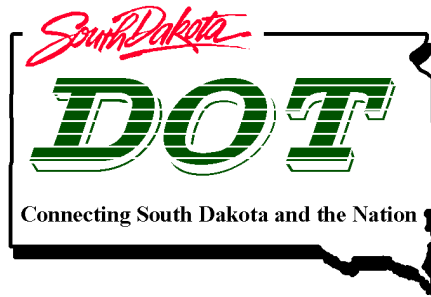


## Appendix B – Environmental Screening Report

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# **ENVIRONMENTAL SCAN REPORT**

## **Interchange and Environmental Study I-229 Exit 4 (Cliff Avenue)**

FOR  
THE SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

IN CONJUNCTION WITH

THE FEDERAL HIGHWAY ADMINISTRATION

April 23, 2021

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## List of Acronyms

ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
APE	Area of Potential Effects
ARC	Archaeological Research Center
ARSD	Administrative Rules of South Dakota
AST	Aboveground Storage Tank
BCC	Birds of Conservation Concern
CE	Categorical Exclusion
CFR	Code of Federal Regulations
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
ESA	Environmental Site Assessment
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FSR	Federal Sufficiency Rating
IMJR	Interchange Modification Justification Report
IPaC	Information for Planning and Consultation
LEDPA	Least Environmentally Damaging Practicable Alternative
LOS	Level of Service
LWCF	Land and Water Conservation Fund Act
MBTA	Migratory Bird Treaty Act
MEV	Million Entering Vehicles
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NPS	National Park Service
NRHP	National Register of Historic Places
PCI	Pavement Condition Index
PROWAG	Public Rights-of-Way Accessibility Guidelines
REC	Recognized Environmental Condition
R/W	Right of Way
SAT	Study Advisory Team
SDDA	South Dakota Department of Agriculture
SDDENR	South Dakota Department of Environment and Natural Resources
SDDOT	South Dakota Department of Transportation
SDGFP	South Dakota Department of Game, Fish, and Parks
SHPO	State Historic Preservation Officer
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USACE	U.S. Army Corps of Engineers

## List of Acronyms (cont'd)

USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank

## **I. Introduction**

The South Dakota Department of Transportation (SDDOT), in partnership with the City of Sioux Falls, the Sioux Falls Metropolitan Planning Organization (MPO), and the Federal Highway Administration (FHWA), is completing an interchange and 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 of the recently completed I-229 Major Investment Corridor Study to determine the interchange modifications at each exit that will best accommodate current and future travel levels, with a goal of construction of Exit 4 in 2025.

The primary objective of the environmental scan report is to provide a planning-level overview of resources and determine potential constraints and opportunities for the I-229 Exit 4 Interchange and Environmental Study. The scan is not a detailed environmental investigation. If improvement concepts are forwarded from this study into project development, an analysis for compliance with the National Environmental Policy Act (NEPA) will be completed as part of the SDDOT project development process. Information provided in the environmental scan report may be forwarded into the NEPA process at that time.

### ***Study Location/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, approximately seven miles south of the I-229/I-90 systems interchange (see Figure 1). 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 (26<sup>th</sup> Street) to the east. These were chosen because they nearest service interchanges in both directions along I-229. The City of Sioux Falls' Cliff Avenue study limits include 33<sup>rd</sup> Street to the north and 49<sup>th</sup> 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.

### ***Independent Utility***

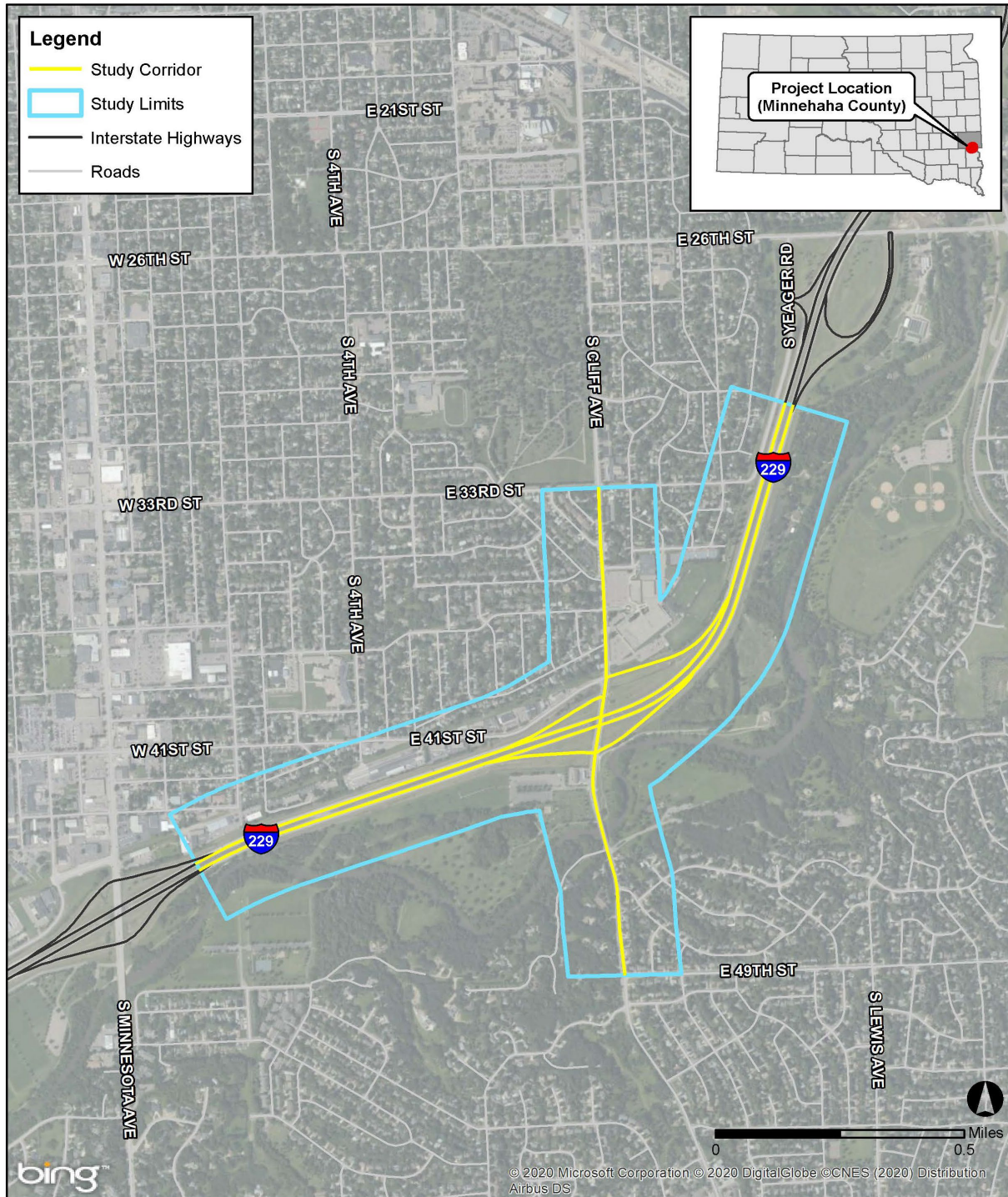
Federal regulations require that a project have independent utility. Independent utility is defined as having independent significance (i.e. it should be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made 23 C.F.R. § 771.111(f)(2)). This means 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 two 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.

This project meets independent utility requirement because it can stand alone without the construction of other projects. The project seeks to address major transportation needs between

major intersections without the need for further improvements on the surrounding transportation network. The proposed project is not an irrevocable commitment of federal funds because the project can stand alone and does not irrevocably commit federal funds to other projects.

**Figure 1 – Study Location**



	401 East 8th Street Suite 309 Sioux Falls, SD 57103 (605) 330-7000	Print Date: 5/13/2020 Source: Bing Maps, Map by: mfaik Projection: State Plane South Dakota S	<p align="center"><b>Project Location Map</b>  <i>I-229 Exit 4 (Cliff Avenue) Interchange</i>                  Minnehaha County, SD</p>



## **Study Oversight and Outreach**

### Study Advisory Team

A Study Advisory Team (SAT) has been formed to guide the study through completion. The SAT is comprised of representatives of the SDDOT, City of Sioux Falls, Sioux Falls MPO and the FHWA (see Table 1). Since October 2018, the SAT has met several times and have provided valuable feedback on the refinement of the project's build alternatives.

**Table 1 – Study Advisory Team Members**

<b>Name</b>	<b>Representing</b>
Shannon Ausen	City of Sioux Falls – Public Works
Jeff Brosz	SDDOT – Trans. Inv. Management
Cary Cleland	SDDOT – Road Design
Travis Dressen	SDDOT – Mitchell Region
Jim Feeney	Sioux Falls MPO
Steve Gramm	SDDOT – Project Development
Joanne Hight	SDDOT- Environmental Supervisor
Becky Hoffman	SDDOT – Project Development
Heath Hoftiezer	City of Sioux Falls – Public Works
Mark Hoines	FHWA
Tom Lehmkuhl	FHWA
Steve Johnson	SDDOT – Bridge Design
Brad Remmich	SDDOT – Project Development
Craig Smith	SDDOT – Operations
Sam Trebilcock	City of Sioux Falls – Planning
Joe Sestak	SDDOT – Mitchell Region

### Stakeholder Meetings

Stakeholder meetings have occurred and will continue to occur during the NEPA process with parcels directly affected by potential access changes.

### Public Meetings and Project Website

A public information meeting was held on January 23, 2019 from 5:30 pm to 7:00 pm at the Lincoln High School (2900 Cliff Avenue) in Sioux Falls. SDDOT's project website is available at [www.i229exits3and4.com](http://www.i229exits3and4.com). The website serves as an information resource to the public and includes the recorded presentation and information boards from the first public meeting. A second public information meeting will take place during the NEPA process.

## II. Project Purpose and Need

The purpose and need statement defines the transportation problems that the project will address.

### ***Project Purpose***

The purpose of this project is to improve travel mobility and safety at the I-229 Exit 4 interchange and along the Cliff Avenue corridor, while addressing geometric deficiencies, deteriorating pavement condition, and lack of connectivity for non-motorized transportation users.

### ***Project Needs***

The project need is characterized by transportation issues that currently exist or are reasonably expected to occur in the study area within the planning horizon (year 2050). These issues include:

- Mobility – 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.
- Geometric deficiencies – geometric deficiencies, including infrastructure condition deficiencies for roadways in the study area should be addressed to meet current standards by the design year.

Supporting details for project needs are discussed further below.

### 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 analysis of alternatives, including the No Build Alternative, were evaluated using appropriate Level of Service (LOS) 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). 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. By the design year 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.

The operations at ten intersection along Cliff Avenue was also examined as part of this study. Present day conditions show that of these ten intersections, five have a failing LOS or que storage ratio. The number of failing intersections is expected to grow to six under the No Build Alternative by 2050.

To address mobility needs in the project 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 Minnesota Avenue within the project area through the 2050 project design year.

### 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. Some of the 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 250 feet of the ramp terminal intersections.

In addition to the above deficiencies, pavement condition on I-229 within the study area is expected to deteriorate throughout the course of the design year. 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 SDDOT reports that I-229 pavement is in good condition.

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 PCI rating below 75 or 58 respectively<sup>1</sup>. As identified in Table 2, the average PCI ratings through the project length range from 41 to 64, with only one score at or above 60.

**Table 2 – Pavement Condition Data for Cliff Avenue in Sioux Falls**

Cliff Avenue Segment	Pavement Condition Index (PCI) Score
33 <sup>rd</sup> Street to Cook Road	52
Cook Road to 36 <sup>th</sup> Street	46
36 <sup>th</sup> Street to Arcadia Road	51
Arcadia Road to 38 <sup>th</sup> Street	45
38 <sup>th</sup> Street to Pam Road	42
Pam Road to 41 <sup>st</sup> Street	41
41 <sup>st</sup> 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 49 <sup>th</sup> Street	55

Source: City of Sioux Falls Pavement Management Program (2019).

