

Environmental Assessment and Section 4(f) Evaluation



Northshore Drive Realignment

EM 8064(32), PCN 097K
NORTHSHORE BYPASS

City of North Sioux City
Union County, South Dakota



U.S. Department
of Transportation
**Federal Highway
Administration**



March 2025

ENVIRONMENTAL ASSESSMENT AND SECTION 4(f) EVALUATION

FOR NORTHSHORE DRIVE REALIGNMENT

EM 8064(32), PCN 097K
City of North Sioux City
Union County, South Dakota

Submitted Pursuant to 42 U.S.C. 4332(2) (c) and 49 U.S.C. 303

by the
U.S. Department of Transportation
Federal Highway Administration
South Dakota Department of Transportation
and
City of North Sioux City

March 2025

Chad Babcock
Environmental Manager
SDDOT – Environmental Section
700 East Broadway
Pierres, SD 57501
(605) 773-3721
chad.babcock@state.sd.us

Tom Lehmkuhl
Environmental Protection Specialist
FHWA – SD Division
116 E. Dakota Ave, Suite A
Pierre, SD 57501
(605) 776-1012
tom.lehmkuhl@dot.gov



Recommended Approval Date

Approved for Public Availability Date

Table of Contents

Page

I. INTRODUCTION AND PROJECT OVERVIEW.....	I
1.1 Introduction.....	1
1.2 Project Background	1
1.2.1 Previous Planning Studies	2
1.2.2 Northshore Drive Flooding Damage.....	3
1.2.3 Project Overview	4
1.3 Project Location and Study Area.....	4
1.4 Purpose and Need for Project.....	8
1.4.1 Purpose of the Project.....	8
1.4.2 Project Needs	9
1.4.3 Project Goals.....	9
2. ALTERNATIVES ANALYSIS.....	11
2.1.1 Alignment Alternatives Considered but Eliminated from Further Consideration	11
2.1.2 Intersection Alternatives Considered but Eliminated from Further Consideration.....	12
2.1.3 Cross-Section Alternatives Considered but Eliminated from Further Consideration.....	13
2.1.4 Intersection and Cross-Section Alternatives Retained for Further Analysis.....	15
2.2 Build Alternatives	18
2.3 No Build Alternative.....	21
2.4 Build Alternatives Evaluation	21
2.4.1 Build Alternatives Retained for Further Analysis	22
2.4.2 Screening of Alternatives for Project Goals	22
2.4.3 Comparison of Build Alternative 1 and Build Alternative 2	24
2.5 Alternatives Carried Forward.....	26
3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS.....	27
3.1 Land Use and Right-of-Way Acquisition.....	27
3.1.1 Existing Land Use	27
3.1.2 Future Land Use and ROW Needs	29
3.1.3 Environmental Impacts of the Alternatives.....	30
3.1.4 Avoidance and Minimization and/or Mitigation Measures	32
3.2 Bicyclists and Pedestrians.....	32
3.2.1 Affected Environment	32
3.2.2 Environmental Impacts of the Alternatives.....	32
3.2.3 Avoidance and Minimization and/or Mitigation Measures	33
3.3 Socioeconomics.....	33

Northshore Drive Realignment

3.3.1	Affected Environment	33
3.3.2	Environmental Impacts of the Alternatives	36
3.3.3	Avoidance and Minimization and/or Mitigation Measures	37
3.4	Farmland.....	37
3.4.1	Affected Environment	37
3.4.2	Environmental Impacts of the Alternatives	37
3.4.3	Avoidance and Minimization and/or Mitigation Measures	39
3.5	Noise.....	39
3.5.1	Affected Environment	40
3.5.2	Environmental Impacts of the Alternatives	41
3.5.3	Avoidance and Minimization and/or Mitigation Measures	43
3.6	Wetlands and Waters of the United States.....	44
3.6.1	Affected Environment	44
3.6.2	Environmental Impacts of the Alternatives	44
3.6.3	Avoidance and Minimization and/or Mitigation Measures	46
3.7	Water Quality.....	46
3.7.1	Affected Environment	47
3.7.2	Environmental Impacts of the Alternatives	47
3.7.3	Avoidance and Minimization and/or Mitigation Measures	48
3.8	Air Quality	48
3.8.1	Affected Environment	48
3.8.2	Environmental Impacts of the Alternatives	49
3.8.3	Avoidance and Minimization and/or Mitigation Measures	50
3.9	Floodplains and Levees	50
3.9.1	Affected Environment	50
3.9.2	Environmental Impacts of the Alternatives	51
3.9.3	Avoidance and Minimization and/or Mitigation Measures	51
3.10	Vegetation.....	52
3.10.1	Affected Environment	52
3.10.2	Environmental Impacts of the Alternatives	52
3.10.3	Avoidance and Minimization and/or Mitigation Measures	53
3.11	Threatened and Endangered Species and Other Wildlife	54
3.11.1	Affected Environment	54
3.11.2	Environmental Impacts of the Alternatives	58
3.11.3	Avoidance and Minimization and/or Mitigation Measures	58
3.12	Cultural Resources (Historical and Archeological).....	59

3.12.1	Affected Environment	59
3.12.2	Environmental Impacts of the Alternatives	60
3.12.3	Avoidance and Minimization and/or Mitigation Measures	60
3.13	Section 4(f) and Section 6(f)	61
3.13.1	Section 4(f) Properties	61
3.13.2	Section 6(f) Properties	61
3.13.3	Affected Environment	61
3.13.4	Environmental Impacts of the Alternatives	63
3.13.5	Avoidance and Minimization and/or Mitigation Measures	69
3.14	Contaminated Materials and Hazardous Waste	70
3.14.1	Affected Environment	70
3.14.2	Environmental Impacts of the Alternatives	71
3.14.3	Avoidance and Minimization and/or Mitigation Measures	72
3.15	Indirect and Cumulative Impacts	73
3.15.1	Past Actions	74
3.15.2	Present Actions	74
3.15.3	Reasonably Foreseeable Future Actions	74
4.	PREFERRED ALTERNATIVE	76
4.1	Preferred Alternative Selection Criteria	76
4.2	Comparison of Environmental Impacts of the Build Alternatives	76
4.3	Selection of the Preferred Alternative	80
5.	ENVIRONMENTAL COMMITMENTS	82
6.	COORDINATION AND PUBLIC INVOLVEMENT	88
6.1	Agency Coordination	88
6.2	Tribal Coordination	89
6.3	Public Open House	89
6.4	Public Engagement Update	90
6.5	Future Public Involvement	90
7.	REFERENCES	91

List of Figures

	Page
Figure 1.	2019 Conceptual Streetscape Master Plan Potential Future Road Alignment..... 2
Figure 2.	2020 Conceptual Master Plan for North of Northshore Drive..... 3
Figure 3.	Project Vicinity Map..... 5
Figure 4.	Project Location Map..... 6
Figure 5.	Logical Termini Map..... 7
Figure 6.	Build Alternative 3..... 12
Figure 7.	Roundabout at Intersection of Streeter Drive and Northshore Drive..... 14
Figure 8.	Roundabout at Intersection of New Connecting Roadway with New Bypass Roadway..... 14
Figure 9.	Roundabout at Intersection of Northshore Drive and Westshore Drive 14
Figure 10.	Three-Lane Cross-Section with Concrete Median 15
Figure 11.	Build Alternative 1 and 2 - Intersection of Streeter Drive with Northshore Drive 17
Figure 12.	Build Alternative 1 and 2 - Intersection of New Connecting Roadway with New Bypass Roadway..... 17
Figure 13.	Build Alternative 1 and 2 - Intersection of Northshore Drive with Westshore Drive..... 17
Figure 14.	Build Alternative 1 and 2 - Intersection of Westshore Drive/484th Avenue with New Bypass Road..... 17
Figure 15.	Build Alternative 1 19
Figure 16.	Build Alternative 2..... 21
Figure 17.	City of North Sioux City Zoning Map..... 28
Figure 18.	Master Plan North of Northshore Drive..... 29
Figure 19.	River Bend Business Park Zoning Map..... 30
Figure 20.	Socioeconomic Study Area 34
Figure 21.	Impacts to Farmland - Alternative 1..... 38
Figure 22.	Impacts to Farmland – Alternative 2..... 39
Figure 23.	Impacted Receiver and Barrier Location – Alternative 1 42
Figure 24.	Impacted Receiver and Barrier Location – Alternative 2 43
Figure 25.	Impacts to Wetlands – Alternative 1 45
Figure 26.	Impacts to Wetlands – Alternative 2..... 46
Figure 27.	Recreational Resources Map..... 63
Figure 28.	Section 4(f) Impacts – Alternative 1 66
Figure 29.	Impacts to Section 4(f) Properties – Alternative 2..... 68
Figure 30.	Proposed Trail Detour..... 69
Figure 31.	Contaminated Materials Map..... 73

List of Tables

Table 1. Current and Future Traffic Projections..... 9

Table 2. Alternative Screening for Purpose and Need..... 22

Table 3. Alternative Screening for Project Goals 23

Table 4. Travel Times 24

Table 5. Comparison of Build Alignment Alternatives 25

Table 6. Employment Sectors and Labor Force 35

Table 7. City and County Annual Income..... 35

Table 8. Federally Listed Species..... 54

Table 9. Regulated Facilities 71

Table 10. Summary of Environmental Impacts for the Build Alternatives..... 77

Table 11. Comparison of Build Alternatives..... 80

Table 12. Environmental Commitments..... 82

Table 13. Agency Correspondence 88

Appendices

Appendix A. Traffic Study Report

Appendix B. NRCS Farmland Coordination

Appendix C. Traffic Noise Impact Analysis

Appendix D. Wetland Delineation Report

Appendix E. Agency and Tribal Coordination

Appendix F. Section 4(f) Coordination

Appendix G. Contaminated Materials Review

Appendix H. Public Involvement

Northshore Drive Realignment

List of Acronyms

ACS	American Community Survey
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
APE	Area of Potential Effect
ARSD	Administrative Rules of South Dakota
AST	Above Ground Storage Tank
ASTM	American Society for Testing and Materials
BMP	Best Management Practice
CAA	Clean Air Act
CE	Categorical Exclusion
CFR	Code of Federal Regulations
CMR	Contaminated Materials Review
CWA	Clean Water Act
dBA	A-weighted decibels
EA	Environmental Assessment
EO	Executive Order
ESA	Environmental Study Area
FEMA	Federal Emergency Management Agency
FFPA	Federal Farmland Protection Act
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FR	Federal Register
GFP	Games, Fish and Parks
IIJA	Infrastructure Investment and Jobs Act
IPaC	Information for Planning and Consultation
LOS	Level of Service
LRTP	Long-Range Transportation Plan
MBTA	Migratory Bird Treaty Act
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
MSATs	Mobile Source Air Toxics
MUTCD	Manual on Uniform Traffic Control Devices
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NGPC	Nebraska Game and Parks Commission
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	Noise Sensitive Area
OWJ	Official With Jurisdiction
PEMA/C	Palustrine Emergent Temporarily/Seasonally Flooded
PL	Public Law

Northshore Drive Realignment

RCF	Resource Conservation and Forestry
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
ROW	Right-of-Way
SARA	Superfund Amendments and Reauthorization Act
SDARC	South Dakota Archaeological Research Center
SDDANR	South Dakota Department of Agriculture and Natural Resources (formerly SDDENR)
SDDENR	South Dakota Department of Environment and Natural Resources
SDDOT	South Dakota Department of Transportation
SDGFP	South Dakota Game Fish and Parks
SDSHPO	South Dakota State Historic Preservation Office
SIMPCO	Siouxland Interstate Metropolitan Planning Council
STIP	Statewide Transportation Improvement Program
SWD	Surface Water Discharge
SWPPP	Surface Water Pollution Prevention Plan
TIP	Transportation Improvement Program
USACE	United States Army Corps of Engineers
USC	United States Code
USCB	United States Census Bureau
USEPA	United States Environmental Policy Act
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
WOUS	Water of the United States

I. INTRODUCTION AND PROJECT OVERVIEW

I.1 Introduction

The City of North Sioux City, South Dakota (the City) in conjunction with the South Dakota Department of Transportation (SDDOT) and the Federal highway Administration (FHWA), is proposing improvements to traffic operations along Northshore Drive, including the potential for new transportation infrastructure (project). The project is being federally funded through the Consolidated Appropriations Act of 2022 (i.e., 2022 Omnibus Bill; Public Law 117-103). Funds remain available for obligation through September 30, 2025 (FHWA 2022). The Federal share for these State projects is governed by 23 United States Code (USC) 120, as amended by the Infrastructure Investment and Jobs Act (IIJA) (Public Law 117-58, also known as the “Bipartisan Infrastructure Law”) (BIL) and is generally 80 percent (See 23 USC 120(b)).

All federally funded projects must comply with the National Environmental Policy Act (NEPA) of 1969 requirements (42 USC 4321 et seq.), which require social, environmental, and economic considerations be incorporated into project planning, interagency coordination, and public involvement as part of the decision-making process. FHWA has determined that an Environmental Assessment (EA) is the proper NEPA classification to assist in determining whether the project is likely to have significant environmental impacts that would require an Environmental Impact Statement.

As the local sponsor, the City is completing this project in coordination with SDDOT and FHWA, the lead agency for the project. There are no other cooperating or participating agencies for the project. However, other state and federal agencies have been invited to provide input on the project through coordination. Agencies invited to provide input include the U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), South Dakota Game Fish and Parks (SDGFP), South Dakota Department of Agriculture and Natural Resources (SDDANR), South Dakota State Historic Preservation Office (SDSHPO), and any tribes with a cultural interest in the project area.

This EA has been prepared as 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. Finally, it provides decision makers with appropriate information to make a reasoned choice when identifying a Preferred Alternative.

I.2 Project Background

The existing Northshore Drive is an important travel route for the local community, area businesses, schools, and residents in a growing part of the Siouxland metropolitan area. Lakefront residences are present along McCook Lake resulting in thirty-nine access points along the south side of Northshore Drive between Westshore Drive and Interstate 29 (I-29)/Streeter Drive. Residential drives and Dakota Valley School entrances result in an additional fifteen access points on the north side of Northshore Drive. The high number of access points, combined with traffic congestion on Northshore Drive, has contributed to seventeen rear-end crashes between 2018 and 2022. With average daily traffic (ADT) projected to increase from 5,975 in 2022 to 6,500 in 2045, the problem is expected to worsen if no solution is implemented.

Although there are no immediate projects planned or development platted, the farmland in the project area is eventually expected to develop. This is consistent with the long-term land use plans for the City. The North Sioux City Master Plan for North of Northshore Drive has conceptual plans identifying single-family residential, one and two family residential, multiple-family residential, and business development in what is currently agricultural land north the Dakota Valley Schools (Stockwell 2020). A public input survey conducted by Union

Northshore Drive Realignment

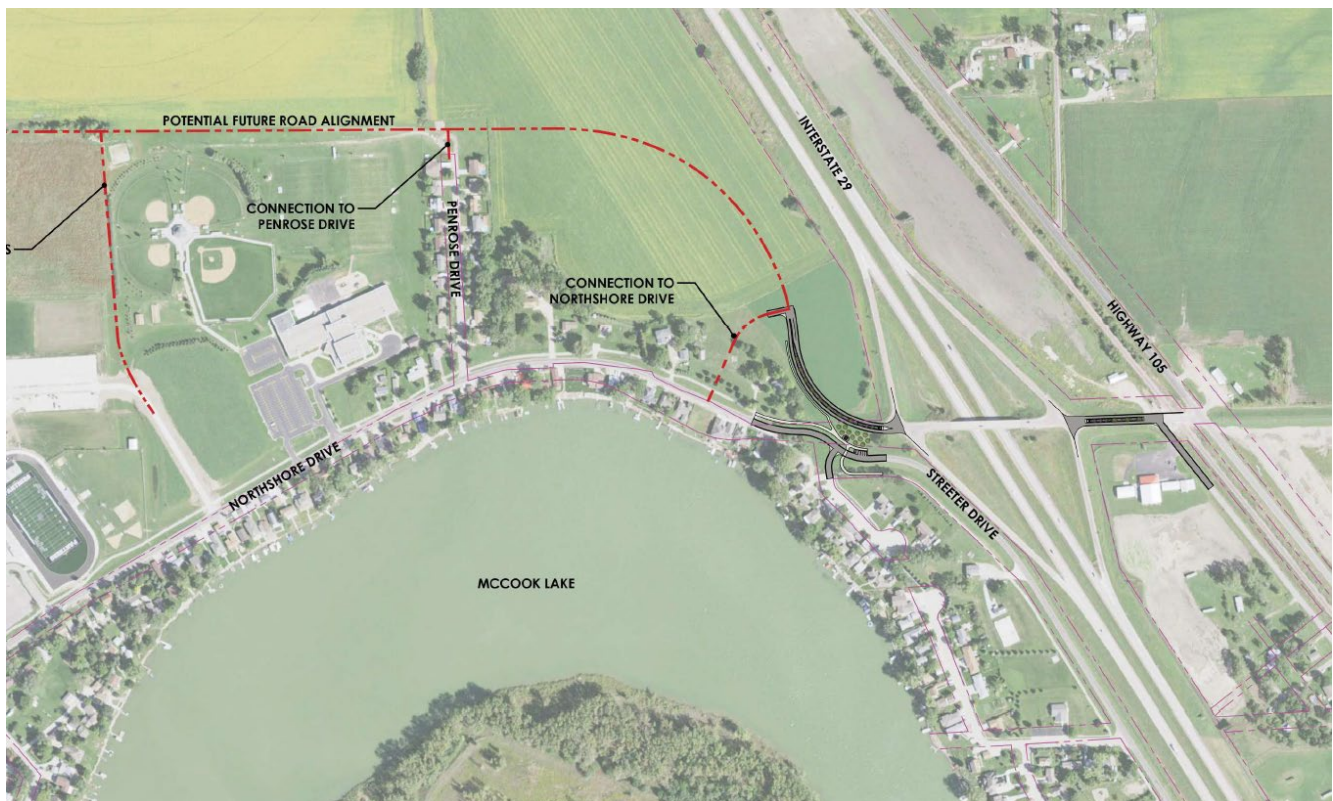
County in 2021 noted that travel delays were overwhelmingly represented in the vicinity of Northshore Drive, Dakota Valley Schools, and Exit 4 at I-29 (Ulteig 2022). Maintenance of Northshore Drive currently consists of chip seal coating every two years and is expected to continue at this frequency at current ADT levels.

1.2.1 Previous Planning Studies

A Dakota Dunes/N. Sioux City Planning Study – Operations Analysis and Recommendations Study Report was prepared in conjunction with Siouxland Interstate Metropolitan Planning Council (SIMPCO) and SDDOT in 2018. The study evaluated primary roadways and potential roadway improvements through Dakota Dunes and North Sioux City that included the Northshore Drive Realignment project area. A long-term recommendation of the study was for Northshore Drive to either be reconstructed as a 3-lane roadway or for a new street to be constructed along the north side of the Dakota Valley Schools campus that connects to Exit 4 (Dakota Dunes 2018). The latter alternative was proposed as a “dike road” to protect area development from flooding.

Following the Dakota Dunes Study, a Community Gateway and Streetscape Master Plan was prepared for I-29 Exit 4 (Stockwell 2018). As shown in **Figure 1**, this conceptual plan includes a future road on the north side of the Dakota Valley Schools, a future road connection to the schools, and the separation of Northshore Drive from Exit 4.

Figure 1. 2019 Conceptual Streetscape Master Plan Potential Future Road Alignment



In 2020 a master plan was completed for the 280 acres north of Northshore Drive bordered by the Dakota Valley Schools on the south, Westshore Drive on the west, and I-29 on the east (Stockwell 2020). This plan also includes a bypass road and the separation of Northshore Drive from Exit 4 as shown in **Figure 2**.

Northshore Drive Realignment

Figure 2. 2020 Conceptual Master Plan for North of Northshore Drive



In 2024 an updated traffic study was prepared for the Northshore Drive Realignment project area, titled the Northshore Drive Realignment Alternatives Analysis, and is included in **Appendix A** (FHU 2024). The 2024 traffic study investigated alternatives derived from the recommendations of the 2018 Dakota Dunes Planning Study including one alternative that would widen the existing Northshore Drive to 3 lanes; and two alternatives that would construct a new bypass roadway north of Northshore Drive.

Although the basic concepts of the alternatives presented in the 2018 study were brought forward through the master plans and into the 2024 traffic study, there are modifications from what was originally proposed in the 2018 study. Modifications include the configuration for how the east-west bypass roadway alternative would tie into the existing Northshore Drive on the east; and the bypass alternative is not proposed to be elevated as a “dike” road so as not affect the USACE Flood Emergency Plan for the Big Sioux River (USACE 1982). The 2024 study also investigated intersection configurations within the Northshore Drive Realignment project area. Recommendations of the 2024 study are discussed in more detail in Chapter 2.

1.2.2 Northshore Drive Flooding Damage

In June of 2024, record rainfall occurred in southeast South Dakota with 10 to 15 inches of rain falling over a two-day period in many areas. As a result, the Big Sioux River had record flooding, cresting at nearly 45 feet, more than 7 feet above the previous record. The flood emergency plans identified in the USACE Operation and Maintenance Manual for Big Sioux River (1982) were implemented. This involved construction of a temporary levee at the I-29 Exit 4 interchange to tie-in with the existing levee system and reduce downstream flooding impacts to North Sioux City. Construction of the temporary levee diverted floodwaters into

Northshore Drive Realignment

McCook Lake. Flood waters severely damaged many homes throughout the project area as well as the existing Northshore Drive roadway. In the short-term, the City is temporarily repairing the road with asphalt and grading work, anticipated to be completed by December 1, 2024. Longer term plans are to reconstruct Northshore Drive back to what approximately existed prior to the 2024 flooding. Given the plans to reconstruct Northshore Drive, the underlying factors driving the Northshore Realignment Project and the original request for Congressional funding remain unchanged by the flooding and are discussed in detail in Chapter 2.

1.2.3 Project Overview

The existing section of Northshore Drive from the intersection with Streeter Drive/I-29 on the east to the intersection with Westshore Drive on the west is approximately one mile in length. This section of roadway is classified as an Urban Minor Arterial. The street has a two-lane cross-section. The posted speed limit on Northshore Drive is 35 miles per hour (MPH) west of Westshore Drive and 25 MPH east of Westshore Drive. A ten-foot trail runs along the north side of Northshore Drive from Westshore Drive/484th Avenue. There are currently 39 access points along the south side of the roadway and 15 access points on the north side from Westshore Drive/484th Avenue to just west of Streeter Drive. West of Westshore Drive/484th Avenue, Northshore Drive becomes County Road (CR) 23.

This project proposes to improve existing traffic operations and accommodate planned future growth in the vicinity of Northshore Drive, including the potential for new transportation infrastructure. The project may also involve modification to existing roads, intersections, and driveways to improve overall traffic operations in the vicinity of the project and is anticipated to involve modification or construction of a new storm drainage system. The project would also look for opportunities to improve pedestrian and bicyclist continuity with the use of the Americans with Disabilities Act (ADA) compliant sidewalks, crosswalks, ramps, trails, and/or shared use paths that connect to existing trail infrastructure.

Property rights for improvements (such as temporary/permanent easements and right-of-way (ROW) acquisition) may be necessary to construct the project and are expected. Acquisition of property rights would be completed in compliance with the Uniform Act (49 Code of Federal Regulations [CFR], Subtitle A, Part 24, Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs). As early acquisition of property is being initiated, the project will comply with FHWA's Right-of-Way Environmental regulations for early acquisition (23 CFR 710.501, Early Acquisition).

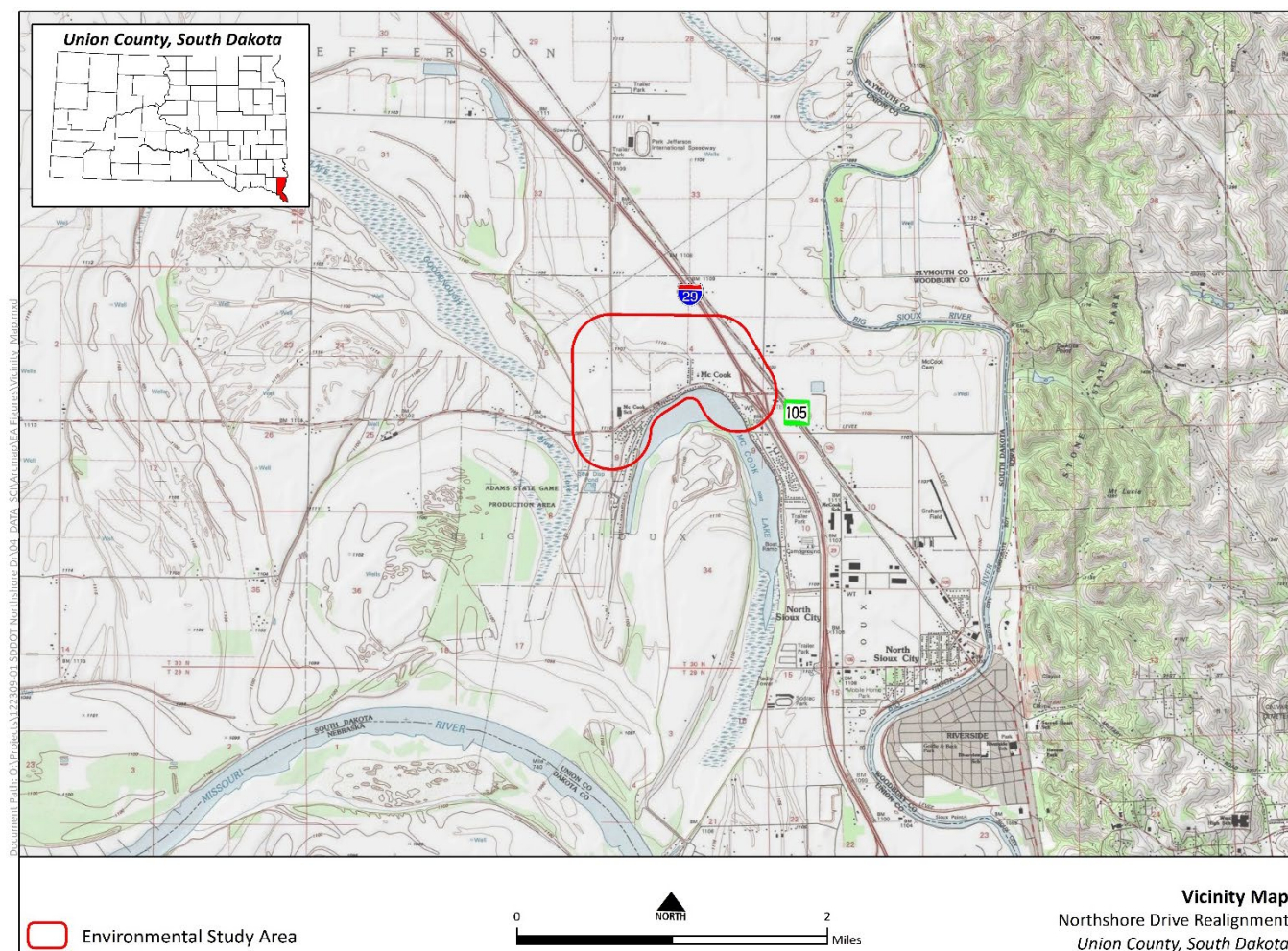
Federal funding for the project was provided through Community Project Funding/Congressionally Directed Spending in the Consolidated Appropriations Act of 2022 (Public Law 117-103). The request submitted by Senator Mike Rounds office that was ultimately approved by Congress was "to complete a realignment, bypass project on Northshore Drive that would route farm, school and residential traffic from west of McCook Lake off of the existing Northshore Drive." According to the request, "...the existing road has poor visibility and safety issues and is at risk of falling apart due to the traffic" (Rounds 2021). As a condition of the approved funding, the project must have funds obligated by September of 2025 (FHWA 2022).

1.3 Project Location and Study Area

The project is located near the north edge of North Sioux City within Union County, South Dakota and is shown on **Figure 3** below. More specifically, it is located north of McCook Lake between Westshore Drive on the west and I-29 on the east. The project is in close proximity to Sioux City, Iowa and South Sioux City, Nebraska and is within SIMPCO.

Northshore Drive Realignment

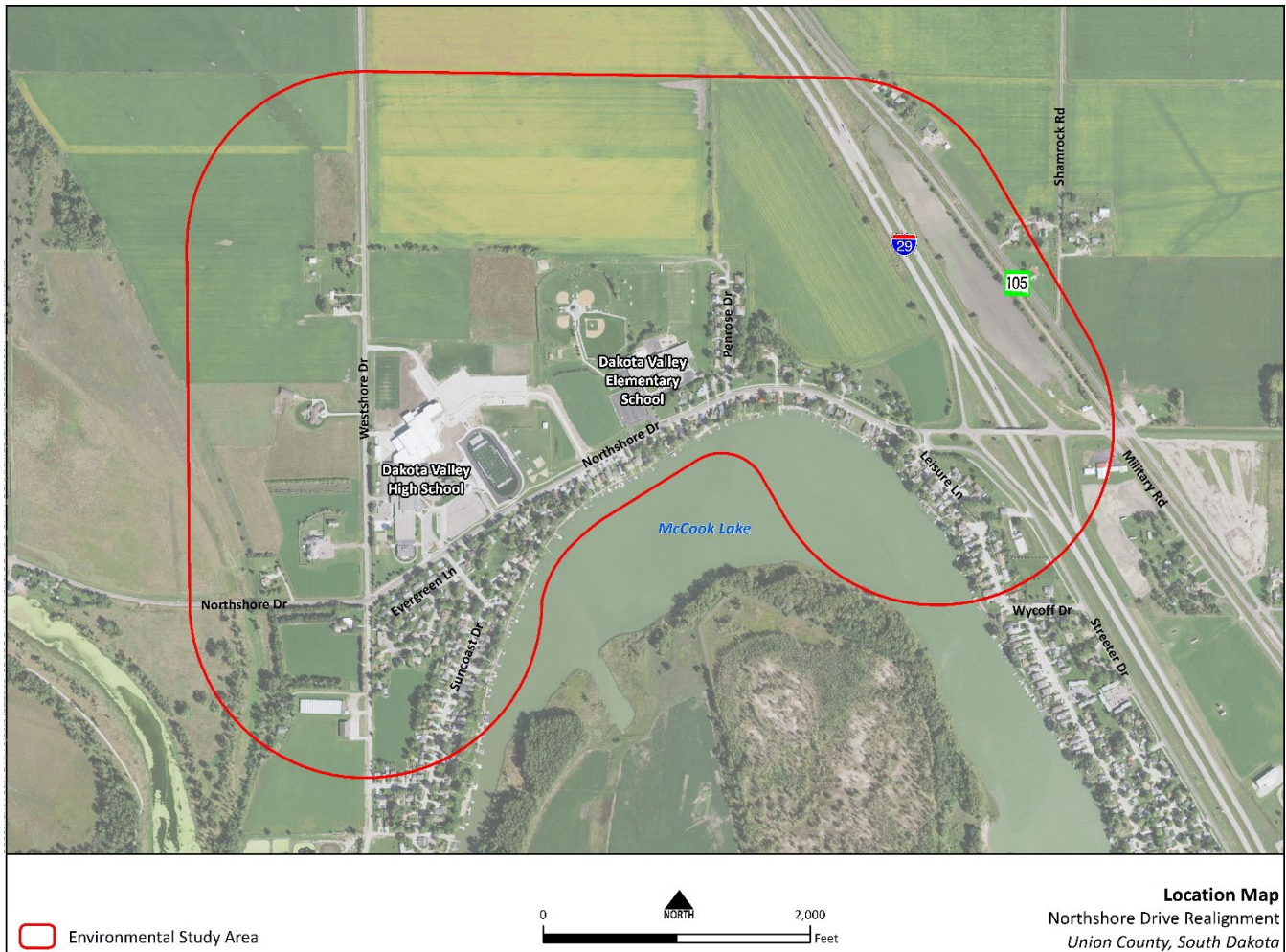
Figure 3. Project Vicinity Map



The Environmental Study Area (ESA) for the project is shown on **Figure 4** below. The boundaries of the ESA are generally McCook Lake on the south, Adams Homestead Nature Preserve/wetlands on the west, and the I-29 corridor on the east. On the north, the ESA extends into farmland approximately 0.25 miles north of the Dakota Valley Schools property allowing for the evaluation of a northern alternative for the project. The ESA was developed to provide a range of alternatives that could meet the purpose and need for the project, including alternatives on the existing alignment and within undeveloped areas to the north where new alignment alternatives are potentially feasible. The study area and limits do not indicate construction limits for any of the alternatives identified in this study, but rather, they define the area to be examined for potential impacts to resources and the transportation network which could result from any of the study alternatives. Furthermore, individual resource evaluations may have ESAs that differ from the overall project ESA and are identified in Section 3 where applicable.

