the City's flood buyout program were vacant, for sale, and/or severely flood-damaged from prior flood events. The residences are all located on East Pam Road and 10th Ave, just north of east 41st Street and west of Cliff Avenue in the northwest quadrant of the I-229/Cliff Avenue Interchange. The businesses, which include an ATM and Piano Gallery, are also located in this quadrant, between E 41st Street and the existing inactive rail corridor. THE ESR initially cited one business relocation (piano gallery building), but it was later determined that the ATM would also constitute a business relocation. The flood buyout program acquisition of these residences and businesses also provide for an opportunity to realign E 41st Street to the existing intersection of Pam Road and Cliff Avenue. Consolidating this access to Cliff Avenue would contribute to maintaining safe and limited access to Cliff Avenue near the I-229 interchange, improving overall operations and safety.

Additional property would need to be acquired from several parcels and access modifications would be required in certain locations, but the structures and functional access would be maintained. While this may result in temporary construction impacts, no long-term impacts are anticipated. Negotiations for temporary construction and permanent easement acquisitions will be ongoing though the design process.

Coordination between property owners and the city has been ongoing, and owners have expressed that the acquisitions are not anticipated to be a substantial burden. No families having a special composition that would require special relocation considerations were identified. All acquisitions were made willingly by the owners, and in many cases the city was approached due to flood burdens for the properties. While typically these would be considered early acquisitions for the NEPA process, in the cases where the properties were purchased through a local ordinance/buyout program by a local unit of government for purposes independent of any transportation improvements. As such, they are not eligible for federal reimbursement. In the case of properties acquired with state funding, these acquisitions occurred in compliance with early acquisition requirements specified in 23 CFR 710.501(c)(1)-(5), i.e., the property meets the following requirements:

- The property was lawfully obtained.
- The property was not parkland.
- The property acquisition was carried out in accordance with the Uniform Act.
- The State agency complied with the requirements of title VI of the Civil Rights Act of 1964.
- The early acquisition did not influence the environmental review process.

3.2.3 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.

3.3 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.

3.3.1 Affected Environment

Public facilities located in or near the study area include:

- Lincoln High School
- Cornerstone Church

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, Knology/WOW/Vast/Bluepeak, Xcel Energy, Prairie Wave, and MidAmerican Energy.

Utility coordination has been ongoing during the environmental process for this study and will continue through final design. 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.

3.3.2 Impacts of Alternatives

No Build Alternative

The No Build Alternative would not result in impacts to utilities. Community facilities would experience negative effects in the future resulting from the No Build 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 No Build Alternative as a result of increased traffic congestion.

Build Alternative

The Build Alternative's construction will require access changes to Lincoln High School to improve safety, efficiency, and design continuity in the study area. The Study Partners have been working with school officials to align new driveway egress/ingress and access spacing in conformance with design requirements for the realignment of 41st Street and Cliff Avenue on the northeast quadrant of the Exit 4 interchange. No other public 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. Utilities are located within the existing ROW and utility easements. Neither an additional utility corridor nor additional ROW specifically for utility expansion are anticipated to be needed for the project. Additional utility coordination will continue through final design where more detailed utility planning will take

place. 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 Cliff Avenue 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 through the area would be shortened due to improved traffic operations on I-229 and Cliff Avenue. This would be positive long-term impact associated with the project.

3.3.3 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.

3.4 Economic Resources

3.4.1 Affected Environment

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 in-migration 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 2019 American Community Survey (ACS) 5-year estimates, as Shown in Table 3-3 the annual median household income for the City of Sioux Falls and Lincoln County are \$62,843 and \$61,968, respectively. These values are slightly lower than the national average in these categories.⁶

Table 3-3: City and County Annual Income

Annual Income	City of Sioux Falls	Minnehaha County
2019 Annual Median Household Income	\$62,843	\$61,968

Sources of revenue for Minnehaha County include general property taxes and revenue shared from the State of South Dakota. The taxable value of Minnehaha County in 2020 was more than \$17 billion. This includes nearly \$890 million in agricultural valuation, nearly \$10 billion in owner-occupied valuation, and over \$6 billion in other property valuation, as shown in Table 3-4.⁷

Table 3-4: Minnehaha County Property Tax Income Information

Tax Metric	Value
Total County Taxable Value	\$17.1 Billion
Taxable Value (Agricultural)	\$889 Million
Taxable Value (Owner-Occupied)	\$9.7 Billion
Taxable Value (Other Property)	\$6.4 Billion

The area immediately surrounding the study area is fully developed urban area which includes a number of existing businesses. While there is little to no space for additional development in the study area, business turnover and redevelopment may occur within the study area over the lifecycle of the project.

3.4.2 Impacts of Alternatives

No Build Alternative

The No-Build Alternative would result in increased congestion for a major arterial and a major collector within the study area, I-229 and Cliff Avenue, respectively. Over time, congestion may diminish the desirability of the Project Area as a commercial, industrial, or residential destination. Impacts such as additional driving costs (e.g., gas, vehicle maintenance) for drivers and lack of expansion of these businesses may occur. While the surrounding area is fully developed and has little to no available space for commercial development, these problems associated with congestion may harm the overall economic viability of the study area in the future as opportunity for business turnover and infill development arise. Overall, the No-Build Alternative is anticipated to have a moderate, adverse effect on the economic resources in the Project Area.

Build Alternative

Development adjacent to I-229 and Cliff Avenue includes several businesses. To improve traffic operations and safety, the Build Alternative would require the relocation of one business, additional private property acquisitions, and closure of direct public street or private access to businesses currently operating with multiple access points. Unmitigated loss of businesses would negatively impact the City of Sioux Falls tax base. All ROW acquisition and relocation impacts would therefore be mitigated in conformance with the Uniform Relocation Assistance and Real Property Acquisition Act (UA) of 1970. Through these mitigation actions, no loss of businesses or tax base would be anticipated from the project.

Transportation facilities would be improved to accommodate future traffic volumes with the build alternative. It is anticipated that these improved facilities would continue to serve existing businesses, but this alternative is not anticipated to spur further development. Access to these businesses for all modes of transportation would be maintained, and no diversion of traffic away from businesses is proposed. Parking is currently prohibited on Cliff

Avenue, and it is not anticipated that parking for nearby businesses would be negatively affected by the project. Increased safety and operations, along with increased traffic volumes, would provide a potential long-term benefit to businesses which rely on through-traffic.

During any construction that would take place with the Build Alternative, 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 Minnehaha County would experience a short-term beneficial economic impact due to the purchase of goods and services during the construction of the Build Alternative.

3.4.3 Avoidance, Minimization, and/or Mitigation Measures

Care was taken to minimize impacts to any businesses during the design of the Build Alternative. All ROW acquisition and relocation impacts to businesses would be mitigated in conformance with the Uniform Relocation Assistance and Real Property Acquisition Act (UA) of 1970.

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. Temporary business access "wayfinding" signage will be utilized to help mitigate impacts during time of construction.

3.5 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.⁸ The 2023 Sioux Falls Bike Plan includes the development of a complete bicycle network through the addition of new facilities identified in the plan as a very high priority goal.³ The Sioux Falls MPO 2045 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.⁷

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. As a goal of the project, transportation solutions should work to address deficiencies in multimodal network identified in local plans and maintain consistency with planned multimodal projects.

3.5.1 Affected Environment

Sidewalks currently exist on both sides of Cliff Avenue in areas further away from the I-229 overpass but have no separation from the roadway along these sections. Sidewalks exist only on one side of Cliff Avenue as it crosses under I-229, with little or no separation from the roadway. Crossings at intersections are not always marked and often require non-motorized travelers to cross many lanes of traffic. Many of the pedestrian curb ramps in the project area do not meet current Americans with Disabilities Act (ADA)/Public Rights-of-Way Accessibility Guidelines (PROWAG) guidelines. Cracked and uneven sidewalks are other ADA challenges within the project area.

The City of Sioux Falls maintains approximately 28 miles of existing bicycle trails primarily located in the central part of the city. The Sioux Falls Bike Trail runs south of and parallel to I-229 within the study area, crossing under Cliff Avenue at under the bridge that spans the Big Sioux River. No bicycle facilities exist within the study area which connect the trail to the residences and business north of Exit 4 Interchange.

The City of Sioux Falls 2023 Bike Plan identifies the following priorities for multimodal improvements within or near the study area:

- Proposed underpass at I-229 (proposed improvement)
- Improvements on Cliff Avenue from Tuthill Park to S Arcadia Road (very high priority side path improvement)
- improvements on 49th Street (long-range improvements).
- Improvements on the north side of I-229 (long-range improvements).

Numerous comments were received at the project's first public meeting (held in December 2019) regarding bicycle and pedestrian safety, particularly concerning safety improvements at intersection and crossing near Lincoln High School and surrounding intersections."

3.5.2 Impacts of Alternatives

No Build Alternative

The No Build Alternative assumes no construction activities related to this project would occur related to the I-229/Exit 4 study area and its street crossings. Therefore, no new bicycle trails would be constructed along Cliff Avenue and no existing parks or bike trails would be impacted. The study area would continue to lack ADA accessibility. Many planned bicycle and pedestrian improvements could be implemented independently but an underpass at I-229 could prove to be difficult.

Build Alternative

The Build Alternative includes the construction of new sidewalks, a new section of trail, and a grade separated crossing of I-229. New facilities would be designed and constructed to meet ADA accessibility standards. These facilities would provide a long-term benefit to the bicycle and pedestrian network in the study area. Proposed bicycle and pedestrian improvements are shown in Figure 3-7.

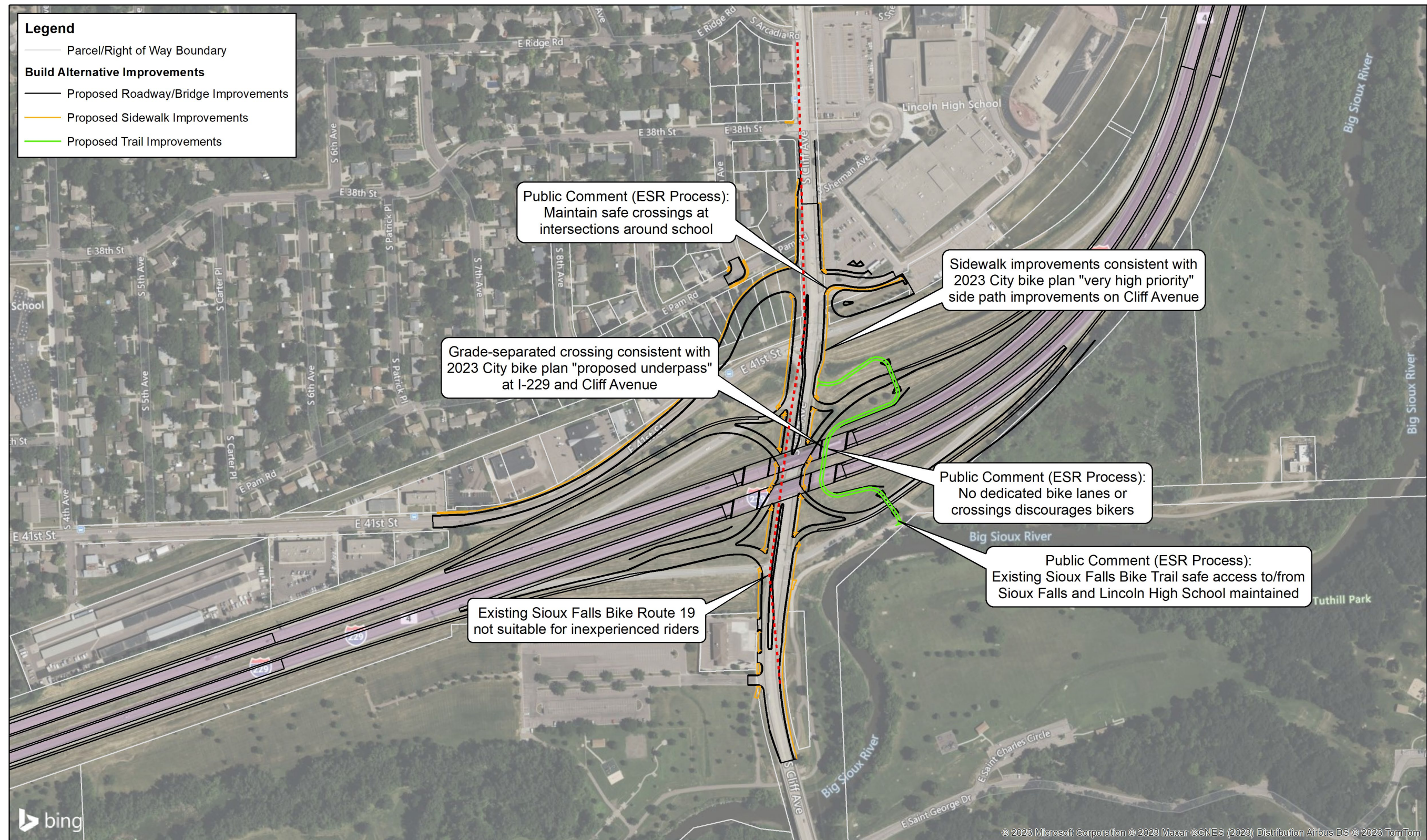
Proposed improvements would be consistent with planned city projects, providing improvements along Cliff Avenue and an underpass of I-229, which could be compatible with future surrounding long-range projects that may connect to the study area. Improvements would also address public safety concerns by providing a grade-separated crossing of I-229, including crosswalks and pedestrian signals at all Cliff Avenue intersections near the school, and providing a safe connection between the existing Sioux Falls Bike Trail and Lincoln High School/Sioux Falls.

Negative impacts would include temporary closures of facilities during construction. These impacts are anticipated to be short term and temporary in nature and would not equate to negative long term or permanent impacts.

3.5.3 Avoidance, Minimization, and/or Mitigation Measures

No long term or permanent impacts are anticipated with the implementation of the Build Alternative. With the build alternative, some impacts to nearby parks are anticipated and mitigation measures would be required. As Section 4(f) resources, these are discussed in Section 3.15.

Figure 3-7: Proposed Bicycle and Pedestrian Improvements



3.6 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.

3.6.1 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 Agriculture and Natural Resources (SDDANR, Previously SDDENR) in 1972. The SDDANR adopted the federal air pollution control regulations by reference, and these are shown in Table 3-5. As part of the state’s program, the SDDANR 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 the regulated air pollutants, meaning entities are in compliance with all of the NAAQS.⁹

Table 3-5: 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

3.6.2 Impacts of Alternatives

No Build Alternative

No construction activities related to this project would occur with the No Build Alternative. The area surrounding the I-229 Exit 4 Interchange would experience increased traffic volumes and congestion. This 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, no air quality standard violations would be likely.

Build Alternative

Coordination took place with SDDANR as part of the ESR planning phase for the study and was updated during NEPA. SDDANR indicated in a letter dated December 27, 2018 (Appendix C) 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. DANR's updated coordination letter dated July 10, 2024 indicated this project is unlikely to have adverse impacts to air quality in the area. No long-term major impacts are anticipated with the Build Alternative and no air quality standard violations would be likely.

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.

3.6.3 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.

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 Best Management Practices (BMPs) 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.

3.7 Noise

The Federal Noise Abatement Criteria (23 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.

3.7.1 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 3-6)
- Substantially exceed the existing noise levels

Table 3-6: 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

SDDOT 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 3-6), 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.

A traffic noise study, completed October 2021, was conducted in accordance with the Noise Analysis and Abatement Guidance for SDDOT (2011) and 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 D of this EA for the full noise analysis report.

The noise modeling for both the existing noise levels and Build Alternative noise levels (which included all proposed interchange improvements and improvements on Cliff Avenue and I-229) 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 four separate noise areas based on proximity of adjacent receptors and roadway access locations, as shown in Figure 3-8. Using worst hour traffic volumes for the design year and future posted speed limits, traffic noise levels were modeled at a total of 115 representative receptor locations throughout the project area. At the time of the analysis, 7 residential receptors were planned for acquisition through the City’s flood buyout program and were not included in the build alternative analysis (all of these have since been acquired). Therefore, the Build Alternative analysis includes only 108 receptors. The majority of receptors represented residential receptors, consisting mostly of single-family homes. There were also several receptors located along park areas on the South side of I-229. Resulting noise levels from the No Build and Build Alternative noise modeling can be found in the Noise Report (Appendix D).

3.7.2 Noise Model Results

In general, the construction of the Build Alternative 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 60.3 dBA (Leq) to 75.0 dBA (Leq). Modeled noise receptors exceeded FHWA noise activity criteria (Leq) at 54 of 108 modeled receptor locations under build (2050) conditions, however, none of these of these exceedances represent a “substantial exceedance” due to the proposed project. Modeled build (2050) condition noise levels vary from 0.5 dBA to 2.5 dBA from existing (2018) conditions. A summary of noise receptors by noise sensitive area by activity category is included in Table 3-7. A summary of noise model results is included in Table 3-8.

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 (2018) conditions and future (2050) conditions.
- Portions of the proposed roadways will be shifted closer to the existing receptors.

Table 3-7: FHWA Noise Receptors by Noise Sensitive Area

Noise Sensitive Area	Number of Receptors	Category B	Category C	Category E	Additional Notes
NSA 9	57	55	2	0	Primarily Residences, two businesses on 41 st Street
NSA 10	29	22	7	0	Primarily residences with seven receptors for Lincoln High School athletic facilities
NSA 11	11	0	10	1	Ten receptors for Spencer Park soccer fields, one business on Cliff Ave
NSA 12	11	0	11	0	11 recreational areas at Tuthill Park

Table 3-8: FHWA Noise Model Results

Noise Sensitive Area	Number of Receptors	Range of Noise Levels Existing Conditions (2018) (dBA Leq)	Range of Noise Levels Projected conditions (2050) (dBA Leq)	Range of Noise Level Increase (2018-2050) (dBA)	Noise Receptors Exceeding FHWA criteria (2050)	Noise Receptors Demonstrating a “Substantial Increase”
NSA 9	57	61.0-68.2	63.2-69.8	1.2-2.5	19	0
NSA 10	29	61.9-72.7	63.5-74.7	1.6-2.1	24	0
NSA 11	11	64.2-73.5	65.9-75.0	0.4-1.7	9	0
NSA 12	11	59.2-65.0	60.3-66.4	-0.1-1.7	2	0
All NSA’s	108	59.2-73.5	60.3-75.0	-0.1-2.5	54	0

3.7.3 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. The noise barrier must meet the SDDOT cost effectiveness threshold of \$25,000 per individual benefited receptor. Additionally, at least 40 percent of benefited receptors must achieve a 7 dBA noise reduction. Acceptance of the barrier must also 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 No Build Alternative, there are no traffic noise impacts requiring a noise abatement analysis.

For the Build Alternative, a total of five 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 five noise barriers that were evaluated for this study. None of the noise barriers were found to meet the cost-effectiveness threshold for being considered reasonable and will not be proposed to be incorporated into the project. Because none of these barriers are otherwise considered feasible or reasonable, no public voting process is required. Additional details for each Noise Area and each of the analyzed barriers is included below. Analyzed barriers and impacted receptors are shown on Figures 3-9 and 3-10.