Traffic is also forecast to increase on Cliff Avenue therefore increasing wear on the existing pavement. The average daily traffic (ADT) on Cliff Avenue in 2050 is forecasted to be higher than it is under existing conditions. The deficiencies in the pavement will continue to degrade as the existing 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 86.9; 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.

<sup>1</sup> <http://www.themunicipal.com/2016/07/pavement-condition-index/>  
Page 9

## ***Project Goals/Other Desirable Outcomes***

As part of the planning process for the project, a number of other goals were identified for the project. While project goals are not direct project needs and are not used for screening alternatives, they considerations that should be included as part of 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.

### 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 control types.

All freeway mainline segments are well below the calculated critical rates. Along the I-229 ramp connections, one of the study area ramps is above the critical rate (Exit 5 on-ramp for I-229 NB). There is one existing Cliff Avenue intersection that exceeds the calculated critical rate (at 41<sup>st</sup> Street/I-229 SB) and one additional intersection approaching (within 15 percent) the critical rate (at Otonka Trail).

Safety is an important consideration for all transportation projects. An ideal transportation project would eliminate crashes entirely within its project limits. Safety should be considered during the design of alternatives for this project. Alternatives should work toward reducing crashes within the study area, particularly in areas where crashes exceed the critical rate, as a desirable outcome of the project.

### 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 users by improving streetscapes and multimodal access. 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.

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) along Cliff Avenue from Tuthill Park to Arcadia Road 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.

A goal of this project is to work toward the desirable multimodal outcomes identified in local plans

and through public outreach efforts discussed above. Design efforts of the study alternatives should consider the addition of sidewalks, bicycle facilities, and marked crossings in key locations where there are gaps in these networks. They should also aim to address current deficiencies in ADA standards on existing sidewalks and make sure any new sidewalks also meet these standards.

### III. Environmental Constraints and Affected Environment

The social, economic, and environmental resources listed below were examined to establish a baseline context of the existing conditions within the study area. These resources have been discussed and/or preliminarily examined by the study team, and will be fully examined, along with any other environmental constraints relevant to the project, during the NEPA process. The purpose of this section is to preliminarily assess the potential for environmental effects and consequences associated with each of the alternatives under consideration. To date, these considerations include the following topics:

- Land Use
- Farmland
- Bicycle and Pedestrian Accommodations
- Community Facilities
- Neighborhood & Community Cohesion
- Economic Resources
- Water Quality
- Wetlands and Other Waters of the U.S.
- Floodplains
- Groundwater Resources
- Geology, Soils and Topography/Landforms
- Vegetation, Fish and Wildlife
- Threatened and Endangered Species
- Air Quality
- Noise
- Cultural (Historic and Archaeological) Preservation
- Environmental Justice
- Section 4(f) Resources
- Section 6(f) Resources
- Hazardous and Regulated Materials
- Visual Impacts

Each of these topics are described in greater detail in this section. A number of social, economic and/or environmental factors were identified which are not present or not a concern for this project which will not be further discussed and will have no need to be further considered for impacts in the environmental process. These factors include climate change, coastal barriers, coastal zones, and wild and scenic rivers.

#### ***Land Use***

The study area is 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. Figure 2 shows existing land use, based on local data.

The City of Sioux Falls' adopted comprehensive plan, Shape Sioux Falls, plans for future land use out to the 2040 planning horizon. The city does not anticipate substantial changes to land use for land surrounding the study area, as it is already a fully-developed urban area. Figure 3 shows future land use from the Shape Sioux Falls plan. Improvements to the existing interchange and local road network are not anticipated to impact zoning and land use in the study area.

This project is consistent with the City of Sioux Falls Shape Sioux Falls 2040 Comprehensive Plan and the Sioux Falls MPO Go Sioux Falls 2040 Long-Range Transportation Plan. The Shape Sioux Falls Plan states that office and commercial land uses should have access to

major roadways and that the transportation network should provide adequate service for these uses. This plan also 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 Go Sioux Falls Plan Include Operational Efficiency, Multimodal Integration, Safety and Security, and System Preservation as Guiding Principles. 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 2 – Existing Land Use**

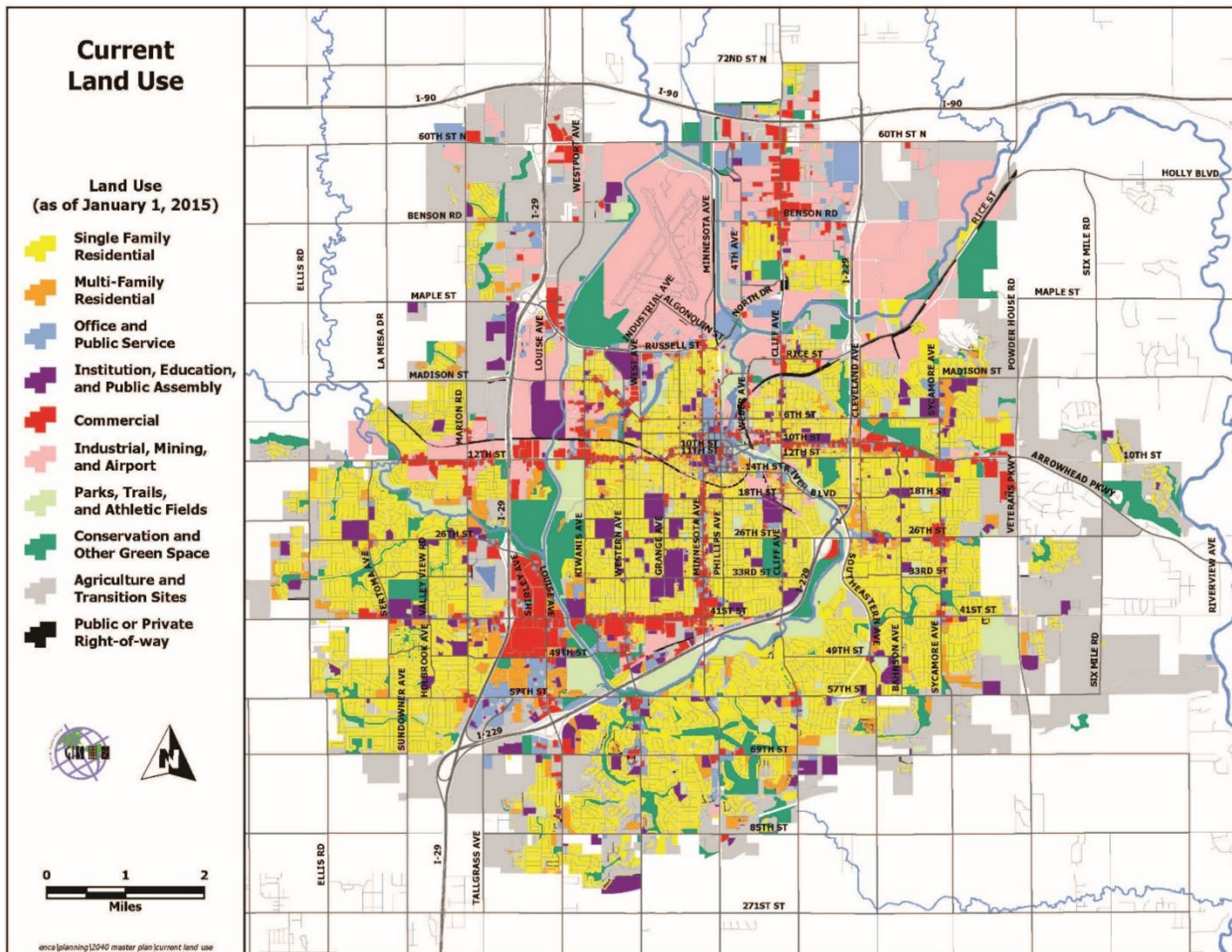
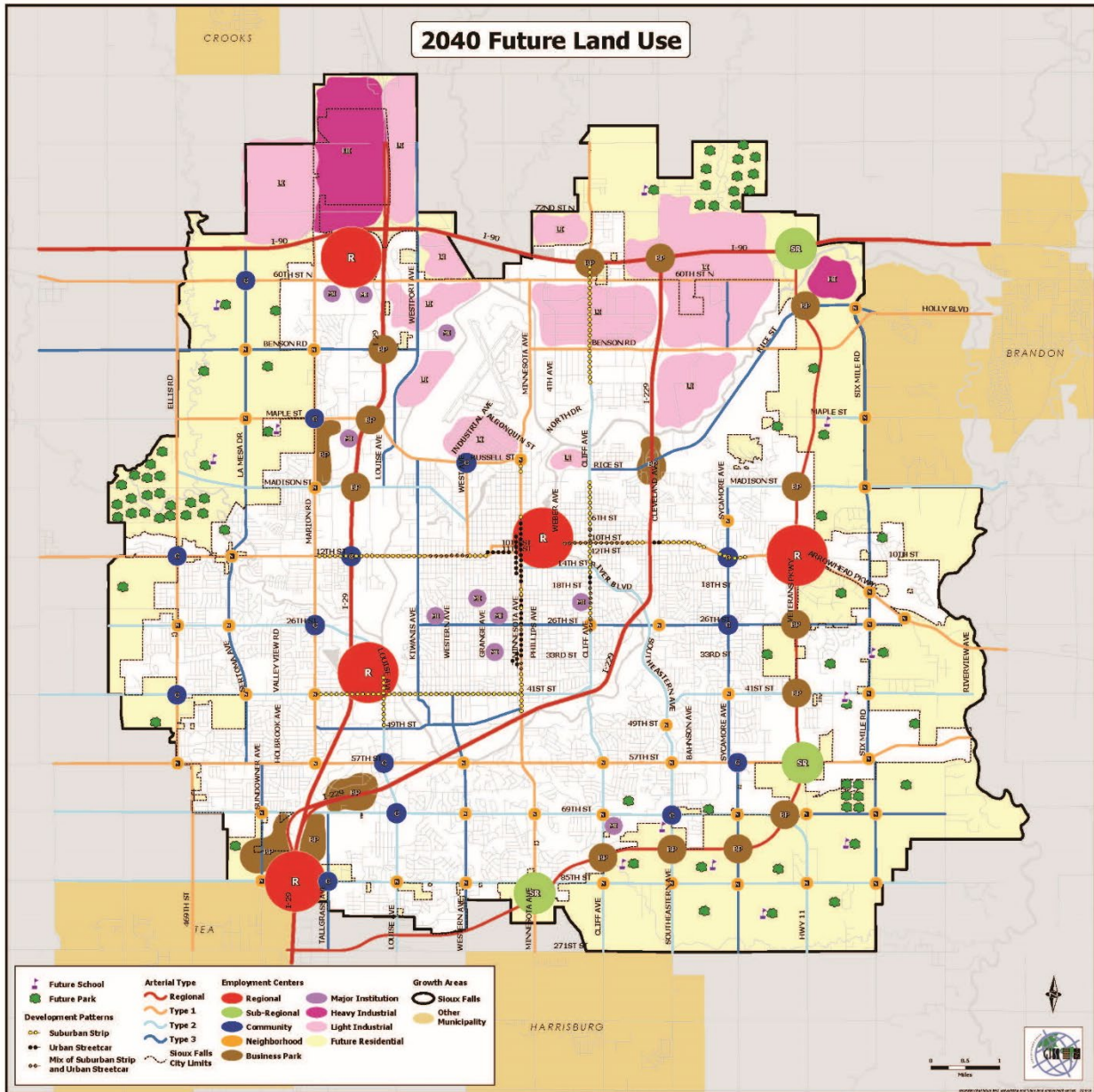


Figure 3 – Future Land Use



**Farmland**

Any federally funded project which requires the acquisition of any amount of right-of-way must address the Farmland Protection Policy Act of 1981 (FPPA). The purpose of the FPPA is to minimize the extent that federal programs contribute to the unnecessary and irreversible conversion of prime and important farmland to non-agricultural uses. The FPPA requires federal agencies involved in projects that may convert farmland to determine whether the proposed conversion is consistent with the FPPA. The provisions of the FPPA would not apply to this project, since any right-of-way to be acquired would fall within the Sioux Falls urban boundary as defined by the 2010 Census. There are no agricultural preserves within the study area.