Northshore Drive Realignment

Figure 4. Project Location Map



The study limits were chosen based on logical termini. Logical termini are defined as rational end points for a transportation project and corresponding environmental review. The project termini are located at the east and west ends of the segment of Northshore Drive that has been determined to have a Level of Service (LOS) below the acceptable level for both existing and future conditions (FHU 2024). This stretch of roadway runs east-west and is generally located between Streeter Drive on the east and Westshore Drive on the west and ends at the intersections with these roadways. Therefore, it does not have a northern or southern terminus.

The western terminus is recommended at Westshore Drive because it connects to the existing Northshore Drive at the west end of the segment of Northshore Drive for which the project seeks to improve traffic operations (i.e., between Westshore Drive and Streeter Drive; **Figure 5**). Westshore Drive would be the logical connection point for any improvements to this stretch of Northshore Drive or any new roadway alternatives that would bypass Northshore Drive. Further west is limited by the presence of wetlands and the Adams Homestead Nature Preserve. Additionally, west of this point traffic patterns change as the roadway enters a more rural area with fewer access points.

The eastern terminus is recommended as being east of the intersection of Northshore Drive with Streeter Drive and west of the southbound ramp terminal intersection for the I-29 Exit 4 interchange (**Figure 5**). This terminus is recommended because it is a travel shed transition point at which drivers can turn to navigate onto I-29 or continue eastward toward Military Road and/or south along Streeter Drive which leads to River Drive,

Northshore Drive Realignment

a main thoroughfare in North Sioux City. Additionally, the current intersection at Streeter Drive is non-conforming due to its proximity to the I-29 interchange (289 feet) which is less than the 660-foot spacing required by SDDOT access management rules for intermediate urban streets (ARSD 70:09). As part of the interstate highway system, the state is responsible for the Exit 4 interchange, including the portion of Northshore Drive over I-29 and extending approximately 550 feet west of the southbound interchange ramps. Streeter Drive and Northshore Drive (west of the state portion) are locally maintained roadways under City jurisdiction (**Figure 5**). The location of the eastern terminus within the state-controlled portion of Northshore Drive is necessary to reconstruct the Streeter Drive intersection and tie the new roadway into the state highway system. The study is evaluating interchange improvements at Exit 4 to develop an implementation plan but is not evaluating Northshore Drive west of the interchange. This further supports the location of the eastern terminus being west of the interchange ramps and crossroad bridge.

Figure 5. Logical Termini Map



The proposed project would seek to improve traffic operations along Northshore Drive between Westshore Drive and Streeter Drive, a section of roadway with known congestion issues, multiple access points, and a history of rear-end collisions. Improved traffic operations along this stretch of Northshore Drive would provide a transportation benefit even if no additional transportation improvements are made in the area.

The project would not restrict consideration of alternatives for other reasonably foreseeable transportation improvements. The Master Plan for north of Northshore Drive calls for the farmland to be developed into

Northshore Drive Realignment

residential and commercial infrastructure, but there are not yet any specific projects planned (Stockwell 2020). This project would not restrict any future transportation development in this area.

The adjacent I-29 corridor and Exit 4 interchange are being studied by SDDOT concurrently to this project as part of the I-29 Corridor Study (SDDOT 2024). The proposed Northshore Drive Realignment project has independent utility from the Exit 4 interchange improvements being studied. As a condition of the congressional funding source, which is a purpose of the project, the Northshore Drive Realignment project must have funds obligated by September of 2025 (FHWA 2022). There are no projects for the I-29 Exit 4 interchange which are anticipated to be programmed in the STIP prior to the timeline proposed for the Northshore Drive Realignment project. Therefore, concerning the I-29 interchanges, there are no proposed projects that may be considered connected actions. The Northshore Drive Realignment project would be open to traffic before any potential future work begins on the Exit 4 interchange or the I-29 corridor.

Additional support for the independent utility of the Northshore Drive Realignment project is that it would provide a transportation benefit regardless of whether improvements to the Exit 4 interchange are constructed. The funding request that was approved by Congress was specifically for a “realignment, bypass project on Northshore Drive” and did not propose any improvements to the adjacent interchange (Rounds 2021). Likewise, improvements to the Exit 4 interchange have independent utility from the Northshore Drive Realignment project. The need for interchange improvements is documented by past and current studies (SDDOT 2020; SDDOT 2024) and would remain regardless of whether the Northshore Drive Realignment Project is constructed. Recommendations for Exit 4 from the 2020 Decennial Study were to reconstruct the crossroad bridge over the interstate and provide better alignment of ramps with the terminal intersections, and did not involve any improvements to Northshore Drive west of the interchange.

Although the Northshore Drive Realignment Project has independent utility, there are still reasonably foreseeable improvements to the Exit 4 interchange in the future planning horizon (SDDOT 2024). The potential cumulative effects are discussed in Section 3.15 of this document. Coordination has been conducted to ensure that the Northshore Drive Realignment project would not restrict the potential realm of future Exit 4 interchange alternatives.

1.4 Purpose and Need for Project

NEPA and other environmental requirements rely on a project decision-making process guided by the Purpose and Need for the project. The purpose is a brief statement of the primary intended transportation objective and related goals to be achieved by a proposed transportation improvement. The need is a condition sought to be relieved, or a statement of the problem in need of a solution. The need proves the transportation problem exists based on existing data and information.

The following sections describe the purpose of and the need for the project. The need for the proposed improvements is the basis from which the improvement alternatives would be developed, compared, and evaluated, ultimately leading to the Preferred Alternative.

1.4.1 Purpose of the Project

The primary purposes of the project are 1) to accommodate future mobility in North Sioux City by reducing expected roadway congestion along Northshore Drive between Westshore Drive and Streeter Drive, and 2) fulfill the federally mandated funding requirements for the project. Funding was requested through the Senate Appropriations Committee congressionally directed spending in the Fiscal Year 2022 Transportation, Housing and Urban Development, and Related Agencies Appropriations Bill (H.R. 2022). The project purpose identified in the spending request approved by Congress is as follows (Rounds 2021):

Northshore Drive Realignment

“...to complete a realignment, bypass project on Northshore Drive that would route farm, school and residential traffic from west of McCook Lake off of the existing Northshore Drive.”

According to the spending request, officials with North Sioux City are requesting the bypass because “the existing road has poor visibility and safety issues and is at risk of falling apart due to the traffic.” This request was ultimately approved by Congress as part of the Consolidated Appropriations Act of 2022 (i.e., 2022 Omnibus Bill; Public Law 117-103). The project description approved in the legislation can be found in the Community Project Funding / Congressionally Directed Spending Table in the Join Explanatory Statement incorporated by reference in Division L of the Consolidated Appropriations Act of 2022 (H.R. 2022) and reads as follows: North Sioux City Northshore Drive Realignment Project.

1.4.2 Project Needs

I. Primary Need 1 - Congestion

The transportation project is needed to achieve an acceptable level of service (LOS) along Northshore Drive, defined as LOS B or better. LOS are described with a letter designation of A, B, C, D, E, or F, with LOS A representing uninterrupted flow, and LOS F representing a breakdown of traffic flow with noticeable congestion and delay. SDDOT identifies LOS B as the acceptable LOS threshold for Minor Arterials and Collectors. Currently, Northshore Drive (between Westshore Drive and Streeter Drive) functions at LOS C. The SIMPCO travel demand model projects an annual growth rate of 0.5% along Northshore Drive from 2017 to 2045 (FHU 2024). Based on this projection, Northshore Drive (between Westshore Drive and Streeter Drive) is anticipated to operate at LOS C in 2025 and LOS D in 2045, both of which are considered deficient LOS based on SDDOT guidelines, which are being used for the purposes of this project (see **Table I**).

Table I. Current and Future Traffic Projections

Location	2022 ADT	2022 LOS	2025 ADT	2025 LOS	2045 ADT	2045 LOS
Northshore Drive (Westshore Drive to Streeter Drive)	5,975	C	6,100	C	6,500	D

II. Primary Need 2 – Legislative Mandate

This transportation project is needed to fulfill the federal funding requirements for the project. As part of the 2022 Federal Omnibus Bill, the City was granted funds through congressionally directed spending under the Transportation, Housing and Urban Development, and Related Agencies appropriations bill. The funds were provided to complete a realignment, bypass project to route farm, school, and residential traffic off the existing Northshore Drive between Westshore Drive and Streeter Drive.

1.4.3 Project Goals

Project goals address general concerns relevant to stakeholders and the public that do not rise to the level of a project need. These goals may be used to aid in the selection of a Preferred Alternative when other needs are equal, and one alternative addresses the goals better than other alternatives. These goals are being addressed in preliminary design.

One goal of the project is to improve safety for pedestrians and bicyclists by providing an access-controlled route through the area with fewer vehicle and pedestrian conflict points than what currently exists along Northshore Drive. Northshore Drive between Westshore Drive and Streeter Drive has 54 access points (15 on the north, 39 on the south). While reducing traffic on Northshore Drive would be expected to improve

Northshore Drive Realignment

safety by reducing the number of potential pedestrian-vehicle conflicts, this goal would be to provide an alternative route with fewer conflict points.

Another project goal is to reduce travel time between the Northshore Drive/Streeter Drive intersection and Westshore Drive below existing conditions of 3.17 minutes (FHU 2024). The posted speed limit and number of access points along Northshore Drive contribute to the existing travel time. Shorter travel times would be a benefit to the traveling public by reducing travel delay. An additional travel time goal is to provide a route between I-29 and the Dakota Valley High School that is faster than utilizing the existing Northshore Drive to reach the school. People are most likely to choose the closest and fastest travel route; thus, a faster travel time would encourage traffic to utilize the bypass rather than continue to use Northshore Drive. As the intent of the project is to route traffic off the existing Northshore Drive and on to a bypass, this is an important goal, particularly for school traffic during drop-off and pick-up when traffic levels peak.

2. ALTERNATIVES ANALYSIS

The alternatives considered for this EA include the No Build Alternative and the range of build alternatives. This chapter explains the process and rationale used in the development of alternatives, elimination of alternatives from consideration, as well as the decision on which alternatives warranted further consideration, ultimately resulting in the Preferred Alternative.

An initial Tier I screening of alternatives was completed as part of the Northshore Drive Realignment Alternatives Analysis (FHU 2024). This initial screening evaluated alternative project alignments, project intersections, and project cross-sections. The purpose was to narrow down the alternatives carried forward for more detailed evaluation in this EA. The Tier I screening criteria utilized to narrow down the alternatives is outlined below in Section 2.4 and noting the criteria included the project purpose and need described in Section 1.4 (i.e., reduce congestion and fulfill the legislative mandate).

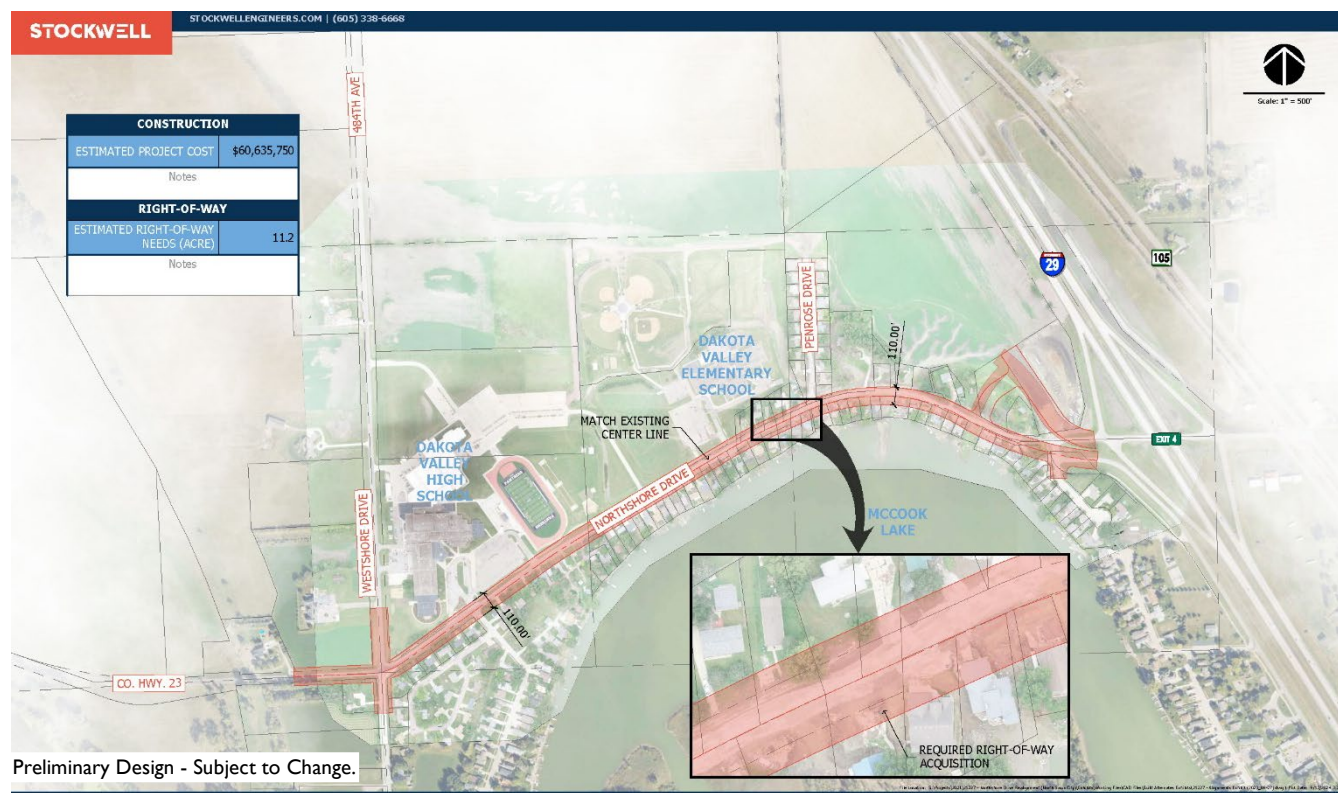
2.1.1 Alignment Alternatives Considered but Eliminated from Further Consideration

Three build alternative alignments were evaluated in the Northshore Drive Realignment Alternatives Analysis (FHU 2024). One alignment alternative, Build Alternative 3, was eliminated from further consideration. Build Alternative 3 would have widened approximately 1 mile of the existing Northshore Drive located between Streeter Drive on the east and Westshore Drive/484th Avenue/County Road I on the west to provide additional capacity on the roadway (**Figure 6**). The roadway would have remained on the existing alignment with the eastern terminus located at Streeter Drive and the western terminus at Westshore Drive. Whereas Build Alternatives 1 and 2 would be located within undeveloped farmland, Build Alternative 3 would occur within an area of developed infrastructure including many residential properties and utilities.

Build Alternative 3 would result in the longest travel time of the three alternatives. Additionally, it would be anticipated to have substantially greater property impacts (anticipated to be greater than 15 impacted properties) than the other alternatives (anticipated to impact 2 or 3 properties). These impacts would be due to the high number of residences along the south side of Northshore Drive that would be impacted from a widening project resulting in the potential for numerous residential relocations and a higher cost of construction. The cost of construction for Build Alternative 3 is anticipated to be approximately triple that of the other two alternatives (\$60,639,125 for Build Alternative 3 versus \$19,908,521 for Build Alternative 1 and \$21,750,333 for Build Alternative 2) (FHU 2024).

Regarding the purpose and need for the project, Build Alternative 3 would result in an acceptable LOS per SDDOT standards for minor arterials and collectors on Northshore Drive. However, this alternative would not fulfill the congressionally directed spending requirements. Congressionally directed spending was granted for the specific purpose of creating a bypass to route traffic off the existing Northshore Drive. Build Alternative 3 would widen the existing Northshore Drive without creating a bypass to route traffic from the existing alignment and therefore would not meet the purpose and need for the project; and therefore, has not been carried forward for further evaluation in this document.

Figure 6. Build Alternative 3



2.1.2 Intersection Alternatives Considered but Eliminated from Further Consideration

This section describes intersection alternatives that were considered during the project development process but were eliminated before commencing the environmental phase of the project. These alternatives were evaluated in detail in the Northshore Drive Realignment Alternatives Analysis for the project (FHU 2024). Following standard practice for traffic studies, intersections in close proximity to the project were also evaluated, including at the Exit 4 northbound and southbound ramp terminal intersections. However, these intersections are supplemental information for the Northshore Drive Alternatives analysis and were not considered study intersections or evaluated as part of the alternatives analysis for the project (FHU 2024). For reasons detailed in Section 1.3, the Exit 4 interchange ramp terminal intersections are not part of the Northshore Drive Realignment project.

Streeter Drive and Northshore Drive Intersection

Additional alternatives considered for the Streeter Drive and Northshore Intersection included a two-way stop-controlled intersection with a dedicated southbound right turn lane that would end in a ninety-degree angle intersection (i.e., T-intersection) with Northshore Drive at the southwest end of the connecting roadway; and a single-lane roundabout connecting Street Drive, Northshore Drive, and the connecting roadway to the new bypass road (**Figure 7**). The roundabout alternative was eliminated because it would have additional property impacts, including over twice the amount of required ROW compared to the other alternatives for this intersection; it would provide “moderate friction” in terms of traffic flow; and driver expectation in the area is unfamiliar with roundabout configuration. The two-way stop-controlled intersection with a dedicated southbound right turn lane was eliminated because it would result in a multi-lane crossing that would decrease safety for users (FHU 2024).

Intersection of New Connecting Roadway with New Bypass Roadway

Additional alternatives considered for the intersection of the new connecting roadway with the new bypass roadway included a two-way stop-controlled intersection with a westbound left turn and a dedicated northbound right turn lane; and a single-lane roundabout (**Figure 8**). The roundabout alternative was eliminated because it would have additional property impacts, including over twice the amount of required ROW compared to the other alternatives for this intersection; it would provide “moderate friction” in terms of traffic flow; and driver expectation in the area is unfamiliar with roundabout configuration. The two-way stop-controlled intersection with a westbound left turn and a dedicated northbound right turn lane was eliminated because it would result in a multi-lane crossing that would decrease safety for users.

Northshore Drive and Westshore Drive Intersection

Additional alternatives considered for the Northshore Drive and Westshore Drive intersection included a two-way stop-controlled standard intersection (i.e., without a sweeping curve alignment); and a single-lane roundabout connecting Westshore Drive north and south and Northshore Drive east and west (**Figure 9**). The two-way stop-controlled standard intersection was not selected as it would be considered “high friction” in terms of traffic flow/interruption and would not provide any safety improvements for users. The single-lane roundabout was not selected as it would still provide “moderate friction” in terms of traffic flow; driver expectation in the area is unfamiliar with roundabout configuration; and the cost is anticipated to be substantially more than the other alternatives, (i.e., greater than \$1,000,000 more than other alternatives).

Intersection of Westshore Drive and New Bypass Roadway

An additional alternative for this intersection evaluated a two-way stop-controlled standard ninety-degree angle intersection (i.e., T-intersection) with a northbound right turn lane. This alternative was not selected as it would be considered “high friction” in terms of traffic flow/interruption.

2.1.3 Cross-Section Alternatives Considered but Eliminated from Further Consideration

This section describes cross-section alternatives that were considered during the project development process but were eliminated before commencing the environmental phase. A planning level cross-section analysis was conducted for the study roadway segments which evaluated in detail the Northshore Drive Realignment Alternatives Analysis for the project (FHU 2024).

Two-Lane Cross-Section

A two-lane cross-section with no median or center turn lane was evaluated as a potential cross-section alternative in the traffic study. This alternative was eliminated because it would be anticipated to operate at LOS F under the 2045 traffic volumes (FHU 2024).

Three-Lane Cross-Section with a Two-way Left-Turn Lane for the Entire Roadway

A three-lane cross-section with a two-way left-turn lane through the entire stretch of the roadway was evaluated as a potential cross-section alternative in the traffic study. This alternative was eliminated because it would not provide the safety benefits of a median separating the two travel lanes, reducing the possibility of crash types such as head-on collisions and sideswipes in the opposite direction (FHU 2024).

Northshore Drive Realignment

Figure 7. Roundabout at Intersection of Streeter Drive and Northshore Drive

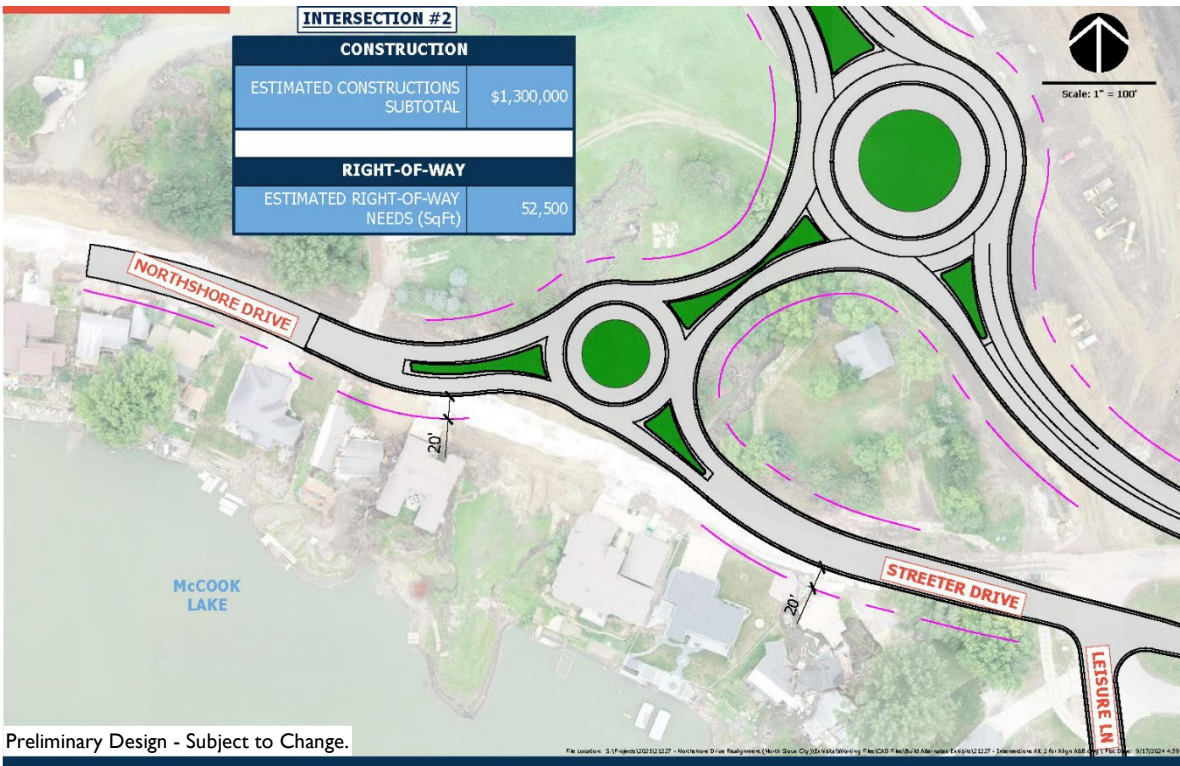


Figure 9. Roundabout at Intersection of Northshore Drive and Westshore Drive

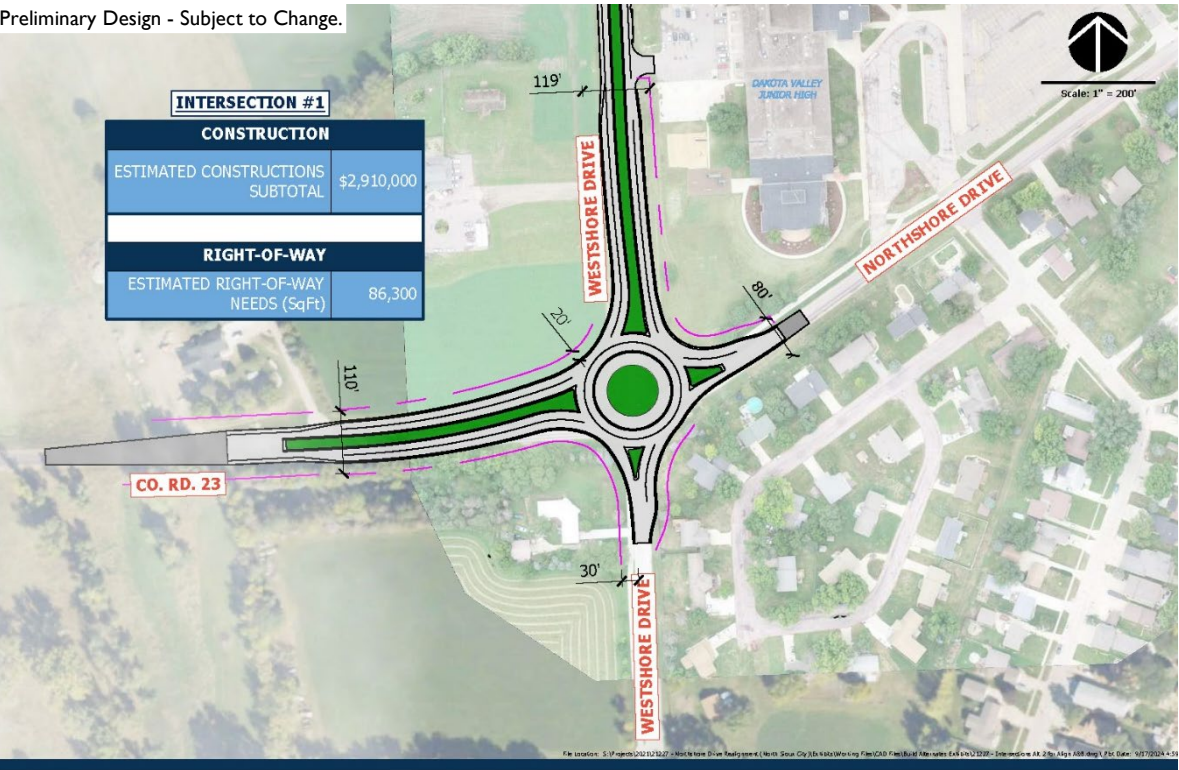
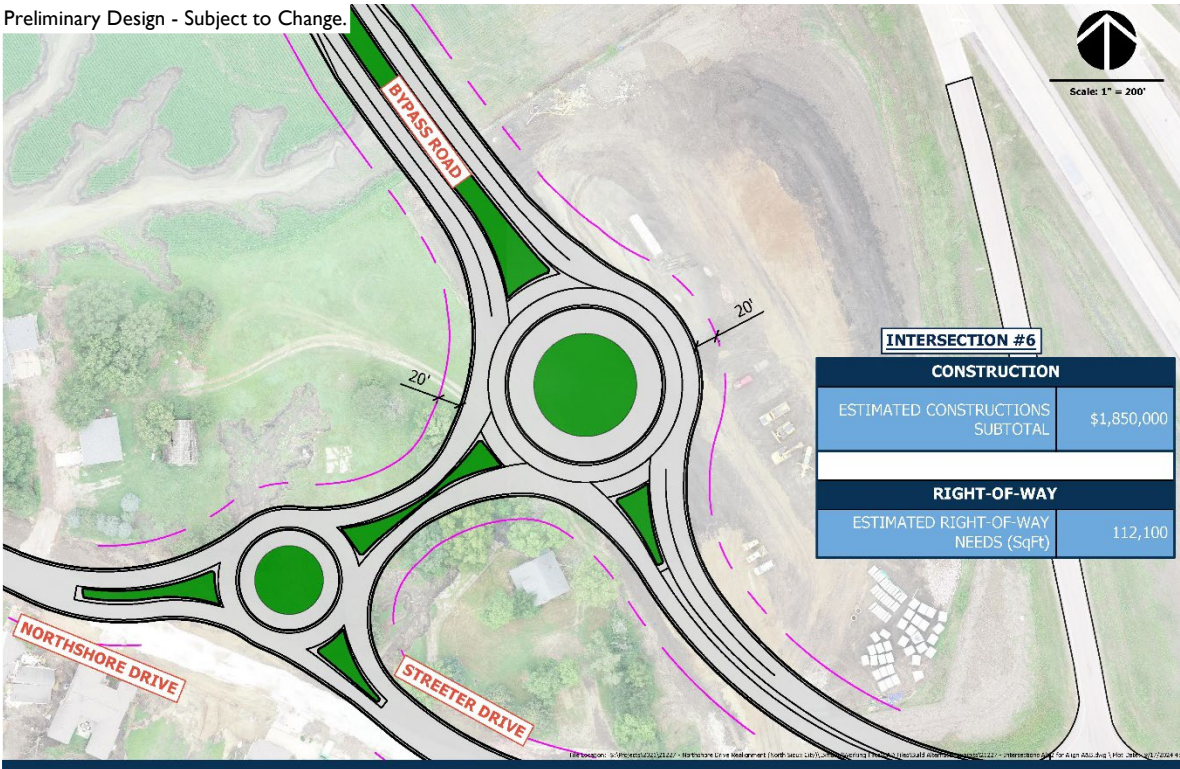


Figure 8. Roundabout at Intersection of New Connecting Roadway with New Bypass Roadway



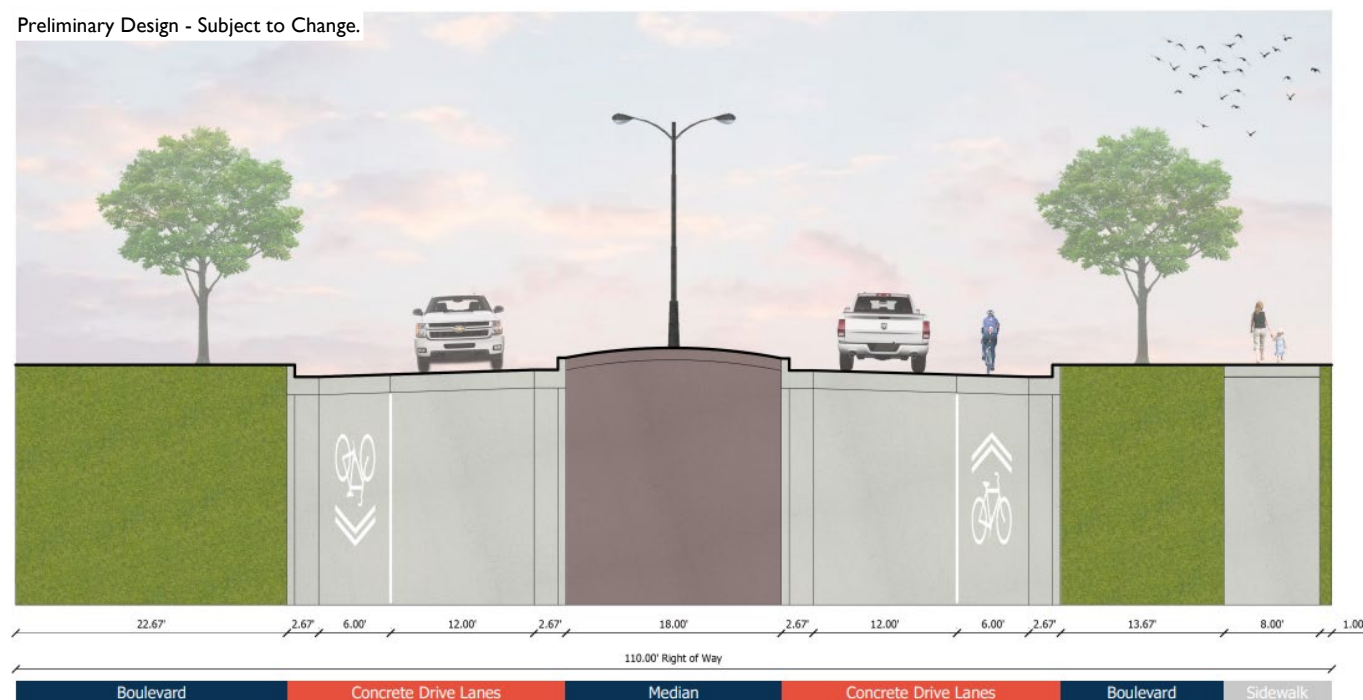
2.1.4 Intersection and Cross-Section Alternatives Retained for Further Analysis

This section identifies conceptual intersection configurations and cross-section alternatives that are being carried forward into the environmental phase of the project as part of the Build Alternatives. These alternatives were evaluated in detail in the Northshore Drive Realignment Alternatives Analysis for the project and are the recommendations of the study (FHU 2024).