Noise Area 9 – North of I-229 Southbound (West of Cliff Avenue)

Land use north of I-229 Southbound, west of Cliff Avenue consists of residences, an outdoor playground, and one veterinary clinic with an outdoor area. A noise barrier was modeled between E 41st Street and I-229 SB On Ramp, in line with the proposed retaining wall at this area, to mitigate traffic noise to receptors 9-7, 9-9, 9-12 to 9-24, 9-70.

Receptors 9-43, 9-57, and 9-58 also exceeded the NAC, however, for a barrier to be modeled along E Pam Road and Cliff Avenue, direct access to the residence could not be maintained. Thus, a noise barrier was not considered feasible for these receptors.

Barrier 9-1

An approximately 1,260 foot long, 20-foot high (average) noise barrier was modeled on the north side of I-229 SB On Ramp, west of Cliff Avenue, to mitigate impacts to front row receptors 9-7 and 9-9, as well as receptors 9-12 through 9-24 and 9-70. The noise barrier was unable to achieve a 5 dBA noise reduction for 60% of the front row receptors directly behind the noise barrier and was unable to achieve a noise reduction of 7 dBA or more at minimum of 40% of benefited receptors. Therefore, the barrier is not considered feasible or reasonable and is not proposed.

Noise Area 10 – North of I-229 Southbound (East of Cliff Avenue)

Land use north of I-229 Southbound, east of Cliff Avenue consists of Lincoln High School and several residences. Two noise barriers were modeled in this noise area. The first noise barrier was modeled across the Lincoln High School parcel, to mitigate traffic noise to these noise sensitive outdoor sporting areas. The second noise barrier was modeled along the north side of I-229 Southbound, to mitigate traffic noise to the residential homes along Blauvelt Avenue.

Barrier 10-1

An approximately 2,050 foot long, 8.5-foot high (average) noise barrier was modeled on the north side of I-229 Southbound, east of Cliff Avenue, to mitigate impacts to the outdoor sporting areas at Lincoln High School. The noise barrier was able to achieve a 5 dBA noise reduction at a minimum of 60% of front row receptors and was

able to achieve a 7 dBA noise reduction at a minimum of 40% of the benefited receptors. However, the cost per benefited receptor is \$302,389, which exceeds the allowable CE threshold of \$25,000 benefited receptor. Therefore, the barrier is not considered reasonable and is not proposed.

Barrier 10-2

An approximately 1,100 foot long, 16.1-foot-high noise barrier was modeled on the north side of I-229 Southbound, east of Cliff Avenue, to mitigate impacts to the residential receptors 10-10 through 10-29, and 10-35. The noise barrier was able to achieve a 5 dBA noise reduction at a minimum of 60% of front row receptors and was able to achieve a 7 dBA noise reduction at a minimum of 40% of the benefited receptors. However, the cost per benefited receptor is \$83,460, which exceeds the allowable CE threshold of \$25,000 benefited receptor. Therefore, the barrier is not considered reasonable and is not proposed.

Noise Area 11 – South of I-229 Northbound (West of Cliff Avenue)

Land use south of I-229 Northbound, west of Cliff Avenue consists of Spencer Park. The park's parcel containing various sporting fields. There is also one commercial property with an outdoor seating area, along the north side of Park Road, on Cliff Avenue.

Barrier 11-1

An approximately 2271 foot long, 9.0-foot high (average) noise barrier was modeled on the south side of I-229 Northbound, west of Cliff Avenue, to mitigate impacts to the receptors located at Spencer Park. The noise barrier was able to achieve a 5 dBA noise reduction at a minimum of 60% of front row receptors and was able to achieve a 7 dBA noise reduction at a minimum of 40% of the benefited receptors. However, the cost per benefited receptor is \$106,401, which exceeds the allowable CE threshold of \$25,000 benefited receptor. Therefore, the barrier is not considered reasonable and is not proposed.

Noise Area 12 – South of I-229 Northbound (East of Cliff Avenue)

Land uses south of I-229 Northbound, east of Cliff Avenue consist of City of Sioux Falls' Tuthill Park and YMCA's Leif Erikson Park. Tuthill Park has receptors for disk golf, sports seating areas, and picnic areas. Leif Erikson Park has various receptors throughout the outdoor recreational area.

Barrier 12-1

An approximately 2,450 foot long, 12.7-foot high (average) noise barrier was modeled on the south side of I-229 Southbound, east of Cliff Avenue, to mitigate impacts to the recreational area receptors 12-8 and 12-9. The noise barrier was able to achieve a 5 dBA noise reduction at a minimum of 60% of front row receptors and was able to achieve a 7 dBA noise reduction at a minimum of 40% of the benefited receptors. However, the cost per benefited receptor is \$230,594, which exceeds the allowable CE threshold of \$25,000 benefited receptor. Therefore, the barrier is not considered reasonable and is not proposed.

Figure 3-8: Noise Analysis Overview Map



Figure 3-9: Modeled Noise Barriers (NSA 9 and 11)

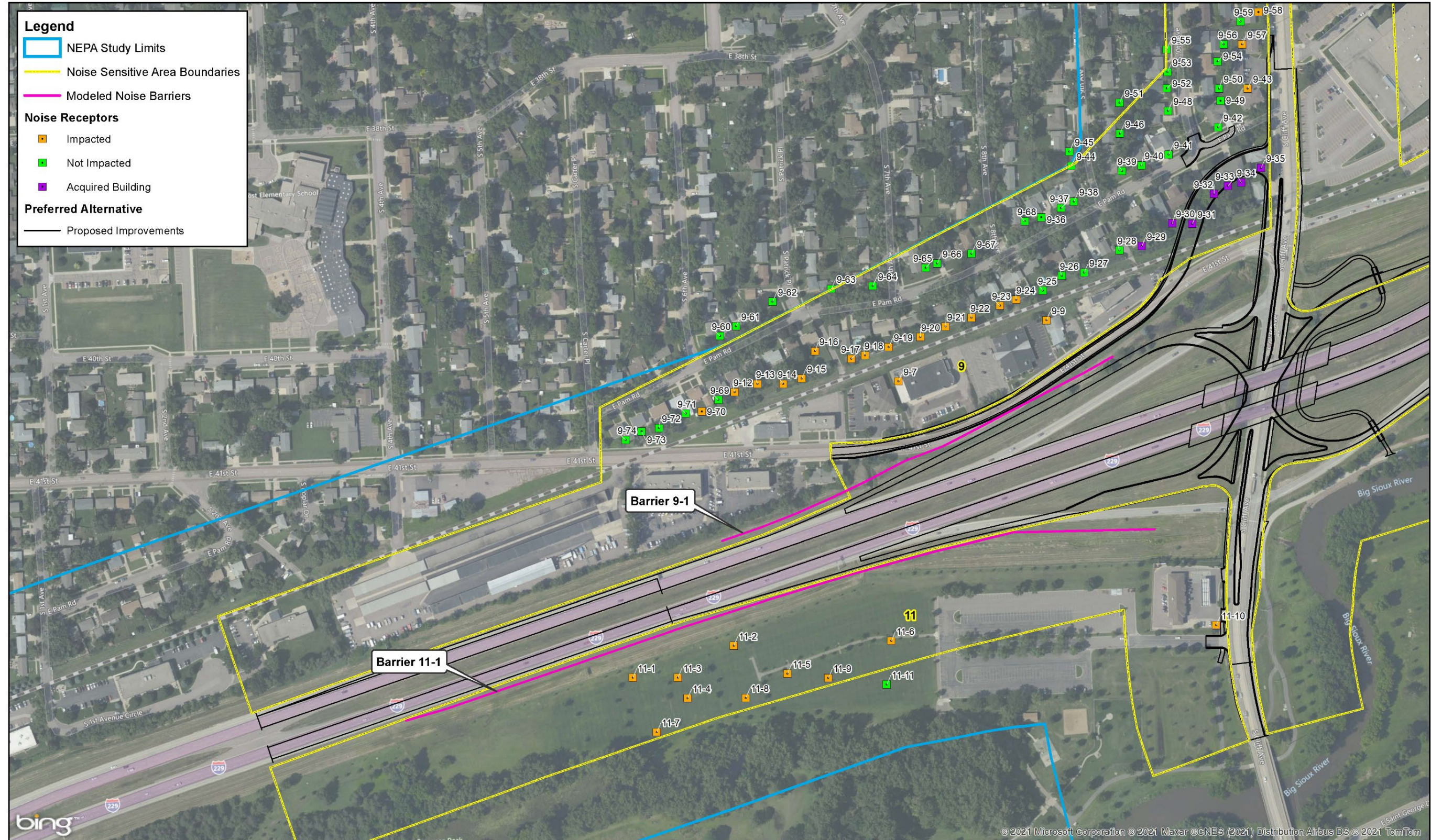
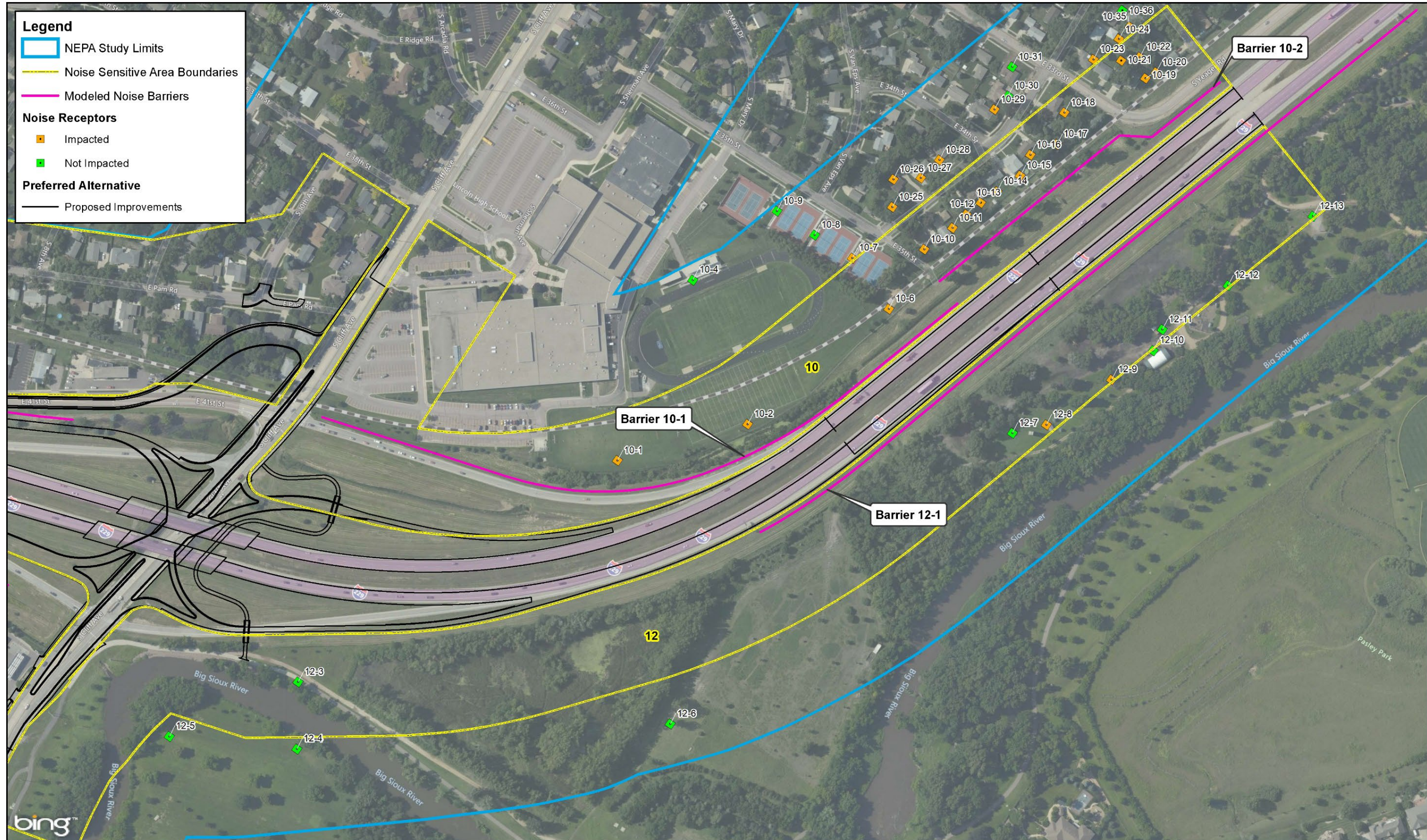


Figure 3-10: Modeled Noise Barriers (NSA 10 and 12)



3.7.4 Summary of Noise Impacts

3.7.4.1 No Build

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

3.7.4.2 Build Alternative

With the Build Alternative, noise levels in the study area are projected to increase as a result of increased traffic volume. Five noise barriers were analyzed to mitigate noise impacts, but none of these met the criteria for being considered feasible and/or reasonable.

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.

A resident from the Pam Road neighborhood expressed concern regarding potential noise impacts that could result from the acquisition and removal of the Schoppert Piano Gallery (located at 1020 East 41st Street, just east of Receptor 9-9 in NSA 9). The concern was that this 2-story business functioned as a noise barrier from I-229 to the neighborhood. At the time the noise analysis was conducted, this building was planned for acquisition as part of the City's flood buyout program, and as such, the noise analysis modeled existing and build conditions with the assumption that this building would be demolished (i.e., the building was not included in the analysis). The building has since been acquired by the City. As part of the noise abatement analysis, a 1,260 foot long, 20-foot-high noise barrier was modeled and analyzed at this location. The barrier was unable to achieve a 5 dBA noise reduction for 60% of the front row receptors directly behind the noise barrier and was unable to achieve a noise reduction of 7 dBA or more at minimum of 40% of benefited receptors. Therefore, the barrier is not considered feasible or reasonable by FHWA standards and is not proposed for construction at this location.

3.7.5 Avoidance, Minimization, and/or Mitigation Measures

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).

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., Categorical Exclusion (CE), Finding of No Significant Impact (FONSI) or Record of Decision (ROD).

3.8 Water Quality

The Federal Water Pollution Control Act, commonly referred to as the Clean Water Act (CWA), 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 CWA. SDDANR issues the NPDES permits under its Surface Water Discharge (SWD) Program.

In 1992, the USEPA identified the City of Sioux Falls as a Phase I Stormwater community subject to stormwater regulations. In 1999, SDDANR 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.¹⁰

3.8.1 Affected Environment

The largest hydrological feature in the vicinity of the study area is the Big Sioux River, located on the south side of I-229.

Based on the SDDANR Surface Water Quality Standards online mapping application accessed in September 2021, the portions of the Big Sioux River Nearest to the study area are designated as a Beneficial Use for:

- Domestic Water Supply Waters
- Fish and Wildlife Propagation, Recreation, and Stock Watering Waters
- Irrigation Waters

Conversely, these portions of the Big Sioux River are considered impaired for immersion and limited contact recreation waters (due to E. coli) and warmwater semipermanent fish life propagation waters (due total suspended solids).

The SDDANR indicated in a letter dated December 27, 2018 (Appendix C of this EA) the office had no objections to the project with regards to surface water quality impacts, assuming a number of environmental commitments are met. These commitments are summarized in the Avoidance, Minimization, and/or Mitigation Measures Section for water quality (Section 3.8.3). Many of these conditions are required through the standard commitments established in the SDDOT Environmental Procedures Manual. This was confirmed in DANR's updated coordination letter dated July 10, 2024.

3.8.2 Impacts of Alternatives

No Build Alternative

Since the No Build Alternative involves no construction activities related to this project, there would be no construction-related water quality impacts with this alternative.

Build Alternative

Construction of the Build Alternative would require the potential disturbance of approximately 2.3 acres. 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 5.

Areas of the Alternative Designed specifically for stormwater/flood storage will provide a secondary benefit during precipitation events by temporarily storing stormwater runoff. Stormwater flow rates to the downstream drainage system will be reduced. This will generally allow smaller stormwater pipes and culverts, which will result in a cost savings to the projects.

The SDDANR indicated in a letter dated December 27, 2018 and updated letter dated July 10, 2024 (Appendix C of this EA) that the office had no objections to the project with regards to surface water quality impacts, assuming basic procedures are followed, as described in Section 3.8.3.

3.8.3 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.

Commitments related to Surface Water Quality which have been stipulated by SDDANR through coordination efforts will be adhered to. The following requirements were identified through coordination with SDDANR:

- 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 for 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, including measures to ensure that the 30-day average total suspended solids criterion of 90 mg/L is not violated for the Big Sioux River.

3.9 Floodplain

Potential encroachments on floodplains are coordinated under 23 CFR 650 Subpart A. Its purpose is to prescribe FHWA policies and procedures for the location and hydraulic design of highway encroachments on flood plains, including direct Federal highway projects administered by FHWA. The Federal Emergency Management Agency (FEMA) defines the floodplain as any land area susceptible to being inundated by floodwaters from any source. Floodplains are mapped by FEMA.

The City of Sioux Falls Code of Ordinances, Chapter 156: Floodplain Management applies to this project since it lies within the FEMA Regulatory Floodplain of the Big Sioux River.

After the Initiation of the NEPA process for this study, The City of Sioux Falls (City) passed an amendment to Chapter 156: Floodplain Management on July 6, 2021, which includes provisions for Compensatory Storage (Chapter 156.074). Chapter 156.074 includes the following language:

New development shall not reduce the effective flood storage volume of the regulatory floodplain. A development proposal shall provide compensatory storage if grading or other activity eliminates any effective flood storage volume. Compensatory storage shall:

- a) Provide equivalent volume at equivalent elevations within the same drainage basin that is being displaced. For this purpose, "equivalent elevation" means having a similar relationship to ordinary high water and to the best available ten-year, 50-year, and 100-year water surface profiles; and*
- b) Be hydraulically connected to the source of flooding; and*
- c) Provide compensatory storage in the same construction season as when the displacement of flood storage volume occurs and before the flood season begins; and*
- d) The newly created storage area shall be graded and vegetated to allow fish access during flood events without creating fish stranding sites.*

Coordination has taken place with the city to ensure current designs are compliant with local floodplain regulations.

3.9.1 Affected Environment

Based on the Federal Insurance Administration Flood Boundary and Floodway map for Minnehaha County (dated March 7, 2017, panel number 46099C0464E, designated 100-year floodplains are present along the Big Sioux River. Floodway and 100-year floodplain boundaries for the study area are shown on Figure 3-11.

The City of Sioux Falls participates in the National Flood Insurance Program (NFIP). By participating in the NFIP, the City of Sioux Falls has implemented controls, zoning, and development regulations, along with effective land use planning to reduce and control development that occurs within the 100-year floodplain.

FEMA has recently developed newer floodplain maps that are planned to become effective in 2023, but for the preparation of the EA, updated Basis Level Engineering (BLE) has not yet been adopted by FEMA. Newer floodplain boundaries will be considered to the extent possible throughout the course of the environmental process to ensure future compatibility.

After the Initiation of the NEPA process for this study, the City of Sioux Falls implemented a new floodplain ordinance that became effective July 30, 2021, including requirements for compensatory storage. Coordination has taken place with the city to ensure current designs are compliant with local floodplain regulations.