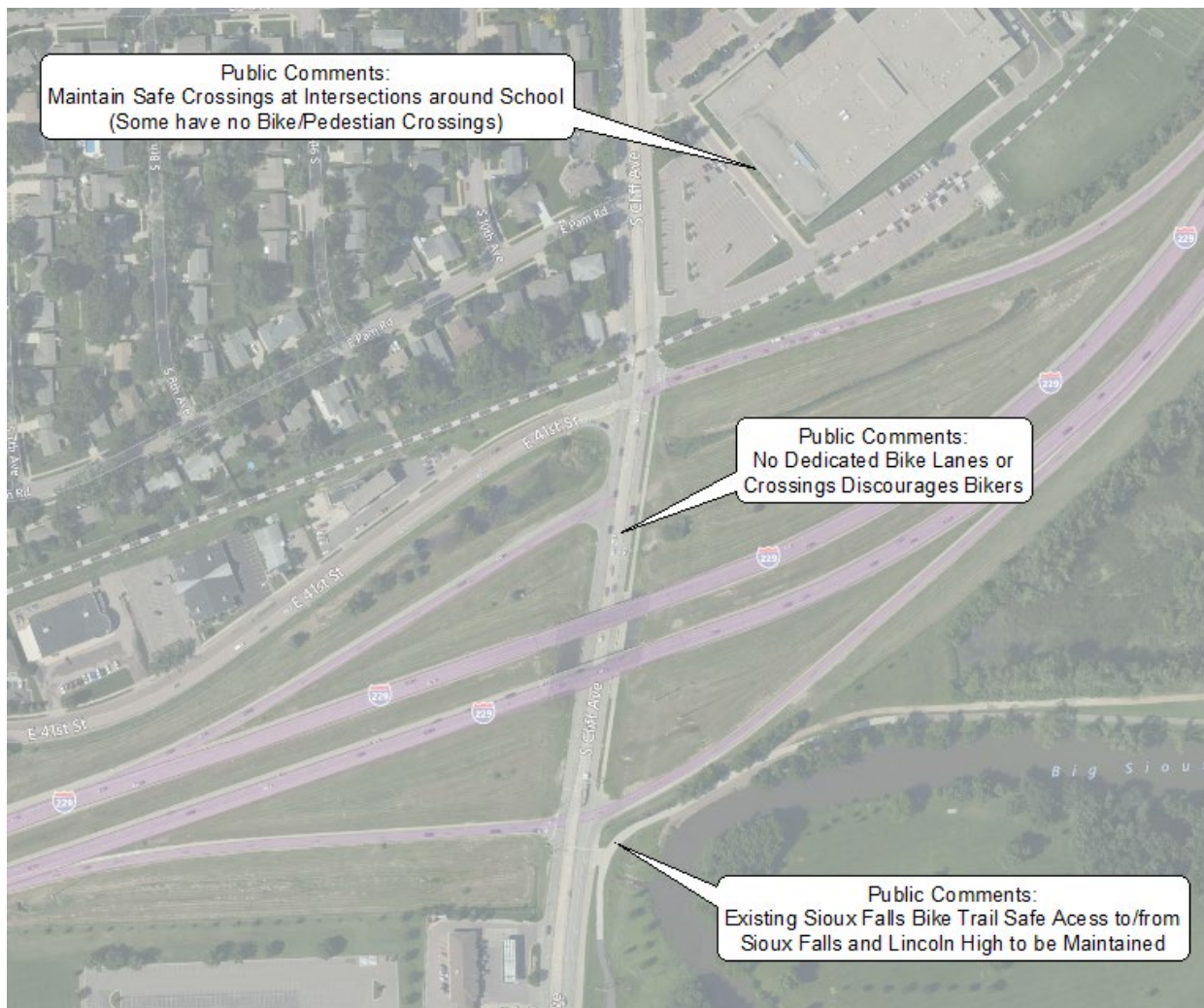


## **Bicycle and Pedestrian Accommodations**

The *Shape Sioux Falls 2040 Comprehensive Plan* and the current edition of the City of Sioux Falls Engineering Design Standards includes goals and policies to accommodate all potential users by improving streetscapes and multimodal access. Many of the pedestrian curb ramps in the project area do not meet current ADA/PROWAG guidelines. Cracked and uneven sidewalks are other ADA challenges within the project area.

The Big Sioux Recreational Trail lies adjacent to the interchange in the southeast quadrant and connects to existing sidewalk on the east side of Cliff Avenue. This trail is used by thousands of users every day from across the state in the spring/summer/fall months and serves as a connector between various parks and community facilities in Sioux Falls. 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) along Cliff Avenue from Tuthill Park to Arcadia Road 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 projects first public meeting (held in January 2019) regarding bicycle and pedestrian safety, particularly concerning safety improvements at intersection and crossing near Lincoln High School and surrounding intersections. Public concerns related to bicycle and pedestrian facilities are shown on Figure 4 below.

**Figure 4 – Bicycle and Pedestrian Facility Issues**



While potential reconstruction within the study area would have the potential to impact pedestrian, and bicycle facilities in the study area, it would also provide the opportunity to improve access to and safety for these facilities. Public coordination efforts for the project indicate that non-motorized connectivity is an important community concern for this project. It has been incorporated in the project's Purpose and Need to ensure the alternatives considered in the environmental document will consider multimodal needs, and it is anticipated that related concerns will be addressed with the project action.

### ***Community Facilities***

A number of community facilities exist within the study area. These include schools, religious institutions, and public recreation areas. The following list includes schools and religious institutions identified in the study area. Recreation areas have unique regulations and requirements and are therefore discussed separately in this report in later sections.

- Cornerstone Church
- United Church of Christ Conference
- Lincoln High School

While it is not anticipated that any religious facilities or schools would be experience permanent negative impacts, temporary impacts from construction could affect access to these facilities. Coordination with these facilities should occur as part of the environmental process for this project.

While no emergency service facilities were identified within the study area, numerous emergency services (Police, Fire, EMS) rely on the transportation network within the city, including the network within the study area. construction within the study area would have the ability of impact these services, both negatively with temporary construction impacts, and positively with improved safety and operations within the study area. Coordination with these services should occur as part of the environmental process for this project.

### ***Neighborhood & Community Cohesion***

The neighborhood character surrounding the project includes a number of businesses and residences. It is anticipated that the construction of a Build Alternative would require between one and six residential relocations and up to one business relocation. It is also anticipated that between one and two existing access points would need to be removed with these alternatives. All ROW acquisition and relocation impacts would be mitigated in conformance with the Uniform Relocation Assistance and Real Property Acquisition Act (UA) of 1970. The small number of relocations is not anticipated to affect overall community and neighborhood cohesion.

Substantial changes to neighborhood character are not anticipated with the project. The study is located in a fully developed urban area. While transportation facilities may be widened to accommodate future traffic volumes, increased traffic volumes are anticipated regardless of the project. The project is not anticipated to spur further development in the project area. Impacts to walkability and bikability from the project are anticipated to be positive as a result of new facilities and improvements to existing facilities. The project would improve mobility and improve bicycle and pedestrian connections and would not result in any segmentation or isolation of portions of the surrounding community. No new routes for motor vehicles are planned and changes to travel patterns are not anticipated. The project would work to preserve the safety and operations of existing routes.

### ***Economic Resources***

As mentioned previously, development adjacent to I-229 and Minnesota Avenue includes several businesses. To improve traffic operations and safety, the project's improvements may require the relocation of businesses, private property acquisitions, or 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.

While transportation facilities may be widened to accommodate future traffic volumes, the project is not anticipated to spur further development. Surrounding businesses would continue to be served by the local transportation network. 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 benefit to businesses which rely on through-traffic.

### Water Quality

The study area is located in the Lower Big Sioux River watershed in the vicinity of the Big Sioux River and wetlands, which are waters of the State and are protected under the Administrative Rules of South Dakota (ARSD) Chapter 74:51. As identified in Table 3, the Big Sioux River is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Streams for the following beneficial uses:

- Warmwater semipermanent fish life propagation waters;
- Immersion recreation waters;
- Limited contact recreation waters;
- Fish and wildlife propagation, recreation, and stock watering waters; and
- Irrigation waters.

The project will need to meet the water quality requirements for total suspended solids (TSS) as described below. The project will need to coordinate with the City to ensure all aspects of the project meet the intent of the City's MS4 permit. Because of these beneficial uses, special construction measures may have to be taken to ensure that the 30-day average TSS criterion of 90 milligrams per liter (mg/L) is not violated. According to the South Dakota Department of Environment and Natural Resources (SDDENR) *2018 South Dakota's Integrated Report for Surface Water Quality*, the main causes of nonsupport within Big Sioux River basin streams continue to be *Escherichia coli* (*E. coli*) and TSS. The presence of bacteria in the Big Sioux basin is mainly due to runoff from livestock operations, wet weather discharges, and storm sewers within municipal areas. Sediment sources are overland runoff from nearby croplands, inflow from tributaries and streambank erosion. A statewide mercury Total Maximum Daily Load (TMDL) has been approved by the Environmental Protection Agency (EPA) that identifies atmospheric deposition as the primary source of elemental mercury.

**Table 3 – Lower Big Sioux River Watershed Water Quality Summary**

Water Body	Location	Use	Support	Cause	Source	EPA Category
Big Sioux River	I-90 to diversion return	Domestic Water Supply	Full			4A*
		Fish/Wildlife Prop, Rec, Stock	Full			
		Immersion Recreation	Non	<i>Escherichia coli</i>	Municipal (Urbanized High Density Area)	
		Irrigation Waters	Full			
		Limited Contact Recreation	Non	<i>Escherichia coli</i>		
		Warmwater Semipermanent Fish Life	Non	<i>Total Suspended Solids</i>		

Source: SDDENR 2018 South Dakota's Integrated Report for Surface Water Quality.

Notes: USEPA Category 4A = Water impaired but has an approved TMDL; \* Waterbody has an USEPA approved TMDL.

As the project progresses, special construction measures may need to be considered to ensure that water quality standards are not violated. All removed waste material, material stockpiles,

dredged or excavated material shall be placed in upland areas, and measures taken to ensure that the material cannot enter a watercourse through erosion. Appropriate sediment and erosion control measures shall be installed to control the discharge of pollutants from the construction site. Any construction activity that disturbs one or more acres of land must have authorization under the General Permit for Storm Water Discharges Associated with Construction Activities administered by SDDENR.

**Wetlands and Other Waters of the U.S.**

Wetlands and other waters of the U.S. are regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. Other waters of the U.S. include rivers, streams, intermittent streams, lakes, ponds, and impoundments. Wetlands and other waters of the U.S. are subject to USACE jurisdiction, which is determined by the USACE regulatory office. Executive Order (EO) 11990, Protection of Wetlands (May 24, 1977), directs agencies to consider avoidance of adverse effects and incompatible development in wetlands.

The study area consists of a variety of upland and wetland plant communities associated with the Big Sioux River floodplain and was examined on September 25, 2018 for areas meeting the technical wetland criteria in accordance with the USACE *Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE 2010). A total of ten wetland basins were identified, delineated, and classified (see Figure 5). Table 4 is a summary of the size and classification of each wetland basin.