Three-Lane Cross-Section with Median

Based on the findings of the traffic study (FHU 2024), the cross-section recommendation is for a median-divided three-lane cross section with a left-turn lane provided at major intersections and driveways for access control (**Figure 10**). This cross-section was recommended over the other cross-section alternatives discussed in Section 2.1.1 because it would accommodate future development along the new alignment; is anticipated to operate at LOS B under the 2045 unconstrained traffic volumes; and would provide separation between the two travel lanes, reducing the possibility of crash types such as head-on collisions (FHU 2024).

Figure 10. Three-Lane Cross-Section with Concrete Median



Streeter Drive and Northshore Drive Intersection

Based on the findings of the traffic study (FHU 2024), the two-way stop-controlled intersection with no auxiliary turn lanes (**Figure 11**) was selected over the intersection alternatives discussed in Section 2.1.1 because this alternative provides adequate traffic operations and a continuous connection between Northshore Drive and Streeter Drive. Additionally, this alternative provides minimal ROW and property impacts. Additional information can be found in the Northshore Drive Realignment traffic study (FHU 2024).

Intersection of New Connecting Roadway with New Bypass Roadway

Based on the findings of the traffic study (FHU 2024), the two-way stop-controlled ninety-degree angle intersection (i.e., T-intersection) with a westbound left-turn lane (**Figure 12**) was selected over the

Northshore Drive Realignment

intersection alternatives discussed in Section 2.1.1 because this alternative provides improved traffic operations and vehicle safety by incorporating intersection geometry and traffic control that is typical to driver expectations. The intersection control allows for continuous traffic flow, with minimal interruptions along the new roadway from I-29 to Westshore Drive. Additionally, this alternative provides minimal impacts to properties and ROW. Additional information can be found in the Northshore Drive Realignment traffic study (FHU 2024).

Northshore Drive and Westshore Drive Intersection

Based on the findings of the traffic study (FHU 2024), the two-way stop-controlled intersection with a sweeping curve alignment (**Figure 13**) was selected over the intersection alternatives discussed in Section 2.1.1 because the proposed lane geometry and traffic control of this alternative would be anticipated to discourage traffic to and from Westshore Drive from cutting through on Northshore Drive rather than taking the new alignment. This intersection alternative would result in a more direct, unimpeded route for vehicles using the new bypass alignment. To cut through on Northshore Drive, drivers would need to yield/stop at two intersections, adding delay. This intersection alternative does not stop traffic along the new bypass roadway and therefore provides minimal interruption to traffic flow. This promotes the continuous east-west connection from I-29 to CR 23. By discouraging through traffic on Northshore Drive, this intersection alternative is consistent with the purpose and need of reducing congestion on Northshore Drive and is expected to improve safety for vulnerable users as it reduces vehicle exposure by shifting the intersection away from the school. Additional information can be found in the Northshore Drive Realignment traffic study (FHU 2024).

Intersection of Westshore Drive and New Bypass Roadway

Based on the findings of the traffic study (FHU 2024), the two-way stop-controlled intersection with sweeping curve alignment (**Figure 14**) was selected over the intersection alternatives discussed in Section 2.1.1 because it results in “minimal friction” in terms of traffic flow/interruption, which provides improved traffic operations and a continuous east-west connection from I-29 to CR 23. By not stopping traffic on the new roadway at the intersection with Westshore Drive, it allows for minimal interruptions in traffic flow when traveling east-west. Additional information can be found in the Northshore Drive Realignment traffic study (FHU 2024).

Northshore Drive Realignment

Figure 11. Build Alternative 1 and 2 - Intersection of Streeter Drive with Northshore Drive

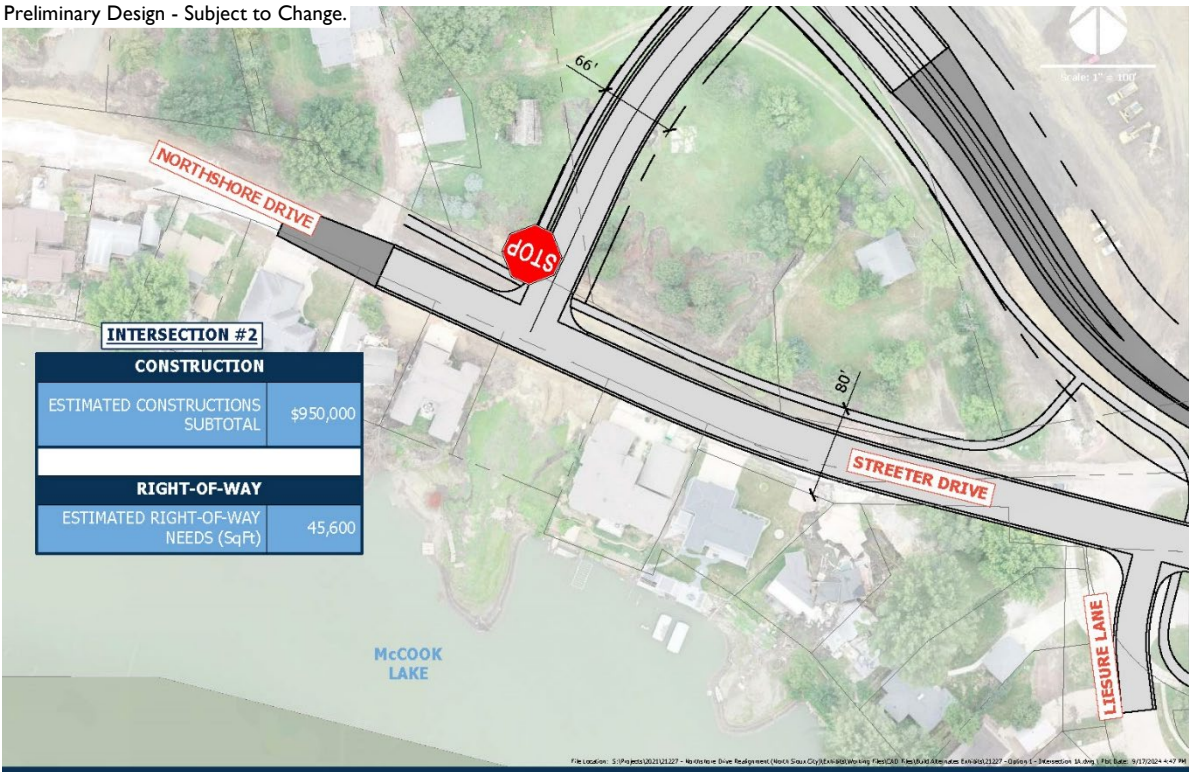


Figure 12. Build Alternative 1 and 2 - Intersection of New Connecting Roadway with New Bypass Roadway

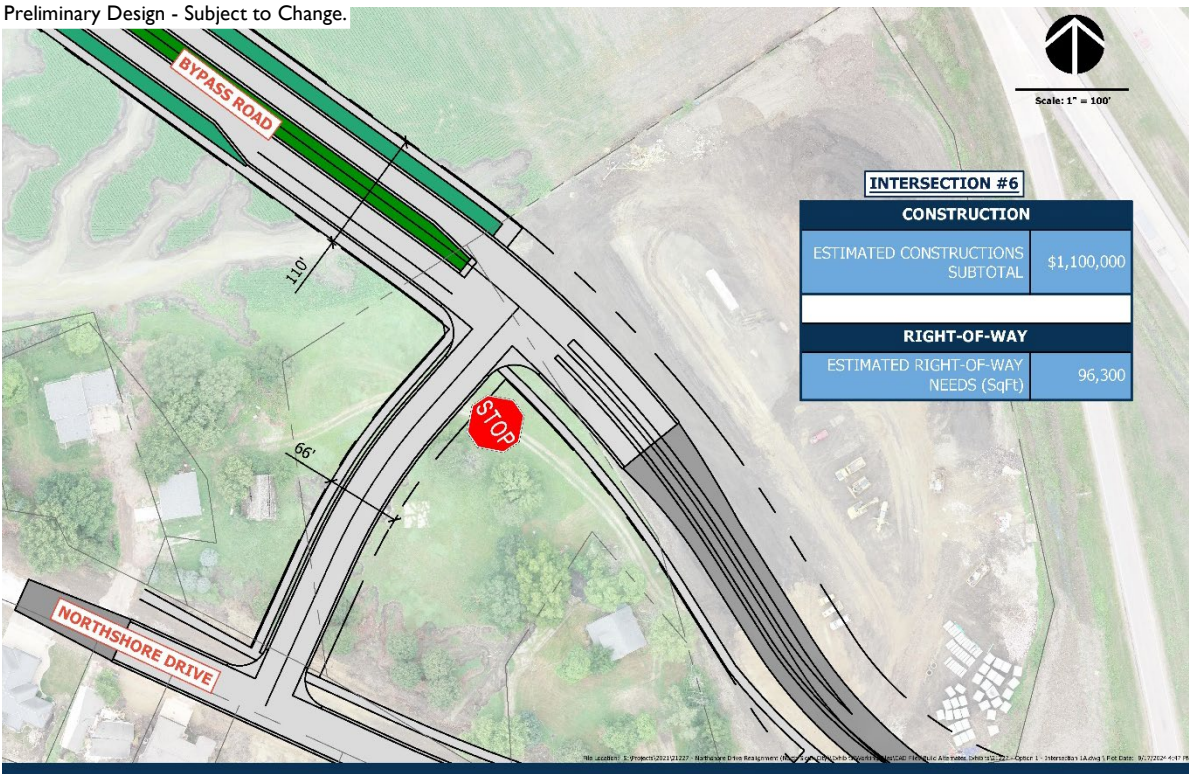
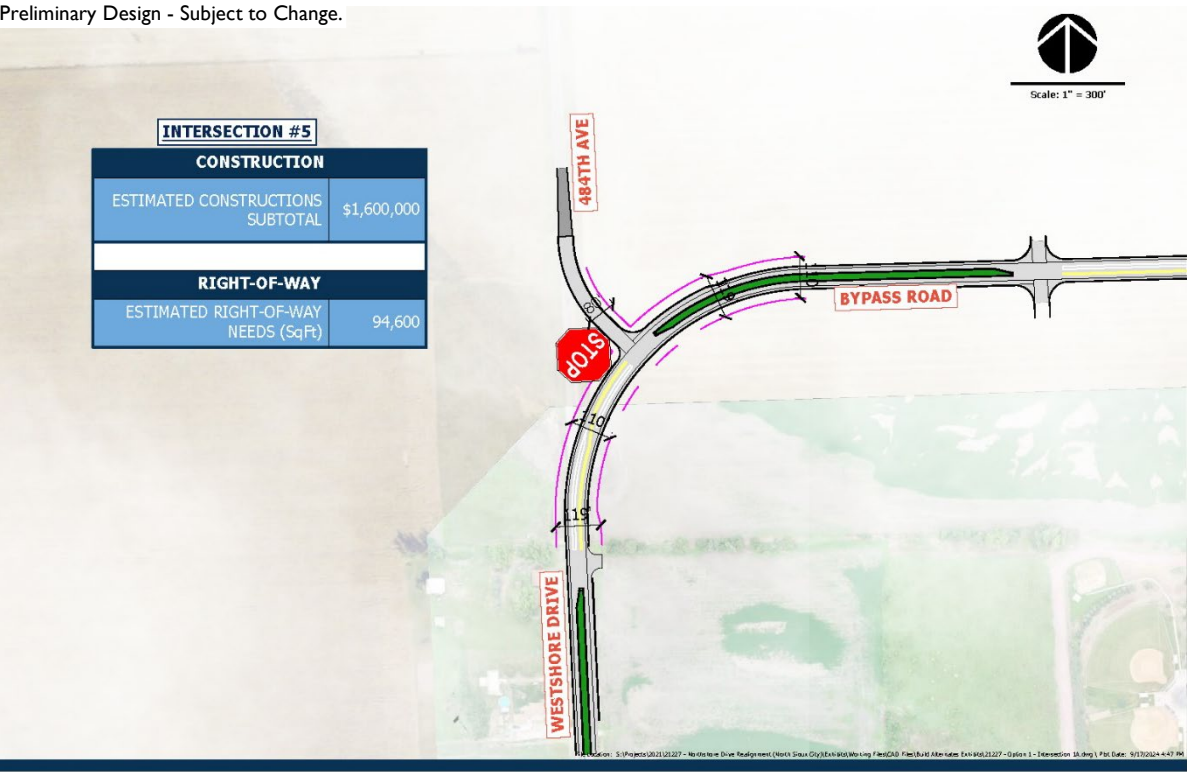


Figure 13. Build Alternative 1 and 2 - Intersection of Northshore Drive with Westshore Drive



Figure 14. Build Alternative 1 and 2 - Intersection of Westshore Drive/484th Avenue with New Bypass Road



2.2 Build Alternatives

Based on the recommendations of the Traffic Study Alternatives Analysis (FHU 2024), two Build Alternatives are being carried forward for evaluation in this document: Build Alternative 1 and Build Alternative 2. These alternatives were developed for evaluation with input from SDDOT, the City, key stakeholders from the community, and the general public, and are discussed in detail below.

Build Alternative 1. This alternative would construct approximately 1 mile of new road on new alignment to create a connection between Streeter Drive on the east and Westshore Drive/484th Avenue/County Road 1 on the west (**Figure 15**). From the eastern terminus, the new alignment would run northwest through an existing agricultural field, then west through the south edge of a row-crop agricultural field (located immediately north of the Dakota Valley School properties and sports complex. The alternative alignment would then curve south and run along the existing Westshore Drive to the western terminus near the intersection of Northshore Drive and Westshore Drive.

The alternative would be graded to a cross-section width for an ultimate build-out of a 5-lane urban divided median section to accommodate future growth; however, the paving for the current project would consist of a 3-lane median-divided urban section with curb and gutter. A center turn-lane would be used in place of the median where needed. Drive lanes would be 12 feet wide with a 6-foot bike lane on the outside of each lane. A detached sidewalk would be included on the south side of the corridor and would be located in the boulevard section to allow street expansion for additional lanes in the future. The sidewalk is proposed to be 8 feet wide. All sidewalks, crosswalks, and ramps would be constructed according to ADA requirements. The ROW width for the new alignment is anticipated to be 110 feet, widening to 120 feet at locations with turn lanes.

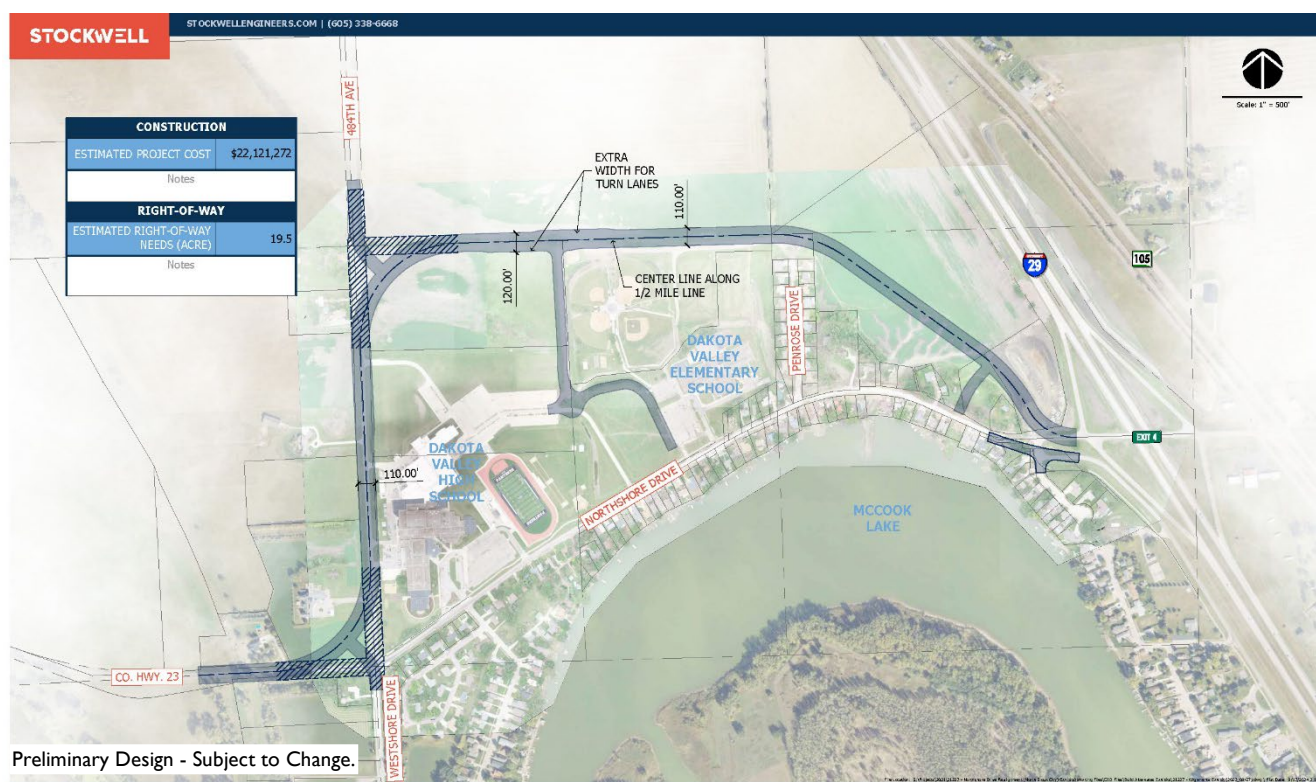
Build Alternative 1 would require the construction of new intersections and the reconstruction of some existing intersections. The intersection of Streeter Drive with Northshore Drive would be reconstructed. The new configuration would consist of a new 2-lane roadway connecting the existing Northshore Drive with the new bypass roadway (**Figure 12**). The intersection of Streeter Drive with the connecting roadway would be approximately 450 feet west of the existing intersection of Streeter Drive with Northshore Drive. The new intersection of Streeter Drive with the connecting roadway would consist of a two-way stop-controlled intersection with no auxiliary lanes that would end at a ninety-degree angle (i.e., T-intersection) with Northshore Drive at the southwest end of the connecting roadway (**Figure 11**). The new intersection of the connecting roadway with the new bypass roadway would be a two-way stop-controlled intersection with a westbound left turn that would end at a ninety-degree angle (i.e., T-intersection) with the new bypass road at the northeast end of the connecting roadway (**Figure 12**). The ROW width for the connecting roadway is anticipated to be 66 feet.

The intersection of Northshore Drive with Westshore Drive would be reconstructed to a two-way stop-controlled intersection with a sweeping curve alignment (**Figure 13**). The existing Northshore Drive would end at a ninety-degree angle (i.e., T-intersection) with Westshore Drive at the approximate location of the existing intersection (**Figure 13**). From the south, Westshore Drive would end at a ninety-degree angle (i.e., T-intersection) with the new sweeping curve alignment of Westshore Drive from the north approximately 230 feet northwest of the existing intersection. A new intersection would be constructed where the new bypass road turns south along the existing alignment of Westshore Drive/484th Avenue (**Figure 14**). The new intersection would consist of a stop-controlled intersection of 484th Avenue from the north ending at a ninety-degree angle (i.e., T-intersection) with the sweeping curve of the new bypass road. ROW along the reconstructed portion of 484th Avenue is anticipated to be 80 feet wide.

Northshore Drive Realignment

Build Alternative I also proposes a north connection to the Dakota Valley Schools that would run north-south for approximately 1,000 feet. The connection would be located west of the baseball diamonds and would connect to the Dakota Valley high School parking lot; then would curve east and south to connect to the Dakota Valley Elementary School parking lot (**Figure 15**). New storm sewers would be included along the new alignment to accommodate urban design standards. Water main and sanitary sewer would be installed throughout Build Alternative I as part of the project. Street lighting along the corridor is anticipated to be included with the project and all traffic control signing would be posted according to the current Manual on Uniform Traffic Control Devices (MUTCD). Depending on location, depth of excavation for utilities is expected to be 10 to 28 feet for sanitary sewer; 6 to 8 feet for water main; and 4 to 12 feet for storm sewers.

Figure 15. Build Alternative I



Build Alternative 2. Build Alternative 2 is the north alignment alternative. This alternative would construct approximately 1.1 mile of new road on new alignment to create a connection between Streeter Drive on the east and Westshore Drive/484th Avenue/County Road I on the west (**Figure 16**). From the eastern terminus, the new alignment would run northwest through an existing agricultural field, then west through a row-crop agricultural field (approximately 650 feet north of the Dakota Valley School properties and sports complex). The alternative alignment would then curve south and run along the existing Westshore Drive to the western terminus near the intersection of Northshore Drive and Westshore Drive.

The alternative would be graded to a cross-section width for an ultimate build-out of a 5-lane urban divided median section to accommodate future growth; however, the paving for the current project would consist of a 3-lane median-divided urban section with curb and gutter. A center turn-lane would be used in place of the median where needed. Drive lanes would be 12 feet wide with a 6-foot bike lane on the outside of each lane. A detached sidewalk would be included on the south side of the corridor and would be located in the boulevard section to allow street expansion for additional lanes in the future. The sidewalk is proposed to be 8 feet wide. All sidewalks, crosswalks, and ramps would be constructed according to ADA requirements. The

Northshore Drive Realignment

ROW width for the new alignment is anticipated to be 110 feet, widening to 120 feet at locations with turn lanes.

Build Alternative 2 would require the construction of new intersections and the reconstruction of some existing intersections. The intersection of Streeter Drive with Northshore Drive would be reconstructed. The new configuration would consist of a new 2-lane roadway connecting the existing Northshore Drive with the new bypass roadway (**Figure 12**). The intersection of Streeter Drive with the connecting roadway would be approximately 450 feet west of the existing intersection of Streeter Drive with Northshore Drive. The new intersection of Streeter Drive with the connecting roadway would consist of a two-way stop-controlled intersection with no auxiliary lanes that would end at a ninety-degree angle (i.e., T-intersection) with Northshore Drive at the southwest end of the connecting roadway (**Figure 11**). The new intersection of the connecting roadway with the new bypass roadway would be a two-way stop-controlled intersection with a westbound left turn that would end at a ninety-degree angle (i.e., T-intersection) with the new bypass road at the northeast end of the connecting roadway (**Figure 12**). The ROW width for the connecting roadway is anticipated to be 66 feet.

The intersection of Northshore Drive with Westshore Drive would be reconstructed to a two-way stop-controlled intersection with a sweeping curve alignment (**Figure 13**). The existing Northshore Drive would end at a ninety-degree angle (i.e., T-intersection) with Westshore Drive at the approximate location of the existing intersection (**Figure 13**). From the south, Westshore Drive would end at a ninety-degree angle (i.e., T-intersection) with the new sweeping curve alignment of Westshore Drive from the north approximately 230 feet northwest of the existing intersection. A new intersection would be constructed where the new bypass road turns south along the existing alignment of Westshore Drive/484th Avenue (**Figure 14**). The new intersection would consist of a stop-controlled intersection of 484th Avenue from the north ending at a ninety-degree angle (i.e., T-intersection) with the sweeping curve of the new bypass road. ROW along the reconstructed portion of 484th Avenue is anticipated to be 80 feet wide.

Build Alternative 2 also proposes a north connection to the Dakota Valley Schools that would run north-south for approximately 1,650 feet. The connection would be located west of the baseball diamonds and would connect to the Dakota Valley high School parking lot; then would curve east and south to connect to the Dakota Valley Elementary School parking lot (**Figure 16**). New storm sewers would be included along the new alignment to accommodate urban design standards. Water main and sanitary sewer would be installed throughout Build Alternative 1 as part of the project. Street lighting along the corridor is anticipated to be included with the project and all traffic control signing would be posted according to the current Manual on Uniform Traffic Control Devices (MUTCD). Depending on location, the depth of excavation for utilities is expected to be 10 to 28 feet below ground surface for sanitary sewers; 6 to 8 feet for the water main; and 4 to 12 feet for storm sewers.

Northshore Drive Realignment

Figure 16. Build Alternative 2



2.3 No Build Alternative

The No Build Alternative was identified in accordance with the NEPA requirements that the impacts of no action be considered. The No Build Alternative also serves as a basis of comparison with the build alternatives. Under the No Build Alternative, the City would continue routine maintenance (i.e., chip seal coating) of the existing Northshore Drive and no new alignment would be constructed. The No Build Alternative would not improve the efficiency of local traffic along Northshore Drive and would not achieve an acceptable LOS under existing or future conditions. Furthermore, the No Build Alternative would not fulfill the legislated funding requirements for the project which was provided specifically for creating a bypass to route traffic off the existing Northshore Drive between Westshore Drive and Streeter Drive. Therefore, the No Build Alternative does not meet the purpose and need of the project.

2.4 Build Alternatives Evaluation

NEPA analyses are required to “rigorously explore and objectively evaluate all reasonable alternatives” (40 CFR 1502.14, Alternatives including the proposed action). The first step in evaluating alternatives for this project is to consider whether each of the identified viable alternatives meets the purpose and need. Alternatives that do not meet the purpose and need for the project can be eliminated from further consideration in 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. Based on the information provided in Section 1.4, the following criteria are being used to determine if the alternatives meet the purpose and need of the project:

Northshore Drive Realignment

- ▶ Does the alternative result in an acceptable LOS for design year 2045 per SDDOT standards for minor arterials and collectors on Northshore Drive (i.e., LOS B or better)?
- ▶ Does the alternative fulfill the congressionally directed spending which was granted to create a bypass to route traffic off the existing Northshore Drive?

Table 2 is a screening matrix that evaluates whether the No Build Alternative and the two Build Alternatives meet the above criteria.

Table 2. Alternative Screening for Purpose and Need

Project Need	No Build	Alternative 1	Alternative 2
Does the alternative result in an acceptable LOS per SDDOT standards for minor arterials and collectors on Northshore Drive (i.e., LOS B or better)?	No (LOS D)	Yes (LOS A)	Yes (LOS A)
Does the alternative fulfill the congressionally directed spending which was granted to create a bypass to route traffic off the existing Northshore Drive?	No	Yes	Yes

Build Alternative 1. Build Alternative 1 would result in an acceptable LOS per SDDOT standards for minor arterials and collectors on Northshore Drive. Based on the traffic study (FHU 2024), the diversion of traffic to this new alignment would be projected to result in LOS A in 2045 (**Table 2**). By creating a roadway on new alignment, Build Alternative 1 would also fulfill the requirements of the congressionally directed spending which was specifically granted to create a bypass to route traffic off the existing Northshore Drive.

Build Alternative 2. Build Alternative 2 would result in an acceptable LOS per SDDOT standards for minor arterials and collectors on Northshore Drive. Based on the traffic study (FHU 2024), the diversion of traffic to this new alignment would be projected to result in LOS A in 2045 (**Table 2**). By creating a roadway on new alignment, Build Alternative 2 would also fulfill the requirements of the congressionally directed spending which was specifically granted to create a bypass to route traffic off the existing Northshore Drive.

2.4.1 *Build Alternatives Retained for Further Analysis*

Build Alternative 1 and Build Alternative 2 both meet the purpose and need for the project. The No Build Alternative fails to meet the purpose and need regarding both the acceptable level of service and the congressionally directed spending. However, the No Build Alternative is to be carried forward for evaluation as a point of reference for the Build Alternatives.

2.4.2 *Screening of Alternatives for Project Goals*

Project goals may aid in the selection of a Preferred Alternative when other needs are equal, and one alternative addresses the goals better than other alternatives. Goals of the project are discussed in Section 1.4.3 and include improving safety for pedestrians and bicyclists by providing an access-controlled route through the area with fewer vehicle and pedestrian conflict points than what currently exists along Northshore Drive (54 access points); and to reduce travel time on Northshore Drive between Streeter Drive and Westshore Drive below the existing travel time of 3.12 minutes.

Northshore Drive Realignment

Table 3 is a screening matrix that evaluates whether the No Build Alternative and the two Build Alternatives meet the project goals. Build Alternative 1 and Build Alternative 2 would create an access-controlled route with fewer access points than what exists on Northshore Drive. Both alternatives would be expected to have the same number of access points, anticipated to be 5, which is substantially fewer than the 54 access points along Northshore Drive. Since both alternatives would have the same number of access points, neither would be a greater benefit over the other in terms of meeting this goal.

Results of the travel time analysis indicate that Build Alternative 1 and Build Alternative 2 would both meet the goal of reducing travel time below existing conditions between the intersection of Northshore Drive with Streeter Drive and Westshore Drive (see second row of **Table 3**) (FHU 2024). However, Build Alternative 1 would provide the fastest, most direct east-west route between intersection of Northshore Drive with Streeter Drive and Westshore Drive. Build Alternative 1 is anticipated to have a travel time of 1.83 minutes versus Build Alternative 2 having an anticipated travel time of 2.12 minutes (**Table 4**). The difference in travel time between Build Alternative 1 and Build Alternative 2 is 0.29 minutes (17 seconds). Based on the Interim (2025) Build Constrained Volumes Scenario (FHU 2024), a new bypass would be expected to have 5,750 vehicles per day, which would equate to approximately 27.2 hours of additional travel time per day on average, or 413 days of additional travel time per year for Build Alternative 2.

Regarding travel time to the Dakota Valley High School, Build Alternative 1 would provide the fastest route compared to Build Alternative 2 and utilizing Northshore Drive (see third row of **Table 3**). Build Alternative 1 is anticipated to take 1.76 minutes to reach the school, the existing Northshore Drive takes 2.12 minutes and Build Alternative 2 is anticipated to take 2.37 minutes. This makes Build Alternative 1 the fastest route of the three alternatives and noting that Build Alternative 2's travel time would be slower than utilizing the existing Northshore Drive (**Table 4**). This is important because distance bias dictates that most people would be likely to utilize the fastest route. The intent of the project is to provide a bypass to redirect traffic off Northshore Drive. This is particularly important during school drop-off and pick-up when the greatest amount of congestion occurs. Build Alternative 2 may result in a substantial portion of school traffic still utilizing the existing Northshore Drive instead of the bypass as people are likely to choose the faster route. In contrast, Build Alternative 1 would be faster than the existing Northshore Drive and school traffic would be more likely to use the bypass as intended.

Table 3. Alternative Screening for Project Goals

Project Goal	No Build	Alternative 1	Alternative 2
Would improve safety for pedestrians and bicyclists by providing an access-controlled route through the area with fewer vehicle and pedestrian conflict points than what currently exists along Northshore Drive (54)?	No	Yes	Yes
Would reduce travel time between intersection of Northshore Drive with Streeter Drive and Westshore Drive below existing travel time?	No	Yes	Yes
Would provide a faster route from intersection of Northshore Drive with Streeter Drive to Dakota Valley High School than using Northshore Drive?	No	Yes	No

Table 4. Travel Times

Project Need	No Build	Alternative 1	Alternative 2
Travel Time (minutes)	3.17	1.83	2.12
Travel Time to Dakota Valley School (minutes)	2.14	1.76	2.37

2.4.3 Comparison of Build Alternative 1 and Build Alternative 2

Table 5 (next page) presents a comparison of Build Alternative 1 and Build Alternative 2 including the screening criteria for the purpose and need, project goals, and other relevant considerations.

Build Alternative 1.

Advantages. An advantage of Build Alternative 1 is that it would be the fastest travel route between the intersection of Northshore Drive with Streeter Drive and Westshore Drive for vehicular traffic. This would result in less delay than Build Alternative 2 on a daily and annual basis. Because of the faster travel time and closer proximity to the Dakota Valley Schools, Build Alternative 1 is more likely to be used by people traveling to school rather than continuing to use Northshore Drive. Other advantages of Alternative 1 are that it would require less ROW than Build Alternative 2 and would have lower overall construction costs (FHU 2024).

Disadvantages. More ROW acquisition anticipated from Dakota Valley School property.

Build Alternative 2.

Advantages. Less ROW acquisition anticipated from Dakota Valley School property.