3.9.2 Impact of Alternatives

No Build Alternative

As a result of not requiring construction activities, the No Build Alternative would not encroach upon the 100-year floodplain. The city would continue to purchase properties through the voluntary flood buyout program based on the latest effective FEMA floodplain boundaries.

Build Alternative

The Build Alternative for the project will require a detailed hydraulic analysis to understand the effects of filling in the floodplain, road raises, and any changes to the Big Sioux River bridge crossing and associated overflow locations. This analysis will be completed concurrently with the final design process. The final design process will include efforts to not increase the 100-yr water surface elevation ("no-rise"), as this would affect multiple residential and commercial properties. It is anticipated that the final design will be able to achieve a no-rise condition.

If the project is not able to achieve a no-rise condition, this a FEMA Letter of Map Revision will be required along with the associated public involvement process.

Stormwater detention areas are proposed on the project, which are intended to maintain flow rates of the existing conditions (or lower rates). As part of final design, it will be verified that the Build Alternative will achieve a "No-Rise" condition for all FEMA regulated floodplains. The Section 6(f) replacement property is located within the floodplain. However, no disturbance to this property would take place and no impacts to the floodplain would result from the conversion of this property to parkland.

Portions of the Exit 4 project lie within the 100-yr floodplain as indicated on FEMA FIRM 46099C0464E, dated 7MAR2017. The Exit 4 project results in a total fill of approximately 50,000 CY below the 100-yr floodplain elevation. The optional borrow site is located outside of the floodplain, and no work within the floodplain would be associated with the use of that site.

The City of Sioux Falls requires compensatory storage for fill below the 100-yr floodplain elevation. Several locations within the Exit 4 interchange project area were evaluated to provide the required compensatory storage. For each component of the interchange ramps, an estimated 50,000 CY of fill will be needed, and an estimated 44,600 CY of cuts, with a balance of 5,400 CY needed for construction.

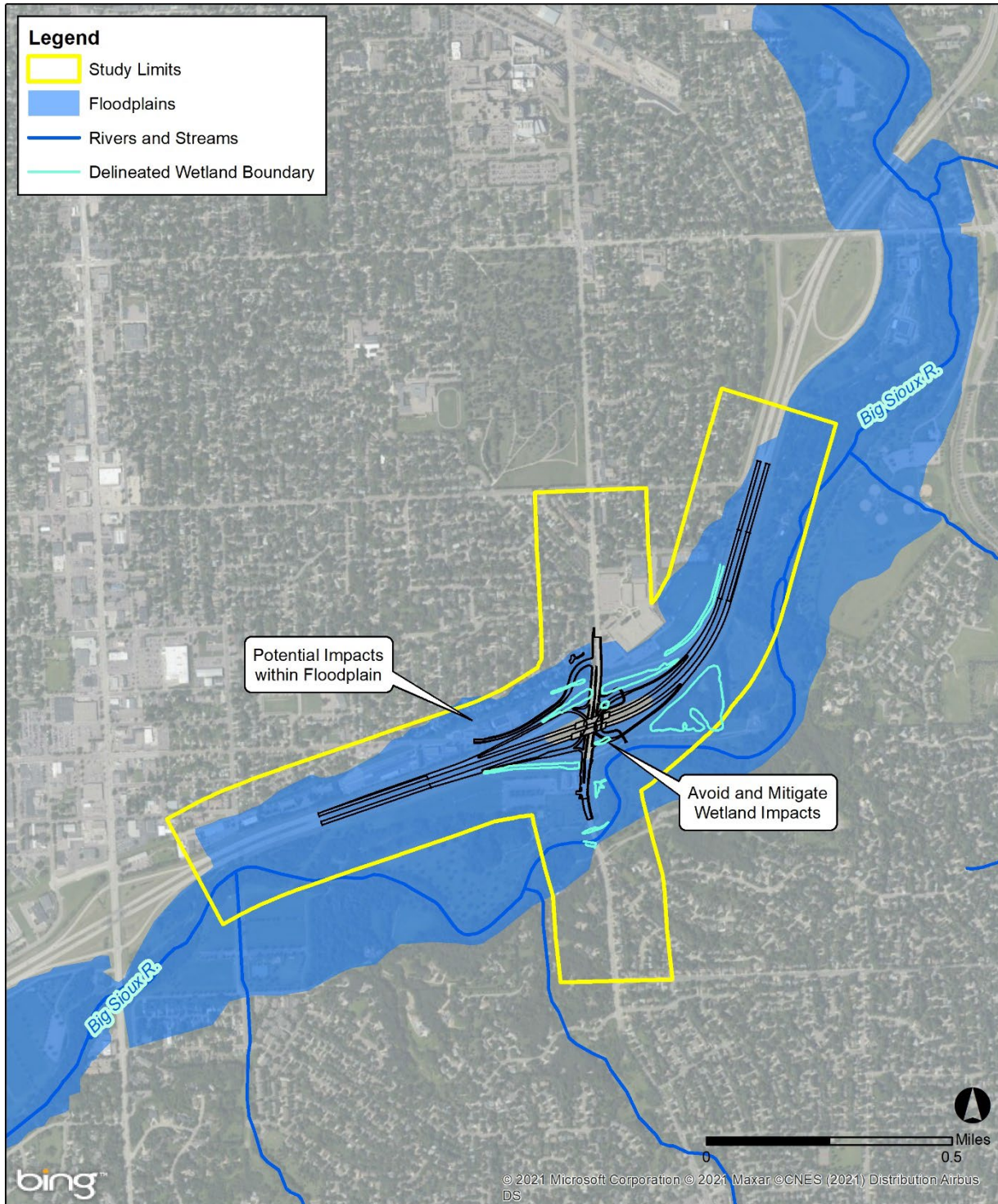
The reoccurring flooding problems caused by the Big Sioux River in residential and commercial areas now included in recent FEMA mapping revisions has prompted the City of Sioux Falls to institute a voluntary floodplain buyout program, which allows property owners to sell flood-prone parcels currently occupied by residential and commercial land uses to the City of Sioux Falls. To date, in the vicinity of the Exit 4 interchange, there have been eight residential and three commercial property acquisitions through this buyout program. The City-owned properties can then be used for other purposes other than human occupation, including open space, compensatory flood storage areas, and transportation-related infrastructure. For the I-229 Exit 4 reconstruction, it is the intent of the City of Sioux Falls to transfer ownership of several of these properties to SDDOT for future roadway-related purposes. The properties that have been acquired by the flood buyout program and also will be used as part of future roadway-related infrastructure are indicated on the EA graphics. It is noted that buyouts and home removals may not appear on the latest aerial photos and occurred before the Exit 4 interchange's currently ongoing design efforts. As these properties may ultimately be used for transportation related purposes,

any use of these properties for proposed improvements from this project will be considered a direct project impact.

3.9.3 Avoidance, Minimization, and/or Mitigation Measures

The final design process will include efforts to not increase the 100-yr water surface elevation. During final design of the Build Alternative, a Floodplain Development Permit would be acquired. To address floodplain compensatory storage requirements, stormwater detention areas have been proposed within the current transportation right of way and areas proposed for acquisition for the project. Any build alternative impacts discussed in this EA from have accounted for the inclusion of these detention areas. A summary of the floodplain impact compensatory storage analysis and recommendations is included in EA Appendix E.

Figure 3-11: Rivers, Streams, and Floodplains



3.10 Wetlands and Waters of the United States

Waters of the United States (WOTUS) 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 WOTUS. The study area is within the drainage of the Big Sioux River, which is a WOTUS, but no defined stream is present within the study area. WOTUS located within the study area are limited to numerous jurisdictional wetland areas.

Proposed action(s) that would affect jurisdictional wetlands or other WOTUS 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 WOTUS 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 WOTUS water body. This definition emphasizes that under normal circumstances wetlands must possess three characteristics: a prevalence of hydrophytic vegetation, hydric soils, and wetlands hydrology.

3.10.1 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:

- The Natural Resources Conservation Service (NRCS) Web Soil Survey (2019)
- U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) (2019)
- Minnehaha County Hydric Soils List (2019)

The field delineation site visit was conducted by Rebecca Beduhn, SEH Senior Scientist, on September 12th and 13th, 2018. 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). In total, 10 wetland areas were delineated within the study area. 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 26, 2022 and is included in Appendix F. The Big Sioux River, a traditionally navigable Waterway (TNW) was also identified within the study area. USACE provided an Approved Jurisdictional Determination (AJD) on April 1, 2022 (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 WOTUS would require a permit from USACE.

The initial wetland delineation type and boundary concurrence expired in September 2023. A reevaluation of the wetland boundaries was made by Luke Menden, an SEH Wetland Biologist, in early September 2023. This reevaluation included a site visit to each of the previously delineated wetlands to compare conditions and determine if any significant changes were observed to either the wetland boundary or type. Approved wetland boundaries were field verified using a sub-meter GPS unit and were determined to be accurate and therefore will continue to be utilized for project planning purposes. This assessment relies primarily on observations of vegetation and hydrology. It confirmed that site conditions were unchanged, and none of the wetland boundaries have been altered, modified, or natural changed. No new wetlands were identified during the field review. On this basis, the previous boundaries remain valid for the purposes of completing the EA, quantifying impacts, and identification of mitigation. Documentation of the wetland boundary verification is included with the Wetland Finding (Appendix H). Coordination took place between USACE and SDDOT in October 2023 following the initial wetland delineation expiration and reevaluation. USACE confirmed the findings of the March 31, 2022, AJD remain valid. Documentation of this coordination is included with the AJD (Appendix G).

3.10.2 Impacts of Alternatives

No Build Alternative

The No Build Alternative would involve no construction activities related to this project, resulting in no wetland impacts.

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 of the wetlands. 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 3-12 and listed in Table 3-9.

Based on the preliminary design of the Build Alternative at the time of this report, the Build Alternative is anticipated to affect approximately 2.68 acres of wetlands, including 0.31 acres of jurisdictional wetlands and 2.37 acres of non-jurisdictional wetlands. No wetlands exist on the proposed borrow site which would be disturbed. The site is comprised of disturbed fill material that is frequently disturbed. A desktop review of the Section 6(f) replacement property did not identify any wetlands on this property. No activities would occur on this property which would impacts wetlands, and a field review is not required.

As discussed in Section 3.8, no impacts to the Big Sioux River are anticipated with this project.

Figure 3-12: Delineated Wetlands and Build Alternative Wetland Impacts

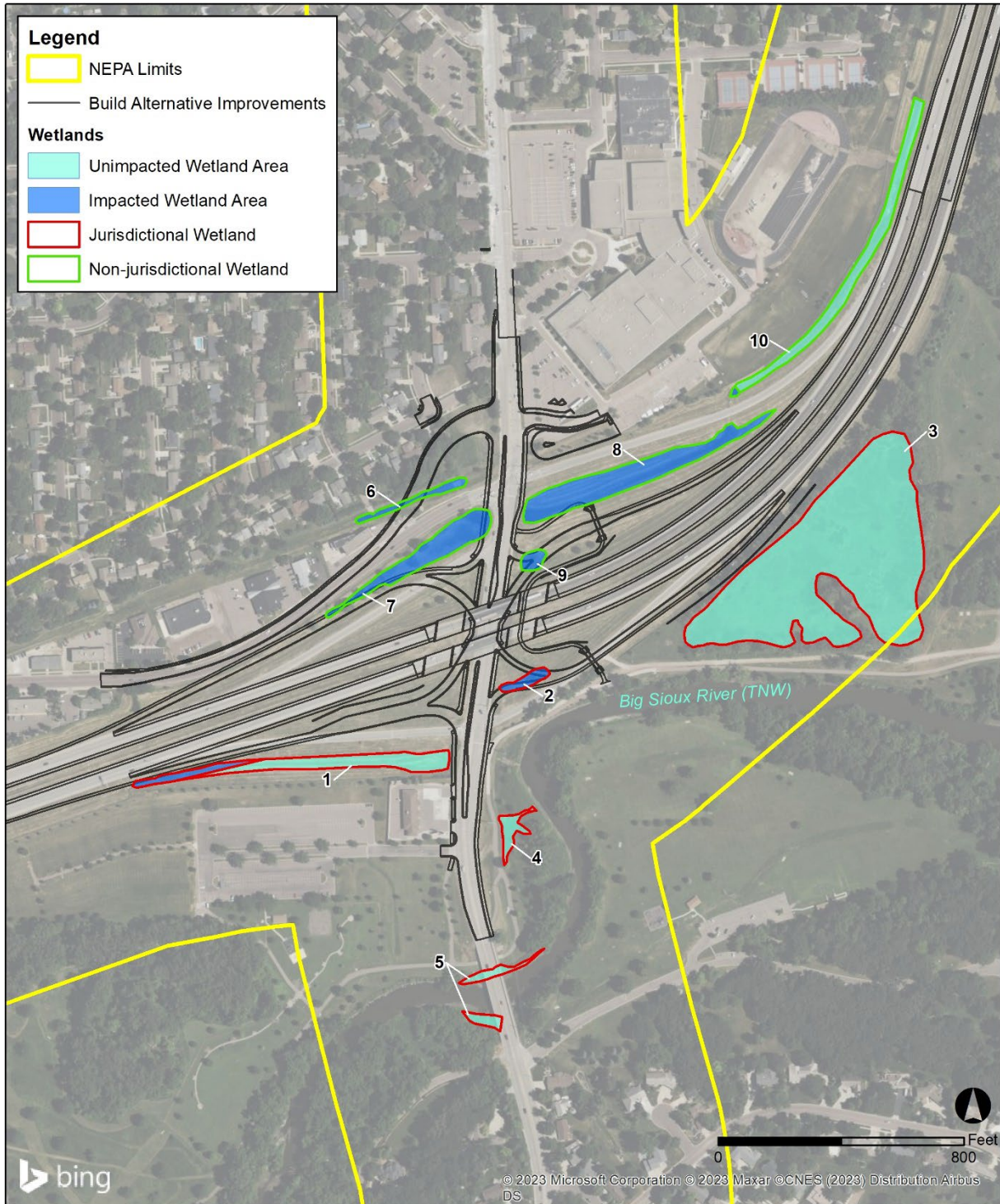


Table 3-9: Delineated Wetlands and Potential Wetland Impacts

Wetland Number (SEH Delineated Wetlands)	Wetland Size (Acres in Study Area)	Potentially Impacted Acres	Cowardin Classification	Jurisdictional Status
Wetland 1	0.91	0.19	Type 3 / PEMC	Jurisdictional
Wetland 2	0.12	0.12	Type 3 / PEMC	Jurisdictional
Wetland 3	6.66	-	Type 3 / PEMC	Jurisdictional
Wetland 4	0.16	-	Type 2 / PEMB	Jurisdictional
Wetland 5	0.20	-	Type 2 / PEMB	Jurisdictional
Wetland 6	0.19	0.19	Type 2 / PEMB	Non-Jurisdictional
Wetland 7	0.75	0.75	Type 2 / PEMB	Non-Jurisdictional
Wetland 8	1.31	1.31	Type 3 / PEMC	Non-Jurisdictional
Wetland 9	0.10	0.10	Type 2 / PEMB	Non-Jurisdictional
Wetland 10	0.86	.02	Type 3 / PEMC	Non-Jurisdictional
Total Potential Wetland Impacts		2.68 ac.	(0.31 JD, 2.37 Non-JD)	

3.10.3 Avoidance, Minimization, and/or Mitigation Measures

There are a total of 0.31 acres of permanent wetland impacts to jurisdiction waters (Wetlands 1 and 2) which will be mitigated in accordance with Section 404. Based on a standard mitigation ratio of 5.5:1, a total of 1.71 functional capacity units (FCUs) is expected to satisfy Section 404 compensatory mitigation requirements. The remaining 2.37 acres of permanent wetland impacts are to non-jurisdictional waters (Wetlands 6, 7, 8, 9, and 10) and will be mitigated in accordance with EO 11990. A total of 2.39 FCUs will be required to satisfy EO 11990 compensatory mitigation requirements based on a 1.01:1 ratio mitigation. All wetland impacts occur in the Lower Big Sioux Geographic Service Area (GSA).

Off-site wetland mitigation through the purchase of wetland credits from a wetland bank is proposed to satisfy the requirements for both the Section 404 permit and “No Net Loss” per EO 11990. Wetland Banking is the preferred option for off-site mitigation, and since it is feasible for this project, other options for off-site mitigation such as In-lieu fee and permittee responsible site were not considered. On-site mitigation is not proposed due to the site constraints with available land. The SDDOT proposes to mitigate permanent wetland impacts by purchasing credits from Goeden Properties II, LLC’s Wetland Bank (Goeden Properties). SDDOT intends to mitigate EO11990 impacts concurrently with Section 404 impacts which is anticipated to require a purchase of 4.1 FCUs from Goeden Properties.

Goeden Properties has confirmed it has sufficient credits available at this time and has provided a letter of credit availability for the project, a copy of the letter is included with the wetland finding (Appendix H). Final compensatory mitigation for unavoidable permanent impacts to aquatic resources resulting from construction of the proposed project will be determined by the USACE during Section 404 permitting.

With the implementation of these mitigation measures there would be no net impact on wetlands.

3.11 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 Game, Fish and Parks (SDGFP) regulates and manages certain fish and wildlife species including game, non-game, and state threatened or endangered species.

Federal Executive Order 13112 establishes that federal agencies, through their actions, implement measures and means to prevent the spread of invasive species, in particular vegetative species. Other important vegetative issues include native prairies, high valued trees and landscaping, and areas subjected to vegetation management activities such as roadway right-of-way corridors. South Dakota Administrative Rule 41:10:04 forbids the possession and transport of Aquatic Invasive Species.

3.11.1 Affected Environment

A wide variety of vegetation presently exists within and adjacent to the study area. Most types are associated with a typical urban environment: planted grasses within road ROWs, manicured lawns with planted grasses and ornamental type trees, wetlands, and idle land. All of the vegetation types listed above are present within the study area. A large amount of parkland also exists within the study area, especially along the Big Sioux River. This includes additional wetlands, small, wooded areas and grassy sports fields separated by rows of trees.

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, and manicured lawns and sports fields are not the preferred habitat for most terrestrial wildlife species; however, wildlife species have adapted to use available habitat in urban areas. Additionally, trees within the study area have the potential to be used as nesting habitat by songbirds such as robins, finches, cardinals, etc. streams and the surrounding wooded areas would provide fair habitat for a variety of fish, reptiles, amphibians, nesting birds 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. 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, SDGFP, and USFWS for this project. SDGFP indicated that there are records of trout perch, a species of greatest conservation need in the Big Sioux River, downstream of the project area. 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 3.10 (Wetlands and other Waters of the United States) and Section 3.12 (Threatened and Endangered Species).

3.11.2 Impacts of Alternatives

No Build Alternative

With the No Build Alternative, there would be no construction activities related to this project and there would be no impact to vegetation, fish, and wildlife.