**Table 4 – Wetland and Aquatic Resource Characteristics within Study Area**

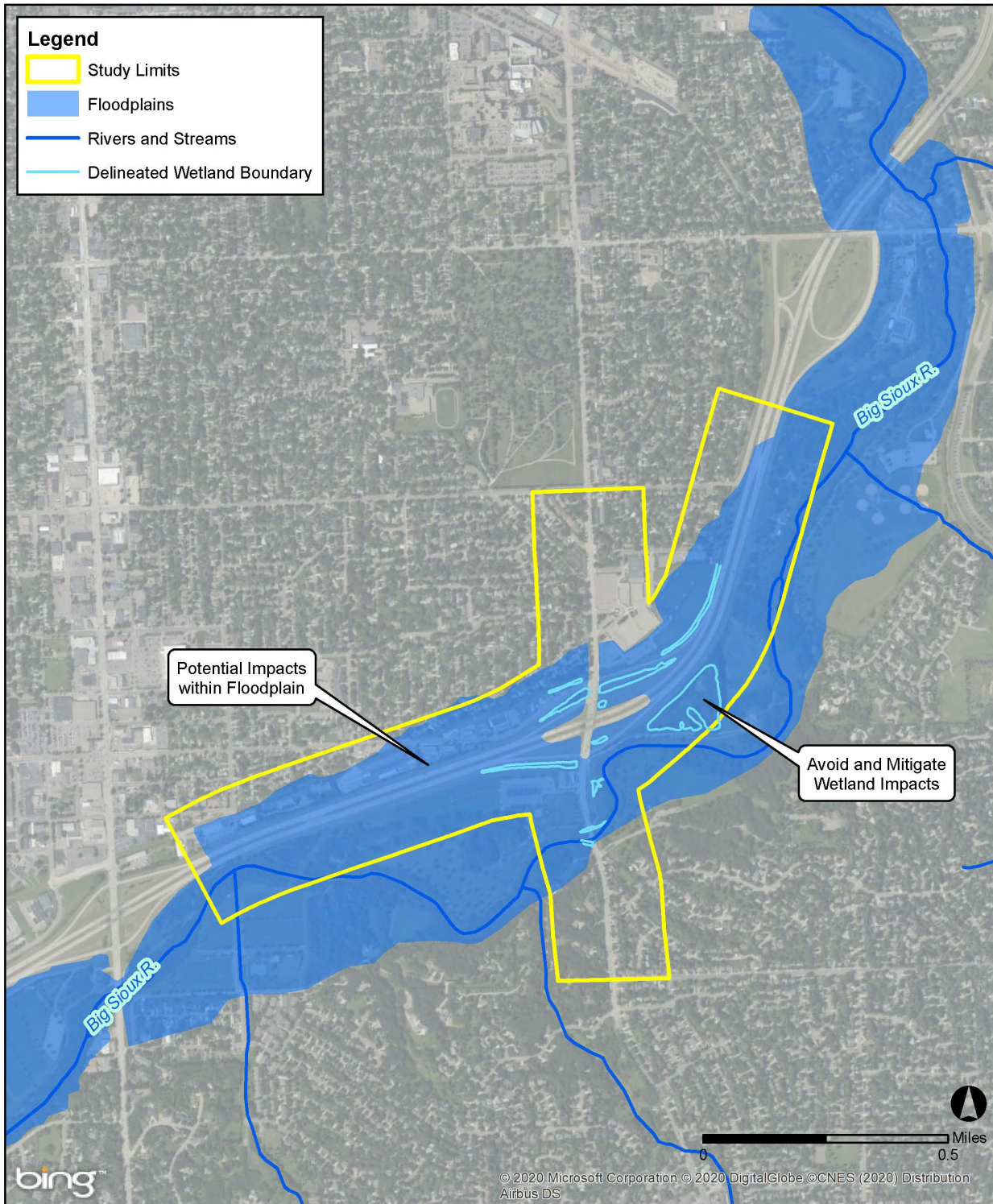
Wetland ID	Size (acres) <sup>1</sup>	Eggers & Reed Classification	Circular 39/ Cowardin Classification
1	0.91	Shallow Marsh	Type 3 / PEMC
2	0.12	Shallow Marsh	Type 3 / PEMC
3	6.66	Shallow Marsh	Type 3 / PEMC
4	0.16	Fresh (Wet) Meadow	Type 2 / PEMB
5	0.20	Fresh (Wet) Meadow	Type 2 / PEMB
6	0.19	Fresh (Wet) Meadow	Type 2 / PEMB
7	0.75	Fresh (Wet) Meadow	Type 2 / PEMB
8	1.31	Shallow Marsh	Type 3 / PEMC
9	0.10	Fresh (Wet) Meadow	Type 2 / PEMB
10	0.86	Shallow Marsh	Type 3 / PEMC

<sup>1</sup> Size includes areas of wetland within the area of investigation only. Wetlands may extend beyond the limits of the area investigated and actual wetland size may be larger than that indicated.

Wetlands in the project area are regulated by agencies at the local, regional, state, and federal levels including the USACE and the United States Environmental Protection Agency (USEPA) at the federal level. The primary state agencies involved in wetlands protection include the South Dakota Department of Environment and Natural Resources (SDDENR), South Dakota Department of Game, Fish, and Parks (GFP), and the South Dakota Department of Agriculture (SDDA). These agencies may require a field review of the wetland delineation. Construction plans that propose any direct alteration or indirect impact to wetlands or watercourses within the project area will require permits from the appropriate regulatory agencies.

A Least Environmentally Damaging Practicable Alternative (LEDPA) Analysis would be coordinated with USACE as part of the identification of a preferred alternative. If impacts to wetlands are unavoidable, a wetland mitigation plan would be completed prior to construction of the preferred alternative. This plan would likely recommend the purchase of credits from an off-site mitigation bank. Non-jurisdictional wetlands would be mitigated in accordance with EO 11990 and FHWA's program-wide 'net gain' goal through enhancement, creation, and/or preservation of wetlands (23 CFR 777.11 (g)), which is assessed annually by SDDOT and reported to FHWA.

**Figure 5 – Water Resources**



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

Print Date: 5/13/2020  
Source: SDDENR, FEMA

Map by: mfolk  
Projection: State Plane  
South Dakota S

**Water Resources Map**  
*I-229 Exit 4 (Cliff Avenue) Interchange*  
*Minnehaha County, SD*

## ***Floodplains***

Executive Order 11988 requires federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

To determine if floodplains are located in the study area, the Federal Insurance Administration Flood Boundary and Floodway map for Minnehaha County (dated March 7, 2017, panel number 46099C0464E) has been examined. Floodway and 100-year floodplain boundaries for the study area are shown on Figure 5, above. Designated 100-year floodplains are present along the Big Sioux River.

FEMA has recently developed newer floodplain maps that are planned to become effective in 2023. Newer floodplain boundaries will be considered to the extent possible throughout the course of the environmental process to ensure future compatibility.

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.

Any action that could raise the 100-yr water surface elevation (i.e. fill in the floodplain or floodway) needs to be discussed in the NEPA document. The goal of the project should be to NOT increase the 100-yr water surface elevation ("no-rise") as this would affect multiple residential and commercial properties.

If the project could not achieve a "no-rise" condition, this will trigger a FEMA Letter of Map Revision and a significant public involvement process.

The City of Sioux Falls is currently in the process of drafting a new floodplain ordinance. Coordination will occur with the city to ensure the project is compliant with local floodplain regulations.

## ***Groundwater Resources***

The depth to groundwater in the study area varies greatly based on surface topography. According to well logs, groundwater may be encountered as shallow as one foot below ground surface in the lower elevation areas. Based on surface and bedrock topography, regional groundwater flow direction is expected to be south and east toward the Big Sioux River. Groundwater flow direction at sites within the project corridor will likely be affected by local conditions.

## ***Geology, Soils and Topography/Landforms***

The topography of the project corridor and surrounding area is generally flat, with elevations ranging from approximately 1,400 to 1,500 feet above mean sea level. The Big Sioux River runs east-west near the project corridor. It intersects Cliff Avenue on the southern portion of the project corridor. Low-lying floodplain associated with the Big Sioux River is adjacent to I-229 to the south (USGS, 2019).

The geology of the corridor is described as Illinoian and Wisconsin aged glacial sediments consisting of silty clay with sand to boulder sized clasts. These sediments are associated with moraine and end moraine deposits. Adjacent low-lying lands to the south and east of the corridor is primarily outwash of Upper Wisconsin age and alluvial deposits of Quaternary age from the Big Sioux River (DENR, 2004).

The upper units of bedrock consist of Precambrian Sioux Quartzite (DENR, 1994). The Sioux Quartzite is a pink to reddish to tan, fine to coarse grained, iron stained orthoquartzite with minor metamorphosed conglomerate and mudstone layers. This unit only outcrops near the project corridor near Falls Park, approximately 3.5 miles to the north (DENR, 2004).

Soils data were obtained from digital soil surveys of Minnehaha County (NRCS, 2020). There are 15 different soil types within the study area, as shown in Table 5.

**Table 5 – Soil Types**

Map Unit Symbol	Map Unit Name	Acreage	Percentage of Study Area
AcA	Alcester silty clay loam, cool, 0 to 2 percent slopes	14.6	5.7
AcB	Alcester silty clay loam, cool, 2 to 6 percent slopes	31.8	12.3
Ba	Baltic silty clay loam, 0 to 1 percent slopes	3.8	1.5
Bb	Baltic silty clay loam, ponded	24.5	9.5
Bo	Bon loam, 0 to 2 percent slopes, occasionally flooded	58.2	22.6
Cd	Chaska loam, 0 to 2 percent slopes	1.5	0.6
Ch	Chaska loam, channeled	15.0	5.8
CrD	Crofton-Nora complex, 9 to 15 percent slopes	15.9	6.2
DcA	Davis loam, 0 to 2 percent slopes	53.7	20.8
MdB	Moody silty clay loam, cool, 2 to 6 percent slopes	5.7	2.2
NcC	Nora-Crofton complex, 6 to 9 percent slopes	4.7	1.8
SsF	Steinauer-Shindler clay loams, 25 to 60 percent slopes	16.3	6.3
Tfc	Thurman-Flandreau complex, 6 to 9 percent slopes	0.7	0.3
Tr	Trent silty clay loam, 0 to 3 percent slopes	1.4	0.5
W	Water	9.9	3.8
<b>Total</b>		<b>257.7</b>	<b>100</b>

### ***Vegetation, Fish and Wildlife***

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.

The project area has been previously disturbed by land use development and road construction. Wildlife in the area is limited to those species that have adapted to live in developed areas. These species include those commonly occurring in South Dakota, such as raccoons, squirrels, rabbits, and various birds. The Big Sioux River supports fish species.

The study team will coordinate with GFP and the U.S. Fish and Wildlife Service (USFWS) during the NEPA process to determine any environmental commitments that may be required for vegetation, fish, and wildlife related issues.

In accordance with South Dakota Administrative Rule 41:10:04:02, procedures will be followed for any equipment used in the implementation of a preferred alternative; all attached dirt, mud, debris, and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained, including, but not limited to, all equipment, pumps, lines, hoses and holding tanks.

### ***Threatened and Endangered Species***

According to the USFWS’s Information for Planning and Consultation (IPaC) system, there are several species that are known to occur in the project area. These species and their designated status are listed in Table 6. No critical habitats for threatened or endangered species we identified within the project area.

**Table 6 – Listed Species in Project Area**

<b>Species</b>	<b>Status</b>
Northern Long-eared Bat ( <i>Myotis septentrionalis</i> )	Federally Threatened
Red Knot ( <i>Calidris canutus rufa</i> )	Federally Threatened
Western Prairie Fringed Orchid ( <i>Platanthera praeclara</i> )	Federally Threatened

Source: USFWS Information for Planning and Conservation (IPaC) System.

A habitat survey was conducted for the Northern Long-eared Bat on July 25, 2019. The survey found no evidence supporting the presence of bats in the study area. Preliminary effect determinations will need to be made for all potentially affected species during the NEPA process, and concurrence from USFWS will be required. Currently, due to lack of suitable habitat and lack of evidence supporting the presence of these species, it is not anticipated that the project will impact threatened and endangered species.