Disadvantages. Build Alternative 2 would be a longer travel time between Streeter Drive and Westshore Drive for vehicular traffic. This would result in greater travel delay on a daily and annual basis. Build Alternative 2 is longer and is 1,000 feet further north of the schools than Build Alternative 1. This results in a travel route to school that would be slower than utilizing Northshore Drive. Therefore, Build Alternative 2 would be less likely to be used by people traveling to school who would be expected to take the shortest route. Consequently, this would reduce the effectiveness of redirecting traffic to the bypass route. Other disadvantages of Build Alternative 2 are that it would require more ROW than Build Alternative 1 and would have higher overall construction costs (FHU 2024).

Northshore Drive Realignment

Table 5. Comparison of Build Alignment Alternatives

Evaluation Factors	Alternative 1	Alternative 2
Traffic Movements*	Would achieve an acceptable LOS per SDDOT standards for minor arterials and collectors on Northshore Drive (i.e., LOS B or better).	Would achieve an acceptable LOS per SDDOT standards for minor arterials and collectors on Northshore Drive (i.e., LOS B or better).
Congressionally Directed Spending	Fulfills the congressionally directed requirements to route traffic off the existing Northshore Drive.	Fulfills the congressionally directed requirements to route traffic off the existing Northshore Drive.
Construction Cost	\$22,121,272	\$24,608,343
Anticipated Permanent ROW Acquisition	16.46 acres	19.30 acres
Pedestrian and Bicyclist Safety*	Would improve safety for pedestrians and bicyclists by providing an access-controlled route through the area with fewer vehicle and pedestrian conflict points.	Would improve safety for pedestrians and bicyclists by providing an access-controlled route through the area with fewer vehicle and pedestrian conflict points.
Travel Time between the intersection of Northshore Drive with Streeter Drive and Westshore Drive*	1.83 minutes	2.12 minutes
Travel Time between the intersection of Northshore Drive with Streeter Drive to Dakota Valley Schools*	1.76 minutes (Faster than using Northshore Drive)	2.37 (Slower than using Northshore Drive)
Evaluation Summary	<p>Advantages:</p> <ul style="list-style-type: none"> • Lower construction cost • Less ROW acquisition • Faster travel time and less delay • More likely to be utilized for travel to school due to being fastest route. <p>Disadvantages:</p> <ul style="list-style-type: none"> • More impacts to Dakota Valley Schools recreational property. 	<p>Advantages:</p> <ul style="list-style-type: none"> • Less impacts to Dakota Valley Schools recreational property. <p>Disadvantages:</p> <ul style="list-style-type: none"> • Higher construction cost • More ROW Acquisition • Slower travel time with more delay • Less likely to be utilized for travel to school due to not being fastest route.

* Data from the Northshore Drive Realignment Alternatives Analysis (FHU 2024).

2.5 Alternatives Carried Forward

Based on the comparison of alternatives and the overall consideration of the evaluation factors summarized in **Table 5** (above), Build Alternative 1 and Build Alternative 2 achieve the identified goals of the project. However, Build Alternative 1 and Build Alternative 2 both meet the purpose and need for the project. Therefore, both alternatives are being carried forward into **Chapter 3** for impact analysis. While the No Build Alternative does not meet the project purpose and need, it is also being carried forward as a basis of comparison with the Build Alternatives.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

This chapter describes the environmental and socioeconomic resources within the project study area and the beneficial and negative environmental impacts of the Build and the No Build Alternatives. Each section discusses the evaluated resource, the contextual setting of the affected environment, impacts of the alternatives, and the proposed mitigation measures to be carried forward through the subsequent stages of planning, design, and construction. Resources not present in the project study area are not included in this chapter. This includes wild and scenic rivers.

3.1 Land Use and Right-of-Way Acquisition

Current landownership and governmental jurisdiction were reviewed to determine governmental authority and public and private ownership within the Environmental Study Area (ESA). Land uses were evaluated to determine existing conditions and anticipated changes within the ESA and adjacent areas. This includes conversion of land uses to a transportation facility through ROW acquisition. The Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended (42 USC 4601 et seq.), establishes the requirements and procedures that must be followed for federally funded programs. Furthermore, Article VI, Section 13 of the South Dakota Constitution states that private property cannot be taken or damaged for public use without just compensation.

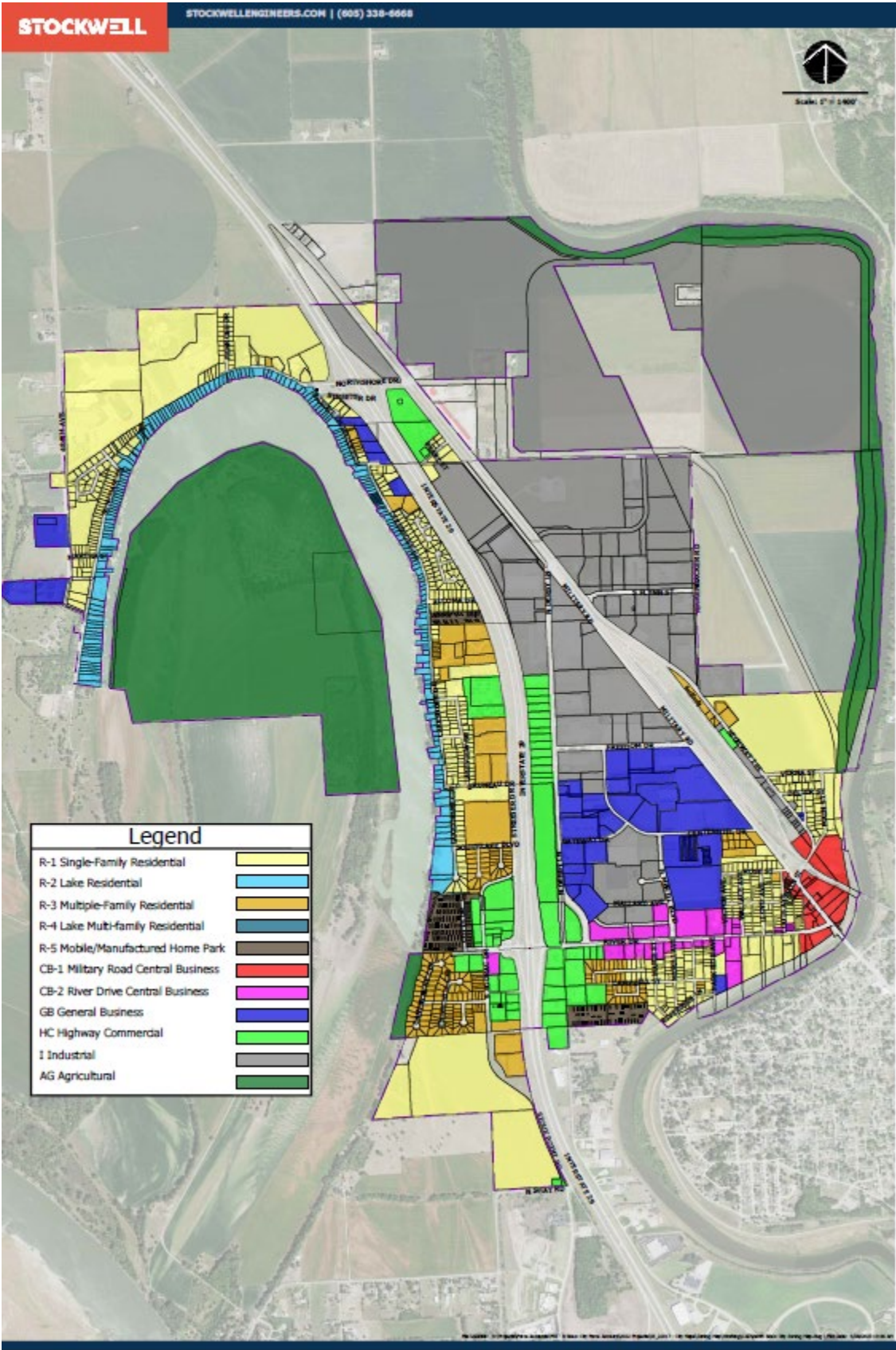
3.1.1 Existing Land Use

Existing land use types in the environmental study area consist of row-crop agricultural, institutional, single-family residential, commercial, recreational/conservation, and transportation/road ROW. Institutional properties include the Dakota Valley Schools (elementary, middle, and high school). Residential properties include rural homes, single-family neighborhoods, and lakefront properties along McCook Lake, on the south side of Northshore Drive. The Dogwood Pet Hotel and Day Spa is a commercial property located west of Westshore Drive. Adams Homestead and Nature Preserve, operated by South Dakota Game Fish and Parks (SDGF&P), is located in the southwest corner of the environmental study area. Interstate 29 (I-29) and the Burlington Northern / Santa Fe Railroad (BNSF) are located toward the east end of the ESA.

The City has governmental jurisdiction within the majority of the ESA and in the surrounding project vicinity. However, portions of the ESA to the north and west are outside the corporate limits of the City and are within the jurisdiction of Union County. The City of North Sioux City Zoning Map (2023) indicates the majority of areas west of I-29 are zoned as residential as shown in **Figure 17**. The most common residential zoning category is Single-Family Residential, followed by Lake Residential, with a small amount of Multiple-Family Residential. Agricultural Zoning is present south of McCook Lake. Industrial zoning and Highway Commercial zoning is present within the ESA on the east side of I-29.

Northshore Drive Realignment

Figure 17. City of North Sioux City Zoning Map



3.1.2 Future Land Use and ROW Needs

The Master Plan for North Sioux City, north of Northshore Drive, identifies future development of the existing agricultural areas in the northern portion of the project ESA into primarily residential and commercial land uses (Stockwell 2020). The conceptual plan shown in **Figure 18** identifies approximately 153 acres of single-family residential; 13 acres of one and two family residential; 33 acres of multiple-family residential; and 28 acres of business development. These land use plans are conceptual and with one exception there are no plans for development at this time. The exception is the parcel located north of the Dakota Valley High School and west of the Dakota Valley Baseball Diamond in which the property owner has developed concepts for a potential residential development. Future land use forecasts would be better achieved with the build alternatives rather than the no-build alternative; these future forecasts assume a traffic corridor would eventually be constructed in this area whether it is this project or a future project. The build alternatives would provide a corridor for future development north of Northshore Drive consistent with land use plans and a new corridor for through traffic to bypass the existing Northshore Drive. ROW acquisition would be necessary for the development of any future traffic corridors in this area. Under 23 CFR 710.501, early acquisition of real property interests for federally funded projects may occur provided certain conditions are met. No land has been acquired to secure ROW through early acquisition techniques (e.g., ROW preservation, corridor preservation, protective buying, hardship acquisition, etc.).

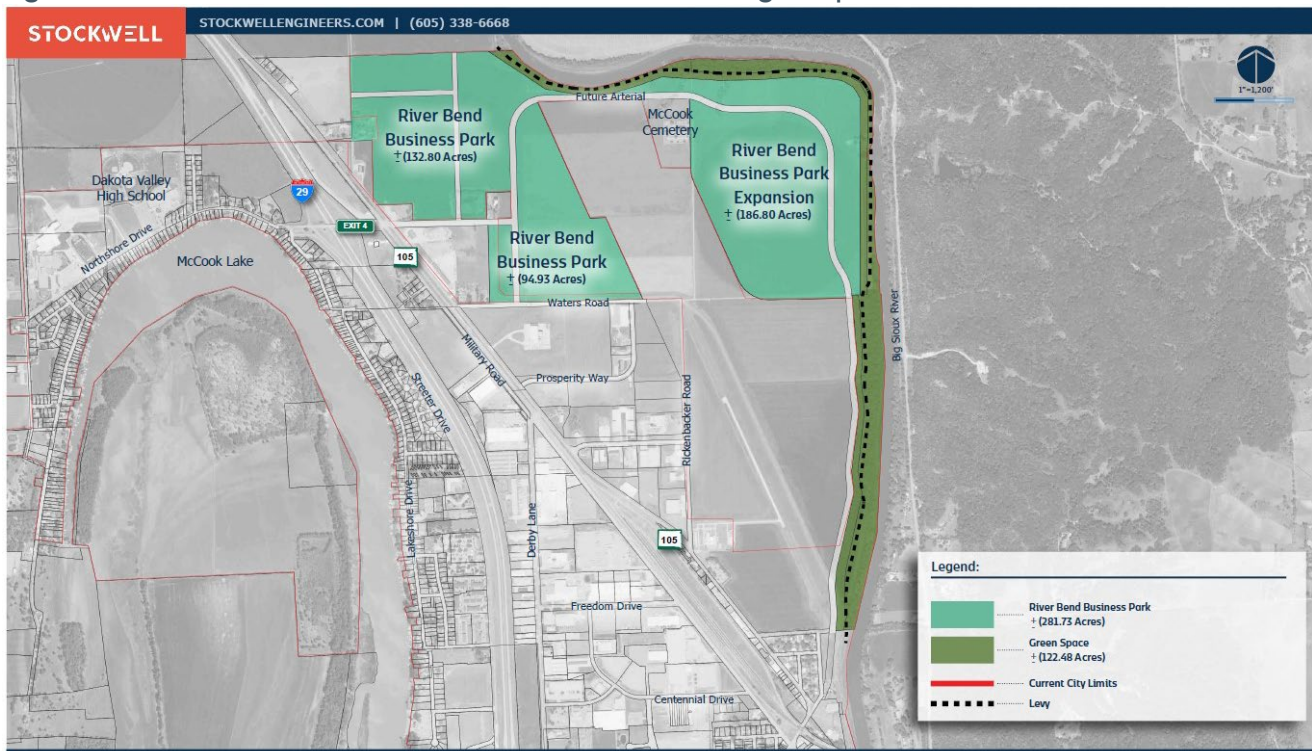
Figure 18. Master Plan North of Northshore Drive



Northshore Drive Realignment

The River Bend Business Park (formerly called Graham Business Park) is expected to develop approximately 410 acres near Old Highway 105 for industrial purposes as shown in **Figure 19** (North Sioux City 2025). The South Dakota Board of Economic Development received funding through the Governor's Office of Economic Development for the River Bend development. Development of the business park is expected to begin after relocation of the Big Sioux River levee, which is currently being pursued by the City. Following relocation of the levee (anticipated for 2026 or later), the area land side of the levee will undergo industrial development. Although the River Bend Business Park is located east of I-29, outside the environmental study area for the Northshore Drive Realignment project, the additional business park development would be anticipated to increase overall growth and development within the City. Both the Northshore Drive Realignment project and the River Bend Business Park were noted as anticipated future projects in the Union County Master Transportation Plan (Ulteig 2022). Additionally, the Flynn Business Park, also located east of I-29, outside the ESA, has approximately 13 acres for available for industrial development (North Sioux City 2025).

Figure 19. River Bend Business Park Zoning Map



3.1.3 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would have no direct impact on land use because no construction activities would occur. Due to overall growth within the Siouxland Metropolitan Planning area, development would be expected to eventually occur in the farmland north of Northshore Drive as demands for residential housing and business development continue to increase. However, it is expected that this development would be delayed further into the future without the construction of a corridor that would be conducive to this growth and development.

Build Alternative I

Build Alternative I would be consistent with planned future land uses identified in the Master Plan for North Sioux City, north of Northshore Drive, by providing a new traffic corridor in this area. Build Alternative I

Northshore Drive Realignment

would directly change land use by acquiring ROW for construction. The preliminary estimate for permanent ROW acquisition is 16.46 acres, with an additional 0.14 acres of permanent easements around culverts. It would also require 13.89 acres of temporary easements for construction. Most of the ROW acquisition (approximately 12.4 acres) would come from agricultural land where the new roadway would be constructed or existing ROW would be widened. Approximately 3.04 acres would be acquired from the Dakota Valley Schools, but would not change the nature of the school property. The remaining areas of ROW acquisition would be from six residential parcels and one business property. Based on public input from the business owner, the design speed at the west end of the project was reduced, which reduced the radius of the curves and decreased the property impact and required ROW. No displacements or relocations would be required. Build Alternative 1 would create new roadway infrastructure which may result in indirect land use changes from future development built within the existing agricultural fields north of Northshore Drive. However, these potential changes in land use would be consistent with future plans for residential and commercial development in that area (Stockwell 2020).

Initial paving of the new bypass road would consist of a 3-lane urban section but would be graded for an ultimate 5-lane urban section to allow for future expansion to accommodate traffic growth. Traffic growth is anticipated to increase due to overall growth in the Siouxland Interstate Metropolitan planning area which is expected to increase 14.1% by 2045 (SIMPCO 2021). This planning area includes the Sioux City metropolitan tri-state area of Iowa, Nebraska, and South Dakota. In South Dakota, it includes all areas within Union County, where the ESA is located. The traffic study for the project incorporated SIMPCO's traffic demand forecast and is consistent with its inputs and assumptions. Thus, Build Alternative 1 would be conducive to future traffic needs due to anticipated future land use changes.

Build Alternative 2

Build Alternative 2 would be consistent with the planned future land uses identified in the Master Plan for North Sioux City, north of Northshore Drive, by providing a new traffic corridor in the area. Build Alternative 2 would directly change land use by acquiring ROW for construction. The preliminary estimate for ROW acquisition is 19.30 acres, with an additional 0.14 acres of permanent easements around culverts. It would also require 15.93 acres of temporary easements for construction. Most of the ROW acquisition (approximately 16.9 acres) would come from agricultural land where the new roadway would be constructed or existing ROW would be widened. Approximately 1.39 acres would be acquired from the Dakota Valley Schools, but would not change the nature of the school property. The remaining areas of ROW acquisition would be from six residential parcels and one business property. Based on public input from the business owner, the design speed at the west end of the project was reduced, which reduced the radius of the curves and decreased the property impact and required ROW. No displacements or relocations would be required. Build Alternative 2 would create new roadway infrastructure which may result in indirect land use changes from future development built within the existing agricultural fields north of Northshore Drive. However, these potential changes in land use would be consistent with future plans for residential and commercial development in that area. (Stockwell 2020). Initial paving of the new bypass roadway would consist of a 3-lane urban section but would be graded for an ultimate 5-lane urban section to allow for future expansion to accommodate traffic growth. Traffic growth is anticipated to increase due to overall growth in the Siouxland Interstate Metropolitan planning area which is expected to increase 14.1% by 2045 (SIMPCO 2021). This planning area includes the Sioux City metropolitan tri-state area of Iowa, Nebraska, and South Dakota. In South Dakota, it includes all areas within Union County, where the proposed project is located. The traffic study for the project incorporated SIMPCO's traffic demand forecast and is consistent with its inputs and assumptions. Thus, Build Alternative 2 would be conducive to future traffic needs due to anticipated future land use changes.

3.1.4 Avoidance and Minimization and/or Mitigation Measures

ROW acquisition would be completed in conformance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended (42 USC 4601 et seq).

3.2 Bicyclists and Pedestrians

3.2.1 Affected Environment

North Sioux City/McCook Lake Trail is a pedestrian/bike trail that parallels Northshore Drive, Streeter Drive, and Westshore Drive. The trail starts at the Adams Homestead and Nature Preserve southwest of McCook Lake, runs along the west side of Westshore Drive, and then along the north side of Northshore Drive to just west of Streeter Drive. The trail then continues along the west side of Streeter Drive to River Drive. See the Recreational Resources map in Section 3.13. Planning documents were reviewed from SIMPCO and the City and there are no proposed bicycle or pedestrian facilities planned for the area.

Marked pedestrian crossings are located on the east leg of the intersection of Westshore Drive with Northshore Drive, the west leg of the intersection of Suncoast Drive with Northshore Drive, and the west leg of the intersection of Streeter Drive with Northshore Drive. Curb ramps are provided at the crossings, and pedestrian beacons are present on the eastbound and westbound approaches ahead of the crossings.

The segment of trail located along Northshore Drive is ten feet wide and runs along the north side of the roadway, where there are 15 access points along the north side of Northshore Drive. Projected increases in traffic volumes along Northshore Drive would increase the potential for vehicle and pedestrian conflicts at the access points (FHU 2024). Crash data was provided by the SDDOT. There were no vulnerable user (bike and peds) crashes reported in the dataset. However, a number of public comments were received with concerns about safety conditions of pedestrians along the existing Northshore Drive under current traffic levels. In particular, the safety of children going to the Dakota Valley Schools.

3.2.2 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would not improve pedestrian and bicycle safety throughout the ESA. Projected increases in traffic volumes along Northshore Drive would increase the potential for vehicle and pedestrian conflicts at the access points.

Build Alternative I

Build Alternative I would improve pedestrian and bicycle safety and connectivity throughout the ESA, including to the Dakota Valley Schools, by providing an access-controlled route that limits the number of vehicle and pedestrian conflict points. The new roadway alignment would accommodate pedestrians and bicyclists by including a sidewalk on one side of the roadway and bike lanes on both sides of the roadway (see **Figure 10** in Section 2.1.4). These would connect to the existing North Sioux City/McCook Lake Trail on the southeast end of the project. The bike lanes, sidewalk, and related crosswalks and ramps would be constructed according to ADA requirements. In addition to providing an access-controlled route to the schools, these features would improve pedestrian/bicycle connectivity to future residential and business development in the vicinity of the new alignment, as identified in the Master Plan for North Sioux City, north of Northshore Drive (**Figure 18**). The sidewalk would be located far enough from the roadway to allow street expansion for additional lanes in the future as shown in **Figure 10** of Section 2.1.4. Build Alternative I would require reconstruction of portions of the North Sioux City/McCook Lake Trail, but would maintain access through the use of detours, temporary trail connections, and/or phasing. As the trail is a Section 4(f) resource, impacts and mitigation are discussed in more detail in Section 3.13.

Build Alternative 2

Build Alternative 2 would improve pedestrian and bicycle safety and connectivity throughout the ESA, including to the Dakota Valley Schools, providing an access-controlled route that limits the number of vehicle and pedestrian conflict points. The new roadway alignment would accommodate pedestrians and bicyclists by including a sidewalk on one side of the roadway and bike lanes on both sides of the roadway (see **Figure 10** in Section 2.1.4). These would connect to the existing North Sioux City/McCook Lake Trail on the southeast end of the project. The bike lanes, sidewalk, and related crosswalks and ramps would be constructed according to ADA requirements. In addition to providing an access-controlled route to the schools, these features would improve pedestrian/bicycle connectivity to future residential and business development in the vicinity of the new alignment, as identified in the Master Plan for North Sioux City, north of Northshore Drive (**Figure 18**). The sidewalk would be located far enough from the roadway to allow street expansion for additional lanes in the future as shown in **Figure 10** of Section 2.1.4. Build Alternative 2 would require reconstruction of portions of the North Sioux City/McCook Lake Trail, but would maintain access through the use of detours, temporary trail connections, and/or phasing. As the trail is a Section 4(f) resource, impacts and mitigation are discussed in more detail in Section 3.13.

3.2.3 Avoidance and Minimization and/or Mitigation Measures

All bike lanes, sidewalks, and related crosswalks and ramps would be constructed according to the ADA requirements. Medians would be included in the new roadway to provide a refuge island for safer pedestrian crossings.

Access to the McCook Lake/North Sioux City Trail will be maintained during construction activities via construction of a temporary trail connection and phasing and/or an approved detour (see Section 3.13.5). The proposed detour for the pedestrian crossing at the intersection of Northshore Drive with Westshore Drive would utilize existing sidewalks along Suncoast Drive and Izaak Walton Drive.

3.3 Socioeconomics

Social impacts are modifications to the community that include issues such as travel patterns, accessibility, transit operations, school districts and their operations (e.g., busing), emergency services, induced development, or changes to community cohesion. Economic impacts may affect the regional or local economy and could include changes to tax revenues, public expenditures, employment opportunities, retail sales, or other impacts to businesses. Socioeconomic impacts may be permanent or temporary, direct or indirect, should the dislocation of people, businesses, or public and community facilities be affected by the proposed project. Socioeconomic impacts may also be negative or positive, with examples of beneficial (economic, social, and community) effects including future growth and development of the community and examples of negative effects including the loss of businesses and/or a decline in community population because of out-migration. Title VI of the *Civil Rights Act of 1964* prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance (42 USC 2000d et seq.).

3.3.1 Affected Environment

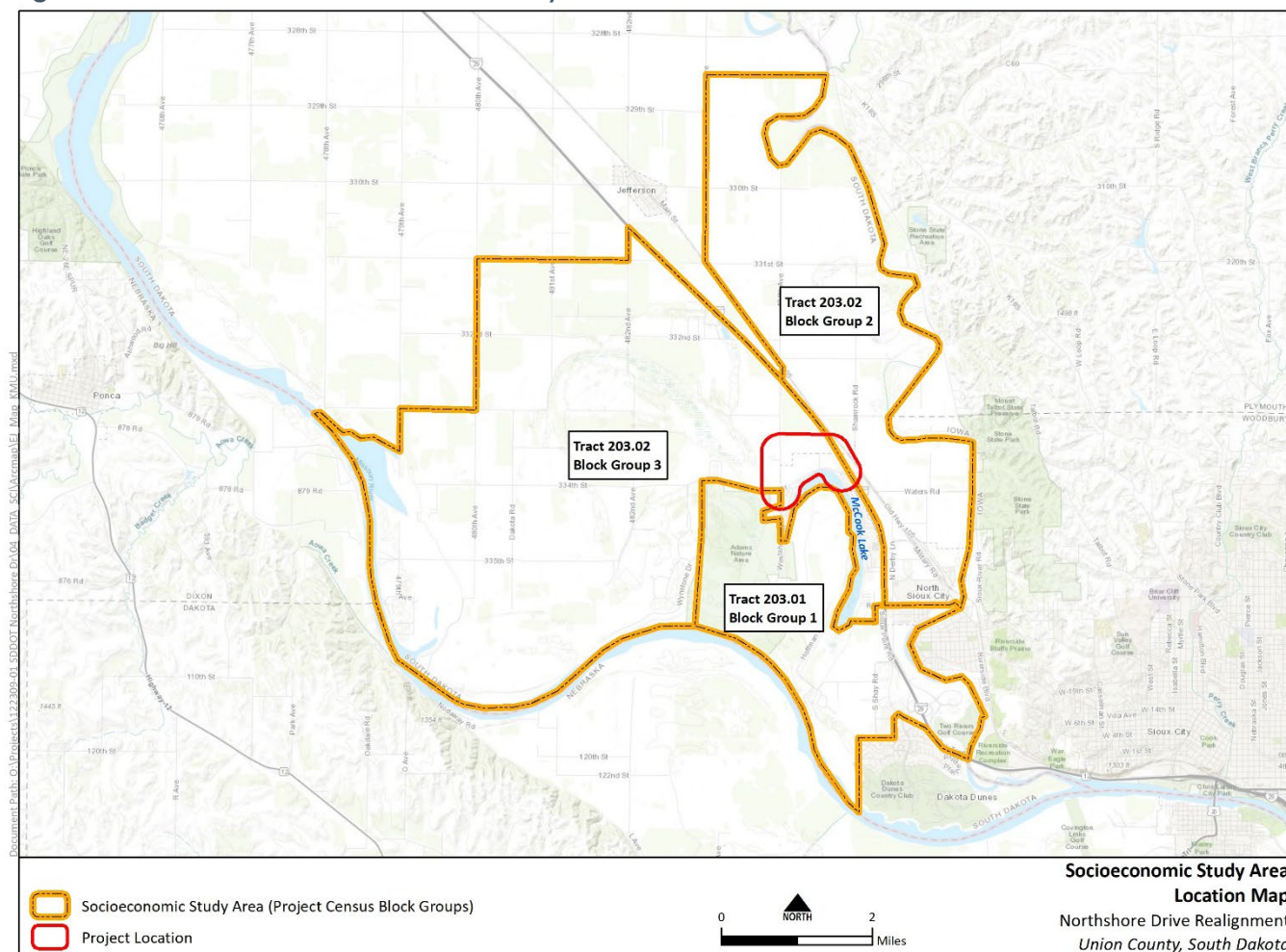
The City of North Sioux City, with a population of 3,042 in the 2020 Census, is part of the Sioux City Metropolitan Area which consists of Union County, SD, Dakota and Dixon Counties, NE, and Plymouth and Woodbury County, IA (USCB, 2020). North Sioux City has benefited from close proximity to the Sioux City Metropolitan Area, and contributes to the area population, which has grown from 104,953 in the year 2000 to 119,818 in 2020 (SIMPCO 2021). The population is projected to increase an additional 14.1% to 127,581 in 2045 (SIMPCO 2021). This proximity allows commuters to live in one city and commute to the other, which makes the connectivity and cohesion of the transportation network (e.g. accessibility to community resources such as parks, schools, public services (library and city hall), medical facilities, libraries and emergency services)

Northshore Drive Realignment

a contributing factor in the community's socioeconomic health. As growth continues, commuter demands on existing and new roadway systems would continue to increase in the future, and additional east-west access to key transportation corridors provides additional mobility and safety by providing improved access to community facilities and services between the residential areas and schools to the commercial and industrial developments on the east side of I-29. The current transportation network results in traffic being funneled to and along Northshore Avenue to connect commuters to the Dakota Valley school campus in the west area of the city to the business centers east of the corridor.

Much of the area in the north of the ESA, adjacent to the proposed alignment alternatives, is undeveloped agricultural land that is zoned for eventual residential and commercial development (Stockwell 2020). The ESA is primarily contained within Census Tract 203.01 and 203.02 as shown on **Figure 20**. These Census Tracts include the Dakota Valley Schools campus, residential neighborhoods, several local businesses, and the urban fringe of the City, which is also limited to south due to the natural barrier of McCook Lake. These Census Tracts represent those areas most likely to benefit from construction of the Project and encompass the City of North Sioux City. The demographic and economic characteristics of the City of North Sioux City were compared between the City of Sioux City, Iowa, Union County, and the State of South Dakota, using data from the 2023 American Community Survey (USCB 2025c).

Figure 20. Socioeconomic Study Area



Northshore Drive Realignment

In general, the Census Tracts have slightly lower income metrics and slightly higher employment metrics compared to those of the City, County and State as whole; however, the data is not meaningfully different. Both the Census Tract and the City have lower employment than those of the County or State, yet both Census Tracts have higher median household incomes than the State, but lower than the County. See below for economic information.

In general, the economy of the region is supported by the major employment sectors of education and healthcare, manufacturing, retail trade, arts and entertainment (hospitality services) and professional, science, management, administration services. The education and healthcare sectors make up the largest employment sector within the four counties (USCB 2023). A breakdown of the top three employment sectors in each entity is provided in **Table 6** along with the employment and unemployment rates. Employment rates in the metro area range from 62.9 to 65.1 percent, with the median household income ranging between \$62,350 to \$84,137 per year; noting the South Dakota statewide median household income is \$71,810 per year, which is in the mid-range of the communities in the Sioux City Metropolitan Area. The median household income of the comparison communities is provided in **Table 7**.

Table 6. Employment Sectors and Labor Force

County	Largest Employment Sector and Percent	2 nd Largest Employment Sector and Percent	3 rd largest Employment Sector and Percent	Employment Rate	Unemployment Rate
South Dakota	Education & Healthcare (25.6%)	Retail Trade (11.1%)	Manufacturing (9.9%)	65.1%	2.6%
Union County	Education & Healthcare (23.8%)	Manufacturing (13.0%)	Construction (9.3%)	64.6%	3.5%
Sioux City, Iowa	Education & Healthcare (19.6%)	Manufacturing (19.4%)	Arts, Entertainment, Recreation, & Accommodations & Food services (11.9%)	62.9%	3.2%
City of North Sioux City	Education & Healthcare (25.2%)	Manufacturing (21.1%)	Professional, Scientific, Management & Waste Management (10.4%)	63.9%	5.7%

Table 7. City and County Annual Income

Annual Income*	City of Sioux City, Iowa**	City of North Sioux City	Union County
2023 Annual Median Household Income	\$62,350	\$76,481	\$84,137

*USCB 2025a, **USCB 2025b

3.3.2 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would have no immediate effect on socioeconomics because no construction activities would occur. There would be no additional roadway constructed to encourage development in the farmland north of Northshore Drive as identified in the Master Plan (Stockwell 2020). Congestion on Northshore Drive would gradually worsen and may discourage people from wanting to live along Northshore Drive or in the neighborhoods that connect to Northshore Drive. With increasing traffic, the City would continue to spend more money on maintenance of Northshore Drive. Overall, the No Build Alternative is anticipated to have a minor adverse effect on the socioeconomic characteristics in the project area.