Build Alternative

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

Disturbance to existing habitat would primarily include existing road ROW, vacant land, and a small number of residential/business properties. Wetlands and parkland will be avoided to the extent practicable, but small quantities of impacts would result to these areas as well. Impacted areas would support new roadway/bicycle and pedestrian facilities, or may be maintained as vegetated road ROW, and may serve stormwater management and drainage purposes. 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.

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.

Construction activities would temporarily disturb terrestrial and aquatic wildlife near the ROW. Therefore, wildlife within the ROW would likely seek sanctuary in nearby habitat during grading operations.

3.11.3 Avoidance, Minimization, and/or Mitigation Measures

The City of Sioux Falls is taking a proactive approach to manage Emerald Ash Borers in Minnehaha County. 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.

Impacts on fisheries in the Big Sioux River 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. 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.

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.

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

3.12 Threatened and Endangered Species

3.12.1 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*, endangered) (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.

Since the coordination process began, two new species, the tricolored bat and monarch butterfly, have been identified as proposed endangered species and candidate species respectively, which are known to occur in Minnehaha county.

- The tricolored bat (*Perimyotis subflavus*) is one of the smallest bats native to North America. The once common species is wide ranging across the eastern and central United States and portions of southern Canada, Mexico and Central America. During the winter, tricolored bats are found in caves and mines, although in the southern United States, where caves are sparse, tricolored bats are often found roosting in road-associated culverts. During the spring, summer and fall, tricolored bats are found in forested habitats where they roost in trees, primarily among leaves. As its name suggests, the tricolored bat is distinguished by its unique tricolored fur that appears dark at the base, lighter in the middle and dark at the tip. White-nose syndrome, a disease that impacts bats, is caused by a fungal pathogen. It has led to 90 to 100% declines in tricolored bat winter colony abundance at sites impacted by the disease. Since white-nose syndrome was first observed in New York in 2006, it has spread rapidly across the majority of the tricolored bat range.
- The monarch butterfly (*Danaus Plexippus*) is one of the most recognizable species in North America. Monarchs are particularly remarkable because they migrate each year, flying from as far as Canada and across the United States to congregate at a few forested overwintering sites in the mountains of central Mexico and coastal California. These sites are an amazing phenomenon: thousands of monarchs cluster in the trees in California, and millions of monarchs drape large swathes of forest in Mexico. But over the past two decades, monarch numbers in North America have declined, prompting the U.S. Fish and Wildlife

Service to join state agencies, tribes, other federal agencies and non-government groups to identify threats to the monarch and take steps to conserve monarchs throughout their range.

A map of the study area was provided to the SDGFP as part of the project coordination that took place in the ESR/planning phase. This coordination included NEPA-level information about protected species and was carried forward to satisfy the NEPA coordination. In their response letter dated December 27, 2018, SDGFP noted that the National Heritage Database indicated the presence of the following state-listed species:

- Trout-perch (*Percopsis omiscomaycus*) is a species of greatest conservation need in the Big Sioux River, downstream of the project area. This freshwater fish is relatively small, reported by the USGS to be approximately 20cm in length. The trout-perch serves as a source of food for larger fish. It is natively found throughout much of the Midwest, as far east as Vermont, Massachusetts, and Connecticut, and as far north as Alaska.

Updated coordination with SDGFP took place on June 25, 2024 and included the borrow site and Section 6(f) replacement property. A response was received on July 2, 2024. No additional concerns were identified.

Certain birds are protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act. IPaC also identified a number of migratory birds that are either listed on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location. 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. Migratory birds have the potential to nest on the ground within areas not regularly mowed as well as within trees, large shrubs and on bridge structures.

3.12.2 Impacts of Alternatives

No Build Alternative

With the No Build Alternative, there would be no construction activities related to this project and there would be no impact to vegetation, fish, and wildlife.

Build Alternative

The Build Alternative will not adversely affect federal-listed threatened and endangered species. Preferred habitat for the federal-listed/proposed for listing species and state-listed species does not occur within the study area. Individual determinations for each species, and support for these determination is included below for each species:

- The Northern Long-eared Bat – No hibernacula (caves and mines) for the northern long-eared bat were identified through field investigation or coordination with regulatory agencies. 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 25, 2019, to determine if trees (five surveyed stands) or structures planned for removal within the project area (the commercial building proposed for acquisition and the I-229 bridge over Cliff Avenue) 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 also noted that a number of dead trees surveyed in tree stand B would have the potential to serve as roosting habitat, although no evidence of bat use was observed. To avoid potential impacts, any tree clearing should be avoided during pupping season in accordance with the requirements of the

Programmatic Biological Opinion for Transportation Project in the Range of the Indiana Bat and Northern Long-Eared Bat. The survey is provided in Appendix C.

In December 2016, FHWA and USFWS, with the Federal Railroad Administration and Federal Transit Administration, completed a revised Programmatic Biological Opinion (PBO) for Transportation Projects in the Range of the Indiana Bat and the Northern Long-Eared Bat. A coordination letter was sent to USFWS December 10, 2018 during the ESR process. A habitat survey was conducted on July 25, 2019.

The IPaC consultation process was completed on April 5, 2019 and a verification letter was issued. The online consultation form and habitat survey were sent to USFWS on December 17, 2021 as part of NEPA coordination for the project. A preliminary determination of “May Affect – Not Likely to Adversely Affect” was made for the NLEB for this project. USFWS concurred with the survey findings and the “May Affect – Not Likely to Adversely Affect” determination for the NLEB in a correspondence letter dated February 1, 2022.

Since the coordination for this project was completed, the NLEB status been changed from threatened to endangered. As a result, the 4(d) rule for USFWS consultation no longer applies. The determination key for this species was updated in IPaC on November 9, 2023. A May Affect, Not Likely to Adversely Affect Determination was still recommended for this species. This was sent in an updated letter to USFWS on November 9, 2023. Concurrence with this determination was provided in a response letter dated November 9, 2023. Tree removal restrictions would apply to this project. Prior to construction, field verification for the habitat survey would be conducted by SDDOT to ensure that it remains valid within the 24-month required window prior to construction. These are included as environmental commitments for the project.

Updated coordination was required later in the NEPA process for additional advanced design elements of the project. A coordination letter was sent to USFWS on April 19, 2024 recommending a No Effect determination for all species that may be impacted by these activities. USFWS concurred with this recommendation in their response letter signed and dated May 16, 2024. Additional coordination for the borrow site was sent November 15, 2023 proposing a “no effect” determination for this site. USFWS concurred with this determination on December 14, 2023. Coordination for the proposed Section 6(f) replacement property was sent to USFWS on July 15, 2024 proposing a “May affect, not likely to adversely affect” determination for the Northern Long-eared Bat and “no effect” for other species. Seasonal work restrictions would apply for two trees on the site that. The response will be included in the environmental decision document and conversion of use application for NPS.

- 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 December 17, 2021, with a preliminary determination of “No Effect” for this species. USFWS concurred with this determination in their correspondence letter dated February 1, 2022.

- The Western Prairie Fringed Orchid – No project impacts are expected for this species. Impacts would primarily occur on mowed rights of way and lots within urbanized areas, which are not suitable habitats for this species. A letter was sent to USFWS on December 17, 2021, with a preliminary determination of “No Effect” for this species. USFWS concurred with this determination in their correspondence letter dated February 1, 2022.
- Trout-perch – GFP indicated that the project would have no anticipated significant impact to fish and wildlife resources and would anticipate that to remain if a number of suggestions are considered during the planning and construction of the project. These suggestions are included as avoidance/minimization/mitigation measures below and will be included as project commitments.
- Tricolored Bat – No project impacts are expected for the tricolored bat. No evidence of the bat was identified during the field survey conducted for the NLEB. USFWS concurred with this determination in their most recent response letter signed and dated May 16, 2024.
- Monarch Butterfly - No project impacts are expected for the monarch butterfly. Project impacts would occur in developed areas where vegetated areas are primarily mowed lawns and rights-of-way. No suitable habitat for the butterfly would be impacted by the project. USFWS concurred with this determination in their most recent response letter signed and dated May 16, 2024.

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

3.12.3 Avoidance, Minimization, and/or Mitigation Measures

To avoid impacts to the NLEB, project activities that include tree removal, should occur between November 1st and March 31st. Prior to the completion of the environmental decision document, SDDOT would coordinate with USFWS to confirm the effect determinations remain valid. Prior to construction, field verification for the habitat survey would be conducted by SDDOT to ensure that it remains valid within the 24-month required window prior to construction. These are included as environmental commitments for the project.

To avoid impacts to trout perch, the following suggestions from SDGFP will be adhered to:

- Disturbance to riparian and wetland areas should be kept to an absolute minimum.
- If riparian vegetation is lost it should be quantified and replaced on site. Seeding of indigenous species should be accomplished immediately after construction to reduce sediment and erosion.
- A site-specific sediment and erosion control plan should be part of the project.
- A post construction erosion control plan should be implemented in order to provide interim control prior to re-establishing permanent vegetative cover on the disturbed site.
- Stream bottoms impacted by construction activities should be restored to pre-project elevations.
- In stream work should not be conducted during fish spawning periods. Most spawning occurs during April, May and June.

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.

3.13 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." [36 CFR Part 800.16(d)].

The APE for this project is defined in section is defined in section 3.13.1 and shown in Figure 3-13.

3.13.1 Affected Environment

SDDOT and FHWA initiated Section 106 consultation with SHPO in April 2019. In December 2018, SDDOT sent letters to appropriate federally-recognized American Indian tribes. It was requested that they identify any concerns about potential project effects and inviting them to participate in public scoping meetings and/or schedule a separate meeting to discuss any specific tribal issues and concerns. The Yankton Sioux Tribe sent a response requesting any information on cultural resources found within the study area. No resources were identified during the Cultural Resource Investigation. An updated coordination letter for the project, including the borrow site, was sent to the tribes on June 23, 2024. No additional responses were received.

Consulting party letters were sent to the following American Indian tribes:

- Flandreau Santee Sioux Tribe
- Lower Brule Sioux Tribe
- Sisseton-Wahpeton Oyate
- Standing Rock Sioux Tribe
- Yankton Sioux
- Three Affiliated Tribes (Mandan Hidatsa Arikara Nation)
- Ponca Tribe of Nebraska

- Chippewa Cree Tribe

A Level III intensive cultural resources survey, including a Level I record search and pedestrian survey, was initially completed for the study by SDARC on February 22, 2019. An updated review for the project was completed August 29, 2023. The review included a study area, which encompasses the project APE, as well as a one-mile buffer around I-229 Exit 4. The APE includes the proposed reconstruction area for Exit 4 and it's connected projects (i.e., areas of grading, structure replacement, traffic light installation, etc.) (See Figure 3-13). The study area was evaluated for cultural resources, and a survey was conducted in the APE during the periods of September 11 and 12, 2018 and January 9 and 10, 2019. The most recent record search was conducted March 27, 2023. Only those resources that have the potential to be affected by the study's alternatives are discussed in this EA.

An APE was also examined for the designated option borrow site (Figure 3-14), which was initially thought to be a potential borrow area for the Exit 4 project. The amount and source of borrow for the project, however, is currently unknown and would not be determined until final design. Borrow from this site may not be necessary, but it was included in the review as a proactive measure. The site is commonly used to store fill material. No environmental impacts are anticipated with the use of the site should it be used for the project.

Figure 3-13: APE for Cultural Resource Review

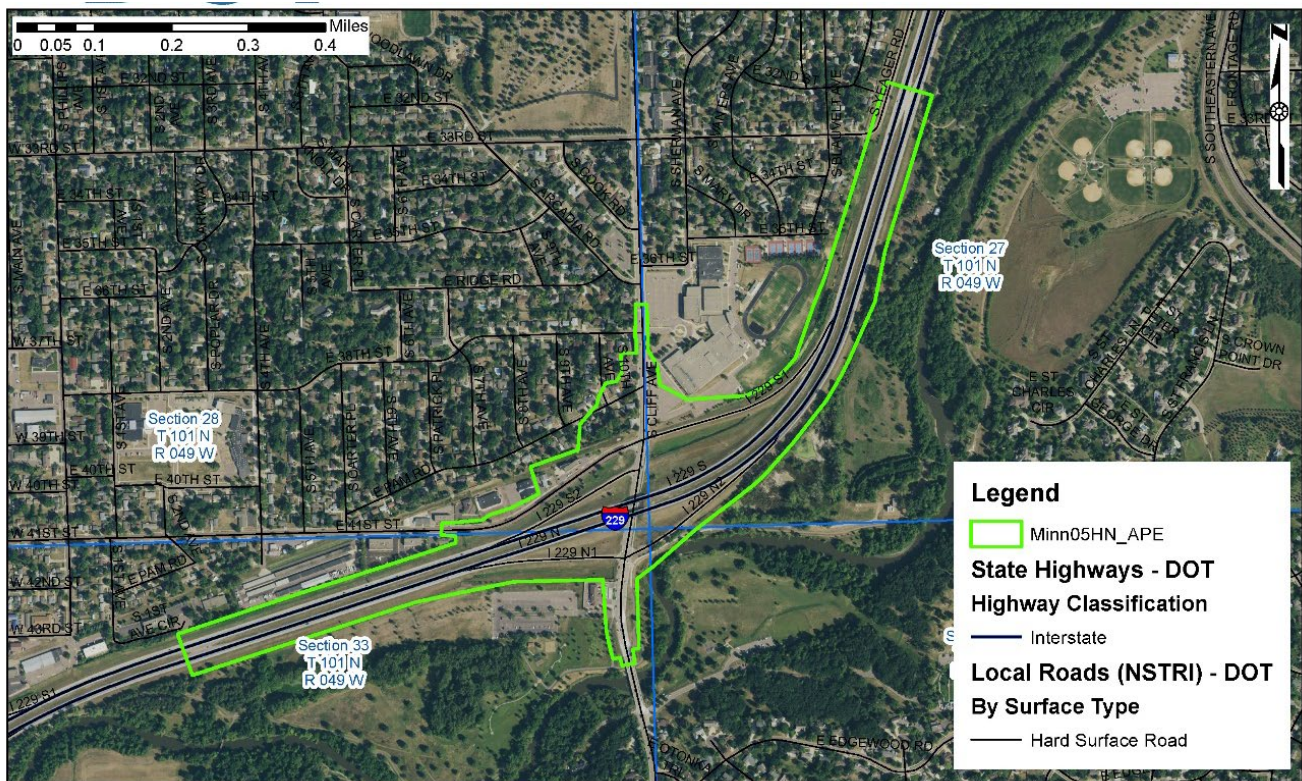
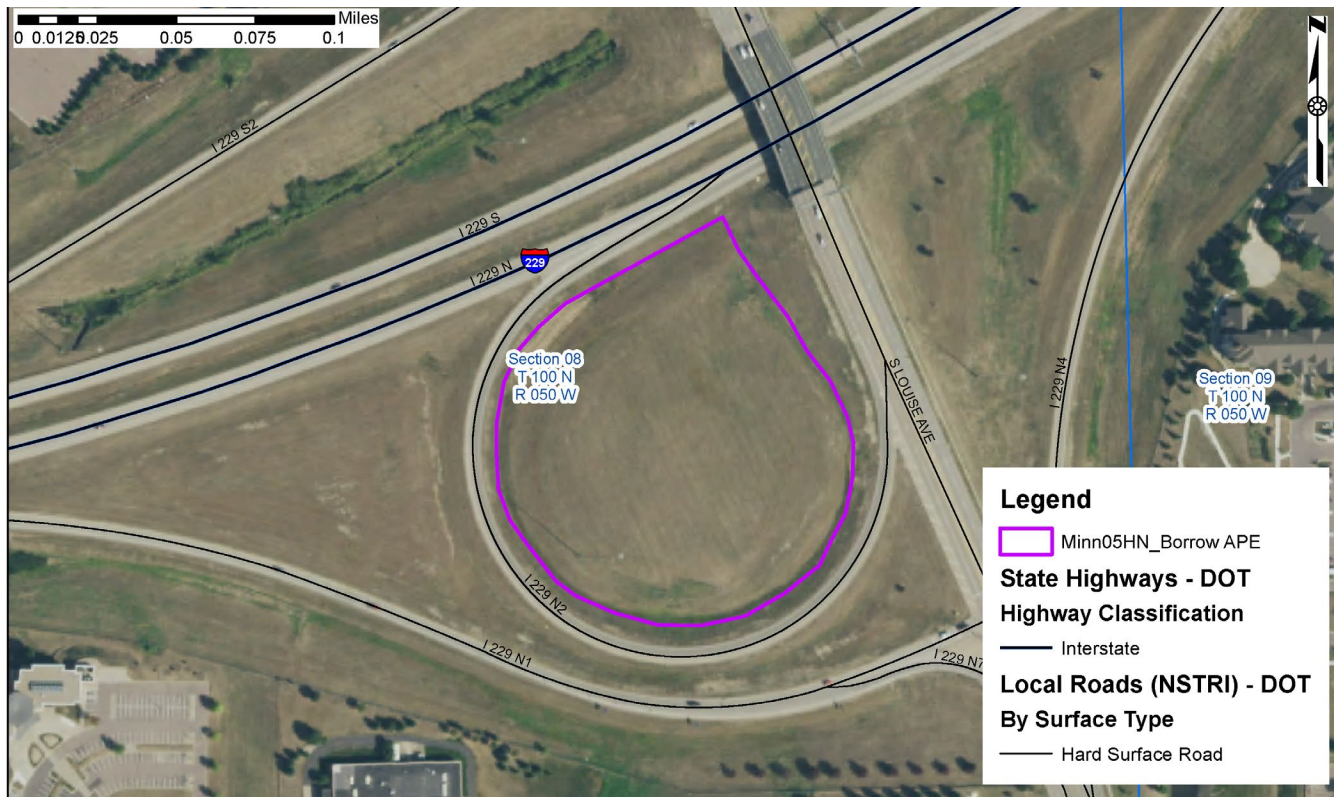


Figure 3-14: APE for Potential Project Borrow Area



The ESR previously identified nine standing structures and one bridge structure. The most recent investigation conducted on March 27, 2023, which included a more refined study area and APE based on anticipated project impacts, resulted in the documentation of eight standing structures and one bridge structure, all of which have been determined Not Eligible for listing in the National Register of Historic Places (NRHP). One newly recorded segment of site 39MH2000 was identified within the APE. Site 39MH2000 is the historic BN railroad grade which is Eligible for listing in the NRHP. The segment within the project APE, however, was found to have been previously disturbed to the extent that it is no longer integral to the overall eligibility of site 39MH2000 for the NRHP.

The nearest historic districts listed on the NRHP are located approximately one mile north of the Exit 4 interchange. The City of Sioux Falls has a Historic Preservation Board which serves in an advisory capacity, providing guidance and recommendations to the Mayor and City Council on matters related to historic preservation and the City’s seven historical districts. The Minnehaha County Historic Society is another historic advocacy group, which works to recognize, preserve, and revitalize the historic architectural and cultural resources of Minnehaha County. As no historic impacts were anticipated with the project, no additional coordination was required.

3.13.2 Impact of Alternatives

No Build Alternative

The No Build 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 Level III intensive cultural resources survey indicated that no historic properties and no bridges eligible for or listed in the NRHP will be affected by the Build Alternative. The nearest historic districts are over one mile away from anticipated project work associated with constructing the build alternative, and therefore, would also not be affected.