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. Coordination with GFP and USFWS would occur as part of the NEPA process. Surveys may be required prior to construction to determine the presence of protected bird species. Additional commitments and mitigation measures may be required during construction, such as avoiding vegetation removal during certain bird breeding and fledging seasons, obtaining additional permits, and replacement of trees and brush that may serve as habitat.

### ***Air Quality***

Currently, the City of Sioux Falls, Minnehaha County is considered an attainment area for all of the regulated air pollutants, meaning entities are in compliance with all of the National Ambient Air Quality Standards (NAAQS). No issues related to air quality are anticipated for this project.

### ***Noise***

The FHWA noise regulations require noise analyses for all Type I projects. These are defined as projects that involve construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes. Such analyses must be done to meet FHWA and Title 23 requirements.

This project would qualify as a Type I project based on the highway alterations proposed in the build alternatives. An in-depth noise analysis will be required for this project during the NEPA Process. There are homes and businesses located on both sides of I-229 and two parks located south of I-229. Many of these would likely serve as locations for noise receptors for the Noise analysis. The need for mitigation measures at any of these sites would be determined by the noise analysis results.

### ***Cultural (Historic and Archaeological) Preservation***

SDDOT and FHWA initiated Section 106 consultation with the State Historic Preservation Officer SHPO in April 2019. In November 2018, SDDOT sent letters to appropriate federally-recognized American Indian tribes, requesting 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. No 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; and
- Chippewa Cree Tribe.

The Archaeological Research Center (ARC), a program of the South Dakota State Historical Society, has defined the project areas of potential effects (APE) for architecture/history and archaeological resources and has completed identification of historic properties within the APE. ARC has determined that no historic properties and no bridges eligible for or listed in the National Register of Historic Places will be affected by the project.

Specifically, the following structures and bridge were considered Not Eligible for listing on the NRHP:

- A two-story house and attached garage located at 1101 Pam Road
- A two-story duplex and two attached garages located at 1105 Pam Road
- A one and a half story house and attached garage located at 1109 Pam Road
- A one and a half story single-family residence and attached garage located at 1113 Pam Road
- A one-story duplex and attached garage located at 1203 and 1201 Pam Road
- A multi-family dwelling and detached garage located at 1205 Pam Road
- A multi-family dwelling and shared detached garage located at 1204 Pam Road
- A multi-family dwelling and shared detached garage located at 3005 Cliff Avenue
- A one-story, single family residence and attached garage located at 3001 Cliff Avenue
- A four-span concrete bridge carrying Cliff Avenue across the Big Sioux River near I-229 Exit 4

A new segment of an archaeological site was recorded and is Eligible for listing in the NRHP within the study area. Archaeological resources are considered sensitive historic resources under Section 304 of the National Historic Preservation Act, as amended. In accordance with Section 304, specific information and the location of the archaeological resource is not disclosed. Unavoidable R/W acquisition may occur on this site. Further Coordination with SHPO would be required during the environmental phase of the project.

The nearest historic districts listed on the NRHP are located approximately one mile north of the Exit 4 interchange, and therefore would not be impacted by any of the alternatives. 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. Coordination would occur with these stakeholders during the NEPA process.

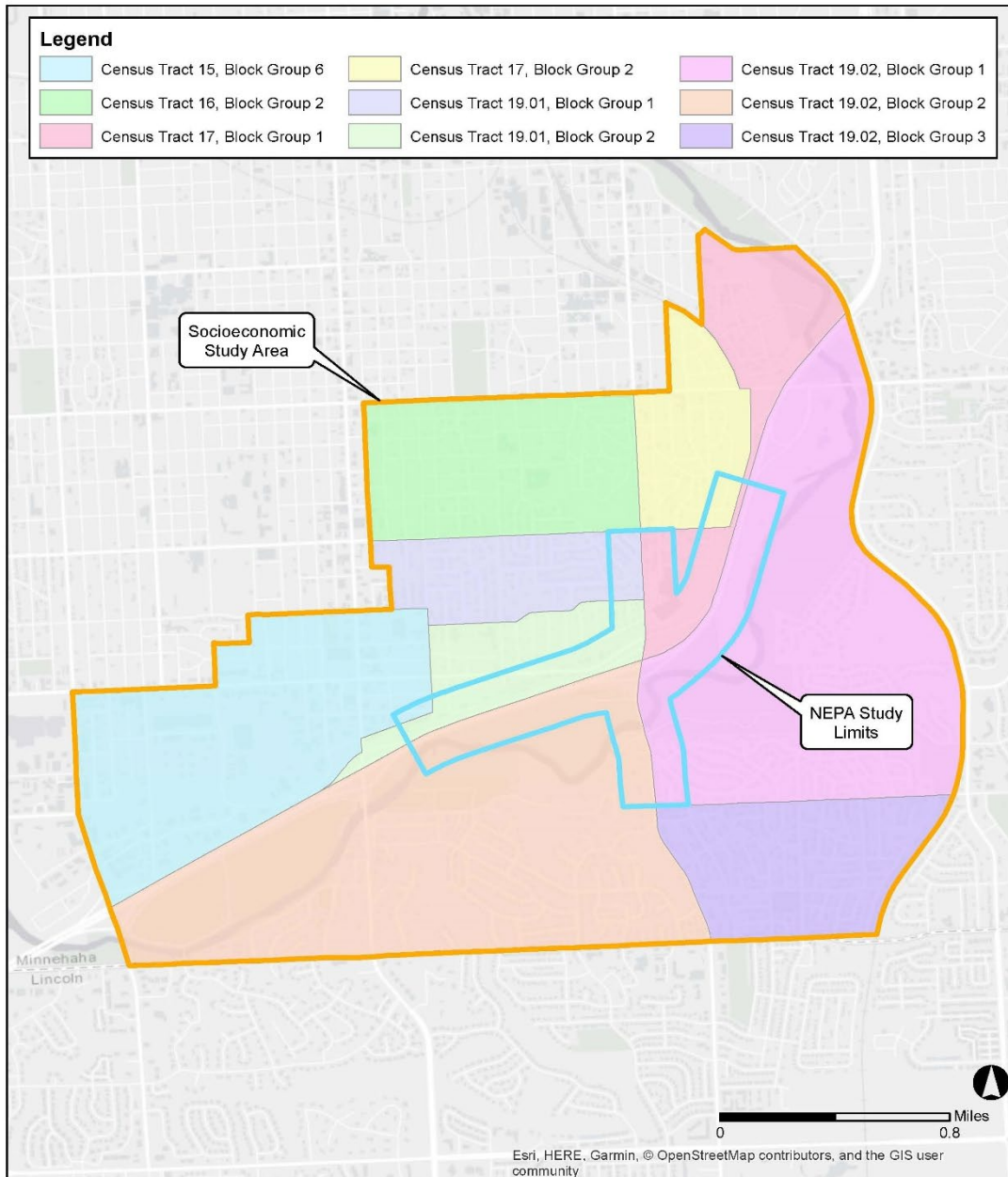
### ***Environmental Justice***

The purpose of Executive Order 12898 is to identify, address and avoid disproportionately high and adverse human health or environmental effects on minority and low-income populations. The socioeconomic study area includes census block groups within and adjacent to the study area. These include the following nine block groups:

- Census Tract 15, Block Group 6
- 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

Figure 6 shows the project's socioeconomic study area.

**Figure 6 – Socioeconomic Study Area**

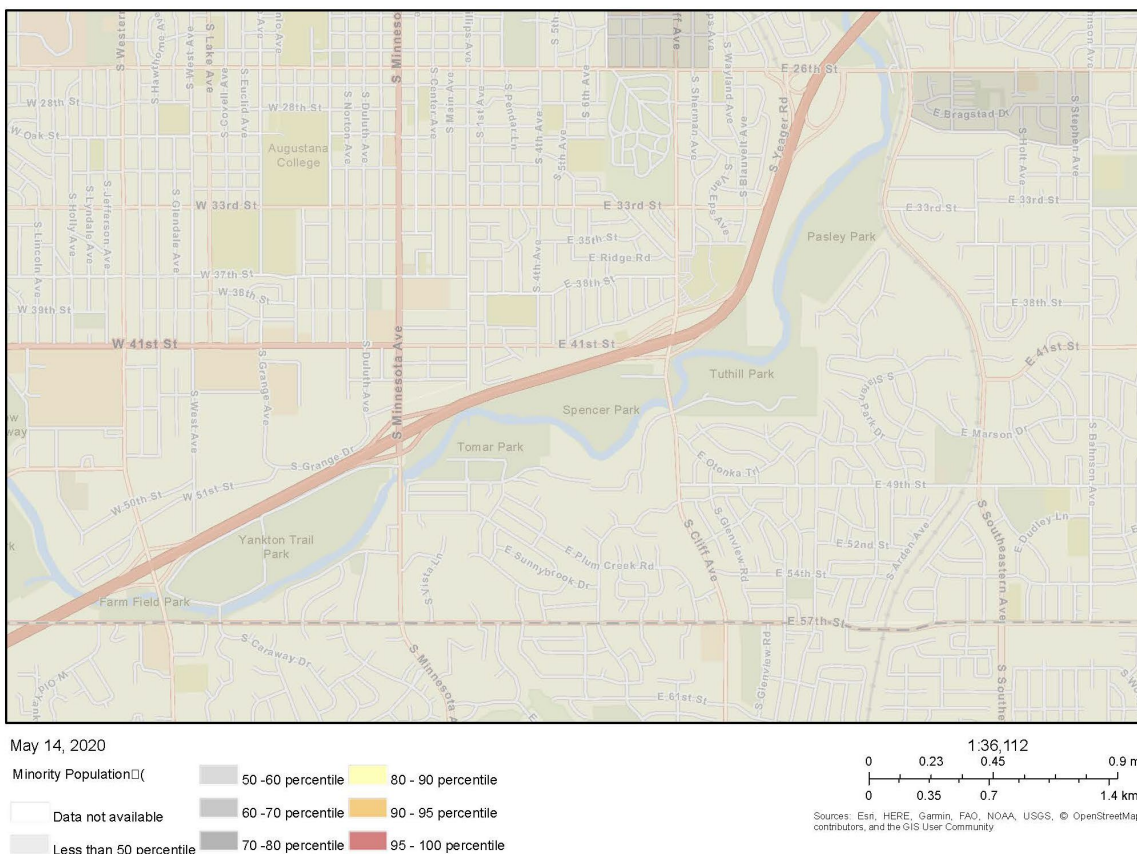


	401 East 8th Street Suite 309 Sioux Falls, SD 57103 (605) 330-7000	Print Date: 5/13/2020 Source: US Census Bureau	<b>Socioeconomic Study Area</b> <i>I-229 Exit 4 (Cliff Avenue) Interchange</i> Minnehaha County, SD
		Map by: mfaik Projection: State Plane South Dakota S	

## Minority Populations

A preliminary review of the USEPA EJSCREEN tool shows that high concentrations of minority populations do not occur within the socioeconomic study area. Figure 7 shows concentrations of minority populations in the study area as reported by the EJSCREEN tool. A full Environmental Justice (EJ) analysis will be completed during the NEPA process, and disproportionate impacts to minority populations will be avoided by the preferred alternative. The project's public engagement efforts will continue to provide for the full and fair participation of all members of the community including members of minority populations.