Build Alternative 1

Build Alternative 1 would be expected to provide an overall benefit to the socioeconomic characteristics of the area. The new roadway would provide a traffic corridor that would promote future development of residential properties and commercial development. Future development in this area would be expected to provide additional housing and job opportunities. Businesses in close proximity to the project include the Dogwood Pet Hotel and Day Spa located northwest of the intersection of Northshore Drive with Westshore Drive; and West Shore Acres Greenhouse and 5678 Dance Studio, both located southwest of the intersection of Northshore Drive with Westshore Drive. Build Alternative 1 would require 1.20 acres of permanent ROW, 0.02 acres of permanent easement, and 1.56 acres of temporary easement from one business property, the Dogwood Pet Hotel and Day Spa. Build Alternative 1 would not require any residential or business relocations and, through construction phasing, would maintain access to businesses both during construction and upon completion of the project.

Build Alternative 1 would improve traffic efficiency by creating an access-controlled roadway as an alternative to the existing Northshore Drive. The new roadway would allow through-traffic to bypass the existing Northshore Drive, both increasing the efficiency of traffic using the bypass while reducing the amount of traffic on the existing Northshore Drive. These improvements would be beneficial to the traveling public by improving the safety and reliability of the transportation asset and decreasing the cost to the City for maintaining Northshore Drive. Additionally, the construction of bike lanes and a sidewalk along the new bypass would allow those who wish to walk or bike in the area an alternative access-controlled route with fewer vehicle and pedestrian conflict points.

Build Alternative 2

Build Alternative 2 would be expected to provide an overall benefit to the socioeconomic characteristics of the area. The new roadway would provide a traffic corridor that would promote future development of residential properties and commercial development. Future development in this area would be expected to provide additional housing and job opportunities. Businesses in close proximity to the project include the Dogwood Pet Hotel and Day Spa located northwest of the intersection of Northshore Drive with Westshore Drive; and West Shore Acres Greenhouse and 5678 Dance Studio, both located southwest of the intersection of Northshore Drive with Westshore Drive. Build Alternative 2 would require 1.20 acres of permanent ROW, 0.02 acres of permanent easement, and 1.56 acres of temporary easement from one business property, the Dogwood Pet Hotel and Day Spa. The Build Alternative 2 would not require any residential or business relocations and, through construction phasing, would maintain access to businesses both during construction and upon completion of the project.

Build Alternative 2 would improve traffic efficiency by creating an access-controlled roadway as an alternative to the existing Northshore Drive. The new roadway would allow through-traffic to bypass the existing Northshore Drive, both increasing the efficiency of traffic using the bypass while reducing the amount of traffic

on the existing Northshore Drive. These improvements would be beneficial to the traveling public by improving the safety and reliability of the transportation asset and decreasing the cost to the City for maintaining Northshore Drive. Additionally, the construction of bike lanes and a sidewalk along the new bypass would allow those who wish to walk or bike in the area an alternative access-controlled route with fewer vehicle and pedestrian conflict points.

3.3.3 Avoidance and Minimization and/or Mitigation Measures

Access to businesses will be maintained during construction.

3.4 Farmland

The Farmland Protection Policy Act of 1981 (FPPA) (7 CFR 658) outlines guidelines for federal agencies to account for any negative effects on farmland and develop alternatives that would avoid or mitigate such negative effects. Farmland is defined as “prime or unique farmlands” or “farmland of statewide or local importance,” and includes land not currently used for farming. However, farmland does not include “land already in or committed to urban development or water storage.”

The US Department of Agriculture (USDA) FPPA guidelines require coordination with the Natural Resources Conservation Service (NRCS) if the land needed for development is purchased after August 6, 1984. Form CPA-106 (Farmland Conversion Impact Rating) for corridor type projects is used to score the relative value of the site. This Corridor Assessment evaluates a variety of impact categories, considering the existing and future farming conditions, the types of surrounding land uses, the comparable size of the farm unit being converted, existing farm support services in the area, the number and value of farm investments, and the local or state protections provided for farming, among other considerations. For FPPA-regulated farmland, a threshold limit of 160 points determines if further action is necessary. Scores between 160 and 200 require further consideration of alternatives that would avoid this loss.

3.4.1 Affected Environment

Prime farmland was determined using the NRCS Soil Survey for Union County (USDA, 2024). Within the project ESA, there are 331.7 acres of prime farmland and 157.3 acres of farmland of statewide importance, together comprising 81.5% of the ESA (**Figure 21** and **Figure 22**). However, a large portion of these areas has already been permanently converted to non-farmland uses, including existing road ROW, the Dakota Valley Schools properties and sports complexes, and residential and business properties.

3.4.2 Environmental Impacts of the Alternatives

No Build Alternative

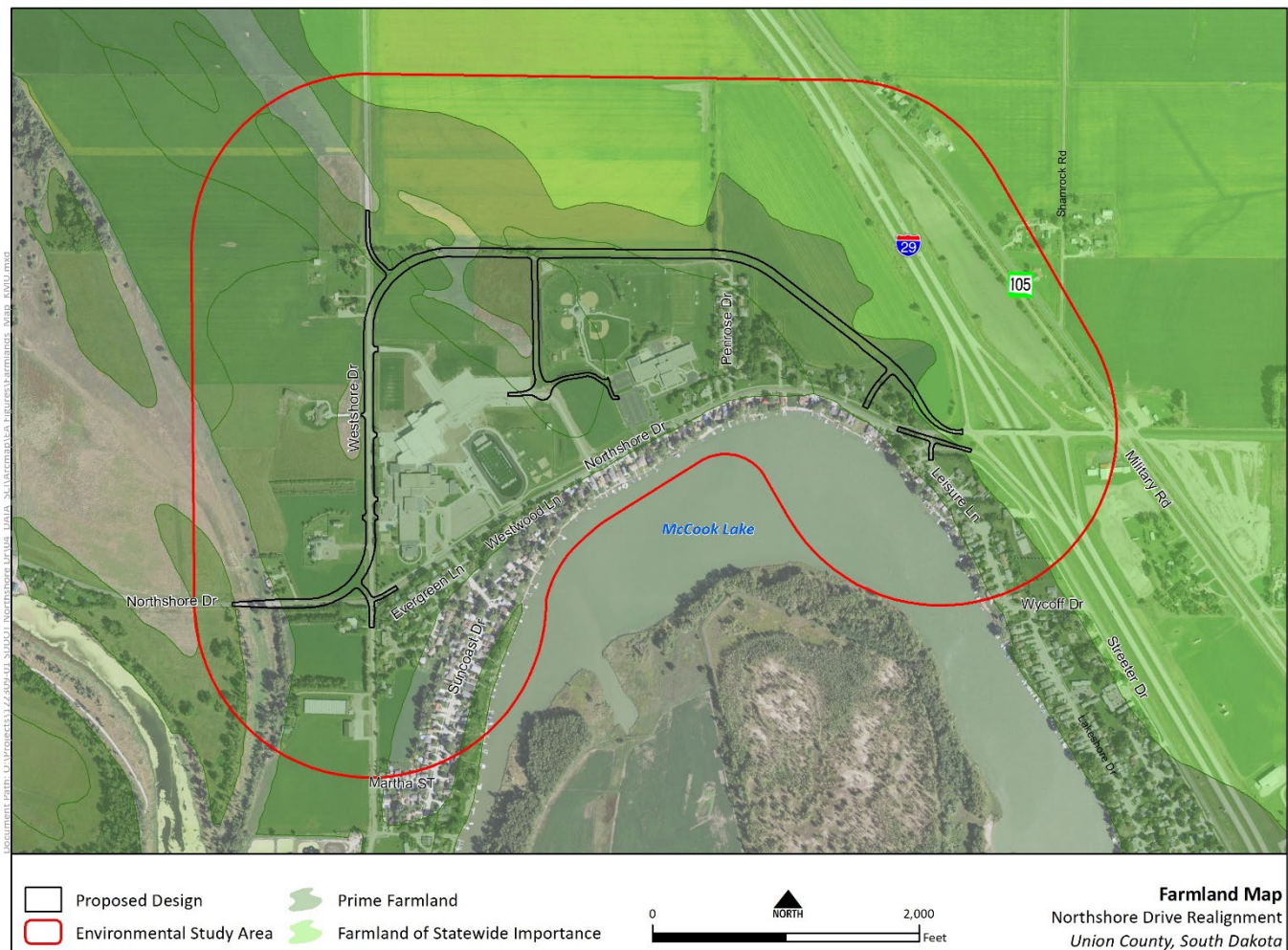
The No Build Alternative would have no impact on prime farmland because no construction activities would occur.

Build Alternative 1

Build Alternative 1 is anticipated to result in the conversion of approximately 11.8 acres of protected farmland. Conversion would be due to construction of a new roadway on a new alignment (**Figure 21**). No additional impacts to prime or unique farmland would occur from utility installation or relocation. This represents a negligible percentage of the total acreage of prime farmland within the county. The NRCS completed Part IV of the Farmland Conversion Impact Rating Form (AD-1006) and provided it on February 9, 2024. Based on the completed form, Build Alternative 1 received a score of 138 out of 260 points, which is less than the threshold of 160 points for significant impacts to prime farmland. This indicates that the proposed activity would have no significant impact on prime farmland or farmland of statewide importance. The Farmland Conversion Impact Rating Form and NRCS Coordination letter are provided in **Appendix B**.

Northshore Drive Realignment

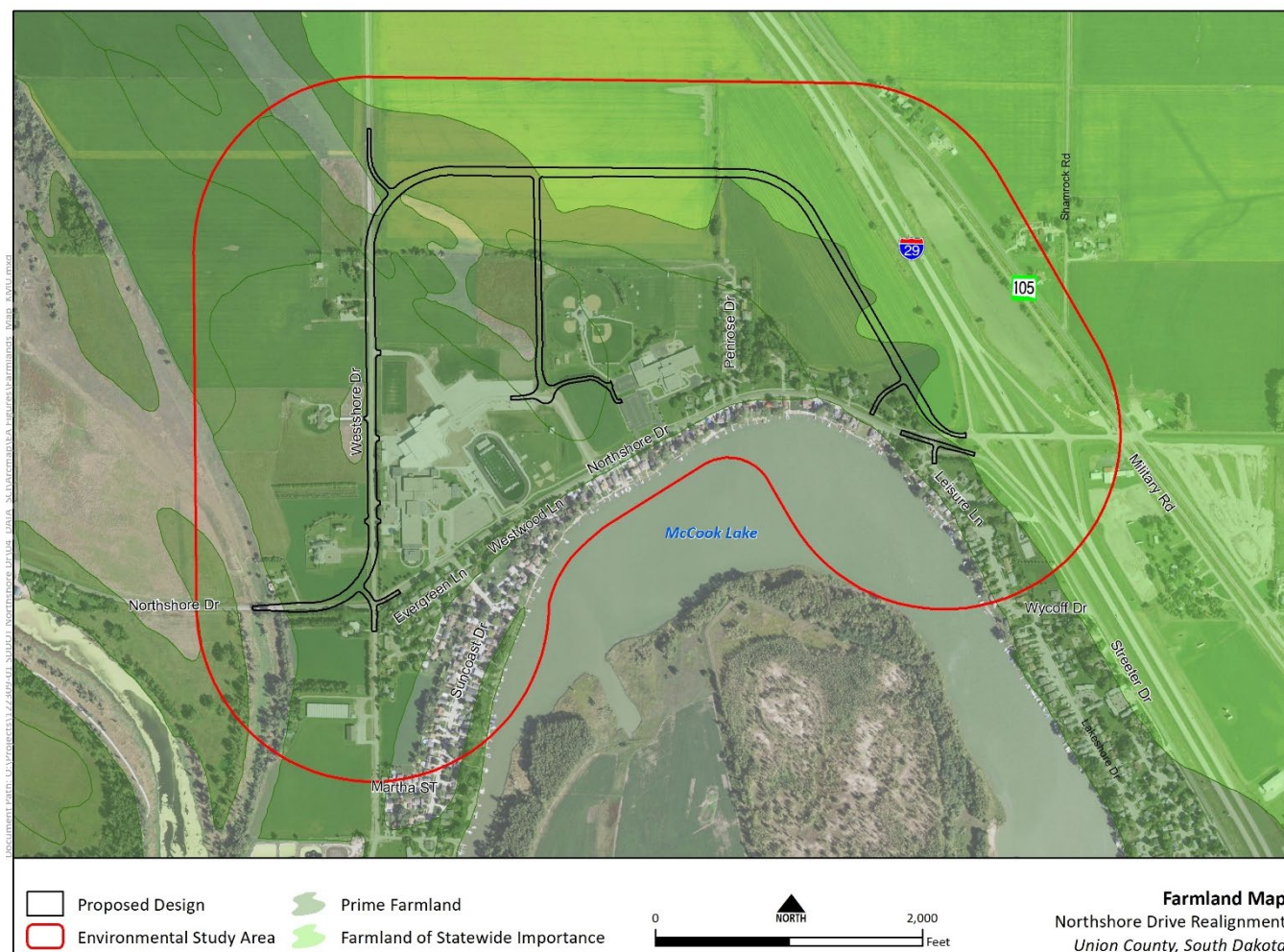
Figure 21. Impacts to Farmland - Alternative I



Build Alternative 2

Build Alternative 2 would be anticipated to result in the conversion of approximately 17.0 acres of protected farmland, including 10.2 acres of prime farmland and 6.8 acres of farmland of statewide importance. Conversion would be due to construction of a new roadway on a new alignment (**Figure 22**). No additional impacts to prime or unique farmland would occur from utility installation or relocation. This represents a negligible percentage of the total acreage of prime farmland within Union County. Build Alternative 2 would bisect the agricultural field creating a smaller area south of the new roadway that would be separated from the larger field north of the new roadway, limiting connectivity for farmers. The NRCS completed Part IV of the Farmland Conversion Impact Rating Form (AD-1006) and provided it on February 9, 2024. Based on the completed form, Build Alternative 2 received a score of 140 out of 260 points, which is less than 160 points, the threshold for significant impacts to prime farmland. This indicates that the proposed activity would have no significant impact on prime farmland or farmland of statewide importance. The Farmland Conversion Impact Rating Form and NRCS Coordination letter are provided in **Appendix B**.

Figure 22. Impacts to Farmland – Alternative 2



3.4.3 Avoidance and Minimization and/or Mitigation Measures

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

3.5 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. Noise is commonly defined as unwanted sound and noise levels are measured in terms of intensity using decibels (dB). Noise receptors are specific locations (e.g., residence, school, etc.) where human activity could be negatively impacted by noise levels. Receptors are grouped into noise land use categories with varying noise thresholds for what would be considered an impact. There are two ways receptors can be impacted by noise from a project: by traffic noise being too loud, or by traffic noise increasing “substantially” because of the project. FHWA has defined Noise Abatement Criteria (NAC) for seven land use categories that apply to its projects and has directed states to define their own thresholds where traffic noise levels “approach” the NAC and cause noise impacts (FHWA 2011). In South Dakota, traffic noise impacts are evaluated using the SDDOT Noise Analysis and Abatement Guidance (SDDOT 2023). SDDOT has established an “approach level” for each FHWA NAC that is 1 dBA below the FHWA NAC (SDDOT 2023). Equaling or exceeding the approach level for a study area receptor is

a noise impact. A “substantial” noise increase is defined by SDDOT as the future noise level increasing by 15 dBA or more over the existing level and is also a noise impact.

Land Use Categories B and C are the most frequent traffic noise concerns on road projects and are present in the Noise Study Area for this project. SDDOT’s approach level for residences (Category B) and other common noise-sensitive land uses (Category C) is an L_{eq} of 66 dBA. Note that these apply to exterior areas of frequent human use. Federal Noise Abatement Criteria (NAC) apply to all Type I projects requiring FHWA approval. Because they involve construction of a new roadway on a new alignment, all of the proposed build alternatives are considered a Type I project according to SDDOT 2023 and 23 CFR 772.

3.5.1 Affected Environment

The project was evaluated using the SDDOT Noise Analysis and Abatement Guidance (SDDOT 2023). Noise levels for the project were evaluated through a combination of field measurements and modeling using 2045 traffic conditions. In general, existing sources of noise around the project area consist predominately of motor vehicle traffic, including that on Northshore Drive and I-29. The overall purpose of the noise analysis was to determine whether noise levels at any sensitive receptors from potential project improvements may exceed applicable impact thresholds due to project construction. If so, noise abatement actions for the impacted receptors would be considered for the project. Noise Land Use categories present within the project are include Type B (e.g., residential) and Type C (e.g., active sports areas, trails, institutional).

Noise barriers are a common abatement action and were evaluated for receptors that were impacted by 2045 future conditions. The overall feasibility and reasonableness of noise abatement actions that provide a substantive benefit for the impacted receptors were evaluated. Abatement actions found to be feasible and reasonable would be recommended for inclusion in the project.

To evaluate the noise barrier, TNM models with a barrier protecting the impacted receptors were developed. Each barrier was placed near the limits of construction to make the most use of the unaltered topography. The barriers were assessed for feasibility. If the minimum parameters for an effective barrier were met and the barrier was feasible, then the barrier was checked for reasonableness according to SDDOT guidance (SDDOT 2023). The feasibility and reasonableness of each barrier determines whether the barrier is to be recommended.

For an abatement action to be feasible it must:

- ▶ Not cause undue safety or related problems, including excessive restriction of sight distance, shadow causing icing, and severe drainage problems (FHWA 2011)
- ▶ Not exceed 20 feet in height while still providing the requisite noise reductions
- ▶ Be located in an area with compatible topography
- ▶ Not cause undue drainage or utility problems
- ▶ Abatement measure must be maintainable, including access for maintenance tasks
- ▶ Provide at least 5 dBA of noise reduction to at least 60 percent of the front row receptors; and the barrier must extend completely across the affected property line(s)

For an abatement action to be reasonable it must:

- ▶ Provide at least 7 dBA of noise reduction to at least 40 percent of the benefitting receptors
- ▶ Cost no more than \$25,000 per benefitted receptor
- ▶ Be supported by at least 50 percent of the voting points available from returned ballots under the public participation program for benefitting receptors (owners and/or tenants). Consideration of the

noise abatement measure will continue unless more than 50 percent of all distributed ballots are returned that indicate the balloted voters do not want the abatement measure.

Additional details can be found in the Traffic Noise Impact Assessment included in **Appendix C** (FHU 2025). The assessment was reviewed and approved by SDDOT Environmental on August 14, 2024. Indirect and cumulative effects from construction of either build alternative are not anticipated. Land use north of the study area is predominately row crop agriculture (land use Category G) and does not have NAC approach levels. Currently, no development has been permitted that is associated with undeveloped lands (i.e., Category G) within the ESA. Based on the suggested 9-foot setback, it is unlikely that future developments would be impacted from traffic noise.

3.5.2 *Environmental Impacts of the Alternatives*

No Build Alternative

The No Build Alternative would have no impact on noise because no construction activities would occur. One Category B (i.e., residential) receptor (B-52) is impacted under existing conditions and would remain impacted under 2045 projected future traffic conditions if the No Build Alternative is implemented.

Build Alternative I

Based on the Traffic Noise Impact Assessment (**Appendix C**), Build Alternative I would have four impacted receptors based on 2045 traffic conditions (receptor B-95, a residence located on the north side of Northshore Drive, west of Streeter Drive; and receptors B-92, B-93, B-94, residences located on the south side of Northshore Drive, west of Streeter Drive.). Noise levels are predicted to approach or exceed the NAC approach level of 66 dBA for Category B (i.e., residential) land use. Because receptors were identified with 2045 noise impacts, noise abatement measures were evaluated at two locations for Build Alternative I. Impacted receptors and noise abatement barrier locations are shown in **Figure 23**.

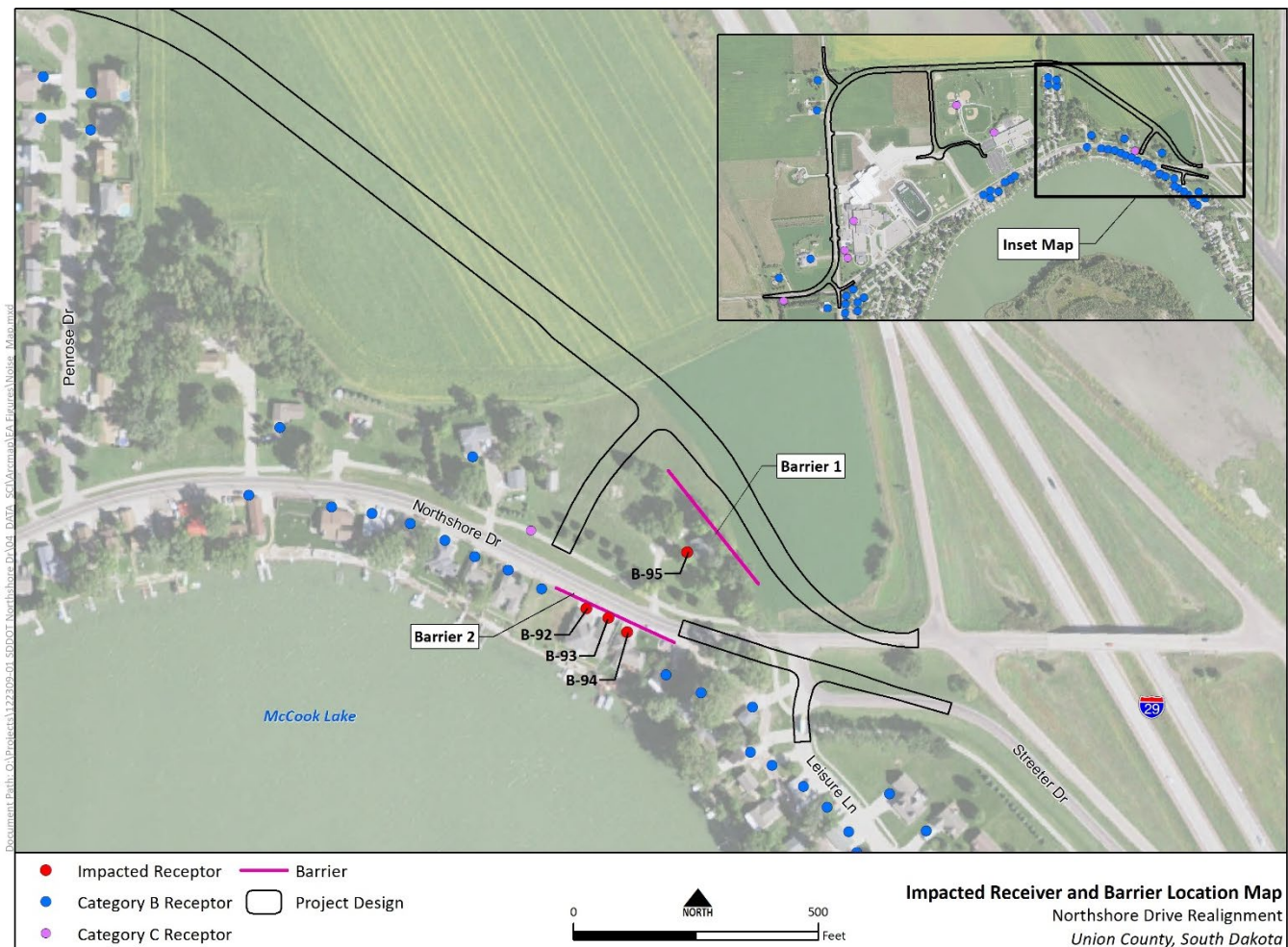
Analyses of the prospective noise abatement barrier for receptor B-95 (Barrier 1) determined that a barrier would not meet all of the criteria described in section 3.5.1 to be considered feasible. The barrier would not provide the requisite noise reduction with a height of less than 20 feet. It also would not meet all of the criteria to be considered reasonable. The proposed barrier would not result in the required 7-dBA of noise reduction to at least 40 percent of benefitting receptors. Furthermore, it would exceed the maximum average cost per benefitted receptor. The anticipated cost of constructing the barrier (\$468,000) would be approximately 18 times the allowable cost of a barrier per benefitted receptor (\$25,000).

Analyses of the prospective noise abatement barrier for receptors B-92, B-93, and B-94 (Barrier 2) determined that a barrier would not meet all of the criteria to be considered feasible. The barrier could not be constructed outside of the clear zone of the roadway. Additionally, it would not meet all of the criteria to be considered reasonable. The proposed barrier would result in the required 7-dBA of noise reduction to at least 40 percent of benefitting receptors. However, the barrier would exceed the maximum average cost per benefitted receptor. The anticipated cost of constructing the barrier (\$100,776) would be approximately 2 times the allowable cost of a barrier per benefitted receptor (\$25,000). Therefore, no noise abatement barriers are recommended for Build Alternative I.

A temporary increase in noise within the project area would occur due to construction equipment. Impacts caused by noise from construction would predominantly be performed during daylight hours when people are much less sensitive to noise.

Northshore Drive Realignment

Figure 23. Impacted Receiver and Barrier Location – Alternative I



Build Alternative 2

Based on the Traffic Noise Impact Assessment (**Appendix C**), Build Alternative 2 would have four impacted receptors based on 2045 traffic conditions (receptor B-95, a residence located on the north side of Northshore Drive, west of Streeter Drive; and receptors B-92, B-93, B-94, residences located on the south side of Northshore Drive, west of Streeter Drive.). Noise levels are predicted to approach or exceed the NAC approach level of 66 dBA for Category B (i.e., residential) land use. Because receptors were identified with 2045 noise impacts, noise abatement measures were evaluated at two locations for Build Alternative 2. Impacted receptors and noise abatement barrier locations are shown in **Figure 24**.

Analysis of the prospective noise abatement barrier for receptor B-95 (Barrier 1) determined that a barrier would not meet all of the criteria described in section 3.5.1 to be considered feasible. The barrier would not provide the requisite noise reduction with a height of less than 20 feet. It also would not meet all of the criteria to be considered reasonable. The proposed barrier would not result in the required 7-dBA of noise reduction to at least 40 percent of benefitting receptors. Furthermore, it would exceed the maximum average cost per benefitted receptor. The anticipated cost of constructing the barrier (\$468,000) would be approximately 18 times the allowable cost of a barrier per benefitted receptor (\$25,000).

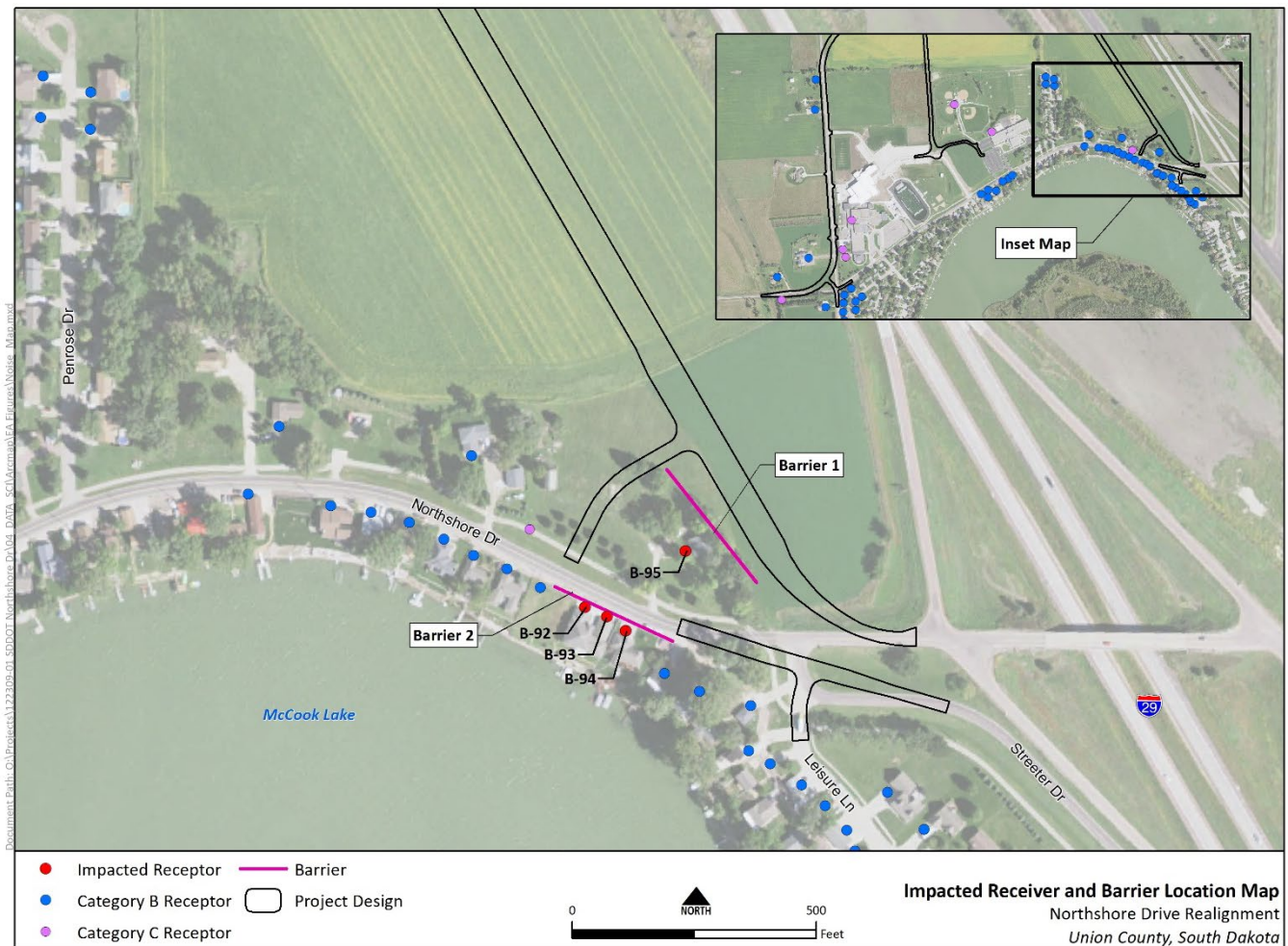
Analysis of the prospective noise abatement barrier for receptors B-92, B-93, and B-94 (Barrier 2) determined that a barrier would not meet all of the criteria to be considered feasible. The barrier could not be

Northshore Drive Realignment

constructed outside of the clear zone of the roadway. Additionally, it would not meet all of the criteria to be considered reasonable. The proposed barrier would result in the required 7-dBA of noise reduction to at least 40 percent of benefitting receptors. However, the barrier would exceed the maximum average cost per benefitted receptor. The anticipated cost of constructing the barrier (\$100,776) would be approximately 2 times the allowable cost of a barrier per benefitted receptor (\$25,000). Therefore, no noise abatement barriers are recommended for Build Alternative 2.

A temporary increase in noise within the project area would occur due to construction equipment. Noise from construction would predominantly occur during daylight hours when people are much less sensitive to noise.

Figure 24. Impacted Receiver and Barrier Location – Alternative 2



3.5.3 Avoidance and Minimization and/or Mitigation Measures

During construction, contractors would be required to comply with sound control requirements identified in the SDDOT Standard Specifications for Roads and Bridges (SDDOT 2015).

Local officials will be provided with information on noise compatible planning techniques that can be used to prevent future highway traffic noise impacts. The name of the local official given data, the date of transmittal, and summary of the data transferred should be documented in the NEPA project file. 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 as defined within (23 CFR 772- 17(a)(2)). This will be accomplished by providing a copy of the final noise analysis report to the local official, including the distance to the approach criteria for each land use category on undeveloped lands. The local official will also be provided with an estimation of future noise levels for various distances from the highway (noise contours). Local officials can find information for each land use category on undeveloped lands in 23 CFR 772-17(a)(2). Type II noise compatible land use planning concepts can be found on FHWA's Noise Compatible planning page (https://www.fhwa.dot.gov/ENVIRonment/noise/noise_compatible_planning/federal_approach/land_use/qz02.cfm).