A determination of No Adverse Effect was made for the Build Alternative. SHPO concurred with this recommendation on September 12, 2023. On account of the 0.48 acres proposed for acquisition not contributing the historic character of the site, the acquisition would not constitute a Section 4(f) impact. This coordination included the Exit 4 project as well as the adjacent Exit 3 project. Updated coordination was sent to ensure this determination would stand for the Exit 4 project as an independent federal action. FHWA concurred with the No Use determination on November 6, 2023 and SHPO provided updated concurrence on November 13, 2023. On July 18, 2024, SHPO provided a continued concurrence of a Section 106 determination of No Adverse Effect for the project after SDDOT re-coordinated the project with an updated description including all of the project's components. Documentation of SHPO coordination is included in Appendix C.

3.13.3 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 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.

3.14 Environmental Justice

Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898), issued February 11, 1994. EO 12898 requires Federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health or environmental effects, including the interrelated social and economic effects of their programs, policies, and activities on minority populations and low-income populations in the United States. As indicated in the EO, the foregoing requirements are to be carried out to the greatest extent practicable and permitted by law and consistent with the principles set forth in the report on the National Performance Review. Compliance with this FHWA Order is a key element in the environmental justice strategy adopted by FHWA to implement EO 12898, and can be achieved within the framework of existing laws, regulations, and guidance.

The USDOT Order 5610.2(a) sets forth the U.S. DOT policy to consider environmental justice principles in all (U.S. DOT) programs, policies, and activities. It describes how the objectives of environmental justice will be integrated into planning and programming, rulemaking, and policy formulation. The Order sets forth steps to prevent

disproportionately high and adverse effects to minority or low-income populations through Title VI analyses and environmental justice analyses conducted as part of Federal transportation planning and NEPA provisions. It also describes the specific measures to be taken to address instances of disproportionately high and adverse effects and sets forth relevant definitions.

The FHWA Order 6640.23A is a directive which establishes policies and procedures for the Federal Highway Administration (FHWA) to use in complying with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898), dated February 11, 1994.

Together, the above orders establish definitions and procedures for achieving environmental justice for projects with federal involvement. The DOT Orders 6640.23A & 5610.2C Define low-income and minority populations as:

Low-Income Population means any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy, or activity.

Minority Population means any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy, or activity.

FHWA Order 6640.23A does not define "**any readily identifiable group.**" Guidance developed by the Council on Environmental Quality (CEQ), who along with the US Environmental Protection Agency (EPA), has oversight responsibility for implementing EO 12898,4 identifies a minority and low-income populations when:

- The percentage of minorities or low-income residents, respectively, exceeds 50 percent of the population in the area affected by the Project, or
- The minority population percentage of the affected area is meaningfully (or substantially) greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (CEQ, December 10, 1997)

FHWA Order 6640.23A and other FHWA guidance do not use the term "meaningfully greater." FHWA only uses the term "readily identifiable group" with regard to identifying a minority and/or low-income population. Based on CEQ and FHWA guidance and recent examples, the following approach was used to identify minority and low-income populations in the Study Area:

Minority and low-income populations were evaluated by comparing their percentage in the Socioeconomic Study Area (figure 3-15) to the percentage in the community of comparison (COC), in this case Minnehaha County, to determine if the minority and/or low-income populations in are high and/or disproportionately greater than the same populations in the surrounding region. The Study Area was further analyzed at the Census block group levels to determine the distribution of any minority or low-income populations within the Study Area; the proximity of these populations to the proposed project was determined to evaluate the potential significance of environmental impacts. Census block groups were determined to contain "substantial" minority or low-income populations if any of these populations exhibited concentrations that were at least 25 percent higher than the County's percentage of the same minority and low-income population. Recent projects were used as precedent for the threshold in this case. Several projects used a 40 percent threshold represents a rounded value that is approximately the population within one standard deviation (34 percent) from the mean of a typical normal bell shape distribution

curve. Other projects used a more stringent 25 percent threshold as a more conservative benchmark near the one-standard-deviation percentage. This project uses the 25 percent threshold, taking the more conservative approach until official guidance is established by SDDOT.

3.14.1 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.

Public Involvement meetings were held for the project during the ESR/Planning Phase In January 2019 and December 2020, local and state agencies have been included in coordination throughout the environmental process. Direct coordination has taken place between the City and residents affected by the project. No additional concerns for Environmental Justice populations were identified through project coordination.

The socioeconomic study area was first defined in the project’s ESR process. A scan of USEPA’s EJSCREEN tool was completed to identify higher concentrations of low-income and minority populations in the study area. None were identified during this process.

A full analysis of Environmental Justice (EJ) populations was conducted for this study, comparing data at the census block level to comparable communities. The purpose of the analysis was to identify any potential disproportionate impacts to these populations. The socioeconomic study area for the analysis included census blocks that lie within the NEPA limits of the study, as shown in Figure 3-15, which include the following block groups in Minnehaha County:

- Census Tract 15.01, Block Group 3
- Census Tract 16, Block group 2
- Census Tract 17, Block group 1
- Census Tract 17, Block group 2
- Census Tract 19.01, Block Group 1
- Census Tract 19.01, Block Group 2
- Census Tract 19.02, Block Group 1
- Census Tract 19.02, Block Group 2
- Census Tract 19.02, Block Group 3

The most recent Census Data at the time of the analysis (year 2020 Decennial Census) at the census block level indicates that approximately 87.8% of socioeconomic study area residents self-identified as white (no other races, not Hispanic or Latino). Conversely, 12.2% identified as a minority (something other than white alone, and anyone identifying as Hispanic or Latino). This is less than total percent minority population for Minnehaha County (21.0%) and well under the 25% threshold for identifying “substantial” or “meaningfully greater” concentrations of these populations (26.3%). Although one census block group within the socioeconomic study exceeded this threshold (Census Tract 15.01, Block Group 3), all combined block groups within the socioeconomic study area as a whole does not.

Figure 3-15: Socioeconomic Study Area

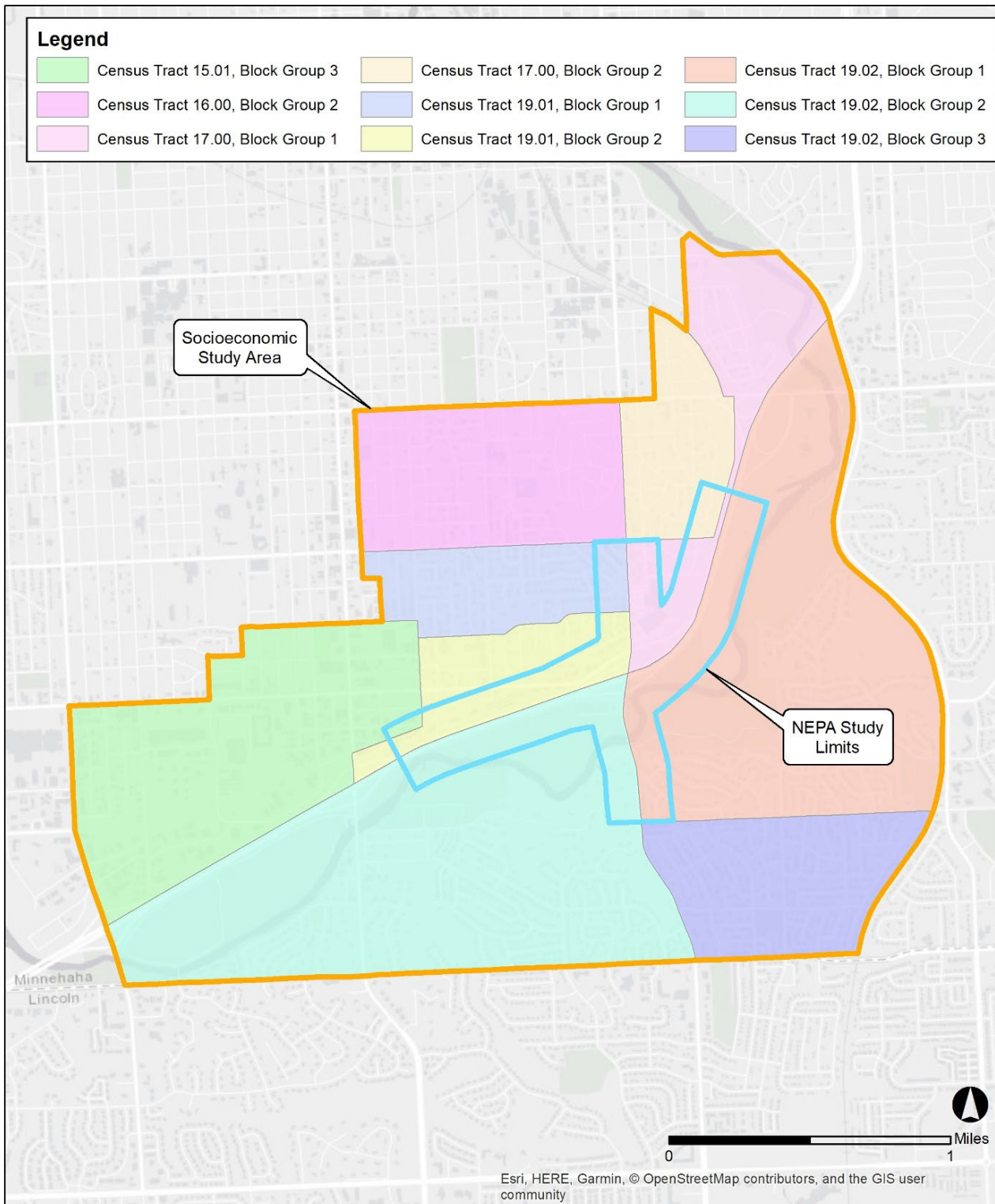


Table 3-10: Environmental Justice Analysis – Minority Populations

	All Socioeconomic Study Area Block Groups	All Socioeconomic Study Area Block Groups (%)	Community of Comparison (COC) Minnehaha County
Total Population	12,759	100.0%	197,214
Hispanic or Latino	482	3.8%	12,034
Not Hispanic or Latino	12,277	96.2%	185,180
One Race	11,834	92.8%	177,151
White	11,200	87.8%	155,740
Black or African American	280	2.2%	11,411
American Indian and Alaska Native	164	1.3%	4,807
Asian	140	1.1%	4,568
Native Hawaiian and Other Pacific Islander	8	0.1%	71
Some Other Race	42	0.3%	554
Population of two or more races	443	3.5%	8,029
Total Minority	1,559	12.2%	41,474
Percent Minority	12.2%	-	21.0%
125% of COC	-	-	26.3%
Potential EJ Concern?	No	-	-

An analysis of census data was also conducted to examine the potential presence of disproportionately high concentrations of low-income populations. The most recent Census Data (year 2019 American Community Survey 5-Year Estimates) at the census block level indicates that the poverty status was determined for 12,077 residents in the socioeconomic study area, and 832 (6.9%) of these were determined to be below the poverty level. This is below the rate for Minnehaha County (10.0% below the poverty level) and the 25% threshold (12.4% below the poverty level), although there is one block group in the study area that exceed this threshold (Census Tract 15.01, Block Group 3).

Table 3-11: Environmental Justice Analysis – Low-Income Populations

	All Socioeconomic Study Area Block Groups	All Socioeconomic Study Area Block Groups (%)	Community of Comparison (COC) Minnehaha County
Population for whom poverty status is determined	12,077	100.0%	183,201
Population below the poverty level	832	6.9%	18,246
Percent below poverty level	6.9%	-	10.0%
125% of COC	-	-	12.4%
Potential EJ Concern?	No	-	-

3.14.2 Impact of Alternatives

No Build Alternative

The No Build Alternative would not make any changes to the transportation system that would disproportionately impact environmental justice populations within the socioeconomic study area. It would not work toward building a more equitable transportation network for low-income populations.

Build Alternative

The socioeconomic study area as a whole 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. A small corner of Block Group 3, Census tract 15.01 overlaps the NEPA limits of the study and potentially includes higher concentrations of environmental justice populations compared to the surrounding community as a whole. The Build Alternative would not relocate persons identified as protected by environmental justice policies, and no permanent impacts are anticipated that would disproportionately affect environmental justice populations.

Additional considerations of safe crossings near bus routes and noise impacts were identified as considerations in the ESR process. As discussed previously, no EJ populations were identified which would be impacted disproportionately by project impacts. Design features will be included with the build alternative such as crosswalks and pedestrian signals, which will make the area safer and more walkable for users of the transit system traveling to the area.

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 includes improvements for bicycle and pedestrian facilities which would directly tie into regional trail and local sidewalk networks, improving interstate highway crossings that are often seen as a barrier to bicyclist and pedestrians. These multimodal improvements 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, and pedestrian access to these resources would be maintained throughout construction, and construction is not expected to disproportionately burden minority or low-income populations. Cliff Avenue and I-229 would remain open during construction. No detours are planned at this time. Temporary sidewalk closures are anticipated but would ultimately contribute to improving these facilities.

3.14.3 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.

3.15 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 (NPS) and the substitution of the property proposed for replacement is of reasonable equivalent usefulness and location as that being converted.

Section 4(f) states, in part, that, "It is the policy of the United States Government that special effort be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites" (49 USC 303). Section 4(f) resources that must be evaluated for a proposed highway project include public recreation areas, parks, wildlife and waterfowl refuges, and significant historic properties. Section 6(f) states that no lands that have been paid for in part or in entirety by federal land and water grants can be converted to non-park or non-recreation uses without the approval of NPS. This approval will be granted only if the action follows the state recreation plan and an area of equal fair market value and usefulness is substituted for the land being removed from park and/or recreation use (16 USC 4601-4 to -11 et seq., as amended).

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

Coordination with the Sioux Falls City Parks and Recreation Department took place during the NEPA process. Several parks, including Spencer Park, Tomar Park, and Tuthill Park lie adjacent to or are in close proximity to the Exit 4 Study Area, however Tomar Park is far removed from proposed project activities. These parks qualify as protected Section 4(f) resources. Through coordination with SDGFP, all of these resources were identified as also being Section 6(f) resources. The Sioux Falls Bike Trail was also identified a Section 4(f) and Section 6(f) resource in the Exit 4 Study Area through coordination with GFP. Coordination took place with Lincoln High School during the NEPA process, confirming that the tennis courts are open to the public 24/7 and the outdoor athletic field is open to the public during limited times. The school district confirmed that both qualify as Section 4(f) resources. Section 4(f) coordination is documented in Appendix I.

One environmentally sensitive site, the railroad grade of the former Burlington Northern Railroad, also exists in the Exit 4 Study Area. As a historic site, although determined by the SHPO to be significantly degraded, it is considered a Section 4(f) resource.

3.15.2 Impacts of Alternatives

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).

Section 4(f) and Section 6 (f) resources in the Exit 4 Study Area and their potentially constructive uses by the Build Alternative are illustrated in Figure 3-16 and further described below and in Table 3-12.

No Build Alternative

The No Build 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

Spencer Park, Tuthill Park, and Tomar Park

There is a need to acquire temporary construction easements for 0.89 acres of Tuthill Park and 0.29 acres of Spencer Park, and to permanently acquire 0.18 acres of Tuthill Park and 0.07 acres of Spencer Park for right of way use in the proposed I-229 Exit 4 interchange reconstruction work area. No disruption to access or uses of these facilities are anticipated. Tomar Park is located far to the southwest of any proposed construction activities and would also not be affected by the project.

If impacts to a Section 4(f) property would not adversely affect the activities, features, or attributes of the Section 4(f) resource, a *de minimis* determination can be made by the Federal Highway Administration (FHWA). A *de minimis* determination is proposed for impacts to Spencer Park and Tuthill Park based on the following assessment:

- All possible planning to minimize harm has been incorporated into project development.
- The nature and magnitude of changes will not adversely affect the recreational activities, features, or attributes that qualified the property for 4(f) protection.
- Proposed measures to minimize harm and resulting mitigation, in regard to protecting the 4(f) property and maintaining access and safety, are considered to be reasonable and acceptable.

The City of Sioux Falls Parks and Recreation Director is the official with jurisdiction for Spencer and Tuthill Parks. Coordination has been ongoing with the City throughout the NEPA Process. SDDOT's most recent coordination letter sent July 17, 2024, summarized impacts to Spencer Park and Tuthill Park and informed the city of their intent to make a *de minimis* finding for impacts to these resources. Section 4(f) coordination documentation is included in Appendix I. The public must also have the opportunity to comment on a *de minimis* finding before it is approved. This opportunity will be provided at the final public meeting for this EA. Formal concurrence from the OWJ would also be required after the public comment period. A Final Section 4(f) determination would be documented in the environmental decision document.

Segment of the Former Burlington Northern Railroad Grade

There is a need to acquire 0.48 acres of the historic railroad grade. SHPO is the official with jurisdiction on historic properties. SDARC completed a cultural resource survey which included this segment of the former Burlington Northern Railroad, and determined the segment has been impacted by prior construction activities, and is no longer integral to the overall eligibility of the site. SHPO concurred with this recommendation on September 12, 2023. On November 6, 2023, FHWA provided concurrence with a Section 4(f) No Use determination for the 0.48 acres proposed for acquisition because this segment is not contributing to the overall eligibility of the historic site. On August 5, 2024, SDDOT notified SHPO of the No Use determination. Section 4(f) coordination documentation is included in Appendix I.

Sioux Falls Bike Trail

The Sioux Falls Bike Trail will not be affected by construction activities, and no permanent impacts will result. Therefore, no Section 4(f) or Section 6(f) impacts will occur with this facility. No disruption to access or uses of these facilities are anticipated.