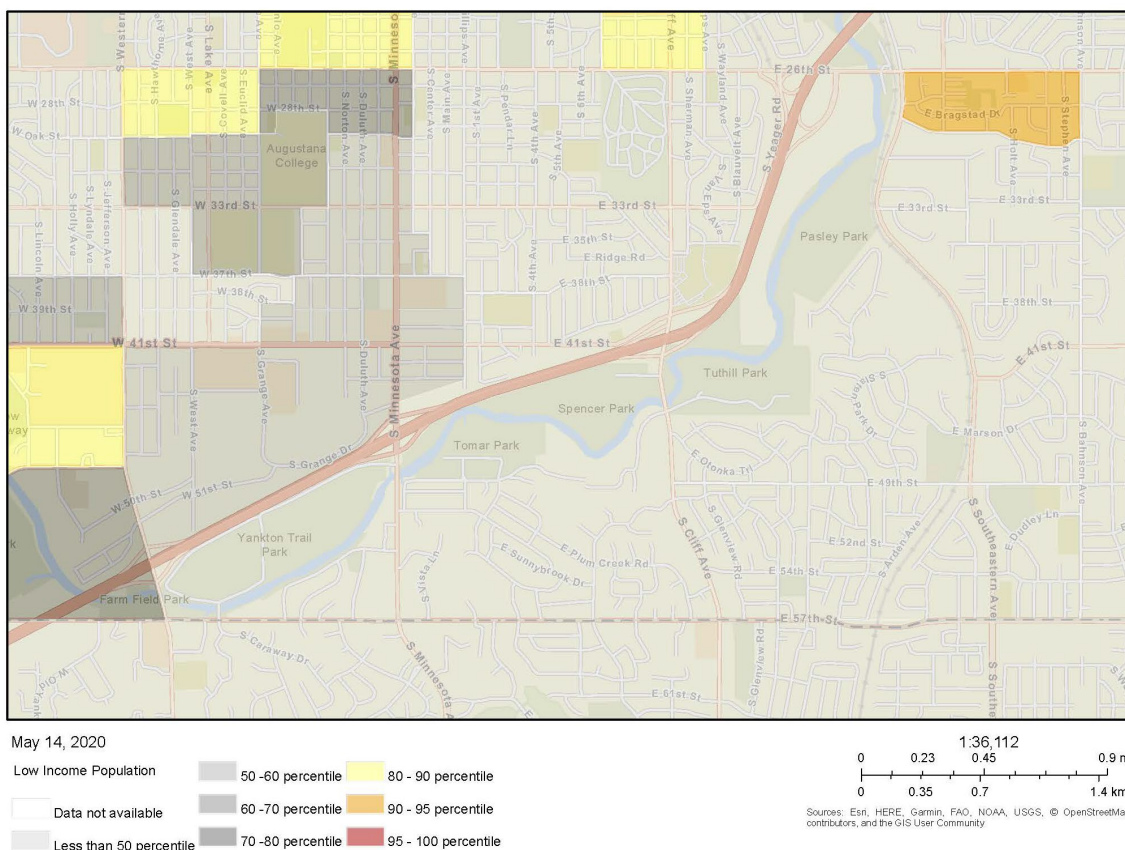
**Figure 7 – Minority Populations: USEPA EJSCREEN**



## Low-Income Populations

A preliminary review of the USEPA EJSCREEN tool shows that high concentrations of low-income populations do not occur within the socioeconomic study area. Figure 8 shows concentrations of low-income populations in the study area as reported by the EJSCREEN tool. A full EJ analysis will be completed during the NEPA process, and disproportionate impacts to low-income populations will be avoided by the preferred alternative. The project's public engagement efforts will continue to provide for the full and fair participation of all members of the community including members of low-income populations.

**Figure 8 – Low-Income Populations: USEPA EJSCREEN**



### Additional Environmental Justice Considerations

North of the Exit 4 Interchange, Sioux Area Metro Bus Route 5 runs along E 41<sup>st</sup> Street and S Cliff Avenue. Several stops along this route are located near or within the study area. In locations where the roadway cross section would become wider as a result of implementing a build alternative, it could become more difficult for bicycles, pedestrians, and EJ populations to reach transit. This makes providing adequate facilities with safe crossings throughout the study area especially important for the build alternatives. Design features, such as painted crosswalks, median refuges, and pedestrian signals could be used to mitigate safety concerns or even improve crossings for transit dependent populations.

Any increase in noise levels and changes to the visual environment, particularly where the roadway profile would be raised, may have disproportionately adverse impacts to EJ populations if they are within close proximity to these changes. A full EJ analysis will be conducted to identify any EJ populations present in the study area, and any necessary considerations will be taken into account as design of the build alternatives advances.

It is anticipated that the construction of a Build Alternative would require between one and six residential relocations and up to one business relocation. Potential impacts to EJ populations resulting from any acquisitions or relocations would be further examined during the NEPA Process.

### **Section 4(f) Resources**

Section 4(f) of the U.S. Department of Transportation (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.

Section 4(f) resources within the study area are identified in Table 7. This includes multiple lands used for public recreation. As mentioned previously, historic resources are also protected under Section 4(f). Discussion of these resources are included in the Cultural (Historic and Archaeological) Preservation section of this report.

**Table 7 – Section 4(f) Resources within the Study Area**

Section 4(f) Resource	Agency with Jurisdiction	Description/Amenities
Tomar Park	Sioux Falls	<ul style="list-style-type: none"> <li>• Accessible Restroom</li> <li>• Accessible Picnic Shelter with Electricity (20'x30')</li> <li>• Accessible Playground</li> <li>• League Soccer Fields</li> <li>• Sand Volleyball Court</li> <li>• Bike Trail Access Point</li> <li>• Basketball Court</li> <li>• 9 Hole Disc Golf</li> <li>• Tennis Courts</li> </ul>
Tuthill Park (3500 S. Cliff Avenue)	Sioux Falls	<ul style="list-style-type: none"> <li>• Accessible Restroom</li> <li>• Accessible Picnic Shelters with Electricity (Upper: 40'x24'; Lower: 40'x20')</li> <li>• Accessible Playgrounds</li> <li>• Disc Golf</li> <li>• Wedding Location Reservation</li> <li>• Formal Garden</li> <li>• Ice Skating Rink/Warming House</li> <li>• Backstop</li> <li>• Singletrack Bike Trails</li> </ul>
Spencer Park (3501 S. Cliff Avenue)	Sioux Falls	<ul style="list-style-type: none"> <li>• Restroom</li> <li>• Accessible Picnic Shelter with Electricity (20'x40')</li> <li>• Accessible Playground</li> <li>• League Soccer Fields</li> <li>• Sand Volleyball Courts</li> <li>• Accessible Dog Park</li> <li>• Bike Trail Access Point</li> <li>• Nordic Ski Trails</li> <li>• 9-Hole Disc Golf</li> </ul>
Big Sioux Trail	Sioux Falls	This trail runs along the Big Sioux River corridor connecting city parks within the study area. This trail is approximately 12 feet wide within the limits of the project area. Small segments of shared use paths provide connections to the Big Sioux River Bike Trail.

Applicability & assessment of use of Section 4(f) resources will commence during the NEPA process. Currently the boundaries for Section 4(f) properties are not fully identifiable, and will require further review. Additional review will also be required to determine if there is potential

public use of existing right of way areas adjacent to Section 4(f) properties. The COVID 19 virus has slowed the process of investigating property records for this project. It is anticipated that these issues can be resolved during the NEPA process without causing project delays.

Lincoln High school is located adjacent to the existing Exit 4 interchange. The school includes athletic fields which are used for student recreation. Coordination will occur with Lincoln High School to determine if recreational facilities are open to the public and serve either organized or substantial walk-on recreational purposes that are determined to be significant. If so, these facilities will also be subject to the requirements of Section 4(f).

**Section 6(f) Resources**

Protection is provided for outdoor recreational lands under the Section 6(f) legislation (16 USC 4602-8(f) (30)) where Land and Water Conservation Fund Act (LWCF) funds were used for the planning, acquisition, or development of the property. LWCF stipulates that any land developed or improved with LWCF funds cannot be converted to uses other than outdoor recreational use unless replacement land of at least equal fair market value and reasonably equivalent usefulness is provided. All conversions must be approved by the National Park Service (NPS). GFP is the state agency designated by the governor to administer the LWCF program in South Dakota. Through early communications with the GFP Grants Coordinator, the project team has identified possible LWCF-funded sites within the study area (see Table 8).

**Table 8 – Land and Water Conservation Fund Grants within Study Area**

Grant ID & Element	Grant Name	Sponsor	Grant Amount	Year Approved	Year Completed	Type
46-00621	Sioux Falls Bike Trail	Sioux Falls	NA	NA	NA	Acquisition
46-00888	Sioux Falls Bike Trail Extensions	Sioux Falls	NA	NA	NA	Development

State records note that the Sioux Falls Bike Trail (#46-00621) project is for the construction of approximately 4.5 miles of bike trail along the Big Sioux River from the Norlin Parkway at 26<sup>th</sup> Street to the old Yankton Bridge near the junction of Western Avenue and I-229. A high-quality map of the property does not exist in the State’s electronic project file.

If land subject to Section 6(f) is acquired, the Section 6(f) procedural requirements must be satisfied. It is possible that these grants under Section 6(f) might cover the entire park under the conversion restriction, even though the grant may have been for only a small part of the park. Alternatively, the grant could also specify that only a part of the park is covered. Project staff will continue to coordinate with GFP grants coordinator to confirm the Section 6(f) impact and required mitigation (replacement land) for the recommended build alternative.

Similar to Section 4(f) property impacts, additional review will be required for Section 6(f) property impacts during the NEPA process.

**Hazardous and Regulated Materials**

A Modified Phase I Environmental Site Assessment (ESA) was completed in July 2019 to provide information on potentially contaminated properties within the project impact area and vicinity. This review area includes the proposed construction limits and a buffer area. The project team reviewed reasonably ascertainable records from standard sources such as publicly-available federal, tribal, state, county and/or city records as appropriate to assist in identifying environmental conditions in connection with the project corridor. The project team used the DENR Spills, Leaks and Tanks website databases as the primary source of environmental site information. DENR site locations were field verified when possible and locations were reassigned to the correct property parcel if necessary. The project team also used a third-party database report (GeoSearch, 2019). Additional databases such as the National Pipeline Mapping System (NPMS) Public Viewer were also reviewed (NPMS, 2019).

The Modified Phase I ESA identified a total of six sites of environmental concern located within or adjacent to the project area (see Table 9 and Figures 9a and 9b). Testing of materials was not conducted as part of the Modified Phase I ESA. The SDDENR Asbestos Coordinator would be contacted prior to the demolition or renovation of a building structure resulting from the project action.

**Table 9 – Known or Potentially Contaminated Properties That May Be Affected by the Project**

Site ID	Site Name	Rank	Rationale for Ranking
099	Your Pet Stop Pet Store	REC	Leak, Spill, former UST, potential former auto repair.
120	I-229 and South Cliff Avenue Interchange	REC	Spill, many vehicle accidents, non-native fill.
121	Sioux Falls Credit Union, BP Gas Station	REC	Spills, Leaks, former fuel station with USTs, former dry cleaner, sealed monitoring wells, former USTs.
127	Tuthill Park	REC	Spill, Former USTs.
135	Lincoln High School	REC	Leaks, spills, former USTs, former railroad corridor, sealed monitoring wells.
136	Greenspace and Big Sioux River	REC	Suspect dumps.

Notes: Underground Storage Tank (UST), Aboveground Storage Tank (AST).

Recognized Environmental Condition (REC) – By ASTM definition, REC means “the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.”

Table 10 identifies the two de minimis sites that had conditions on-site worth noting, but do not qualify as Recognized Environmental Conditions (RECs).

**Table 10 – De Minimis Sites**

Site ID	Site Name	Rank	Rationale for Ranking
004	Vacant Land	De minimis	Former railroad corridor.
131	Residential Properties, School Parking Lot	De minimis	Significant former stockpiling activity.

Notes: Underground Storage Tank (UST), Resource Conservation and Recovery Act (RCRA), Small Quantity Generator (SQG).

De minimis Condition — By ASTM definition, de minimis means a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis conditions are not recognized environmental conditions nor controlled recognized environmental conditions.