3.6 Wetlands and Waters of the United States

Wetlands and Waters of the United States (hereafter, WOTUS), including waterways, lakes, natural ponds, and impoundments, are regulated by the US Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA). Wetlands and WOTUS are subject to USACE jurisdiction, which is determined by the applicable USACE district regulatory office. Executive Order (EO) 11990, Protection of Wetlands (May 24, 1977), directs federal agencies to consider avoidance of adverse effects and incompatible development in wetlands. Proposed action(s) that would affect jurisdictional wetlands or other WOTUS are required to obtain a permit from the USACE under Section 404 of the Clean Water Act of 1977 (33 United States Code [U.S.C.] §1344). The Federal Aid Highway Program found at 23 CFR 777.11(g) has the objective of providing a “net gain of wetlands” program wide. FHWA requires an Individual Wetland Finding be provided for review and approval if mitigation under EO 11990 and/or Section 404 of CWA is required for impacts to wetlands. Proposed action(s) that would affect jurisdictional wetlands or other WOTUS are required to obtain a permit from the USACE under Section 404 of the Clean Water Act of 1977 (33 United States Code. [U.S.C.] §1344).

3.6.1 Affected Environment

A field delineation was completed on May 18, 2023 to identify and document wetlands and other WOTUS present within the ESA (FHU 2023). Seven delineated wetlands totaling 7.68 acres were identified during the delineation. Two of the larger wetlands are located west of Westshore Drive on or adjacent to the Adams Homestead Nature Preserve; two farmed wetlands are present on either side of a culvert under Westshore Drive near the northwest corner of the ESA; three wetlands are present in the I-29 ROW, including one near the east terminus for the project; and two are located within a constructed drainageway north of Northshore Drive and west of a Dakota Valleys School Driveway. No channels or other WOTUS were identified within the ESA. Additional information for the delineated wetlands and the other Waters of the United States within the survey area can be found in the Wetland Delineation Report in **Appendix D**.

3.6.2 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would have no temporary or permanent impacts to wetlands or open waters because no construction activities would occur.

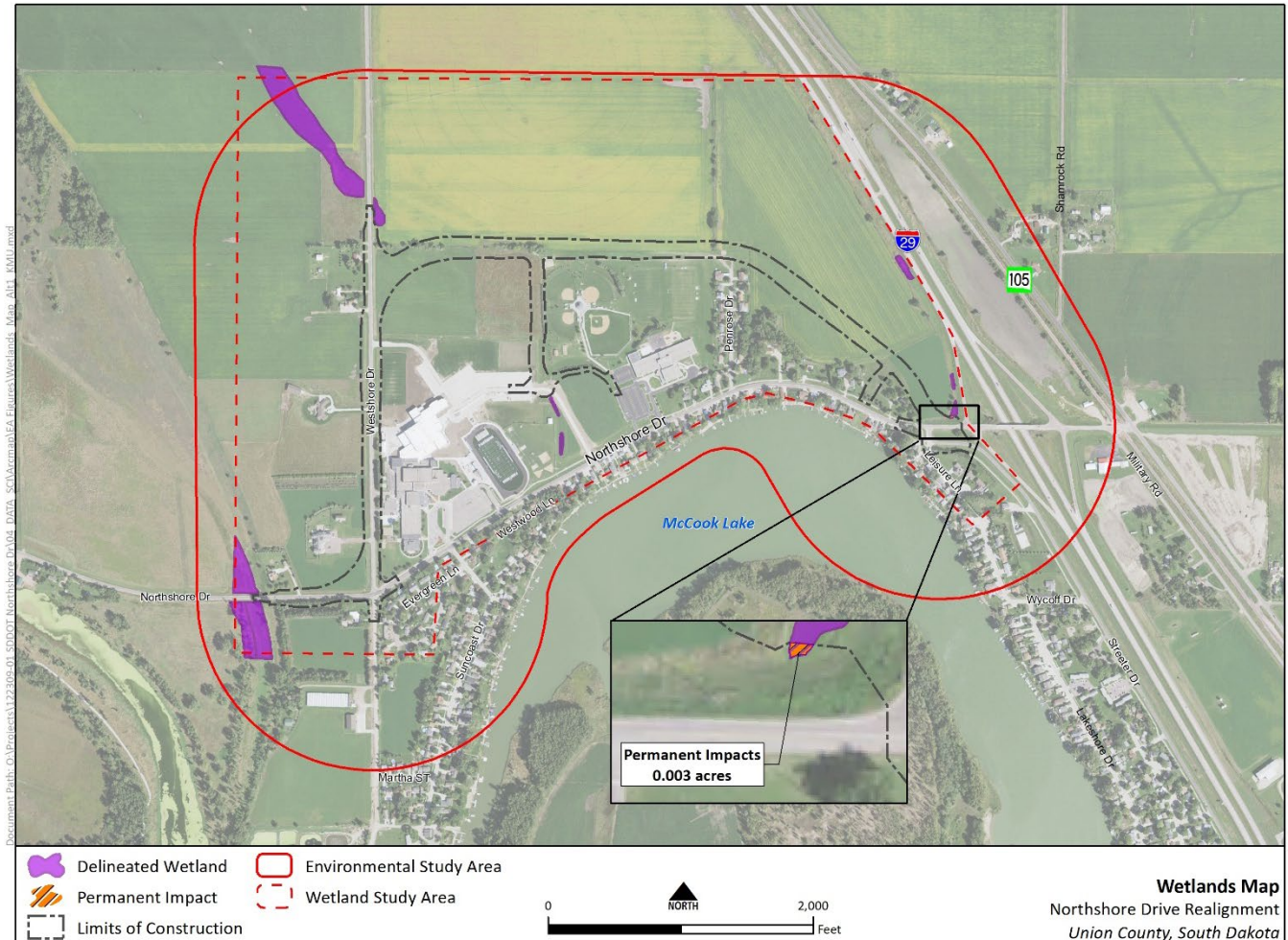
Build Alternative I

Based on preliminary design, Build Alternative I is anticipated to permanently impact 0.003 acres of wetlands located in a depression in the ROW northwest of the Exit 4 interchange (**Figure 25**). No temporary wetland impacts would occur. No additional impacts would occur from utility installation or relocation. It is anticipated that impacts from Build Alternative I would qualify for a Section 404 Nationwide Permit. The most likely permit for the project is Nationwide Permit 14 for Linear Transportation Projects. The Section 404 permit

Northshore Drive Realignment

would be obtained prior to construction. Compensatory wetland mitigation would not be needed for the Section 404 Permit or for EO 11990. Therefore, an Individual Wetland Finding would not be needed for Build Alternative 1.

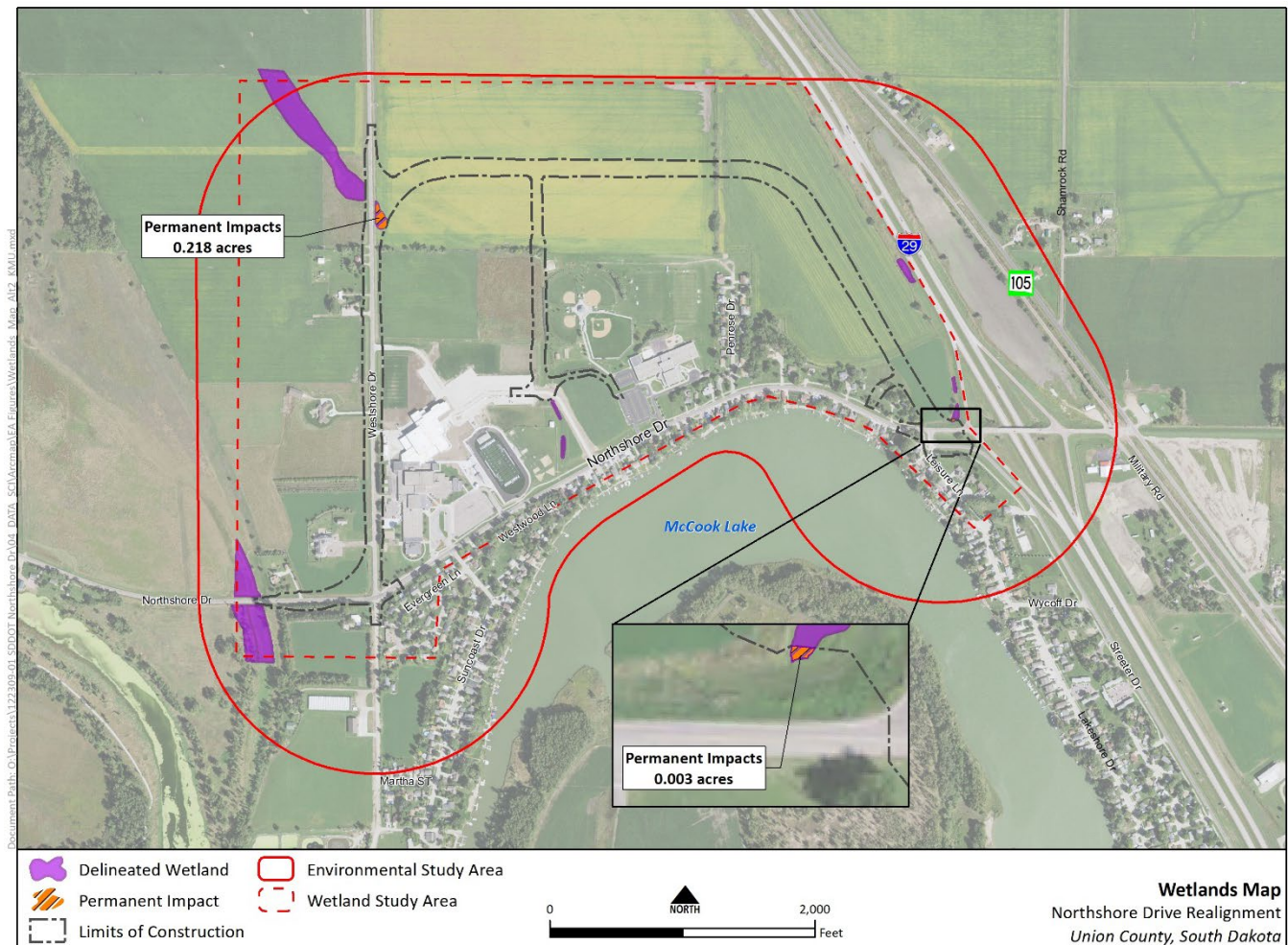
Figure 25. Impacts to Wetlands – Alternative 1



Build Alternative 2

Build Alternative 2 would have substantially greater impacts than Build Alternative 1. Based on preliminary design, Build Alternative 2 is anticipated to permanently impact 0.221 acres of wetlands (**Figure 26**). The majority of the impacts (0.218 acres) would be located where Build Alternative 2 ties into Westshore Drive. The remaining impacts (0.003 acres) are located in a depression in the ROW northwest of the Exit 4 interchange. No temporary wetland impacts are anticipated. No additional impacts to wetlands or waters of the United States would occur from utility installation or relocation. Based on the 2023 Supreme Court ruling on *Sackett vs. EPA*, which determined that the CWA extends only to wetlands that have a continuous surface connection with “waters” of the United States (i.e., with a relatively permanent body of water connected to traditional interstate navigable waters), most of the impacts to wetlands are likely to be federally jurisdictional. However, only a USACE approved jurisdictional determination can determine this. If any impacted resources are determined to be jurisdictional, a Section 404 Nationwide Permit would be obtained from USACE. The most likely permit for the project is Nationwide Permit 14 for Linear Transportation Projects. It is assumed that impacts could be permitted with a Nationwide Permit. Wetland would be anticipated for the Section 404 permit and for EO 11990. Therefore, an Individual Wetland Finding would be required for Build Alternative 2.

Figure 26. Impacts to Wetlands – Alternative 2



3.6.3 Avoidance and Minimization and/or Mitigation Measures

A Section 404 Nationwide 14 – Linear Transportation Projects permit from USACE would be obtained for all impacts to jurisdictional wetlands. Wetland areas that will not be impacted will be marked on project plans for avoidance. Wetland mitigation, if required by USACE, and an Individual Wetland Finding would only be required for Build Alternative 2.

3.7 Water Quality

The 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 U.S. Environmental Protection Agency's (USEPA) 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. The SDDANR issues the NPDES permits under its Surface Water Discharge (SWD) Program.

3.7.1 Affected Environment

The ESA is located primarily in the Lewis and Clark Lake Watershed (HUC 8). The east edge of the ESA (east of I-29) is located within the Lower Big Sioux Watershed (HUC 8); however, no work would be anticipated within that watershed. The primary surface water feature in the ESA is McCook Lake, an oxbow of the Missouri River that is kept full of water through seasonal pumping from the river into the lake. Mud Lake is located southwest of the ESA on the Adams Homestead and Nature Preserve property, but transitions to palustrine wetlands within the ESA. No stream channels are present within the ESA.

According to the SDDANR 2022 Integrated Report for Surface Water Quality Assessment (SDDANR 2022), McCook Lake is a 303(d) Category 5 water impaired for Temperature. This waterbody is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Lakes for the following beneficial uses: (4) Warmwater permanent fish life propagation waters; (7) Immersion recreation waters; (8) Limited contact recreation waters; and (9) Fish and wildlife propagation, recreation, and stock watering waters. SDDANR indicated on October 16, 2023, that 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 and the daily maximum total suspended solids criterion of 158 mg/L are not violated. At a minimum, regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site. SDDANR coordination can be found in **Appendix E**.

3.7.2 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would not increase impacts to water quality beyond what non-point source pollution from surface drainage already contributes to existing conditions in McCook Lake (a 303(d) impaired resource for temperature) because no construction activities would occur.

Build Alternative 1

Build Alternative 1 is not anticipated to adversely impact any 303(d) impaired resources. Although McCook Lake is a 303(d) impaired resource within the ESA, it is located south of Northshore Drive and no construction activities would occur within or adjacent to McCook Lake. Build Alternative 1 would be located north of Northshore Drive and away from McCook Lake. Because this alternative would have more than one acre of ground disturbance, a Project Storm Water Pollution Prevention Plan (SWPPP) would be required with the NPDES permit. As part of the SWPPP, erosion and sediment control BMPs would be implemented to mitigate any potential temporary impacts to water quality.

Build Alternative 2

Build Alternative 2 would be a longer alignment and therefore would have more ground disturbance than Build Alternative 1. However, Build Alternative 2 would not be anticipated to adversely impact any 303(d) impaired resources. Although McCook Lake is a 303(d) impaired resource within the ESA, it is located south of Northshore Drive and no construction activities would occur within or adjacent to McCook Lake. Build Alternative 2 would be located north of Northshore Drive and away from McCook Lake. Because this alternative would have more than one acre of ground disturbance, a Project SWPPP would be required with the NPDES permit. As part of the SWPPP, erosion and sediment control BMPs would be implemented to mitigate any potential temporary impacts to water quality.

3.7.3 Avoidance and Minimization and/or Mitigation Measures

This project is in the vicinity of McCook Lake. This waterbody is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Lakes for the following beneficial uses: (4) Warmwater permanent fish life propagation waters; (7) Immersion recreation waters; (8) Limited contact recreation waters; and (9) Fish and wildlife propagation, recreation, and stock watering 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 and the daily maximum total suspended solids criterion of 158 mg/L are not violated. At a minimum, 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. A Surface Water Discharge permit may be required if any construction dewatering should occur because of this project. Contact the Department of Agriculture and Natural Resources for additional information or guidance at 1-800-SDSTORM (1-800-737-8676) or <https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/default.aspx>

The discharge of pollutants from any source, including indiscriminate use of fill material, may not cause destruction or impairment except where authorized under Section 404 of the Federal Water Pollution Control Act. Please contact the United States Army Corps of Engineers for more information 605-224-8531.

In South Dakota all water is the property of the people and the right to use of that water is through obtaining a water right. A water right is needed for all uses of water except for domestic uses. If water is needed during construction that is obtained from surface or ground water, a temporary permit for the use of public water will need to be obtained. If water is supplied by a municipality or rural water system for construction purposes, no additional water permitting is required. Please contact Genny McMath at genny.mcmath@state.sd.us or call (605) 773-3352 if you have any questions.

In addition, if water is needed during construction that is obtained from surface or ground water, a temporary permit for the use of public water will need to be obtained. If water is supplied by a municipality or rural water system for construction purposes, no additional water permitting is required. Please contact Genny McMath at genny.mcmath@state.sd.us or (605) 773-3352 if you have any questions or find form at <https://danr.sd.gov/OfficeOfWater/WaterRights/docs/D2052LDVI-TempApp.pdf>

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.

3.8 Air Quality

The Clean Air Act (CAA) (42 U.S.C. § 7401 et seq.) of 1970 required the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) to protect public health and welfare and the environment, and to regulate emissions of hazardous pollutants. The Clean Air Act identifies two types of NAAQS. Primary standards provide public health protection, including protecting the health of “sensitive” populations such as asthmatics, children, and the elderly. Secondary standards provide public health welfare protection, including protection against decreased visibility and damage to animals, vegetation, and buildings.

3.8.1 Affected Environment

No nonattainment or maintenance areas have been designated by the USEPA in South Dakota. Therefore, the requirements of the transportation conformity regulations (40 CFR 93 Subpart A, Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or

Northshore Drive Realignment

Approved Under Title 23 U.S.C. or the Federal Transit Laws) do not apply to transportation projects in South Dakota. The project ESA is in compliance with all of the NAAQS. SDDANR indicated in their response dated October 16, 2023, the project would have minor impacts to air quality in South Dakota due to source and fugitive emissions (**Appendix E**). Source emissions are typically fixed sources, such as a batch plant or building structure of which neither would be associated with the project. Fugitive emissions are unintentional releases of gasses that could occur during construction.

Mobile Source Air Toxics (MSATs) in the project area come from motorized vehicles emitting airborne pollutants. The impact of MSATs on air quality is affected by traffic volumes, travel patterns, and roadway locations and congestion levels in a given area. Transportation projects may affect the regional or local MSAT emissions from vehicles. Potential MSAT effects from the project operation were evaluated following the FHWA Memorandum titled Updated Interim Guidance on Air Toxic Analysis in NEPA Documents (FHWA 2023). FHWA developed three categories for analysis depending on project circumstances:

1. No analysis for projects with no potential for meaningful MSAT effects;
2. Qualitative analysis for projects with low potential MSAT effects; or
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

The Northshore Drive Realignment project is categorized as level 2 or “projects with low potential MSAT effects” resulting in the need for this qualitative assessment. The project is not anticipated to create a potential for meaningful differences in MSAT emissions for the following reasons:

- ▶ As a new roadway on a new alignment project, there will be a decrease in delay and congestion associated with stopped vehicles and idling on the existing Northshore Drive.
- ▶ This project would improve pedestrian and bicycle mobility and access.
- ▶ The new alignment traffic volumes will be relatively low and the projected design year traffic is anticipated to be 6,400 ADT (constrained) or 10,750 ADT (unconstrained) (**Appendix A**).

3.8.2 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would result in a slow deterioration of air quality due to increased traffic congestion along the existing Northshore Drive. However, the level of future congestion would not be anticipated to violate air quality standards in the foreseeable future. Therefore, the No Build Alternative would have a negligible effect on air quality.

Build Alternative 1

Build Alternative 1 would result in a temporary increase in air emissions during construction. Neighboring areas could be exposed to construction-related fugitive dust and construction equipment emissions during construction of the project. Standard SDDOT Best Management Practices (BMPs) would be implemented to minimize impacts to air quality. Build Alternative 1 may result in a minor, localized improvement of air quality by creating a new alignment that would reroute a portion of the traffic and result in decreased traffic congestion along Northshore Drive for the foreseeable future.

Build Alternative 2

Build Alternative 2 would result in a temporary increase in air emissions during construction. Neighboring areas could be exposed to construction-related fugitive dust and construction equipment emissions during

construction of the project. Standard SDDOT Best Management Practices (BMPs) would be implemented to minimize impacts to air quality. Build Alternative 2 may result in a minor, localized improvement of air quality within by creating a new alignment that would reroute a portion of the traffic and result in decreased traffic congestion along Northshore Drive for the foreseeable future.

3.8.3 Avoidance and Minimization and/or Mitigation Measures

An air quality permit may be required to operate equipment with point source emissions. A permit application can be obtained from the Air Quality or Minerals and Mining Program.

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. During construction, fugitive emissions would be monitored and would be mitigated (such as watering to suppress dust) as needed.

3.9 Floodplains and Levees

Executive Order 11988 requires evaluation and minimization of impacts to floodplains. 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) is the primary agency responsible for evaluating impacts to the floodway and the 100-year floodplain, with the local community floodplain manager administering the program. However, non-FEMA floodplains are also a consideration under Executive Order 11988.

The 100-year floodplain is the land area covered by the floodwaters of the 100-year flood. On FEMA Flood Insurance Rate Maps (FIRMs), this area is referred to as a Special Flood Hazard Area. The 100-year flood has a 1-percent chance of annual occurrence and is the standard for requiring the purchase of flood insurance and regulating development in flood prone areas. The floodway is the channel and adjacent floodplain areas that must remain open to discharge the 100-year flood.

Congress mandates under Section 408 (33 USC 408) that any use or alteration of a USACE Civil Works project (e.g., levee construction) by another party is subject to the approval of the USACE to ensure that these projects continue to provide the intended benefits to the public. Under Section 408, the USACE may grant permission for another party to alter a Civil Works project upon a determination that the alteration proposed will not be injurious to the public interest and will not impair the usefulness of the Civil Works project (e.g., flood risk management).

3.9.1 Affected Environment

According to the Flood Insurance Rate Map for Union County (Panel Number 4600870392E and 4602420392E, effective date January 15, 2021) there are no FEMA floodplains or floodways within the environmental study area. The vast majority of the project area is Zone X – Area of Minimal Flood Hazard. Areas of Zone X – 0.2 Percent Annual Chance Flood Area are present at McCook Lake to the south, Adams Homestead and Nature Preserve to the west, and east of the BNSF railroad at the east edge of the ESA.

A levee is present within the ESA east of the I-29 Exit 4 Interchange. The levee begins at the railroad and continues east and south. Although the levee stops at the railroad, the levee ROW extends to west of the mainline interstate lanes at the interchange. The additional levee ROW is in place for the construction of sandbag closure structures beneath the I-29 interchange overpass in the event of major flooding from the Big

Sioux River (USACE 2024). The emergency plan is in place to protect areas of North Sioux City downstream by redirecting floodwaters into McCook Lake, as occurred in June of 2024.

Several comments were received during public engagement wondering if the project could be used for flood protection, or concerns that the project would cause flooding elsewhere. As described in Section 1.2.2, USACE operates a flood emergency plan for the Big Sioux River that involves construction of a temporary levee at Exit 4 to divert flood waters into McCook Lake, which was implemented in June of 2024 during a 1,000-year flooding event. The possibility of constructing an elevated roadway for flood control is not an intended purpose of the project and attempting to use the project as flood control would interfere with USACE flood emergency plans. Furthermore, it could have unintended consequences by shifting floodwaters. Therefore, an elevated roadway was not pursued with either of the build alternatives.

3.9.2 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would have no impact on floodplains because no construction activities would occur.

Build Alternative 1

Build Alternative 1 would have no impact on FEMA floodplains as all areas within and adjacent to the environmental study area are Zone X (FEMA 2021). All construction activities for Build Alternative 1, including all utility work, would be expected to occur in the area designated as Zone X – Area of Minimal Flood Hazard. Build Alternative 1 would not result in a modification or longitudinal encroachment on a watercourse; or result in an increase of more than 1-foot of surface water elevation in the base of the FEMA floodplain (100-year base floodplain). Therefore, no floodplain development permit would be required. Build Alternative 1 would not raise the profile of the roadway and therefore would not impede the flow of Big Sioux River floodwaters to McCook Lake in the event of another flood emergency. Because it is not raising the profile of the roadway, it also would not cause an increase in the risk of damage to property and loss of human life. Construction of Build Alternative 1 would begin west of the I-29 Exit 4 interchange and west of the USACE levee ROW. Therefore, no impacts to a Section 408 resource would be anticipated from Build Alternative 1.

Build Alternative 2

Build Alternative 2 would have no impact on FEMA floodplains as all areas within and adjacent to the environmental study area are Zone X (FEMA 2021). All construction activities for Build Alternative 2, including all utility work, would be expected to occur in the area designated as Zone X – Area of Minimal Flood Hazard. Build Alternative 2 would not result in a modification or longitudinal encroachment on a watercourse; or result in an increase of more than 1-foot of surface water elevation in the base of the FEMA floodplain (100-year base floodplain). Therefore, no floodplain development permit would be required. Build Alternative 2 would not raise the profile of the roadway and therefore would not impede the flow of Big Sioux River floodwaters to McCook Lake in the event of another flood emergency. Because it is not raising the profile of the roadway, it also would not cause an increase in the risk of damage to property and loss of human life. Construction of Build Alternative 1 would begin west of the I-29 Exit 4 interchange and west of the USACE levee ROW. Therefore, no impacts to a Section 408 resource would be anticipated from Build Alternative 2.

3.9.3 Avoidance and Minimization and/or Mitigation Measures

No mitigation measures are required as no floodplains or levees would be impacted.

3.10 Vegetation

Certain species are listed as noxious weeds for the state of South Dakota or for Union County. Soil disturbance from construction projects have the potential to introduce noxious weeds or other undesirable vegetation, or to allow it to spread when already present.

3.10.1 Affected Environment

State-listed noxious weed species from the SDDANR (2023) include:

- Absinth wormwood (*Artemisia absinthium*)
- Leafy spurge (*Euphorbia esula*)
- Canada thistle (*Cirsium arvense*)
- Perennial sow thistle (*Sonchus arvensis*)
- Hoary cress (*Cardaria draba*)
- Purple loosestrife (*Lythrum salicaria*)
- Salt cedar (*Tamarix ramosissima*)

Outside of planted agricultural crops, vegetation in the ESA primarily consists of mowed and maintained Kentucky bluegrass (*Poa pratensis*) lawns associated with residences, schools, businesses, or road ROW. Unmaintained areas of ROW consist primarily of smooth brome (*Bromus inermis*), with reed canarygrass (*Phalaris arundinacea*) present in portions of the I-29 ROW. The only noxious weed observed in the environmental study area was Canada thistle (*Cirsium arvense*). This species was observed in a fallow field north of the Dakota Valley High School parking lot. The fallow field contains a relatively diverse plant community, and the thistle did not appear to be a major component.

While there is a scattering of native species, most areas in the environmental study area have undergone extensive human disturbance and are of low natural quality. Non-native smooth brome and Kentucky bluegrass were the most common species. Much of the environmental study area is mowed and maintained lawns or agricultural cropland. This appears to have suppressed noxious weeds and limited their presence throughout the environmental study area. Trees are present within the ESA and are primarily growing in narrow lines at the edges of some agricultural fields; consisting of small to moderate sized white mulberry (*Morus alba*), green ash (*Fraxinus pennsylvanica*), hackberry (*Celtis occidentalis*), and wild plum (*Prunus americana*) trees. Other ornamental trees are located in the yards of residences, or as planted windbreaks near the southwest corner of the ESA.

3.10.2 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would have no effect on vegetation because no construction activities would occur.

Build Alternative I

Build Alternative I would cause substantial ground disturbance for grading of the new roadway. The area of the limits of construction is approximately 39.6 acres. No additional impacts to vegetation would occur from utility installation or relocation. The majority of the ground disturbance would occur within agricultural cropland, and to a lesser extent within maintained ROW, and would therefore have no impacts to natural vegetation communities. Ground disturbance has the potential to introduce noxious weeds or other undesirable vegetation. However, this can be minimized by reseeding disturbed areas with mixtures that comply with South Dakota Seed Laws (South Dakota Code, 2005). Impacted trees would primarily consist of a

scattering of small to moderate sized trees that have established in narrow lines along the edges of agricultural fields. These trees are either non-native (e.g., white mulberry) or common weedy species (e.g., green ash, hackberry, wild plum). Therefore, impacts to vegetation from Build Alternative 1 would be negligible.

Build Alternative 2

Build Alternative 2 is a longer alignment and therefore would have more ground disturbance than Build Alternative 1, with increased potential for the establishment of invasives. The area of the limits of construction is approximately 46.0 acres. No additional impacts to vegetation would occur from utility installation or relocation. The majority of the ground disturbance would occur within agricultural cropland, and to a lesser extent within maintained ROW, and would therefore have no impacts to natural vegetation communities. Ground disturbance has the potential to introduce noxious weeds or other undesirable vegetation. However, this can be minimized by reseeding disturbed areas with mixtures that comply with South Dakota Seed Laws (South Dakota Code, 2005). Impacted trees would primarily consist of a scattering of small to moderate sized trees that have established in narrow lines along the edges of agricultural fields. These trees are either non-native (e.g., white mulberry) or common weedy species (e.g., green ash, hackberry, wild plum). Therefore, impacts to vegetation from Build Alternative 2 would be negligible.

3.10.3 Avoidance and Minimization and/or Mitigation Measures

Disturbance of soil due to project activities would have the potential to introduce or spread noxious weeds and other invasive plant species. To mitigate the potential introduction of noxious weeds, disturbed areas should be seeded with mixtures that comply with South Dakota Seed Laws in order to reduce the potential for invasive plant infestations and to comply with South Dakota laws regarding weed and pest control (South Dakota Code, 2005).

The SDDANR Resource Conservation and Forestry (RCF) provided the following comments (**Appendix E**): Special construction measures may have to be taken to preserve and protect tree health by avoiding damage to tree roots, stems, or branches. At a minimum, the storage of equipment, machinery, or trucks under or against a tree should be avoided. Barriers or sturdy fencing should be placed around trees that will remain on site following construction. Barriers should be placed a minimum of 1 foot radius from the base of the tree's trunk for every 1 inch in diameter measured 4.5 feet above the ground. This will protect against soil compaction, alteration of the natural soil level under the live canopy and any damage from occurring to the trunk of the tree. Eighty-five to ninety percent of a tree's root system lies within the top 6-12 inches of soil extending out one to one and a half times the height of the tree. Trenching through this critical root zone could severely destabilize a tree and adversely affect its health. Tunneling under or around the root system is much less damaging and encouraged. Trees often do not die immediately following construction damage but can decline over several months/years. A tree that sustains damage meeting or exceeding the following limits must be removed and, if conditions allow, replaced to maintain the canopy and ecosystem benefits of tree cover: A) The top or main stem of the tree is broken. B) The live crown of the tree is reduced below 30 percent. C) More than 1/3 of the circumference of a tree's main root system (a root 4 inches in diameter or larger) is injured such that the cambium layer (living tissue) is exposed. D) More than 1/3 of tree's total root system is severed or torn. E) More than 1/3 of the circumference of the trunk's cambium layer exposed.

Trees would be planted within the boulevard of the newly constructed roadway with approximately 50-foot spacing. Trees would consist of species including Kentucky coffee tree, hornless honey locust, American elm, swamp white oak, and Japanese tree lilac.

3.11 Threatened and Endangered Species and Other Wildlife

3.11.1 Affected Environment

Federally Listed Threatened and Endangered Species

Section 7 of the Endangered Species Act (16 U.S.C. 1536) states that all Federal agencies will, in consultation with the Secretary of the Interior, ensure that any action authorized, funded, or otherwise carried out by them do not jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adverse modification of critical habitat. An endangered species is the classification provided to an animal or plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range. A threatened species is the classification provided to an animal or plant likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Section 7 of the Endangered Species Act, as amended, applies to federal actions and sets forth requirements for consultation to determine if the proposed action may affect a threatened or endangered species. If a threatened or endangered species or its critical habitat may be affected, Section 7(a)(2) of the Endangered Species Act requires the federal lead agency to consult with USFWS or the National Marine Fisheries Service, as appropriate, to ensure that the project does not jeopardize the continued existence of the affected species. Threatened, endangered, candidate, and proposed state-listed animal and plant species and their habitats that exist in the affected environment must also be considered. Plant or animal species with special status are also included.

Through the USFWS Information for Planning and Consultation (IPaC) database, seven federally listed species were identified for the project ESA (USFWS 2025a). Additionally, the tricolored bat is proposed endangered and the monarch butterfly and the western regal fritillary are proposed as threatened. Topeka shiner was not on the IPaC list but impacts are still being evaluated due to Union County being within the range of the species. The species evaluated for the project area are shown in **Table 8**.