Lincoln High School Tennis Courts and Athletic Field

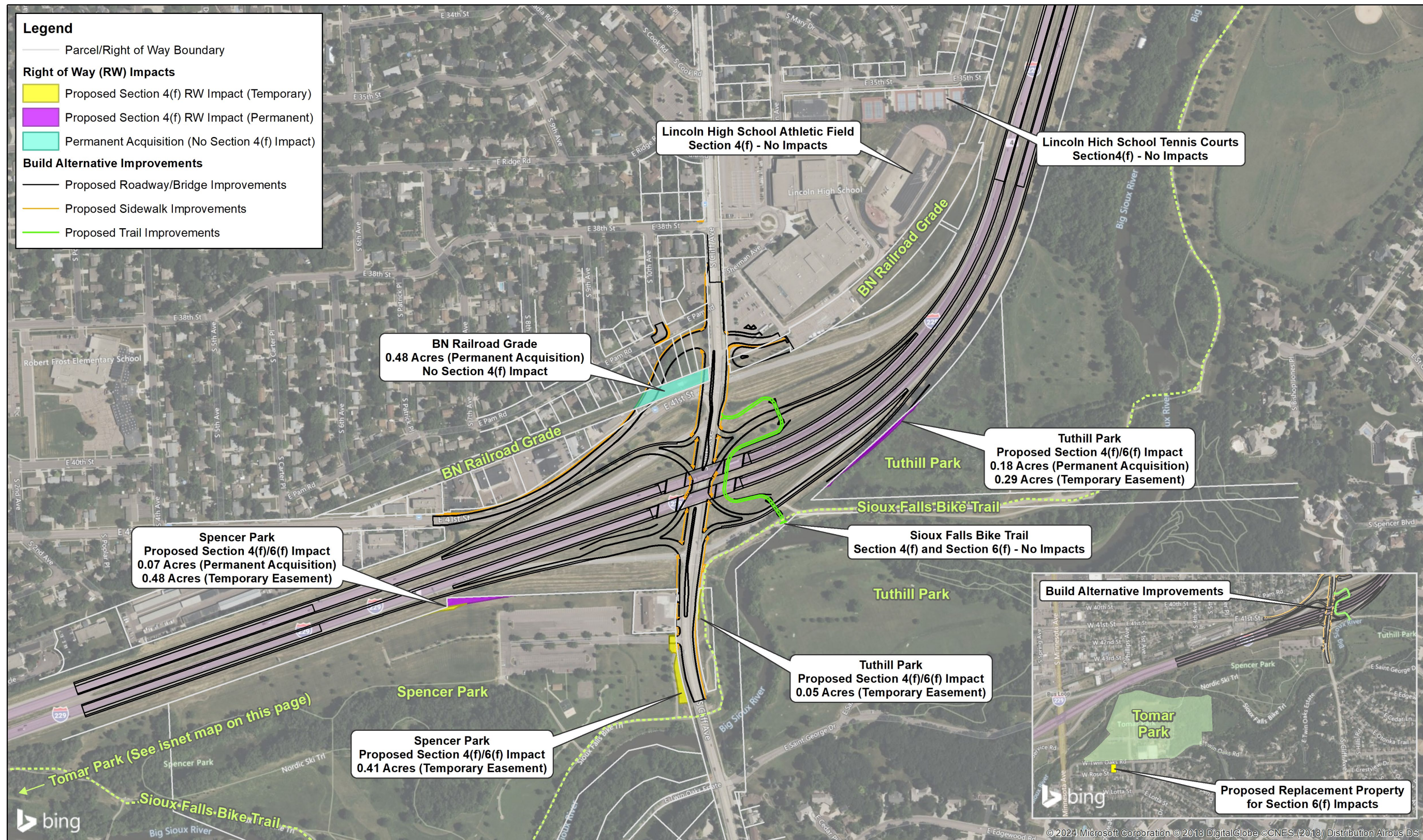
Temporary disturbance is anticipated to the school parking lot, which would have the potential to provide parking for the tennis courts and athletic field at Lincoln High School. Parking would remain available and no long-term permanent impacts to the facilities or it’s uses are anticipated. Lincoln High School confirmed that the project would have no impact on their tennis court facilities in an email dated November 9, 2023 (Appendix I).

Table 3-12: Section 4(f) and Section 6(f) Resources

Resource Name	Resource Type	Activities	Impacts/Type
Spencer Park	Section 4(f) and Section 6(f)	Portable Restroom, Accessible Picnic Shelter, Accessible Playground, League Soccer Fields, Accessible Dog Park, Bike Trail Access Point, Nordic Ski Trails, 9 Hole Disc Golf, Singletrack Bike Trails	0.07 acres (permanent acquisition) and 0.89 acres (temporary easement) Proposed <i>de minimis</i>
Tuthill Park	Section 4(f) and Section 6(f)	Accessible Restroom, Accessible Picnic Shelters, Accessible Playgrounds, Disc Golf, Wedding Location Reservation, Formal Garden, Ice Skating Rink/Warming House, Backstop, Singletrack Bike Trails	0.18 acres (permanent acquisition) and 0.29 acres (temporary easement) Proposed <i>de minimis</i>
Tomar Park	Section 4(f) and Section 6(f)	Accessible Restroom, Accessible Picnic Shelter, Accessible Playground, League Soccer Fields, Bike Trail Access Point, 9 Hole Disc Golf, Tennis Courts	No section 4(f) impact – no project activities within the vicinity of the park
Sioux Falls Bike Trail	Section 4(f) and Section 6(f)	Biking, Walking	No section 4(f) impact – trail will remain operational during construction
Lincoln High School	Section 4(f)	Tennis Courts, Athletic Field	No section 4(f) impact – impacted parking lot will not affect tennis court use or track/field use (per OWJ coordination)
Historic Railroad Grade	Section 4(f)	Historic Resource	0.48 acres (permanent acquisition) – no Section 4(f) impact (the portion of this site within the APE does not contribute to historic character of the site).

Impacts to Section 4(f) resources are shown in in Figure 3-16.

Figure 3-16: Section 4(f) and Section 6(f) Resources and Anticipated Impacts



3.15.3 Avoidance, Minimization, and/or Mitigation Measures

During the design of alternatives, all efforts were made to limit additional RW acquisition, especially for Section 4(f) and Section 6(f) resources. However, due to space constraints, the impacts discussed previously were unavoidable. During design, consideration was given to Section 4(f) resources so as not to impact more area than would be necessary.

Through coordination between SDDOT and The City of Sioux Falls Department of Parks and Recreation (Appendix I) the following measures to minimize and mitigate impacts were identified and will be incorporated into the plans as plan notes and as environmental commitments in the EA:

Spencer Park:

- Access to these areas of Spencer Park will be restricted for the duration of construction activities due to safety concerns and lack of a feasible and safe detour.
- Temporary construction fencing shall be installed along proposed construction limits prior to the start of construction activities to protect the existing 4(f) property and the public.
- Appropriate signage shall be installed to alert users of Spencer Park of construction activities, access restrictions or closures, and to direct users to secondary access points.
- The staging and/or storage of construction equipment or materials shall not take place outside proposed construction limits that are within the defined boundaries of the 4(f) property.
- The Contractor shall be required to closely coordinate the construction schedule with SDDOT and the City of Sioux Falls prior to the start of construction activities.

Tuthill Park:

- Access to these areas of Tuthill Park will be restricted for the duration of construction activities due to safety concerns and lack of a feasible and safe detour.
- Temporary construction fencing shall be installed along proposed construction limits prior to the start of construction activities to protect the existing 4(f) property and the public.
- Appropriate signage shall be installed to alert users of Tuthill Park to construction activities, access restrictions or closures, and to direct users to secondary access points.
- The staging and/or storage of construction equipment or materials shall not take place outside proposed construction limits that are within the defined boundaries of the 4(f) property.
- The Contractor shall be required to closely coordinate the construction schedule with SDDOT and the City of Sioux Falls prior to the start of construction activities.

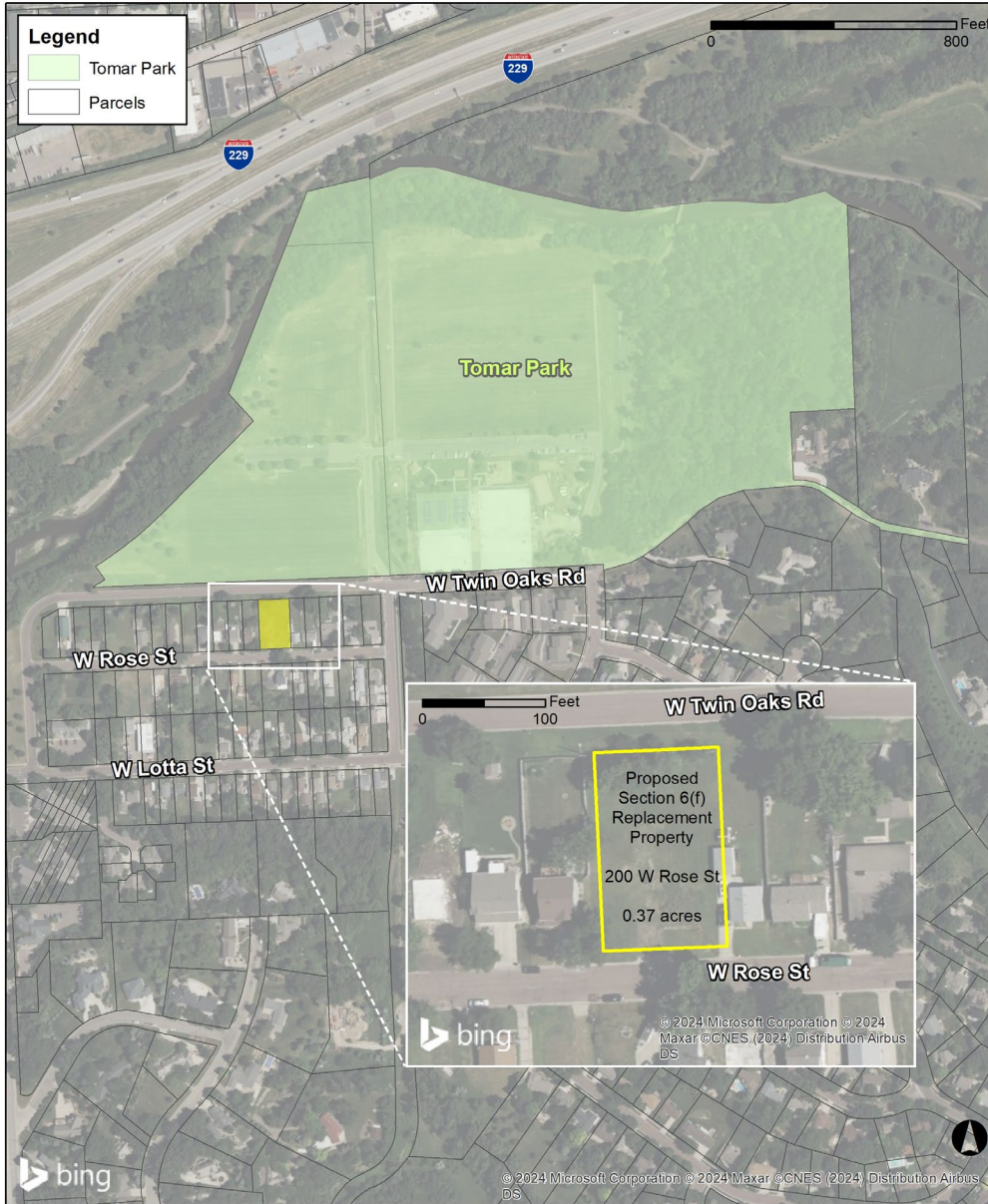
Sioux Falls Bike Trail:

- The Sioux Falls Bike Trail would remain open during construction of the project as to not affect the use of the property and not impact the resource.

Because there are permanent impacts to Section 6(f) resources which are unavoidable, replacement property is required as a mitigation measure, and NPS approval will be required. A proposed replacement property was identified at 200 W Rose Street (see figure 3-17). This property is currently adjacent to Tomar Park and would be converted to city park land as an addition to the park. The site formerly included a residence which has since been demolished on account of flood damage, and the site is now vacant. The site has already been purchased by the city as part of a flood relief buyout program and is located in the boundary of the master plan for Tomar Park

as part of a future expansion for the park. The proposed replacement would ultimately require the approval of the NPS. An application for the conversion is currently underway and an approved application will be required prior to the signing of the environmental decision document for this EA. This has been included as a project commitment in Section 5.0.

Figure 3-17: Proposed Section 6(f) Replacement Property



3.16 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).

3.16.1 Affected Environment

A Modified Phase I Environmental Site Assessment (ESA) was completed for this study in July 2019 (Appendix J 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 review was conducted congruently with and adjacent environmental study for I-229 Exit 4 (Cliff Avenue). The area reviewed includes property within a "buffer" around the projects' limits, as depicted on Figure 3-18. All parcels partially or wholly within the buffer were assessed during the Modified Phase I ESA. A total of 140 sites were identified within the buffer area, which required detailed review.

The SDDANR Spills, Leaks, and Tanks 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. SDDANR site locations were field verified when possible and locations were reassigned to the correct property parcel if necessary. A third-party database, GeoSearch, was also conducted for the buffer area as a supplemental information source. Additional databases such as the National Pipeline Mapping System (NPMS) Public Viewer were also reviewed.

Figure 3-18: Phase I Environmental Site Assessment Area and Recognized Environmental Concerns (REC's)

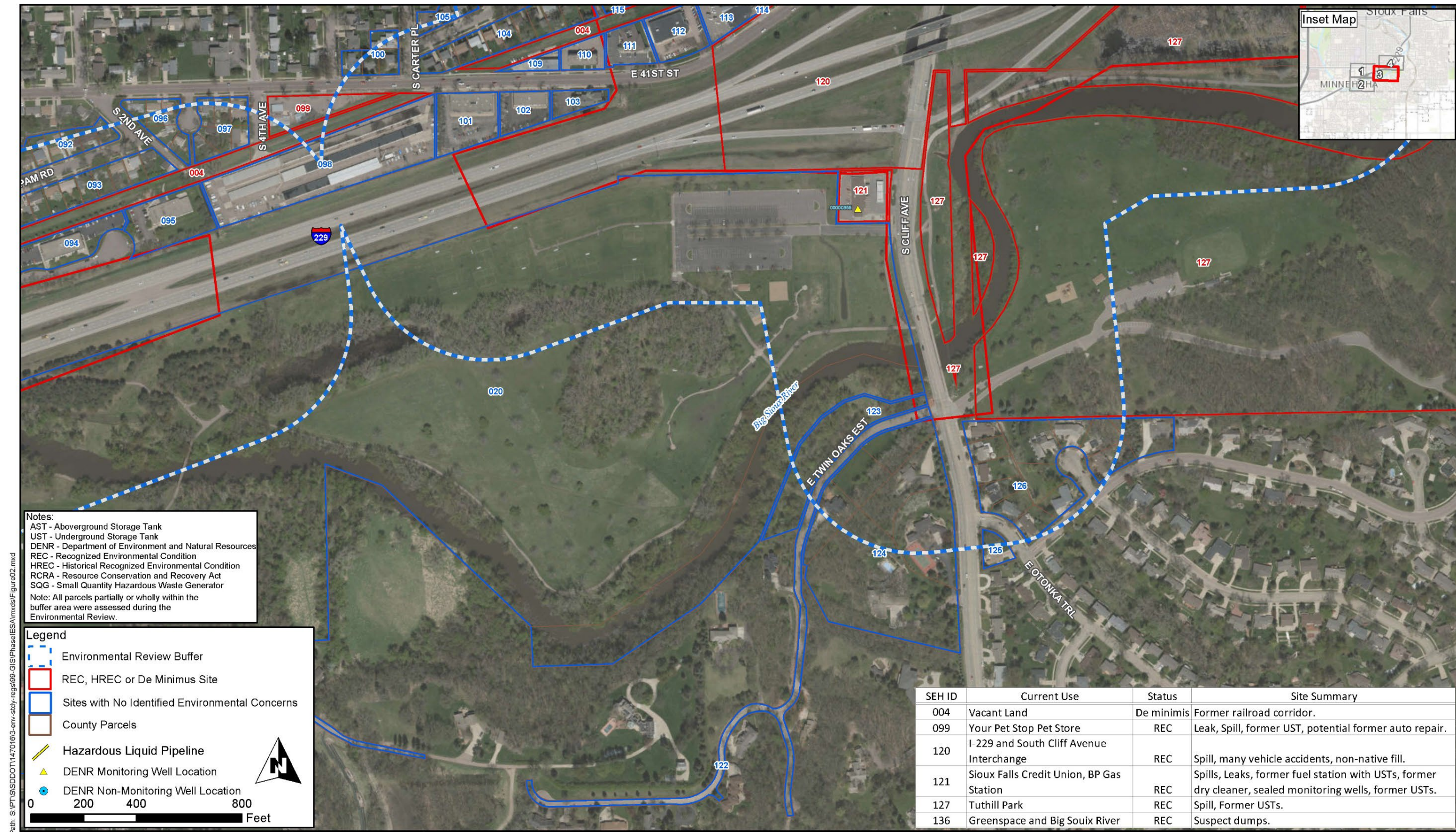


Figure 3-18 (Cont'd): Phase I Environmental Site Assessment Area and Recognized Environmental Concerns (REC's)

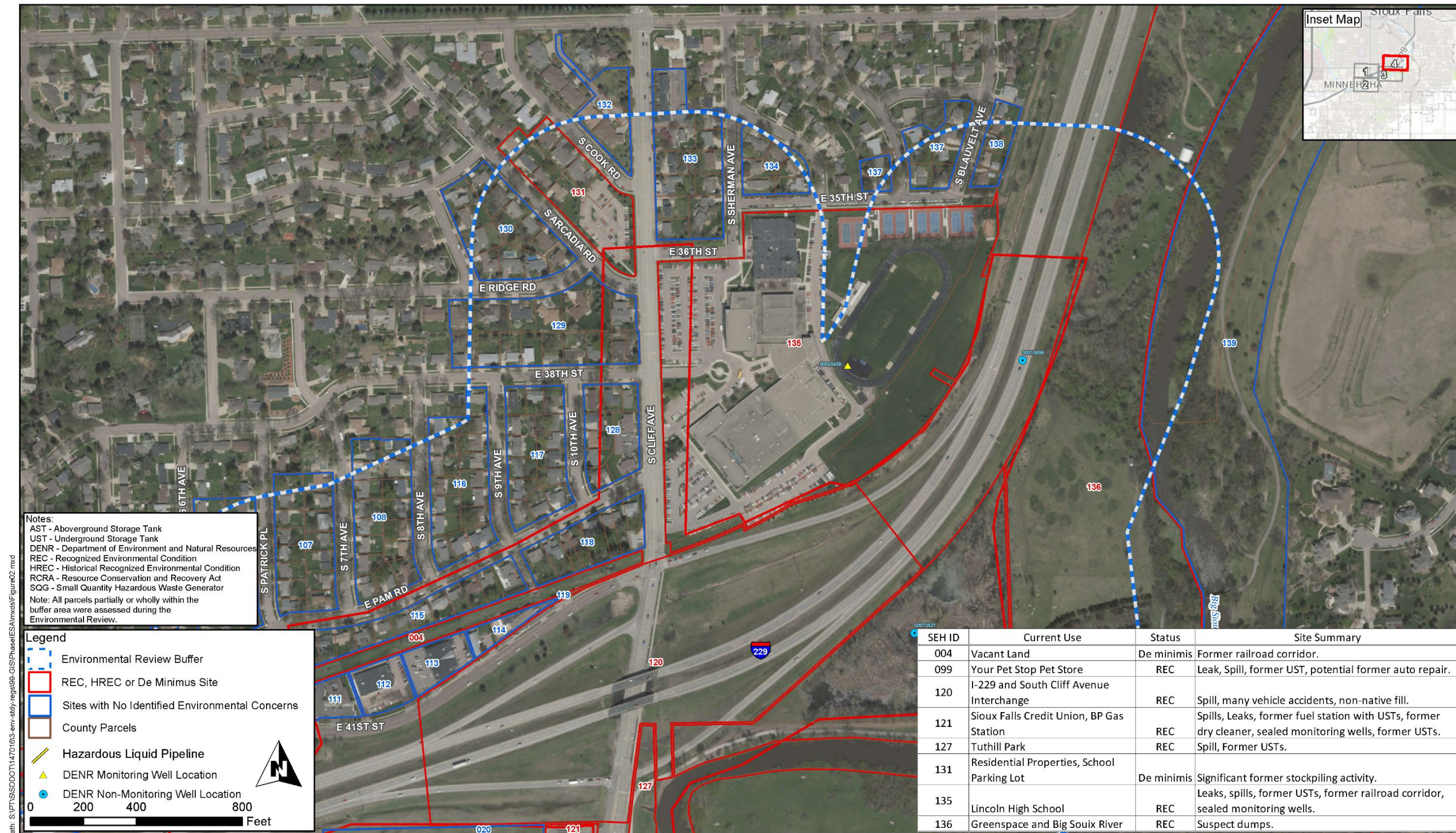


Table 3-13: Regulated Material Records Review Summary

Database Type	REC's Identified
Environmental Database Review	140 total database entries
Registered Tanks	36 tanks from 10 sites (8 current UST, 19 removed UST, 9 Removed AST)
Monitoring Wells	23 monitoring wells from 8 sites

Additionally, a field survey was completed for the study area. Properties in the review area were observed, as well as any structures located on the properties, for indications of RECs to the extent not obstructed by thick vegetation, bodies of water, stored materials or product, equipment, or other obstacles.