Figure 9a – Potentially Contaminated Properties

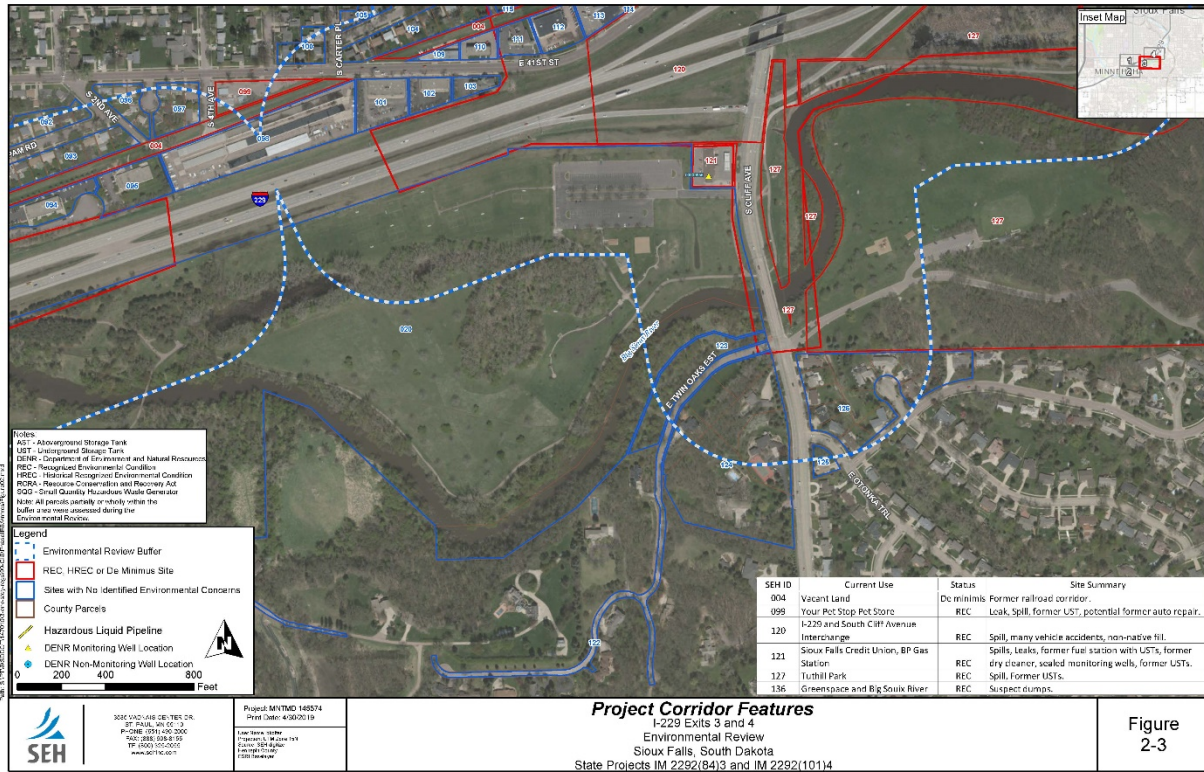
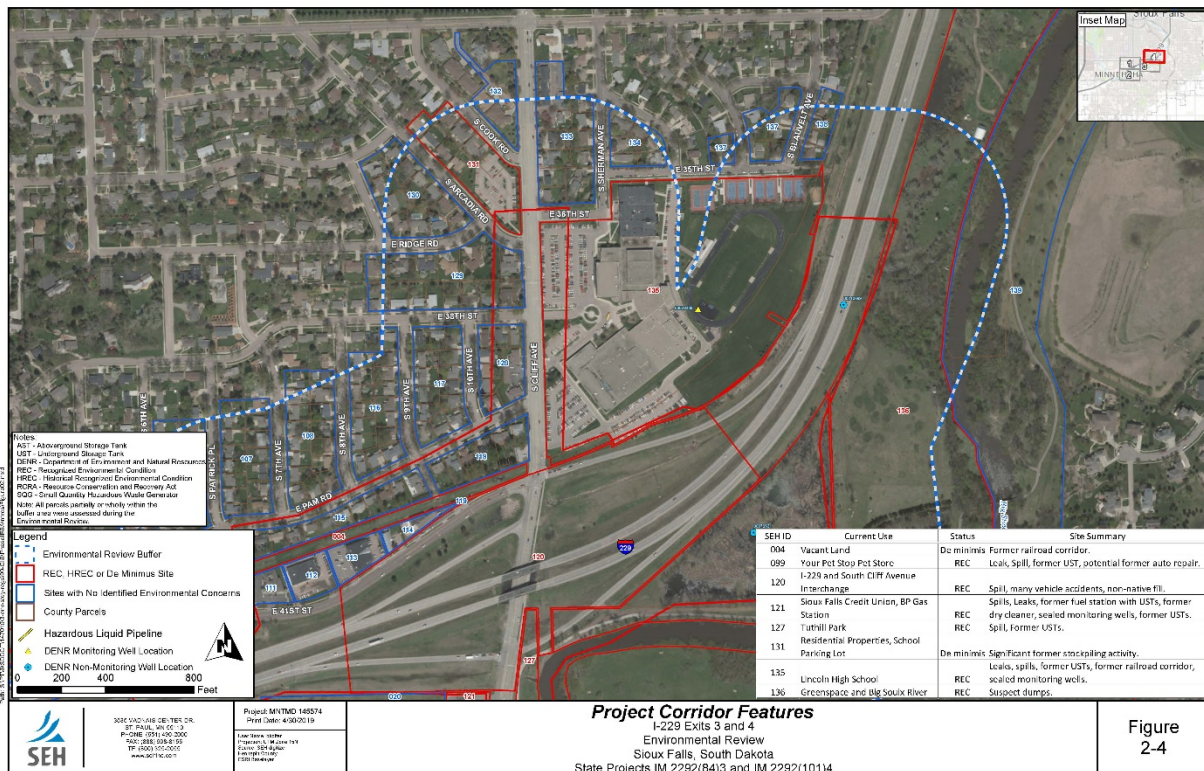


Figure 9b – Potentially Contaminated Properties





Development of a Phase II Investigation work plan is recommended based on the findings of this assessment and anticipated construction and property acquisitions when project information is available.

***Visual Impacts***

The viewshed within the study area contains a mix of single residences, commercial and retail businesses, and parks, all of which may experience visual impacts. Visual impacts are included among the environmental impacts that need to be assessed under NEPA. The State South Dakota Environmental Procedures Manual defers to FHWA guidelines for determining the need for a Visual Impact Assessment (VIA) and the level of assessment required. FHWA's VIA scoping questionnaire is a helpful tool in determining whether a VIA should be completed for a project, and will be utilized as part of the environmental screening process.

## IV. Conceptual Alternatives Development

As part of the recently completed I-229 Major Investment Corridor Study (June 2017), it was determined that the interchange at Exit 4 (Cliff Avenue) would need some modification to better handle current and future traffic levels. As such, the SDDOT intends to let the construction project to reconstruct the Exit 4 interchange in conjunction with the city's intent on reconstructing Cliff Avenue north and south of the interchange.

The interchange scenarios recommended for additional study include:

- No Build;
- Convert to a partial cloverleaf interchange; and
- Convert to a single point interchange.

The corridor scenarios for Cliff Avenue between 38<sup>th</sup> Street and the Big Sioux River outside of the interchange area that have been recommended for additional study include:

- No Build;
- Raised median on Cliff Avenue with 41<sup>st</sup> Street intersection shifted north; and
- Raised median on Cliff Avenue with 41<sup>st</sup> Street intersection modified in place.

All corridor improvements will include associated improvements to the minor legs of all intersections impacted by the scenario. They will also include wide bicycle and pedestrian paths and crossing signals on both the east and west side of the roadway and a pedestrian tunnel crossing at the interchange unless further design efforts and environmental analysis determine that such improvements would be infeasible or unreasonable.

### ***No Build Alternative***

Under the No Build Alternative, no major capital improvements are made to the existing transportation system. Normal maintenance activities, however, are assumed to continue. The No Build Alternative is identified because it provides a basis of comparison for other alternatives. The No Build Alternative would not meet the project's purpose and need.

### ***Northbound Cliff to Southbound I-229 Loop Ramp Alternative ("Cliff-1")***

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 relieve 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.

### ***Single Point Urban Interchange, 41<sup>st</sup> Street Realigned to Pam Road Alternative ("Cliff-6")***

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.

Figure 10 – Cliff-1

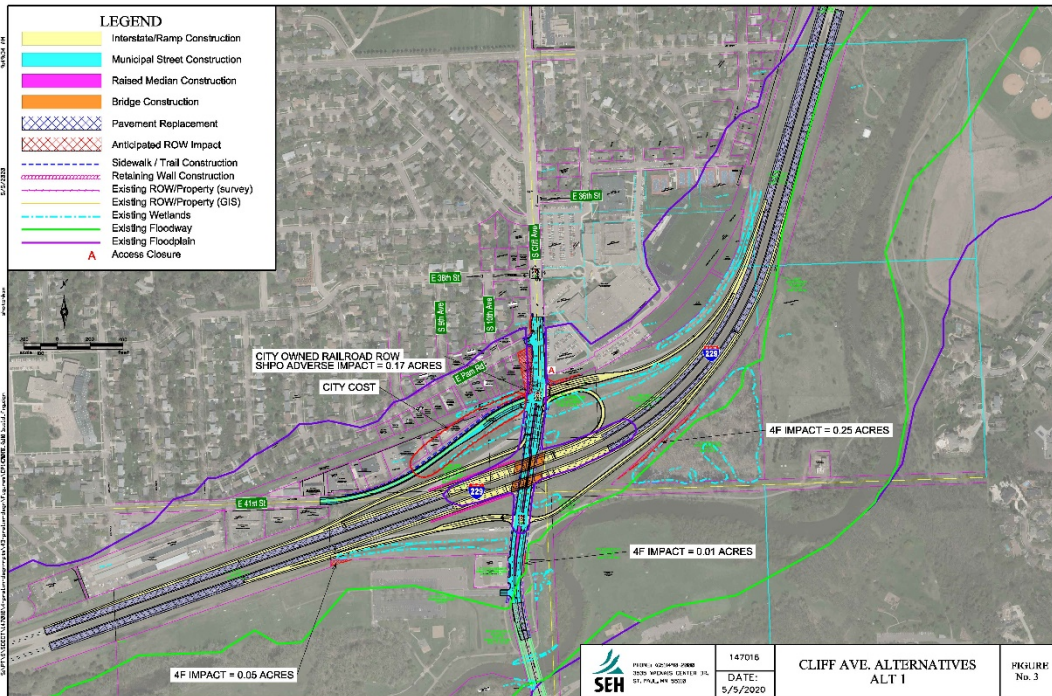
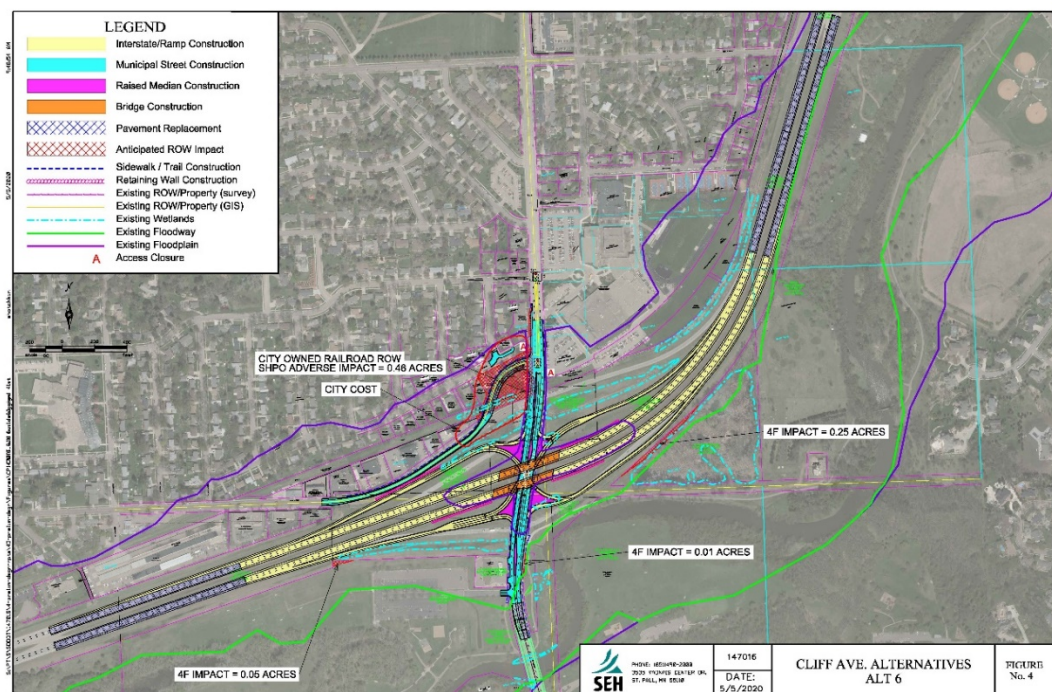