Table 8. Federally Listed Species

Common Name	Scientific Name	Listing Status	Suitable Habitat	Suitable Habitat in ESA?
Piping plover	<i>Charadrius melodus</i>	Endangered	shorelines, mud flats and sand flats	No
Rufa red knot	<i>Calidris canutus rufa</i>	Threatened	gravelly or sandy beaches, tidal mudflats, salt marshes, shallow coastal impoundments, and peat banks	No
Pallid sturgeon	<i>Scaphirhynchus albus</i>	Endangered	large, deep turbid river channels such as the Missouri River	No
Topeka shiner	<i>Notropis topeka</i>	Endangered	low-moving small to midsize prairie streams with sand, gravel, or rubble bottoms	No
Scaleshell Mussel	<i>Leptodea leptodon</i>	Endangered	medium to large rivers with stable riffles and runs with gravel or mud substrate, moderate current, and high water quality	No
Western prairie fringed orchid	<i>Platanthera praeclara</i>	Threatened	wet, unplowed tallgrass prairies and meadows	No
Northern long-eared bat	<i>Myotis septentrionalis</i>	Endangered	forested areas, trees or snags with peeling bark, cavities, crevices	Yes

Common Name	Scientific Name	Listing Status	Suitable Habitat	Suitable Habitat in ESA?
Tricolored bat	<i>Perimyotis subflavus</i>	Proposed Endangered	forested areas, trees or snags with peeling bark, cavities, crevices	Yes
Monarch butterfly	<i>Danaus Plexippus</i>	Proposed Threatened	areas with flowering plants, milkweed	No
Western regal fritillary	<i>Argynnis idalia occidentalis</i>	Proposed Threatened	tallgrass prairies with flowering plants, warm season bunch grasses, and violet hotspots for larvae	No

Piping Plover:

The piping plover is a medium-sized migratory shorebird that inhabits shorelines, mud flats, and sand flats throughout its range. Historically on the Missouri River, the plovers nested mainly on sparsely vegetated river sandbars but now also use sand and gravel mines, lake shore housing developments, and reservoir shorelines (NGPC 2024). They typically nest from mid-May to mid-July and rear chicks from mid-June to mid-August. Nests are shallow scrapes or bowls frequently lined with small pebbles or shell fragments. Both sexes participate in incubation of four eggs, usually lasting 22 to 30 days. Fledging occurs approximately 25 to 35 days after hatching. Feeding plovers utilize open, wet, sandy areas, feeding primarily on exposed substrates by pecking for invertebrates at or just below the surface.

Suitable habitat is not present for piping plover within the project ESA. The portion of McCook Lake located within the ESA has a developed shoreline that is densely occupied by lake residences which lack sand beaches that might otherwise serve as potential habitat.

Rufa Red Knot:

The red knot is a medium-sized shorebird and makes one of the longest-distance migrations known, migrating up to 19,000 miles annually (USFWS 2013). The red knot's "unique and impressive life history depends on suitable habitat, food, and weather conditions...[at] sites across the Western Hemisphere, from the extreme south of [Brazil] to the far north of the central Canadian Arctic" (USFWS 2019a). While most red knots follow migration routes along the east or west coasts of North America, small numbers of this species follow an inland migration route, which may include stopovers in the Great Plains (USFWS 2013), including South Dakota. Recommended stopover habitat includes gravelly or sandy beaches, tidal mudflats, salt marshes, shallow coastal impoundments, and peat banks. Stopovers are defined as places where migrant birds stop to rest, drink, and eat during migration or after long flights (USFWS 2014a). The only area of potentially suitable habitat within the project ESA is located in the southwest corner of the ESA, where wetlands may seasonally flood providing potentially suitable stopover habitat. However, there is no suitable habitat at the locations of the proposed alternatives for the project.

Pallid Sturgeon:

Pallid sturgeon like deep, swift moving, and murky water. When young, they eat aquatic insects, but after growing larger and older, they primarily eat other small and large fish. Pallid sturgeon inhabit large, deep turbid river channels, usually in strong current over firm sand or gravel (USFWS 2024b). Pallid sturgeon habitat is not present within the project ESA. The project is located approximately 2 miles from the Missouri River, the closest suitable habitat. The McCook Lake oxbow is disconnected from the Missouri River and only maintains water levels through artificial pumping from the Missouri River.

Topeka Shiner:

Topeka shiners generally occupy small, prairie streams with groundwater inputs, high water quality, and sand or gravel substrates (Pflieger 1997). Topeka shiner habitat is not present within the project ESA as there are no streams.

Scaleshell Mussel:

The scaleshell mussel once occurred in 56 rivers in the Mississippi River Drainage. The species has undergone a dramatic reduction in range and is believed to be extirpated from 9 of the 13 states it historically occurred in. While the species has been documented from 18 streams in the last 25 years, it can only be found consistently in three streams in Missouri where it is still very rare. The scaleshell mussel occurs in medium to large rivers with low to medium gradients. It primarily inhabits stable riffles and runs with gravel or mud substrate and moderate current velocity. The scaleshell requires good water quality and is usually found where a diversity of other mussel species are concentrated. Water quality degradation, sedimentation, channel destabilization, and habitat destruction are contributing to the decline of the scaleshell throughout its range. Based on information in the USFWS Scaleshell Mussel Recovery Plan, the remaining populations are very susceptible to local extirpation, with little chance of recolonization because of their scattered and isolated distribution (Federal Register 75 17758). No rivers or streams are present within or adjacent to the project ESA. Therefore, the project ESA does not contain suitable habitat for scaleshell mussel.

Western Prairie Fringed Orchid:

The western prairie fringed orchid is a member of the orchid family and is found in or adjacent to moist tallgrass prairies remnant throughout its historic range. Main threats to the species include the conversion of remnant prairie to cropland, incompatible use of herbicides and pesticides, siltation, changes in hydrology, fire suppression, encroaching woody vegetation, and the spread of non-native, invasive plant species. Heavy grazing and early haying may also have detrimental impacts on populations. Suitable habitat for western prairie fringed orchid is not present within the ESA. The ESA is comprised of agricultural cropland, maintained lawns or ROW, and palustrine wetlands that lack the native tallgrass prairie vegetation communities where the species may be found.

Northern Long-eared Bat:

The northern long-eared bat spends winters hibernating in caves and mines. During the summer these bats roost singly or in colonies underneath bark, in cavities, or in crevices of both live trees and snags (dead trees). Like most bats, they emerge at dusk to feed. They primarily fly through the understory of forested areas feeding on moths, flies, leafhoppers, caddisflies, and beetles, which they catch while in flight using echolocation or by gleaning motionless insects from vegetation. The northern long-eared bat's range includes much of the eastern and north central United States, including all of South Dakota. Potentially suitable roosting habitat is found within the project area where there are trees with peeling bark, cavities, or crevices. Suitable habitat for northern long-eared bat is present within the ESA in areas with trees or snags that contain peeling bark or cavities and crevices.

Tricolored Bat:

The proposed endangered tricolored bat is one of the smallest bats native to North America. During the winter, tricolored bats are found in caves and mines. 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 (USFWS 2024c). Potentially suitable habitat for tricolored bat is present within the ESA in areas with trees or snags throughout the ESA.

Monarch Butterfly:

The proposed threatened monarch butterfly lives in a variety of open habitats throughout North America. The larvae only feed on milkweed plants and the adults feed on nectar from many flowering plants (USFWS 2024a). In general, the project ESA is within urban areas including maintained ROW and lawns and agricultural areas consisting of row-crop that is largely lacking milkweed or substantial flowering resources, particularly in the locations of the alternatives.

Western Regal Fritillary Butterfly:

The proposed threatened western regal fritillary is primarily found in native prairie remnants throughout North America. The larvae only feed on violet plants and the adults feed on nectar from many flowering plants and shelter in bunch grasses (USFWS 2025b). A viable (i.e., self-sustaining) population needs about 120 to 240 acres. In general, the project ESA is within urban areas including maintained ROW and lawns and agricultural areas consisting of row-crop that is lacking tallgrass prairie habitat or large populations of violets.

State Listed Species

State threatened or endangered species and species of management concern (designated species that require both control and protection) are regulated under South Dakota Statutes 34A-8 and 34A-8A, respectively. Coordination was conducted with South Dakota Game Fish and Parks (SDGFP) regarding state listed species. In a response dated October 2, 2023, SDGFP noted a 2017 record of False Map Turtles (*Graptemys pseudogeographica*) captured in McCook Lake, located southwest of the existing alignment of Northshore Drive.

False Map Turtles are an aquatic species of turtle that are primarily found in large rivers and oxbow lakes. False map turtles begin to nest along sandy beaches and sandbar habitats in May and June, with eggs hatching approximately two months later. SDGFP recommends avoiding any work in and immediately around McCook Lake (e.g., along the shoreline) during the nesting season, which typically runs from May through August. SDGFP also stated that, based on the information provided, there is no anticipated significant impact to fish and wildlife resources. Neither build alternative would have impacts in or along the shoreline of McCook Lake.

Eagles and Migratory Birds

Migratory birds are protected through the federal Migratory Bird Treaty Act (MBTA). All Federal agencies are subject to the provisions of the Migratory Bird Treaty Act (MBTA) (16 U.S.C. § 703-712, though § 709 is omitted), which regulates the take of any migratory bird species. If a project is expected to impact any migratory bird species, coordination with the USFWS is typically initiated in order to minimize impacts to these species. The MBTA makes it unlawful to take, import, export, possess, sell, purchase, or barter any migratory bird, with the exception of the taking of game birds during established hunting seasons.

In addition to being protected by MBTA, eagles are also protected by the Bald and Golden Eagle Protection Act (BGEPA). Bald and golden eagles, their eggs, nests, and nesting habitat are protected under these acts. Bald eagle habitat generally consists of large trees (e.g., mature cottonwoods) near large, open bodies of water. Suitable nesting habitat for migratory birds is present within the trees throughout the ESA. Suitable habitat is not present at the location of proposed construction activities due to urban development and lack of large trees. However, suitable bald eagle habitat is present within one mile of the project, namely in the Adams Homestead Nature Preserve. No bald eagle nests were observed in or near the project area during a site visit in May of 2023.

3.11.2 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would have no impact on federal and state-listed species, migratory birds, or eagles because no construction activities would occur.

Build Alternative 1

It is anticipated that Build Alternative 1 may affect, but is not likely to adversely affect, northern long-eared bat and tricolored bat with the implementation of the following mitigation measure: trees with suitable habitat will be removed November 1st – March 31st. Build Alternative 1 would have no effect on all other federal and state listed threatened and endangered species due to lack of habitat. No impacts to threatened and endangered species would occur from utility installation or relocation. In accordance with Section 7 of the ESA, SDDOT requested USFWS concurrence with these effect determinations on June 10, 2024, and USFWS provided their concurrence on the same date. False Map Turtle habitat is present within McCook Lake with nesting habitat in sandy areas along the shoreline of McCook Lake. No project activities would occur within McCook Lake or along the shoreline and therefore would have no impacts to False Map Turtle habitat. SDGFP indicated that “there is no anticipated significant impact to fish and wildlife resources” with the implementation of the mitigation measures included below. Agency coordination and concurrences are included in **Appendix E**.

Build Alternative 2

It is anticipated that Build Alternative 2 may affect, but is not likely to adversely affect, northern long-eared bat and tricolored bat with the implementation of the following mitigation measure: trees with suitable habitat would be removed November 1st – March 31st. Build Alternative 2 would have no effect on all other federal and state listed threatened and endangered species due to lack of habitat. No impacts to threatened and endangered species would occur from utility installation or relocation. In accordance with Section 7 of the ESA, SDDOT requested USFWS concurrence with these effect determinations on June 10, 2024, and USFWS provided their concurrence on the same date. SDDOT requested USFWS concurrence with these effect determinations on June 10, 2024, and USFWS provided their concurrence on the same date. False Map Turtle habitat is present within McCook Lake with nesting habitat in sandy areas along the shoreline of McCook Lake. No project activities would occur within McCook Lake or along the shoreline and therefore would have no impacts to False Map Turtle habitat. SDGFP indicated that “there is no anticipated significant impact to fish and wildlife resources” with the implementation of the mitigation measures included below. Agency coordination and concurrences are included in **Appendix E**.

3.11.3 Avoidance and Minimization and/or Mitigation Measures

Trees with suitable habitat will be removed November 1st – March 31st to avoid impacts to listed bat species.

If an eagle nest is observed within one mile of the project site, notify the project engineer immediately so that he/she can consult with the SDDOT Environmental Office for an appropriate course of action.

To protect False Map Turtles, no work will occur in and immediately around McCook Lake (e.g., along the shoreline) during the nesting season, which typically runs from May through August.

The following conservation conditions should be considered during the planning and construction of the project as it pertains to False Map Turtles (*Graptemys pseudogeographica*).

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. Avoid any work in and around McCook Lake during May-August to avoid impacts to nesting False Map Turtles.

3.12 Cultural Resources (Historical and Archeological)

Cultural resources are defined as man-made features and physical remains of past human activity, generally at least 50 years old. Cultural resources include historic buildings, bridges, railroads, roads, other structures, and archeological sites. 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 (Protection of Historic Properties). 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. Historic properties on or eligible for NRHP are also protected by Section 4(f) of the USDOT Act of 1966, which is described in detail Section 3.13. Section 4(f) protection may also be extended to properties that do not meet NRHP eligibility criteria, at the discretion of FHWA, if the responsible jurisdiction advocates Section 4(f) status.

3.12.1 Affected Environment

A Level III Cultural Resources Investigation was conducted for the project APE by personnel from the Archaeology Laboratory at Augustana University (McCormick & Buhta 2024). The investigation involved a background records search and field investigations conducted on June 6-7, June 13, and November 7, 2024. Three archaeological sites: one Euroamerican dump and two Euroamerican artifact scatters have been documented within one mile of the APE. Additionally, one bridge, six historic districts, and nine buildings have been recorded within one mile of the project area. Of these, only one previously identified archeological site was located within the APE. The current investigation identified additional artifacts associated with this site. The boundary for this site was subsequently expanded to include the new scatter. The NRHP eligibility status of this site is unevaluated because the site may extend further west beyond the APE. The areas further to the west of North Westshore Drive are not included in the project and would not be impacted. Therefore, were not surveyed as part of the archeological investigation. The portion of the site within the APE lies atop a deflated farm field with no potential for harboring intact subsurface deposits. This portion of the site lacks integrity and is considered a noncontributing component of the overall eligibility status of site for NRHP. SDSHPO concurred with this finding on January 24, 2025.

Pedestrian investigations and subsurface testing conducted throughout the APE demonstrate a largely unstable landscape with poor drainage qualities and little to no soil development. Geologic potential for buried archaeology in this setting is extremely limited. One soil series with a paleosol is mapped in a small portion of

the APE; therefore, buried archaeological site potential is considered elevated in the areas where the paleosol is present. The buried A-horizon identified during subsurface testing, however, was devoid of cultural resources; hence, buried site potential is only marginally elevated. Based on these findings, Augustana recommends no further archaeological work with respect to the proposed undertaking (McCormick & Buhta 2024). Augustana reconfirmed this recommendation for both Build Alternative alignments on January 16, 2025 (McCormick & Buhta 2025).

Coordination was conducted with SDSHPO who originally concurred with a determination of “No Historic Properties Affected” for the project on December 11, 2024. After modifications to the APE, SDSHPO reconfirmed their finding of “No Historic Properties Affected” on January 24, 2025 (**Appendix E**). On September 28, 2023, tribal coordination notification of the proposed Project action was provided to tribes who have expressed an interest in projects in Union County (**Appendix E**). No responses were received from any tribes which are listed in Section 6.2.

3.12.2 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would have no impact to cultural resources because no construction activities would occur.

Build Alternative 1

Build Alternative 1 would not be anticipated to affect any cultural resources eligible for or listed on the NRHP based on the findings of the Level III intensive cultural resources survey. Although an archeological site was present in the vicinity of the project, it was determined that the portion of the archeological site near the APE is considered non-contributing to the site’s overall National Register eligibility status. Furthermore, Build Alternative 1 would have no construction activities within or adjacent to the boundaries of the site. Additionally, no impacts to cultural resources would occur from utility installation or relocation. Other areas within the APE have little to no potential for harboring intact, buried cultural deposits. SDSHPO concurred with a determination of “No Historic Properties Affected” on January 24, 2025 (**Appendix E**).

Build Alternative 2

Build Alternative 2 would not be anticipated to affect any cultural resources eligible for or listed on the NRHP based on the findings of the Level III intensive cultural resources survey. While preliminary design initially showed minor impacts to the archeological site, the design of Build Alternative 2 was modified so that construction activities would avoid the site in its entirety. Additionally, no impacts to cultural resources would occur from utility installation or relocation. Other areas within the APE have little to no potential for harboring intact, buried cultural deposits. SDSHPO concurred with a determination of “No Historic Properties Affected” on January 24, 2025 (**Appendix E**).

3.12.3 Avoidance and Minimization and/or Mitigation Measures

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.

The archeological site within the APE will be marked for avoidance on project plans as an Environmental Sensitive Site. No work will be allowed within the boundaries the Environmental Sensitive Site until appropriate actions have been taken by the SDDOT Environmental office.

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

3.13 Section 4(f) and Section 6(f)

3.13.1 Section 4(f) Properties

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; or, if it is determined that the use of the property, including any measures to minimize harm, will have a *de minimis* impact on the property. For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

Use of a Section 4(f) property occurs: (1) when land is permanently incorporated into a transportation project; (2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose; or (3) when there is a constructive use (a project's proximity impacts are so severe that the protected activities, features, or attributes of a property are substantially impaired).

3.13.2 Section 6(f) Properties

The Land and Water Conservation Fund Act (Section 6(f)) established a land and water conservation fund (LWCF) 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) funds, either the land or the park appurtenances cannot be eliminated or acquired without coordination with the National Park Service and the substitution of the property proposed for replacement is of reasonable equivalent usefulness and location as that being converted. A Section 6(f) "conversion" occurs when resources protect by Section 6(f) changes the use of the land to a purpose other than public outdoor recreation.

3.13.3 Affected Environment

Section 4(f) resources are present within the ESA including three properties and one trail. One of the three properties (Adams Homestead) is also a Section 6(f) resource. Additionally, there is one unevaluated archeological site that has the potential to be subject to Section 4(f) if it is determined to be eligible for NRHP at a later time. All Section 4(f) resources (Category C) were reviewed for noise impacts (**Appendix C**). Sites found to have changes in noise levels were evaluated as category C receptors in the noise analyses. None were determined to be impacted receptors from either of the build alternatives.

The Dakota Valley School property is considered a multi-use property. Although the major purpose of the overall property is for education, portions of the property consist of school playgrounds and sports

Northshore Drive Realignment

competition and practice fields (e.g., baseball diamond, football fields, soccer fields, track and field facilities). When public school playgrounds and sports fields on school property are open to the general public, either for organized recreational purposes or substantial walk-on recreational purposes, these recreational areas may qualify as Section 4(f) resources. The Dakota Valley School Superintendent is the Official with Jurisdiction (OWJ). Informal coordination was conducted with the OWJ in April of 2024 and January of 2025

(**Appendix F**). The coordination was to confirm the appropriate OWJ and intent to find a *de minimis*. There are five areas on the Dakota Valley School property that have recreational uses and are subject to Section 4(f): two playgrounds, baseball diamonds/soccer fields, the high school football stadium/track and field facilities, and football practice fields. These areas are identified in **Figure 27**. None of the Dakota Valley School resources are encumbered by Section 6(f).

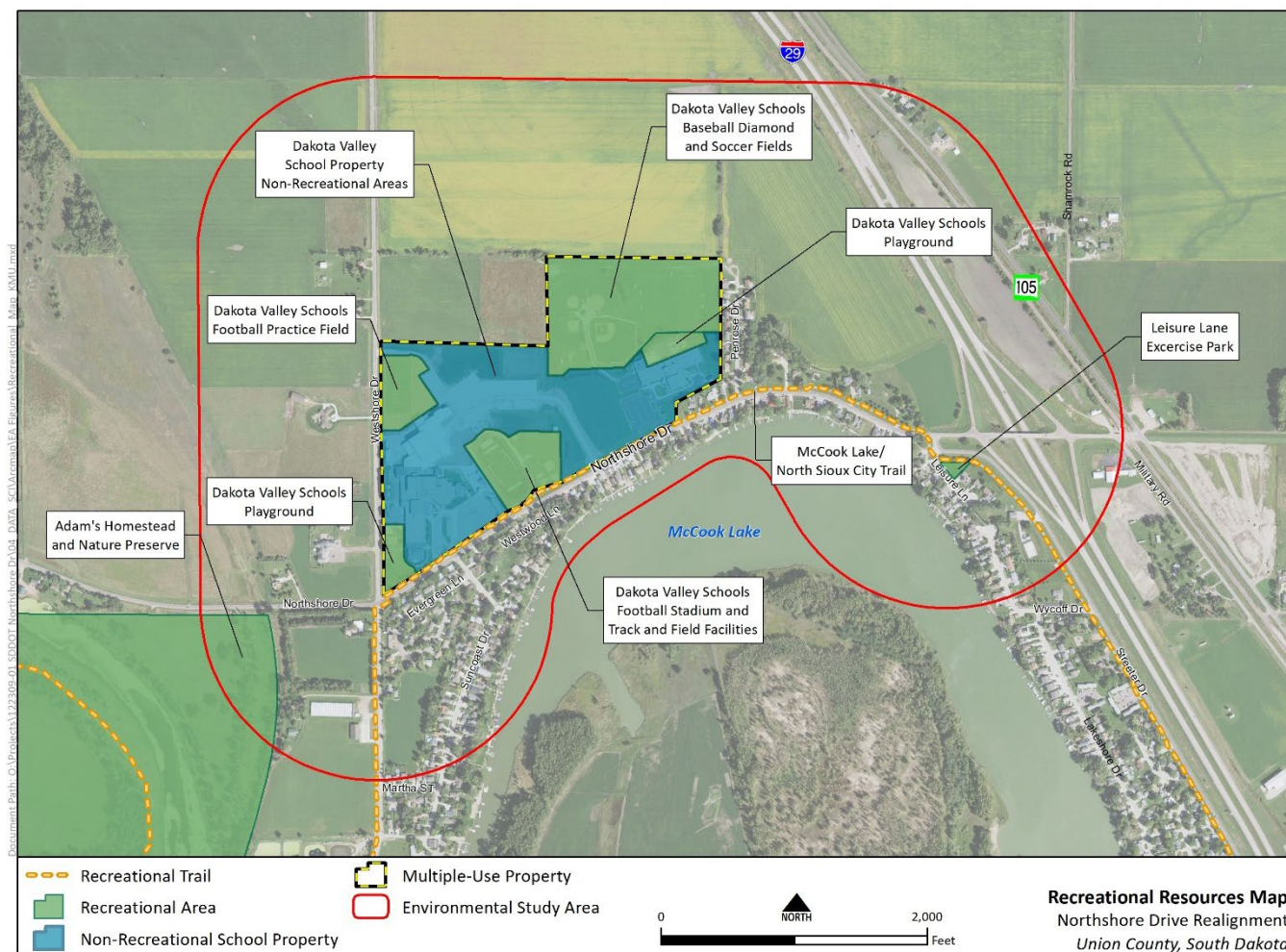
The McCook Lake/North Sioux City Trail runs along the north side of Northshore Drive through the project ESA. The trail extends south along the west side of Westshore Drive to connect to Adams Homestead and Nature Preserve; and extends south along the west side of Streeter Drive to connect to the North Sioux City Trail network. The trail is subject to Section 4(f) because it is publicly owned by the City with the major purpose of recreation (i.e., bicycling, running, etc.). The City of North Sioux City Administrator is the OWJ. Informal coordination was conducted with the OWJ in April of 2024 and January of 2025 (**Appendix F**). The coordination was to confirm the appropriate OWJ and intent to find a *de minimis*. See **Figure 27** for the trail locations within the ESA. The trail is not encumbered by Section 6(f).

Leisure Lane Park is a city owned green space situated between Leisure Lane and Streeter Drive near the east end of the project. This property is subject to Section 4(f). It is publicly owned by the City and contains outdoor exercise equipment for recreation. This property is not encumbered by Section 6(f). No permanent or temporary easements or construction activities are proposed within the boundaries of this property and therefore no “use” is anticipated.

Adams Homestead and Nature Preserve is located in the southwest corner of the ESA, south of Northshore Drive. This preserve is a Section 4(f) resource because it is publicly owned by the State of South Dakota and serves both as a refuge and recreational area for biking, bird-watching, archery, and cross-country skiing. Additionally, it has received LWCF Section 6(f) funding. In a coordination email dated September 29, 2023, SDGFP stated that the Adams Homestead and Nature Preserve is encumbered in its entirety under LWCF 6(f) (**Appendix E**). There would be no “use” of Adams Homestead from either build alternative and access would remain during construction. See **Figure 27** for the location of recreational resources within the ESA.

Cultural resources are discussed in Section 3.12. One archeological site is located near the project. The archeological site is unevaluated for NRHP Eligibility. Areas of the site within the APE were determined to be non-contributing to the overall eligibility of the unevaluated archeological site. Build Alternative 1 is not in close proximity to the site and Build Alternative 2, while in close proximity to the archeological site, was redesigned specifically to avoid impacts to the archeological site based on the boundaries provided in the Level III Cultural Resources Investigation (Section 3.12). Therefore, the archeological site will be avoided in its entirety by both build alternatives.

Figure 27. Recreational Resources Map



3.13.4 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would have no impact to Section 4(f) or Section 6(f) recreational resources because no construction activities would occur.

Build Alternative 1

Impacts to the Dakota Valley Schools Property would involve permanent incorporation of school property for project ROW and temporary easements for project construction. Impacts to recreational areas would occur along the north and west edges of the parcel containing the baseball diamond and soccer fields in the northeast of the school property. These impacts are due to permanent acquisition of 1.68 acres for new ROW. Additionally, 1.37 acres of temporary easement would be needed along the north edge of the property to construct the new alignment; and along the west edges of the property to construct a driveway connecting the new alignment to the school parking lot. However, no permanent acquisition or construction activities would occur within the contributing recreational features of the property in this area (i.e., the baseball diamonds and soccer fields).

Along Westshore Drive, near the northwest corner of the school property, permanent acquisition of 0.05 acres would be required for new ROW from the school property adjacent to a football practice field.

Northshore Drive Realignment

Temporary easements of 0.32 acres are also proposed in this area for project construction. However, no permanent acquisition or construction activities would occur within the contributing recreational features of the property in this area (i.e., football practice field).

In the southwest corner of the school property, northeast of the intersection of Northshore Drive and Westshore Drive, permanent acquisition of 0.05 acres would be required for new ROW from school property adjacent to a school playground. Temporary easements of 0.18 acres are also proposed for project construction. However, no permanent acquisition or construction activities would occur within the recreational features of this area (i.e., basketball court, volleyball court, swings, etc.).

Impacts to Section 4(f) properties from Build Alternative 1 are shown in **Figure 28**. The total amount of permanent acquisition from Dakota Valley Schools would be 3.04 acres, but only 1.78 acres would be from recreational areas. The total amount of temporary easements needed from Dakota Valley Schools would be 4.38 acres, but only 1.87 acres would be needed from recreational areas on the property. No additional impacts would occur from utility installation or relocation. Acquisition and temporary easements would be limited to the edges of the property and would not directly impact the activities, features, or attributes of the recreational features within these areas. Furthermore, access to and use of these recreational resources would not be restricted during construction or upon project completion. No noise impacts are anticipated to the school properties; therefore, no constructive use (**Appendix C**).

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. A *de minimis* determination must comply with the following:

- ▶ All possible planning to minimize harm has been incorporated into project development.
- ▶ The net effect of the action 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 public is provided an opportunity to review and comment.
- ▶ The OWJ concurs with the finding after the public comment period.

Minimization and mitigation measures have been incorporated into project development and include maintaining access during project construction; installing temporary construction fencing along the proposed construction limits prior to the start of construction activities to protect the property and maintain safety; staging and storing construction equipment and materials only within the construction limits; and conducting project coordination meetings with Dakota Valley Schools during final design to address timing of the work, fence replacement, or other concerns. The nature and magnitude of the proposed changes would not be expected to adversely affect the recreational activities, features, or attributes that qualify the property for 4(f) protection. Therefore, the impacts to the Dakota Valley Schools Section 4(f) resources are expected to be *de minimis*. On January 17, 2025, the OWJ for the Dakota Valley Schools was informed of the potential impacts resulting from both proposed Build Alternatives and the intent to pursue a Section 4(f) *de minimis* finding for project impacts (**Appendix F**). The FHWA intends to make a *de minimis* impact determination conditioned on results of public notice, comment period, and owner with jurisdiction concurrence. Formal concurrence on the finding will occur after completion of the public comment period for this EA document, where the public will have an opportunity to comment on the *de minimis* finding.

Due to the reconstruction of intersections, portions of the McCook Lake/North Sioux City Trail would be temporarily unusable and/or reconstructed at a new location. Although the location of trail segments near the intersections would be permanently altered due to the new configuration of the intersections, the McCook

Northshore Drive Realignment

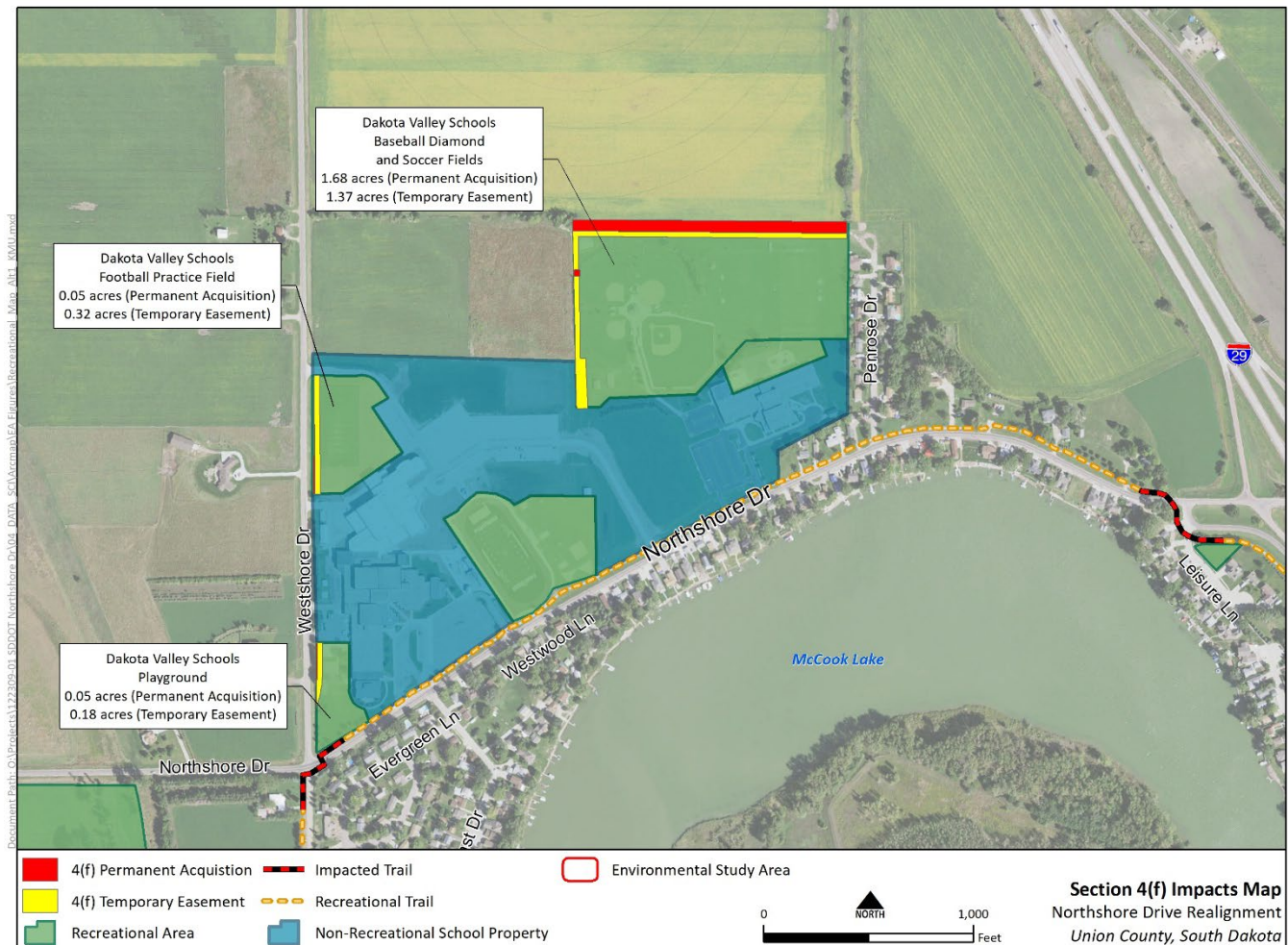
Lake/North Sioux City Trail would maintain the same trail connections upon completion of the construction for Build Alternative I. New sidewalk and bike lanes constructed as part of the project would be a benefit to the resource by expanding the existing pedestrian/bicyclist network within the city. No noise impacts are anticipated to the trail; therefore, no constructive use.