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 the following:

- 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.

- **Hazardous Liquid Pipelines**

Hazardous liquid pipelines were identified through the project corridor. The NPMS public online viewer (NPMS, 2019) 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 140 sites that required a detailed review for this study, 37 sites in the study area were identified as REC's for the purpose of this study. Six were identified as sites that may be affected by 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 December 2018 and June 2024 (Appendix C of this EA).

3.16.2 Impacts of Alternatives

No Build Alternative

The No Build Alternative would not involve any construction activities related to this project.

Build Alternative

Of the six sites identified as REC's that may be impacted by the project, only one of them is located within the proposed construction limits of the Build Alternative. This includes a portion of the abandoned rail corridor on the north side of I-229 that is currently used for stormwater storage. Final design would determine if disturbance to the site is anticipated.

3.16.3 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.

If it is determined in final design that disturbance to the rail corridor REC site is anticipated, Phase II Investigation work plan is recommended.

3.17 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 SDDOT 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.

3.17.1 Affected Environment

Natural Landscape Characteristics are limited and mostly consist of the Big Sioux River and the adjacent river margin trees and vegetation. The river channel and associated bottomland act as a vegetated backdrop to the I-229 interchange when viewed from the north and as a buffer when viewed from the south. Small scale post-disturbance wetland vegetative areas have developed from transportation-oriented projects over the last 40 years. They do not significantly enhance the visual appeal of the study area and portray a remnant or “unmaintained” aesthetic compared to a naturally occurring larger scale prairie wetland ‘potholes’. Exit 4 is straddled by the River Ridge Road Hill on the north side and the Tuthill Park hill on the south side of the study area.

Cultural Landscape Characteristics are the dominant feature of the Exit 4 study area. These include constructed infrastructure such as the interstate, interchange, roadways, residential, smaller scale commercial buildings and Lincoln High School. The existing transportation facilities such as the interchange and associated streetscape have a very functional pragmatic aesthetic and do not have significant visual interest.

3.17.2 Impact of Alternatives

No Build Alternative

Because the No-Build Alternative would not involve any project improvements, it wouldn’t directly alter the existing visual impacts and aesthetics of the study area. If improvements do not occur, recurring traffic congestion because of increased vehicle queuing and longer intersection wait times will create negative visual impacts.

Build Alternative

Because traffic already occurs, the proposed Build Alternative will likely not cause permanent visual impacts on the study area. The removal of the eight residential and three commercial properties do not have any architectural significance. The realignment of the 41st Street intersection in conjunction with the removal of the residences create a possibility to construct a new landscape gateway into the Lincoln neighborhood. Proposed interchange improvements also offer new opportunities for the implementation of landscape areas that will visually mitigate the proposed reconfiguration of traffic lanes while travelling through the study area. The Build alternative does not significantly impact the existing vegetation of the adjacent river margin trees and area.

The Big Sioux River corridor’s natural setting offers an excellent viewshed for an enhanced aesthetic of streetscape, landscape and structure development that can mitigate any potential negative visual impacts. Aesthetic development of Exit 4 should consider other existing exits within the I-229 river corridor to promote a unifying and combined southern Sioux Falls aesthetic. Alteration of the visual environment would be moderate during construction but minor when completed if context sensitive solutions are implemented.

The City of Sioux Falls has recognized that the removal of homes and businesses in the northwest quadrant of I-229 Exit 4 for flood mitigation has resulted in new views to and from the planned roadway-related infrastructure. The City has offered to increase vegetative screening in cooperation with property owners as a preventative measure to avoid any potential future concerns. New landscaping would be installed on areas of property

purchased through the buyout program that are not planned for use as compensatory floodplain impact storage or other project-related infrastructure.

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. The scoping questionnaire was completed for the build alternative, which ultimately received a score of 9. As a result, a VIA was not deemed necessary for this EA. The scoring breakdown for this alternative by question number on the scoping questionnaire, , along with answers to the questionnaires, are shown below.

Summary Environmental Compatibility Questions

- 1) Low level of permanent/temporary change in physical environment characteristics (1 pt.)
The project would reconstruct the existing roadways and interchange in locations where they already exist, resulting in minimal change to the visual environment.
- 2) High compatibility with the Visual character desired by the community (1 pt.)
The proposed conditions would be similar to existing visual characteristics of the area, which are consistent with the context of the surrounding developed area.
- 3) No local concern for project features (0 pts.)
No community concerns were raised regarding the visual characteristics of the project.
- 4) No extensive strategies/measures would be required for mitigating visual impacts (0 pts.)
It is expected that if visual mitigation is determined warranted, conventional means of mitigation in the form of landscaping or architectural treatments would be adequate.
- 5) No collective/aggregate adverse visual change (cumulative impacts unlikely) (1 pt.)
The project exists within a fully developed area where no substantial development changes are planned.

Viewer Sensitivity Questions

- 1) No potential for project controversy within the community (0 pts.)
No controversy was identified for the project regarding visual impacts. Due to the consistency in visual character between the proposed project and existing conditions, no future controversy is anticipated.
- 2) Low potential for viewer sensitivity (1 pt.)
Viewer Sensitivity is anticipated to be low. The project would not introduce visual elements which are drastically difference from existing conditions.
- 3) High project compatibility with applicable aesthetic laws/ordinances (1 pt.)
The Project's aesthetic approach is highly compatible, as the project has been studied and planned for over 10 years. This has allowed for the incorporation of the project into local land use plans, transportation plans, and capital plans.
- 4) Permits would be required by outside regulatory agencies (3 pts.)
No permits would be required which would necessitate a particular level of Visual Impact Assessment.
- 5) No additional benefit for project sponsor/public would be anticipated from VIA (1 pt.)
No, a more detail visual analysis would not be anticipated.

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. No negative impacts to aesthetics would be anticipated.

3.17.3 Avoidance, Minimization, and/or Mitigation Measures

The project involves the reconstruction of roadway infrastructure which would be consistent with existing conditions. While no visual impacts were identified for the project, minor disturbances could occur to vegetated areas from construction. Conventional replacement/repair methods would be suitable for mitigating long-term impacts. During final design, the City's complete streets checklist process will be utilized by the designer to ensure vegetative screening elements are included in the project, and the City will provide approval/signature. This has been included as a project commitment.

3.18 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.

3.18.1 Affected Environment

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

3.18.1.1 Past Actions

Since the settlement of the Sioux Falls area native prairie in the study area has been converted to developed area and parkland. Commercial and residential development has occurred along I-229 and surrounding local roadways. Paved local roadways serve this development. Parkland, which includes a mix of preserved natural area, hardscape and park structures, and mowed lawn and athletic field space, comprises much of the area immediately south of I-229 in the study area. 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. Interstate I-229 runs through the study area, with exits on several local roads and a system interchange near the 69th Street Corridor.

3.18.1.2 Present Actions

The area surrounding the I-229 Exit 4 interchange is fully developed. No present construction projects within the study area have been identified.

3.18.1.3 Reasonably Foreseeable Future Actions

The I-229 Exit 4/Cliff Ave study is one of several transportation projects/studies taking place within the southern portion of the Sioux Falls Metropolitan Area. Projects in the vicinity of this study area which are included in the SDDOT 2024-2027 STIP, Sioux Falls MPO 2024-2027 TIP, City of Sioux Falls 2024-2028 Capital Improvement Program (meaning they are fiscally constrained) are listed below and shown in Figures 3-19 and 3-20.¹

City of Sioux Falls CIP Project List by CIP number (Exit 4):

- **7 (CIP #11003)** - Reconstruction and widening of various arterial and major collector streets, phased construction: Minnesota Ave from 2nd St to 18th St; 33rd St from Grange Ave to Cliff Ave; 41st St from Shirley Ave to Minnesota Ave; Minnesota Ave from 40th St to I-229; Rice St from Cliff Ave to Cleveland Ave; Career Avenue, and other various streets.
- **11 (CIP #11086)** - Design and construct/reconstruct various bridges; Marion Road and BNSF Overpass, design; 49th Street and Big Sioux River Bridge
- **24 (CIP #11100)** - Coordination with SDDOT on the reconstruction and expansion of Cliff Avenue from 38th Street to Big Sioux River to six lanes with a median.

Sioux Falls MPO TIP Project List by TIP number (Exit 4):

- **07CY** – I-229 for Cliff Ave, Modify Crossovers, Temporary Structure.
- **05HN** – I-229 Exit 4 (Cliff Ave) in Sioux Falls
- **11100** – Cliff Ave from 38th St to Big Sioux River

Of the above projects, Sioux Falls CIP projects 7 and 11 are not related to this project. CIP Project 7 (#11003) includes street reconstruction and widening, most notably on 33rd Street from Grange Avenue to Cliff Avenue. This project abuts the NEPA study area for the Exit 4 project. However, proposed 33rd Street Improvements do not coincide with planned improvements on Cliff Avenue. 33rd Street improvements constitute an independent project that addresses needs on 33rd Street outside of the Exit 4 NEPA study area, and will have its own environmental analysis. CIP Project #11086 refers to bridge replacement projects throughout the city. The representation of a bridge project over the Big Sioux River on Cliff Ave (shown on the CIP map) is not included in

¹ Hyperlinks to these plans are included in the references section at the end of this environmental assessment.

the CIP project description was confirmed to be a mistake on the map by the City. A bridge project may occur here in the future, but the build alternative was designed to utilize the existing bridge and does not necessitate bridge improvements. Any potential bridge reconstruction at this location could be completed as an independent action.

The other four projects relate to the build alternative or related projects included in the project's independent utility, and have been included in project impact analysis for this EA.

Other reasonably foreseeable projects include the planned bike/ped underpass under I-229. These improvements have been included as part of the project's independent utility and included project impact analysis for this EA.

The area surrounding the I-229 Exit 4 interchange is fully developed. While infill development/redevelopment may occur within the study area in the future, no plans for new development have been identified.

Figure 3-19: Fiscally-Constrained Transportation Projects – City of Sioux Falls 2024-2028 CIP

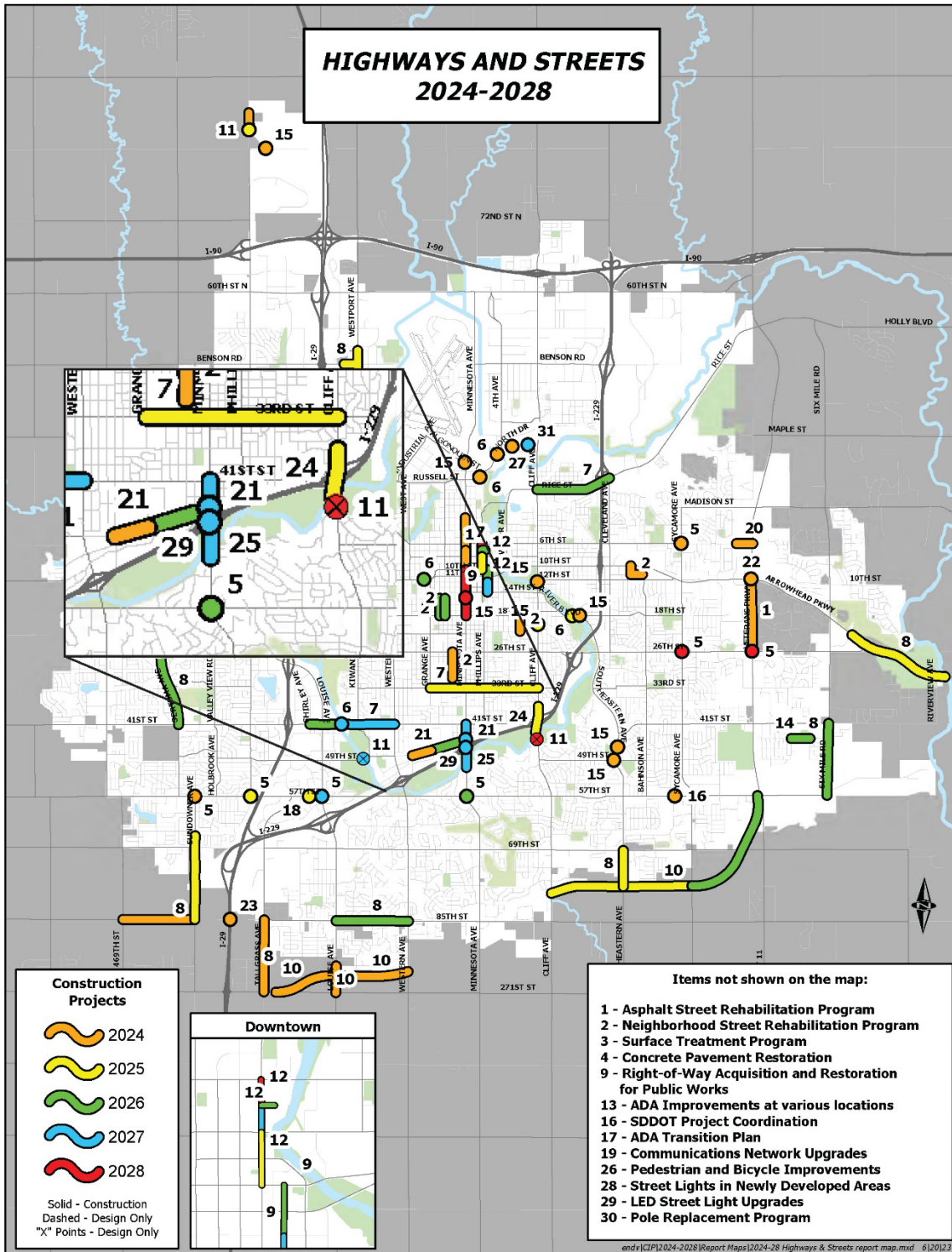
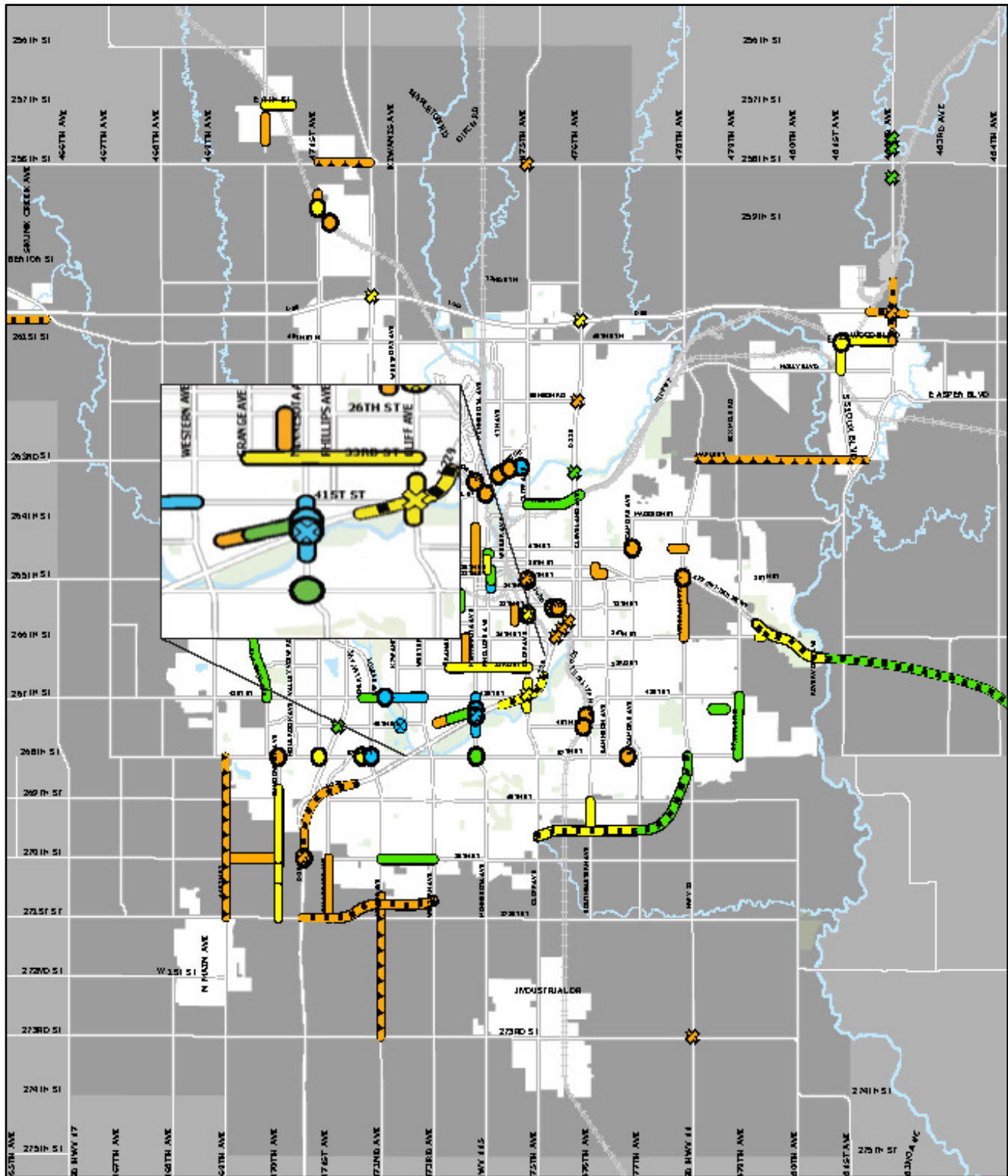


Figure 3-20: Fiscally-Constrained Transportation Projects – Sioux Falls MPO 2024-2027 TIP



Source: Sioux Falls MPO Transportation Improvement Program 2024-2027

3.18.2 Land Use Impacts

Development southwestern Sioux Falls Metropolitan Area is expected to expand over the project planning period, both in area and density, due to anticipated development. While constructing the Build Alternative would maintain safe and efficient access to potential new development at a regional level, new development is not anticipated as a result of this alternative. The study area is already fully developed urban area. Direct impacts of the Build alternative are minor and are not anticipated to be a substantial cumulative contributor to the conversion of land use in the study area and surrounding areas.