Figure 11 – Cliff-6



**Single Point Urban Interchange, Southbound I-229 Exit Ramp Through and Right Turns at 41<sup>st</sup> Street Alternative (“Cliff-7”)**

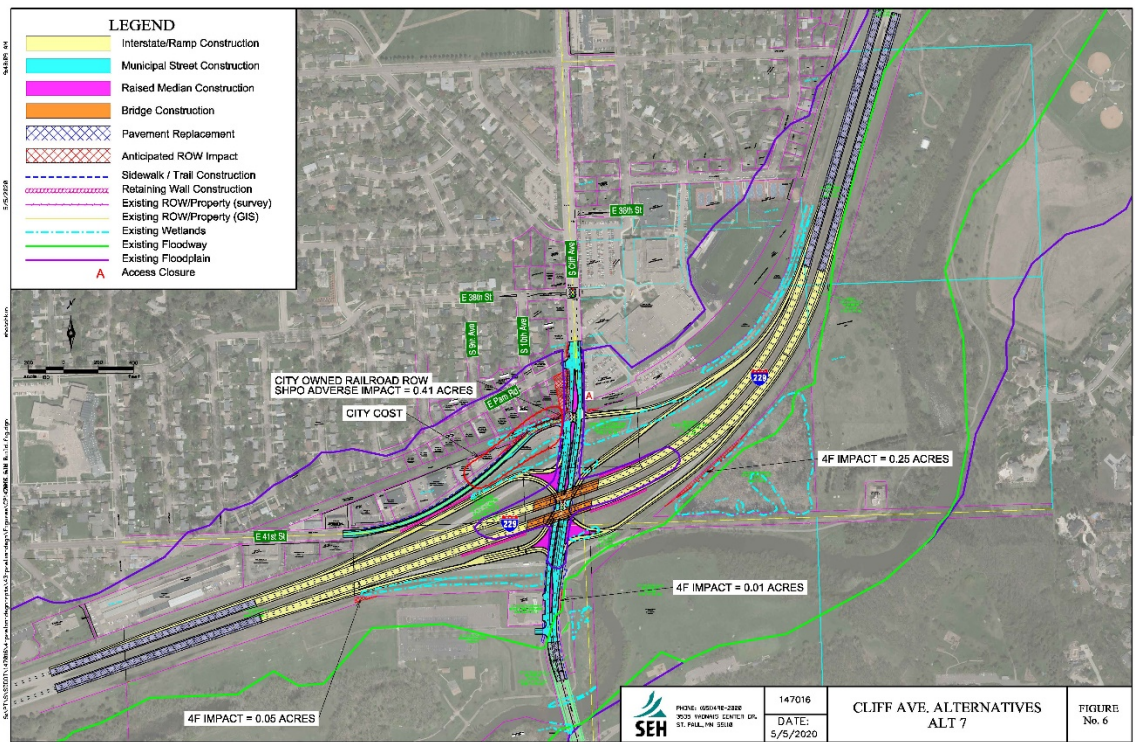
This alternative is carried forward from the I-229 MIS recommendations; the existing diamond interchange would be reconfigured to a SPUI with a modified southbound ramp connection.

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 12 – Cliff-7**



## V. Overview of Potential Environmental Impacts

Table 11 below summarizes currently identified potential impacts that could result from the current range of alternatives. The table indicates potential impact distinctions between the alternatives and potential for environmental consequences. Mitigation needs for identified impacts will be considered at the onset of the NEPA process to avoid any project delays to the extent possible. Some resources will require additional analysis during NEPA to determine the potential for impacts, and a plan for mitigating these impacts will be pursued as soon as potential impacts are identified.

**Table 11 – Potential Build Alternative Environmental Impacts Overview**

Grant ID & Element	Cliff 1	Cliff 6	Cliff 7
Land Use (private property acquisition)	0.8	2.7	1.1
Farmland	n/a	n/a	n/a
Bicycle and Pedestrian Accommodations	Accommodations on both sides would benefit bicyclists and pedestrians		
Neighborhood & Community Cohesion	No impacts anticipated		
Community Facilities	Temporary disturbance to emergency service routes, but with an overall benefit for these services long-term		
Economic Resources	2 business relocations and 1 closed access		
Water Quality	>1 acre of ground disturbance would occur - required permits would be obtained and mitigation measures would be followed to avoid or minimize impacts.		
Wetlands and Other Waters of the U.S.	1.4 ac.	1.1 ac.	1.8 ac.
Floodplains	Construction within floodplain		
Groundwater Resources	Drainage considered in final design; no impacts anticipated		
Geology, Soils and Topography/Landforms	Minimal disturbance outside of R/W		
Vegetation, Fish and Wildlife	Minimal disturbance outside of R/W		
Threatened and Endangered Species	No impacts anticipated, USFWS concurrence required		
Air Quality	The Project Area is in attainment of air quality criteria, concepts are not anticipated to affect air quality		
Noise	The project would warrant a full noise analysis		
Cultural (Historic and Archaeological) Preservation	Potential impacts to one archaeological site. Further coordination with SHPO would be required		
Environmental Justice	No disproportionate impacts anticipated; full analysis required		
Section 4(f) Resources	Potential impacts, review of property records and use determination required		
Section 6(f) Resources	No impacts anticipated; additional review required		
Hazardous and Regulated Materials	Phase II ESA recommended		

### Potential Environmental Consequences Legend

Net benefit, no impacts, or no anticipated impacts based on preliminary review
Potential impacts, unknown, additional analysis required
Impacts would occur or are anticipated to occur

## VI. Additional Alternative Screening Process and Results

In addition to reviewing environmental impacts, the Study Advisory Team (SAT) considered several other factors related to the project's purpose and need, reasonableness, and feasibility. Table 12 summarizes the additional screening criteria and quantitative / qualitative results considered by the SAT for the identification of reasonable alternatives for further consideration in the NEPA process.

**Table 12 – Alternatives Screening Summary**

Evaluation Criteria	No Build Alternative	Build Alternatives		
		Cliff-1	Cliff-6	Cliff-7
<b>Conformance with Plans</b>				
Meets SDDOT Design Criteria	No	Yes	Yes	Yes
Meets SDDOT Access Spacing Criteria	No	Yes	Yes	Yes
Meets City Access Spacing Criteria	No	No	No	No
<b>Property Acquisition and Relocation</b>				
Number of Closed Access Points	n/a	1	2	1
Number of Residential Acquisitions	n/a	1	6	1
Number of Business Acquisitions	n/a	0	1	0
Total Private Right-of-Way Required (acres)	n/a	0.8	2.7	1.1
<b>Environmental</b>				
Wetland Impacts (acres)	n/a	1.4	1.1	1.8
City Parks (acres) - Section 4(f)	0.0	0.31 - Tuthill Park (partially in DOT ROW)	0.31 - Tuthill Park (partially in DOT ROW)	0.31 - Tuthill Park (partially in DOT ROW)
City Parks (acres) - Section 6(f)	0.0	0.0	0.0	0.0
Sioux Falls Bike Trail - Section 4(f)	0.0	Temp Construction Disturbance/Relocate in Place	Temp Construction Disturbance/Relocate in Place	Temp Construction Disturbance/Relocate in Place
Sioux Falls Bike Trail - Section 6(f)	0.0	Temp Construction Disturbance/Relocate in Place	Temp Construction Disturbance/Relocate in Place	Temp Construction Disturbance/Relocate in Place
Former RR - ROW acres (SHPO adverse effect)	0.0	0.17	0.64	0.41
<b>Traffic Safety and Operations Summary</b>				
Safety Improvement (2024 through 2050 Crashes)	No (1733 crashes)	Yes (1624 crashes)	Yes (1431 crashes)	Yes (1465 crashes)
Operational Performance	Poor	Good	Good	Good
Sensitivity Performance (10% Increase)	Poor	Fair (LOS D)	Good (LOS C)	Fair (LOS D)
Worst I-229 Performance (within Project Limits)	LOS D	LOS C	LOS C	LOS C
Worst Ramp Terminal Performance in 2050	LOS F (with queue storage issues)	LOS C	LOS C	LOS C
Non-Motorized Facilities (assumes all build alternatives would benefit from RRFB's and tunneling options)	Poor (narrow sidewalks only)	Good (trail and sidewalk provided; north ramp has free right movements)	Fair (trail and sidewalk provided; both ramps have multiple free right movements)	Fair (trail and sidewalk provided; both ramps have multiple free right movements)
<b>Construction Impacts</b>				
Maintenance of Traffic During Construction?	n/a	Fair	Fair	Fair
Allows for Phased Construction?	n/a	Yes	Yes	Yes
<b>Estimated Construction Costs</b>				
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
Estimated Arterial Roadway Costs (City Portion, \$M)	n/a	\$0.7	\$0.9	\$0.6
Total Estimated Construction Cost (Millions)	n/a	\$19.1	\$32.5	\$32.7
<b>Additional Considerations</b>				
Interstate Pavement Replacement Cost (\$M)	n/a	\$6.2	\$3.6	\$3.6
Total Project Costs (Millions in 2018 dollars)	n/a	\$25.3	\$36.1	\$36.3
Relocate Trail Cost (\$M)	n/a	\$1.4	\$1.4	\$1.4

Based on the above information, all three alternatives considered would meet the Purpose and Need of the project by providing adequate levels of service and meeting all applicable design criteria, thereby addressing geometric deficiencies.

At their May 5, 2020 meeting, additional discussion of the merits of these alternatives was discussed, including community and regulatory agency input. Notable considerations identified by the SAT include:

- Operational improvements between alternatives are comparable.
- Alternative Cliff 6 demonstrated the fewest projected crashes compared to other alternatives.
- Alternative Cliff 6 demonstrated the fewest wetland impacts.

## **VII. NEPA Considerations and Likely Class of Action Determination**

The primary objective of the environmental scan report is to provide a planning-level overview of resources and determine potential constraints and opportunities for the I-229 Exit 4 (Cliff Avenue) Interchange and Environmental Study. The information contained in this study is intended to support the Study Advisory Team's selection of a preferred alternative of the Cliff 6 Build Alternative. It is understood that an improvement alternative from this study will be advanced as part of the SDDOT project development process. As defined below, there are three classes of action that may be initiated to comply with NEPA.

- An Environmental Impact Statement (EIS) is prepared for projects where it is known that the action will have a significant effect on the environment.
- An Environmental Assessment (EA) is prepared for actions in which the significance of the environmental impact is not clearly established. Should environmental analysis and interagency review during the EA process find a project to have no significant impacts on the quality of the environment, a Finding of No Significant Impact (FONSI) is issued.
- Categorical Exclusions (CEs) are issued for actions that do not individually or cumulatively have a significant effect on the environment.

Context, or the environmental setting, and intensity of the impact on a particular resource are two considerations when determining the significance of impact. For the build alternatives under consideration, no significant effects on the environment are known at this time. Thus, an EA has been selected to clarify the significance of the project's effects on the environment. As noted above, the EA is used to provide sufficient environmental documentation to determine the need for an Environmental Impact Statement (EIS) or that a Finding of No Significant Impact (FONSI) is the appropriate conclusion.