3.18.3 Traffic Operations and Safety

As discussed previously, numerous transportation projects have been identified which are planned for construction by the project design year. Individually, these projects would do little to improve overall regional traffic operations. The IMJR 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.

There are no pressing safety concerns on the transportation network within the study area. However, with increased traffic volumes in the future could contribute to less safe conditions. The Build Alternative would maintain safety and operations within the study area, providing many direct benefits, but moving increased levels of traffic efficiently to other areas of the local transportation network can contribute to safety concerns elsewhere. This is one reason that it is important to consider surrounding planned transportation projects when planning a new transportation project. The IMJR for this study considered planned transportation project during the development of alternatives, a practice that will also be observed for future transportation projects in the City of Sioux Falls and surrounding areas. This helps to ensure safety not only within the immediate study area but contributes to a cumulative safety benefit regionally.

3.18.4 Noise

Noise levels increase as traffic volumes or travel speeds increase. The Build Alternative is anticipated to increase noise levels in the study area. New development and redevelopment can also contribute to increased noise levels. The Build alternative, in conjunction with surrounding transportation projects and other non-transportation development, should they arise, could contribute to a larger cumulative increase in noise levels.

3.18.5 Natural and Environmental Resources

Due to the developed nature of the study area, cumulative impacts to environmental and natural resources are limited. Future development in the area would be limited to infill and redevelopment of already developed areas. Future transportation improvements may require expansions of right of way, which could impact vegetated urban areas. The result could include impacts to habitat and wetlands. These impacts would likely be insignificant and largely mitigatable.

Future transportation projects could also result in increased amounts of impervious surfaces, which could impact water quality and WOTUS. This would cause a cumulative increase to stormwater runoff intensity that would need to be managed by drainage improvements. This could lead to more runoff impacts to water bodies. 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 WOTUS would be further limited by permit and mitigation requirements. Most of the impacts would be short-term, primarily during construction.

For the Project and other present and reasonably foreseeable projects which would require work within the Floodplain, a Floodplain Development Permit would be required. Because of these permit requirements, a minor, adverse effect on floodplain in the Project Area would be anticipated.

4.0 Preferred Alternative

4.1 Preferred Alternative Selection Criteria

As discussed previously 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 2.3.5, 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 No Build 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 No Build 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	No Build Alternative	Build Alternative
Land Use	<ul style="list-style-type: none"> The study area is fully developed, no direct land use changes would result from this alternative. This alternative is consistent with planned land uses, as minimal change is anticipated. However, the ability of the transportation system to serve these land uses would diminish as mobility and safety decrease under anticipated conditions. The No Build Alternative will not support surrounding land uses in the future. 	<ul style="list-style-type: none"> Approximately 4.2 acres of new ROW converted from its existing use to transportation use: <ul style="list-style-type: none"> 1.9 residential acres. 0.7 commercial acres. 1.5 vacant/undeveloped/transportation acres. 0.1 parks/recreational acres Additional TLE during construction, with no long-term impact. Approximately 0.37 acres of vacant land would be converted to parkland as a mitigation measure for impacts to Section 6(f) resources.
Acquisitions, Relocations, and Access	<ul style="list-style-type: none"> No structures would need to be acquired or relocated. 	<ul style="list-style-type: none"> The Build Alternative would result in the acquisition of three businesses and seven residential properties. Acquisitions have already occurred as part of a City flood mitigation buyout program. Coordination with property owners has taken place, and the relocation of these businesses is not anticipated to be a substantial burden. 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. While this may result in temporary construction impacts, no long-term impacts are anticipated.
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 with this alternative. These utilities could include cable, phone, fiber optic, and water lines. Relocations of utilities represent a temporary 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"> This alternative would result in traffic congestion in the future. Over time, this congestion may diminish the desirability of the Project Area as a commercial, industrial, or residential destination. This could result in an adverse economic effect for infill and redevelopment. 	<ul style="list-style-type: none"> Relocations would mitigate long term impacts to businesses. Short term construction impacts would occur for business but would be temporary.
Considerations Relating to Pedestrians and Bicyclists	<ul style="list-style-type: none"> No sidewalk or bike lane improvements would be added along Cliff Avenue. The project would not address public concerns identified by the public or be consistent with local plans. 	<ul style="list-style-type: none"> The Build Alternative includes the construction of new sidewalks, a new section of trail, and a grade separated crossing of I-229. New facilities would be designed and constructed to meet ADA accessibility standards. These facilities would provide a long-term benefit to the bicycle and pedestrian network in the study area. Proposed improvements would be consistent with planned city projects, providing improvements along Cliff Avenue and an underpass of I-229, which could be compatible with future surrounding long-range projects that may connect to the study area. Improvements would also address public safety concerns by providing a grade-separated crossing of I-229, including crosswalks and pedestrian signals at all cliff avenue intersections near the school, and providing a safe connection between the existing Sioux Falls Bike Trail and Lincoln High School/Sioux Falls.
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 54 of 108 modeled receptor locations. None of these exceedances are from a substantial increase in traffic noise resulting from the Build Alternative. No noise barriers would not be recommended with this alternative (none were determined to be feasible and reasonable).
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 used during construction would be developed prior to construction.
Floodplain	<ul style="list-style-type: none"> No floodplain impacts would occur with this alternative. 	<ul style="list-style-type: none"> Fill below the 100-year floodplain would be required. Compensatory storage requirements would be met to ensure no net impacts to the floodplain are created.

Wetlands and other Waters of the United States	<ul style="list-style-type: none"> No wetland impacts would occur with this alternative. 	<ul style="list-style-type: none"> Approximately 2.68 acres of wetlands impacted, including 0.31 acres of jurisdictional wetlands and 2.37 acres of non-jurisdictional wetlands. Non-jurisdictional wetlands mitigated under EO11990 and FHWA regulation 23 CFR 777.9. No net loss of wetlands. Any permanent impacts to jurisdictional wetlands would require a Section 404 Permit.
Vegetation, Fish, and Wildlife	<ul style="list-style-type: none"> No impacts to vegetation, fish, or wildlife would occur with this alternative. 	<ul style="list-style-type: none"> Some loss of habitat would occur (mowed lawn/ROW, vacant land, wetlands). Conversion of poor-quality habitat (lawns and cropland) to road ROW, which is considered to be poor quality habitat, and is plentiful in areas surrounding the study area. 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"> No impacts to threatened or endangered species would occur with this alternative. 	<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 May Affect, Not Likely to Adversely Effect. No impact on state listed species with the implementation of protection measures during construction.
Cultural (Historic and Archaeological) Resources	<ul style="list-style-type: none"> No impact to cultural resources. 	<ul style="list-style-type: none"> A determination of No Adverse Effect was made for the Build Alternative, assuming no impacts would occur to the environmentally sensitive site. No impacts are anticipated.
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"> The temporary construction easements needed for 0.89 acres of Tuthill Park and 0.29 acres of Spencer Park, and permanent acquisition of 0.18 acres of Tuthill Park and 0.07 acres of Spencer Park for right of way use in the proposed I-229 Exit 4 interchange reconstruction work area is anticipated to represent a de minimis Section 4(f) impact, pending public comment and agency approval. The 0.48 acres required from the historic rail grade would not constitute a Section 4(f) use. The impacts to Spencer Park and Tomar Park represent an impact to Section 6(f) resources requiring mitigation. Replacement property has been identified (200 W Rose St) which is proposed as an addition to Tomar Park. Approval from NPS would be required prior to the environmental decision document.
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 are anticipated to be disturbed by construction. If it is determined in final design that regulated materials could be disturbed, a Phase II work plan is recommended.
Visual Impacts and Aesthetics	<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. 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. No long-term negative impacts to aesthetics would be anticipated.
Indirect and Cumulative Impacts	<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 not likely alter land use in the surrounding developed area. Cumulative benefits to traffic operations and safety are anticipated with this alternative. Potential cumulative impact to noise levels, not anticipated to be significant. 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. • City of Sioux Falls Complete Streets Policy – incorporates bike and pedestrian infrastructure with new transportation project. • City of Sioux Falls 2023 Bike Plan – supports multimodal facilities and proposed improvements in the study area. • Sioux Falls 2024-2028 Capital Program – financial support for the project. • Sioux Falls MPO 2024-2027 Transportation Improvement Program – financial support for the project.
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4.2 Comparison of Selection Criteria

The No Build 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 improve LOS to acceptable levels and would not address any geometric deficiencies.

The Build Alternative meets all criteria established in the purpose and need. Wetlands would be converted with the Build Alternative, but these impacts would be fully mitigated, resulting in no net loss of functional wetland area. Two business relocations would be required with the Build Alternative. Coordination with business owners has taken place to ensure fair compensation, and the relocation of these businesses is not anticipated to be a substantial burden.

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 benefits over the No Build 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 anticipated to be insignificant.

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. It had the fewest anticipated crashes compared to other build alternatives.
- **Project Goal of Nonmotorized Connectivity:** The Build Alternative includes sidewalks and trail improvements, including improved crossing at I-229. This 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 Procedure 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 an approved wetland mitigation bank by Sioux Falls and SDDOT prior to letting the contract. Temporary impacts will not be mitigated as original grades would be re-established

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

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

Prior to the completion of the environmental decision document, SDDOT would coordinate with USFWS to confirm the effect determinations remain valid. Prior to construction, field verification for the habitat survey would be conducted by SDDOT to ensure that it remains valid within the 24-month required window prior to construction. These are included as environmental commitments for the project.

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. Tree removal activities conducted by Sioux Falls and SDDOT 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

Migratory birds are known to use the project area for nesting, which primarily occurs from April 1 to July 15. Contractor is responsible for conducting migratory bird surveys in the designated nesting areas that have not been mowed or cleared prior to April 1st. SDDOT will coordinate with the USFWS to determine appropriate offsetting measures for impacts to migratory birds if impacts are identified.

Commitment C: Water Source

Before work begins that requires water for construction of any project, 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 efforts will be adhered to for all projects, 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 <http://denr.sd.gov/des/sw/stormwater.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. 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.
7. This project is in the vicinity of the Big Sioux River. This waterbody is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Streams for the following beneficial uses:
 - (5) Warmwater semipermanent fish life propagation waters;
 - (7) Immersion recreation waters;
 - (8) Limited contact recreation waters;
 - (9) Fish and wildlife propagation, recreation, and stock watering waters; and
 - (10) Irrigation waters.

Because of these beneficial uses, special construction measures may have to be taken to ensure that the 30-day average total suspended solids criterion of 90 mg/L is not violated.

Commitment D2: Surface Water Discharge

If construction dewatering is required for any project, 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 all projects. 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.

Commitment F: Seasonal Work Restrictions

Commitment F1: Trout Perch (SDGFP Recommendations)

1. Disturbance to riparian and wetland areas should be kept to an absolute minimum.
2. If riparian vegetation is lost it should be quantified and replaced on site. Seeding of indigenous species should be accomplished immediately after construction to reduce sediment and erosion.
3. A site-specific sediment and erosion control plan should be part of the project.
4. A post construction erosion control plan should be implemented in order to provide interim control prior to re-establishing permanent vegetative cover on the disturbed site.
5. Stream bottoms impacted by construction activities should be restored to pre-project elevations.
6. In stream work should not be conducted during fish spawning periods. Most spawning occurs during April, May and June.

Commitment G: Dewatering and Sediment Collection

The Sioux Falls and SDDOT projects 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 Stormwater Pollution Prevention Plan (SWPPP) 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 Sioux Falls and SDDOT projects . 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

Sioux Falls and the 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 December 27, 2018 will be adhered to for all projects:

- 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.

Commitment M: Section 4(f)/6(f) Resources

Commitment M1: Section 4(f) Property

Property(ies) must be listed in the plan note by station and include required measures for the Contractor to comply with Section 4(f). The Project Engineer will contact the EO if changes to an easement adjacent to the 4(f) property occurs, before proceeding with any plans that may affect Section 4(f) property.

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 for any project, 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: Land Use

After the approval of the environmental document, before construction, SDDOT will inform The City of Sioux Falls and Sioux Falls MPO of the availability of the environmental document, and proposed project action.

Commitment T2: Acquisitions, Relocations, Access

All 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.

Commitment T3: 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 T4: 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.

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.

To minimize air quality impacts during construction, the following Best Management Practices (BMPs) 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.

Commitment T5: Noise

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., Categorical Exclusion (CE), Finding of No Significant Impact (FONSI) or Record of Decision (ROD).

Commitment T6: Work within Floodplain

During final design of the SDDOT and Sioux Falls projects, a Floodplain Development Permit would be acquired.

Commitment T7: Emerald Ash Borer Management

The City of Sioux Falls is taking a proactive approach to manage Emerald Ash Borers in Minnehaha County. 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.

Commitment T8: Regulated Materials

If it is determined in final design that disturbance to the rail corridor REC site is anticipated, Phase II Investigation work plan is recommended.

Commitment T9: Complete Streets Checklist for Bicycle and Pedestrian Improvements

The designer will utilize the City of Sioux Falls Checklist process to ensure the inclusion of nonmotorized transportation elements and vegetative screening and will obtain approval/signature from the City.

Commitment T10: Designated Option Borrow Site

If material is sourced from the designated option borrow site, and the contractor discovers, finds, locates, or becomes aware of any cultural or historical site or other unanticipated environmental effect, the Contractor will immediately suspend operations at the site or sites and will immediately notify the Engineer. The Engineer will contact the Department's Environmental Engineer to determine an appropriate course of action.

Commitment T11: Section 6(f) conversion of use approval

The designer and SDDOT will complete a Section 6(f) conversion application which will be approved by NPS prior to the approval of the environmental decision document.

Commitment T12: Visual Impacts

The designer will incorporate vegetative screening for properties in the northwest quadrant of the proposed interchange where it would minimize the visual impact to properties resulting from the proposed structure demolitions at this location. The designer will utilize the City of Sioux Falls Complete Streets Checklist process to ensure the inclusion of vegetative screening and will obtain approval/signature from the City.

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 Agriculture and Natural Resources
- South Dakota Game, Fish and Parks
- U.S. Fish and Wildlife Services – South Dakota Field Office
- Natural Resources Conservation Service
- U.S. Army Corps of Engineers
- South Dakota State Historic Preservation Office

The consultation letters sent to each agency and the agency responses are provided in Appendix C and summarized in Table 6-1.

Table 6-1: Agency Coordination Summary and Status

Government Agency	Type of Approval or Permit	Status
Federal		
Federal Highway Administration	EA Approval	Pending
	EIS Need Decision	Pending
U.S Army Corps of Engineers	Jurisdictional Determination	Received
	Section 404 Permit	Will be coordinated after the environmental decision document
USFWS	Concurrence with No Effect and May Affect, not Likely to Adversely Affect Determinations	IPAC up to date, preliminary effects determination sent to USFWS, concurrence with effect determinations received. Concurrence for Section 6(f) replacement property required prior to NPS approval.
U.S. National Park Service	Section 6(f) application approval	Application and Appraisal in progress. Accepted application will be required for the environmental decision document.
State		
SD Department of Transportation	EA Approval	Pending
SD Department of Agriculture and Natural Resources (formerly 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
	Section 6(f)	Coordination ongoing through NPS application process
State Historic Preservation Office	Concurrence with No Adverse Effect	Received
Local		
Sioux Falls MPO	EA Approval	Pending
City of Sioux Falls Public Works	Floodplain Development Permit	Pending
City of Sioux Falls Parks Department	Section 4(f) concurrence/Proposed <i>de minimis</i> finding	Approval required after public comment period.

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

Consultation letters were sent to each tribe on December 11, 2018 (Appendix C). The Yankton Sioux Tribe sent a response requesting any information on cultural resources found within the study area. No resources were identified during the Cultural Resource Investigation.

An updated coordination letter for the project, including the borrow site and Section 6(f) replacement property, was sent to the tribes on June 23, 2024. No additional responses were 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. Stakeholder 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.
- Public Meeting /Virtual Open House #2 November 6 – December 5, 2020 - Due to the COVID 19 pandemic, an online public meeting and virtual open house were held without in-person contact. The online meeting was held concurrently for I-229 Exit 3 and I-229 Exit 4, as both interchanges are adjacent to one another and planned for reconstruction. Three individual speaker presentations were recorded for the public's information on recommended improvements, the Interchange Modification Justification Report (IMJR) summary, and Environmental Scan Report (ESR) and posted online for a period of 30 days. A total of 933 unique website visitors were recorded during this period, the majority of which accessed the project website directly for project update information. Online comment forms were provided next to each pre-recorded presentation in the Virtual Open House. Comments were received on the three video recordings and were also received via telephone and email.

These meetings were held in the ESR phase to gather public and agency input early in the process related to the project, its alternatives, and its purpose and need to inform the NEPA process. A final public meeting will be held to allow additional opportunity for public comment and complete the EA and Section 4(f) processes.

A project website was established for the project which served as a tool for the public to access project information and view public meeting materials. The website was utilized throughout the ESR and NEPA process. The website can be accessed with the following link: <https://www.i229exits3and4.com>.

6.3.2 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
- 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 a Finding of No Significant Impacts (FONSI) is determined, this will be posted on the SDDOT website.

An additional public information meeting will be held to present the findings of the EA and meet Section 4(f) requirements. If it is found that project does not result in significant impacts, a Finding of No Significant Impacts (FONSI) would 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 Finding of No Significant Impacts (FONSI) is determined, this will be posted on the SDDOT website. If not, the agencies would consider whether the project will be pursued under an Environmental Impact Statement.

References

- ¹ South Dakota Department of Transportation 2024-2027 Statewide Transportation Improvement Program, Accessed September 2023
<https://dot.sd.gov/projects-studies/planning/stip>
- ² City of Sioux Falls 2024-2028 Capital Program, Accessed June, 2024
<https://www.siouxfalls.org/finance/capital-programs>
- ³ City of Sioux Falls 2023 Bicycle Plan, Accessed October 2023
<https://www.siouxfalls.org/planning-dev/planning/transportation-planning/highlights/bicycle-planning>
- ⁴ 2015 Status of the Nation's Highways, Bridges, and Transit: Conditions & Performance, Chapter 10, Sensitivity Analysis
<https://siouxfallsmpo.org/Document%20Center/Resources/MPO%20Major%20Planning%20Documents/LRTP/2045%20LRTP%20Final.pdf>
- ⁵ Sioux Falls MPO 2045 Long-range Transportation Plan, Accessed January 2022
<https://siouxfallsmpo.org/Document%20Center/Resources/MPO%20Major%20Planning%20Documents/LRTP/2045%20LRTP%20Final.pdf>
- ⁶ United States Census Bureau, Accessed November 2019
<https://data.census.gov>
- ⁷ South Dakota Department of Revenue
<https://sddor.seamlessgov.com/publications-annual-reports>
- ⁸ City of Sioux Falls Planning Department, Complete Streets, Accessed November 2020
<https://www.siouxfalls.org/planning-dev/planning/complete-streets>
- ⁹ United States Environmental Protection Agency, Trends Report (Map Viewer), 2019
https://gispub.epa.gov/air/trendsreport/2019/#nonattainment_areas
- ¹⁰ City of Sioux Falls Public Works Department, Accessed November 2020
<https://www.siouxfalls.org/public-works/storm-drainage>