Minimization and mitigation measures have been incorporated into project development and include maintaining access during project construction; installing temporary construction fencing along the proposed construction limits prior to the start of construction activities to protect the property and maintain safety; staging and storing construction equipment and materials only within the construction limits; and providing trail access during construction through the use of a detour (**Figure 30**), temporary trail connections, and/or phasing. The proposed detour would use existing sidewalks. The nature and magnitude of the proposed changes would not be expected to adversely affect the recreational activities, features, or attributes that qualify the trails for 4(f) protection. Therefore, the impacts to the McCook Lake/North Sioux City Trail are expected to be *de minimis*. On January 17, 2025, the OWJ for the City trails was informed of the potential impacts resulting from both proposed Build Alternatives and the intent to pursue a Section 4(f) *de minimis* finding for project impacts (**Appendix F**). The FHWA intends to make a *de minimis* impact determination conditioned on results of public notice, comment period, and owner with jurisdiction concurrence. Formal concurrence on the finding will occur after completion of the public comment period for this EA document, where the public will have an opportunity to comment on the *de minimis* finding.

Build Alternative I would have no impacts (including no noise impacts and therefore, no Section 4(f) constructive use) to the Adams Homestead and Nature Preserve and therefore would have no impacts to Section 6(f) resources. Access to Adams Homestead and Nature Preserve would be maintained throughout project construction.

Northshore Drive Realignment

Figure 28. Section 4(f) Impacts – Alternative I



Build Alternative 2

Impacts to the Dakota Valley Schools Property would involve a permanent incorporation of school property for project ROW and temporary easements for project construction. Impacts to recreational areas would occur along the west edge of the parcel containing the baseball diamond and soccer fields in the northeast of the school property. These impacts are due to a permanent easement of 0.02 acres for new culvert. Additionally, 0.66 acres of temporary easement would be needed along the west edge of the property to construct a driveway connecting the new alignment to the school parking lot. However, no permanent acquisition or construction activities would occur within the contributing recreational features of the property in this area (i.e., the baseball diamonds and soccer fields).

Along Westshore Drive, near the northwest corner of the school property, permanent acquisition of 0.05 acres would be required for new ROW from school property adjacent to a football practice field. Temporary easements of 0.32 acres are also proposed in this area for project construction. However, no permanent acquisition or construction activities would occur within the contributing recreational features of the property in this area (i.e., football practice field).

In the southwest corner of the school property, northeast of the intersection of Northshore Drive and Westshore Drive, permanent acquisition of 0.05 acres would be required for new ROW from school property adjacent to a school playground. Temporary easements of 0.18 acres are also proposed for project

Northshore Drive Realignment

construction. However, no permanent acquisition or construction activities would occur within the recreational features of this area (i.e., basketball court, volleyball court, swings, etc.).

Impacts to Section 4(f) properties from Build Alternative 2 are shown in **Figure 29**. The total amount of permanent acquisition from Dakota Valley Schools would be 1.39 acres, but only 0.12 acres would be from recreational areas. The total amount of temporary easements needed from Dakota Valley Schools would be 3.67 acres, but only 1.16 acres would be needed adjacent to recreational areas on the property. No additional impacts to Section 4(f) resources would occur from utility installation or relocation. Acquisition and temporary easements would be limited to the edges of the property and would not directly impact the activities, features, or attributes of the recreational features within these areas. Furthermore, access to and use of these recreational resources would not be restricted during construction or upon project completion. No noise impacts are anticipated to the properties or trail and there would be no constructive use (**Appendix C**).

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. A *de minimis* determination must comply with the following:

- ▶ All possible planning to minimize harm has been incorporated into project development.
- ▶ The net effect of the action 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 public is provided an opportunity to review and comment.
- ▶ The OWJ concurs with the finding after the public comment period.

Minimization and mitigation measures have been incorporated into project development and include maintaining access during project construction; installing temporary construction fencing along the proposed construction limits prior to the start of construction activities to protect the property and maintain safety; staging and storing construction equipment and materials only within the construction limits; and conducting project coordination meetings with Dakota Valley Schools during final design to address timing of the work, fence replacement, or other concerns. The nature and magnitude of the proposed changes would not be expected to adversely affect the recreational activities, features, or attributes that qualify the property for 4(f) protection. Therefore, the impacts to the Dakota Valley Schools Section 4(f) resources are expected to be *de minimis*. On January 17, 2025, the OWJ for the Dakota Valley Schools was informed of the potential impacts resulting from both proposed Build Alternatives and the intent to pursue a Section 4(f) *de minimis* finding for project impacts (**Appendix F**). The FHWA intends to make a *de minimis* impact determination conditioned on results of public notice, comment period, and owner with jurisdiction concurrence. Formal concurrence on the finding will occur after completion of the public comment period for this EA document, where the public will have an opportunity to comment on the *de minimis* finding.

Due to the reconstruction of intersections, portions of the McCook Lake/North Sioux City Trail would be temporarily unusable and/or reconstructed at a new location. Although the location of trail segments near the intersections would be permanently altered due to the new configuration of the intersections, the McCook Lake/North Sioux City Trail would maintain the same trail connections upon completion of the construction for Build Alternative 2. New sidewalk and bike lanes constructed as part of the project would be a benefit to the resource by expanding the existing pedestrian/bicyclist network within the city. No noise impacts are anticipated to the trail.

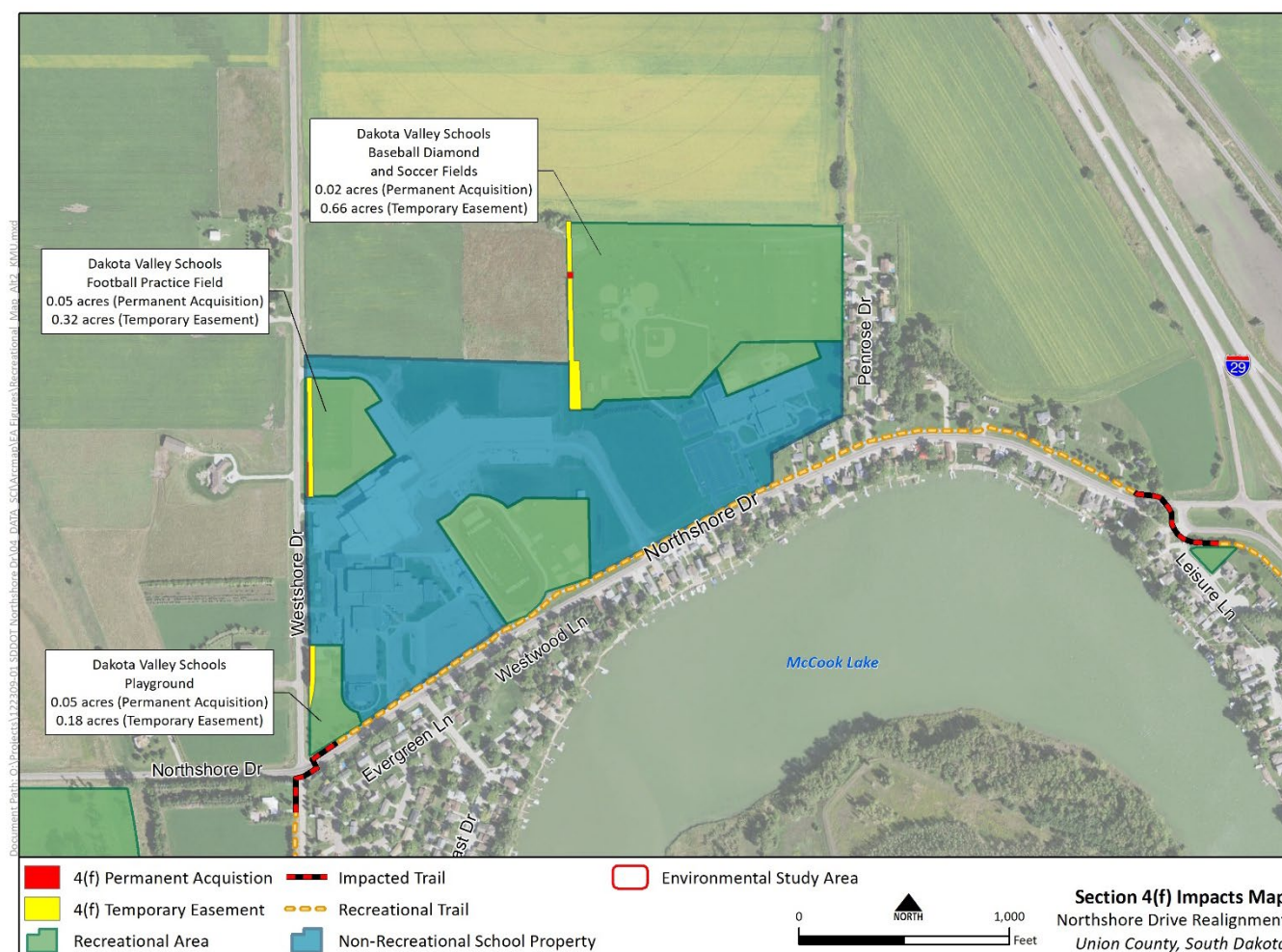
Minimization and mitigation measures have been incorporated into project development and include maintaining access during project construction; installing temporary construction fencing along the proposed

Northshore Drive Realignment

construction limits prior to the start of construction activities to protect the property and maintain safety; staging and storing construction equipment and materials only within the construction limits; and providing trail access during construction through the use of a detour (**Figure 30**), temporary trail connections, and/or phasing. The proposed detour would use existing sidewalks. The nature and magnitude of the proposed changes would not be expected to adversely affect the recreational activities, features, or attributes that qualify the trails for 4(f) protection. Therefore, the impacts to the McCook Lake/North Sioux City Trail are expected to be *de minimis*. On January 17, 2025, the OWJ for the City trails was informed of the potential impacts resulting from both proposed Build Alternatives and the intent to pursue a Section 4(f) *de minimis* finding for project impacts (**Appendix F**). The FHWA intends to make a *de minimis* impact determination conditioned on results of public notice, comment period, and owner with jurisdiction concurrence. Formal concurrence on the finding will occur after completion of the public comment period for this EA document, where the public will have an opportunity to comment on the *de minimis* finding.

Build Alternative 2 would have no impacts (including no noise impacts and therefore, no Section 4(f) constructive use) to the Adams Homestead and Nature Preserve and therefore would have no impacts to Section 6(f) resources. Access to Adams Homestead and Nature Preserve would be maintained throughout project construction.

Figure 29. Impacts to Section 4(f) Properties – Alternative 2



3.13.5 Avoidance and Minimization and/or Mitigation Measures

Access to all Dakota Valley School recreational properties will be maintained during construction activities.

Access to the McCook Lake/North Sioux City Trail will be maintained during construction activities via construction of a temporary trail connection and phasing and/or an approved detour (**Figure 30**). The proposed detour for the pedestrian crossing at the intersection of Northshore Drive with Westshore Drive would utilize existing sidewalks along Suncoast Drive and Izaak Walton Drive.

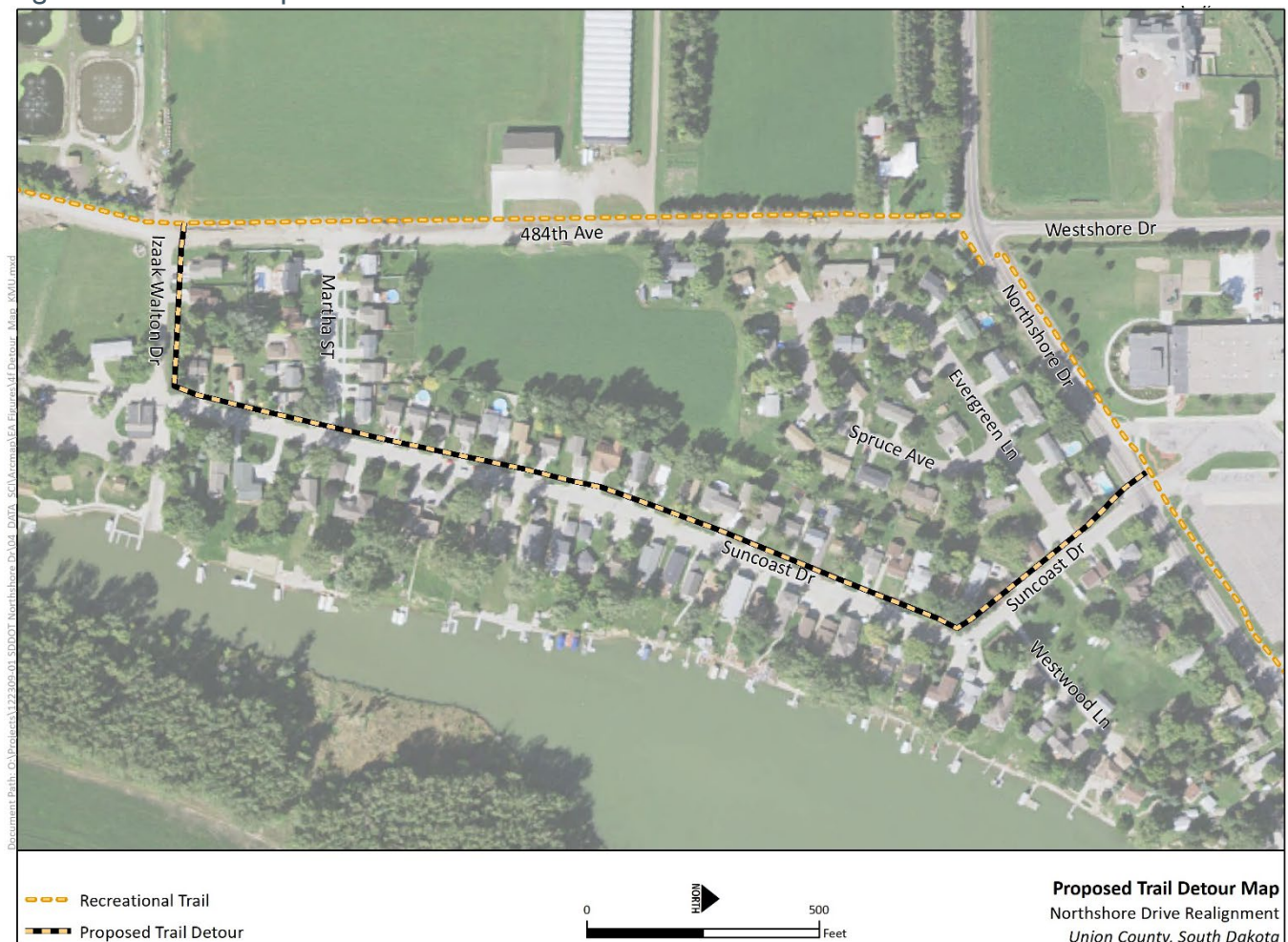
Temporary construction fencing will be installed along proposed construction limits prior to the start of construction activities to protect the Dakota Valley Schools 4(f) properties and the public.

The staging and/or storage of construction equipment or materials will not take place outside proposed construction limits that are within the defined boundaries of the 4(f) property.

Project coordination meetings will be held with Dakota Valley School's superintendent during final design.

Adams Homestead and Nature Preserve will be marked as a Environmental Sensitive Site for avoidance on project plans. Access to Adams Homestead and Nature Preserve will be maintained throughout project construction.

Figure 30. Proposed Trail Detour



3.14 Contaminated Materials and Hazardous Waste

Contaminated materials are considered to be hazardous waste or hazardous substances. The term contaminated materials used in this section is a general phrase not defined in federal or state statutes or regulations, but it includes hazardous wastes under the Resource Conservation and Recovery Act (RCRA); hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act; and other regulated materials such as petroleum-contaminated soil that must be handled as nonhazardous. Facilities and properties that have had documented releases of hazardous substances or wastes to the environment, or that manage hazardous substances or wastes in substantial quantities and have the potential to release hazardous substances or wastes in substantial quantities to the environment, are required to report these activities to federal and state regulatory agencies. USEPA and SDDANR maintain databases to track and monitor these facilities and properties. Contaminated, or potentially contaminated, properties are a concern for transportation projects because of the associated liability of the safety concerns related to exposure to contaminated soil, surface water, or groundwater.

3.14.1 Affected Environment

A Contaminated Materials Review (CMR) was prepared to document the identification and characterization of sites and areas that may represent a risk from exposure to hazardous material and waste and can be found in **Appendix G**. The SDDANR (2023) tanks and release database was reviewed on May 30, 2023, to determine if contaminated materials are present within the ESA and if the circumstances and level of impact of the contaminated materials would have an impact on the project and worker health and safety.

Two (2) regulated facilities are present in the ESA as shown on **Figure 3 I** and listed in **Table 9**. One site is a Tier 2 Chemical Reporting/Superfund Amendments and Reauthorization Act (SARA) Title III site due to chlorine storage and the other site is an underground storage tank (UST). No National Priority List or Superfund (SF) sites are located adjoining to and/or within 1 mile of the project footprint. Four (4) spills were reported within the ESA (listed below in chronological order).

- ▶ SDDANR# 84.049. June 12, 1984, a barge sank in McCook Lake with 100 gallons of diesel fuel. The barge was raised June 30, 1984, without spilling the diesel fuel. The file was closed indicating no fuel product was lost.
- ▶ SDDANR# 92.369. October 27, 1992, a 150-gallon oil dump reportedly occurred in McCook Lake. An inspection occurred and no unusual or excessive discrepancies in the quantities of petroleum products could be found. No samples were taken because no indication of hydrocarbons was observed, and the file was closed.
- ▶ SDDANR# 97.309 September 16, 1997, a surface spill of hydraulic fluid at the Dakota Valley High School occurred and the site was cleaned up. The file was closed.
- ▶ SDDANR# 98.105 May 13, 1998, a surface spill of hydraulic fluid on McCook Lake near Northshore Drive occurred when a hydraulic hose broke on a dredge. Absorbent booms were used to recover the oil out of the lake water. The file was closed.

Table 9. Regulated Facilities

Facility	Address	Regulatory Database & Facility Status	Distance Relative to Project
City of North Sioux City SDDANR #UN 0068	300 Streeter Drive North Sioux City, SD	Tier 2 – active	0.15 mile southeast; down gradient
Dakota Valley School District SDDANR #2005.009	1150 Northshore Drive North Sioux City, SD	UST – closed	Adjoining east; down gradient

Tier 2 – Tier 2 Chemical Reporting/Superfund Amendments and Reauthorization Act (SARA) Title

Of the two regulated sites within the ESA (**Table 9**), the SARA Title III Tier 2 site (North Sioux City chlorine storage) was determined to not warrant additional analysis due to its location relative to the project area (0.15 mile topographically downgradient) and regulatory status (no recorded spills). A detailed records review was conducted for the Dakota Valley School District identified UST to examine available information regarding the extent of the known impacts to soil, soil vapor, groundwater, and surface water due to an existing or past release of a contaminated substance or petroleum product and to evaluate the potential for residual soil and groundwater contamination to remain on the site. The UST was registered to the Dakota Valley School District and was reportedly last used in 1998. The tank was removed in January 2005. The SDDANR record from the tank closure's field observations did not indicate petroleum hydrocarbon concentrations were present in the soil under and adjacent to the tank system. Laboratory analysis results indicated petroleum hydrocarbon concentrations were detected in one base soil sample just above remediation standards. SDDANR issued a no further action letter on January 19, 2005. However, it is possible for there to be residual contamination.

Based upon the SDDANR GIS databases, the visual reconnaissance, the regulatory file review, and the proposed scope of work the project is considered to have a low potential for contamination of soil and/or groundwater to be encountered during construction. SDDANR provided recommendations for the project on October 15, 2023. Coordination documents can be found in **Appendix E**. Mitigation measures recommended by SDDANR regarding contaminated materials are included below.

3.14.2 Environmental Impacts of the Alternatives

No Build Alternative

The No Build Alternative would have no impact on Contaminated Materials sites because no construction activities would occur.

Build Alternative I

Build Alternative I would have a low potential for encountering contaminated soil and/or groundwater during construction. Of the two regulated sites identified within the ESA, the site that is active (North Sioux City chlorine storage site) is located 0.15 mile topographically downgradient of potential construction activities and therefore would not be impacted. The other site (Dakota Valley School District UST) would be in the vicinity of construction activities. The UST was removed in 2005 and a “no further action” letter was issued by SDDANR at that time, but there is still a possibility of residual contamination. Installation of utilities would be to a maximum depth of 28 feet for sanitary sewer. The below mitigation measures would be implemented to reduce risk from contaminated materials.

Build Alternative 2

Build Alternative 2 would have a low potential for encountering contaminated soil and/or groundwater during construction. Of the two regulated sites identified within the ESA, the site that is active (North Sioux City chlorine storage site) is located 0.15 mile topographically downgradient of potential construction activities and therefore would not be impacted. The other site (Dakota Valley School District UST) would be in the vicinity of construction activities. The UST was removed in 2005 and a “no further action” letter was issued by SDDANR at that time, but there is still a possibility of residual contamination. Installation of utilities would be to a maximum depth of 28 feet for sanitary sewer. The below mitigation measures would be implemented to reduce risk from contaminated materials.

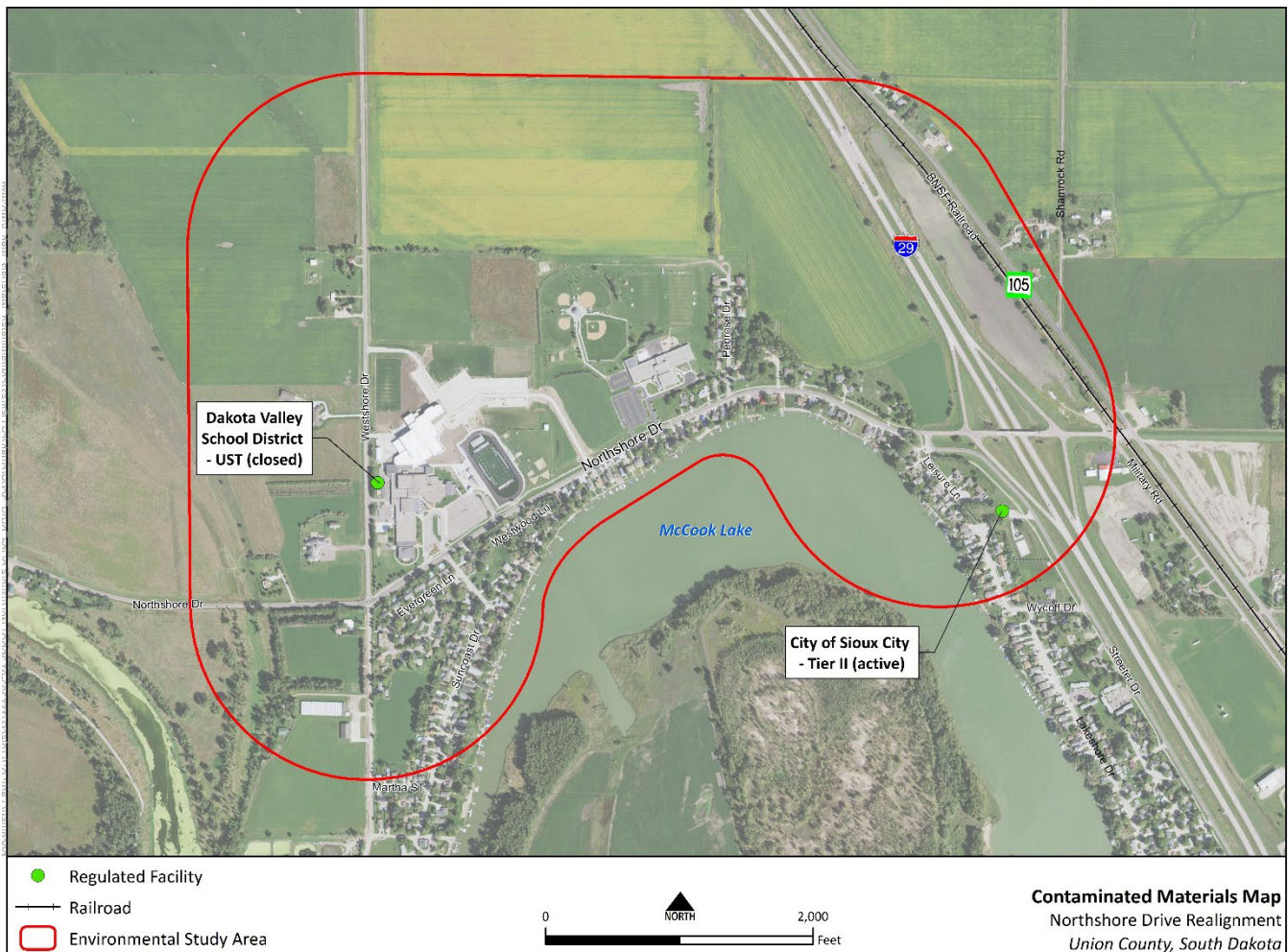
3.14.3 Avoidance and Minimization and/or Mitigation Measures

During construction, the Project Engineer will monitor the construction site to ensure that the avoidance measures or remediation have been accomplished in accordance with the plans. If contamination is encountered during construction, the Project Engineer will contact the Environmental Office (EO), which will contact SDDANR and a qualified consultant to inspect and monitor removal of any contaminated soil. Removal of soil will be completed under a separate bid. The Environmental Project Coordinator (EPC) will document DOT-272 and construction findings in the project file.

It is possible that locations of contaminated material exist within the project limits which have not been documented. If the Contractor encounters contaminated soil, the Project Engineer must contact the EO, and contact will then be made with SDDANR, so the site can be inspected and monitored while material is removed.

Tanks and spills - If contamination is encountered or if a spill occurs during onsite construction activity, that contamination or spill must be reported to SDDANR at 605-773-3296 (605-773-3231 after hours). Contaminated soil that has been excavated should be segregated from clean soil and sampled to determine disposal requirements. Further, any piping, equipment, or other material to be placed in a location where it will be in contact with contaminated soil or groundwater, should be evaluated to determine if it is compatible with the contaminant. If you have questions, please contact Baylee Hoff at baylee.hoff@state.sd.us or (605) 773-3296.

Figure 3I. Contaminated Materials Map



3.15 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 (40 CFR § 1508.8). 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.

Cumulative impacts are the impacts on the environment which result 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 (40 CFR § 1508.8). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

A potential indirect effect of the project may be to induce urban growth in development in the north of North Sioux City. A new alignment north of the Dakota Valley Schools would be conducive to eventually developing the farmland into residential and commercial areas. This indirect impact would be in line with future land use plans that call for residential and business development at this location. While the project may indirectly result in the eventual conversion of farmland, there are no immediate plans for development in this area and it could still be years into the future. Given the project location on the edge of the growing urban area (Simpco 2021), this area would be expected to eventually develop regardless of the project.

Northshore Drive Realignment

Currently, no development has been permitted that is associated with undeveloped lands (i.e., Category G) within this area. Based on the suggested 9-foot setback, it is unlikely that future development would be impacted from traffic noise. Commercial, office, retail, or industrial uses next to highways and interstates experience improved accessibility and easy access to transportation arteries. These land uses are not negatively affected by noise and they can serve to buffer residential or other sensitive uses from roadway generated sound.

3.15.1 Past Actions

Past actions that have occurred within the ESA include the establishment of farmsteads and the conversion of prairie into cropland throughout the majority of the site. Single-family residential development has occurred along the entire shoreline of McCook Lake within the ESA. I-29 was constructed adjacent to the project area prior to 1971, and additional residential areas were constructed off of Northshore Drive around this time. The first Dakota Valley High School was completed in 1996 northeast of the intersection of Northshore Drive with Westshore Drive. The Dakota Valley Elementary School was built in 2001 and a new high school was built in 2016 including upgrades to the athletic facilities. Along with this development, related infrastructure has also been constructed and includes roads and utilities.

3.15.2 Present Actions

North Sioux City is currently in the early stages of permitting the relocation of the Big Sioux River levee east of I-29. Following relocation of the levee (anticipated for 2026 or later), the approximately 282-acre area land side of the levee will undergo industrial development as part of the River Bend Business Park (formerly called Graham Business Park). The South Dakota Board of Economic Development received funding through the Governor's Office of Economic Development for the River Bend development. Although the River Bend Business Park is located east of I-29, outside the environmental study area for the Northshore Drive Realignment project, the additional business park development would be anticipated to increase overall growth and development within North Sioux City, potentially resulting in more demand for residential and business development within the project ESA.

3.15.3 Reasonably Foreseeable Future Actions

Additional actions within the ESA include the continued expansion of commercial and residential development as the population of North Sioux City continues to expand. This would include the eventual conversion of farmland north of the Dakota Valley Schools into single and multi-family residential and business developments, as identified in the North Sioux City Master Plan north of North Sioux City (Stockwell 2020). This development is anticipated to occur in the future, regardless of this project. However, this project would be conducive to the eventual development of the farmland in this area. Project design would allow for future lane expansion in anticipation of increased traffic as the area eventually develops.

An I-29 Corridor Study led by SDDOT is underway for an 11-mile stretch of I-29 that includes the segment of I-29 adjacent to the Northshore Drive Realignment project (SDDOT 2024). The study is considering potential interchange concepts along the corridor, including Exit 4, which is adjacent to the Northshore Drive Realignment project. The I-29 Corridor Study is investigating multiple alternatives for the Exit 4 interchange. Some study alternatives would keep the interchange at its current location while others would relocate the interchange approximately 1,500 feet to the north. Preliminary design linework for the Northshore Drive Realignment project and conceptual linework for the Exit 4 interchange from the corridor study has been shared between project and study proponents so that design of the Northshore Drive Realignment project will be compatible with the I-29 Corridor Study, regardless of what alternative is ultimately recommended for the interchange. At this time, plans for the Exit 4 interchange are conceptual and no projects are anticipated to be programmed in the STIP prior to the timeline proposed for the Northshore Drive Realignment project. The

Northshore Drive Realignment

Northshore Drive Realignment project would be open to traffic years before any potential future work begins on the Exit 4 interchange or the I-29 corridor, reducing the potential for adverse cumulative impacts from any future potential Exit 4 interchange projects.

4. PREFERRED ALTERNATIVE

4.1 Preferred Alternative Selection Criteria

The main considerations for selecting a Preferred Alternative include:

1. Ability of the alternative to satisfy the project purpose and need;
2. Ability of the alternative to address project goals; and
3. The degree of environmental impacts of each alternative with consideration of an alternative's ability to avoid, minimize, and mitigate impacts.

Both build alternatives were found to satisfy the project purpose and need as discussed in Section 2.4. However, Build Alternative 1 was found to better address the project goals. In addition to the project purpose and need and project goals, the environmental impacts discussed in detail in Chapter 3 are also given consideration in determining a Preferred Alternative.

4.2 Comparison of Environmental Impacts of the Build Alternatives

Most environmental resources would have the same or similar impacts for both of the build alternatives. Resources with differing impacts include land use, farmland, wetlands, vegetation, and Section 4(f) properties. The environmental impacts of the two build alternatives are summarized in **Table 10**.

Concerning land use, the longer alignment of Build Alternative 2 would result in more conversion of land to transportation purposes. Build Alternative 2 would require 2.8 additional acres of additional ROW than Build Alternative 1. Build Alternative 2 would include a larger conversion of prime farmland than Build Alternative 1 and would bisect an agricultural field creating a smaller field south of the new roadway that would be separated from the larger field to the north. This would limit connectivity for farming and restrict the ability to irrigate the south field with the existing center pivot. Concerning vegetation, the greater amount of ground disturbance with Build Alternative 2 would result in greater potential for the introduction of noxious weeds. However, both build alternatives would follow BMPs to minimize this possibility.

Impacts to wetlands are anticipated to be greater for Build Alternative 2. Build Alternative 1 would impact 0.003 acres of wetlands. Build Alternative 2 would impact an additional wetland located along Westshore Drive. The Build Alternative 1 alignment is further south and would have no impacts to this wetland. Therefore, Build Alternative 2 would impact a total of 0.221 acres of wetlands, or 0.218 acres more than Build Alternative 1.

Regarding Section 4(f), Build Alternative 1 would require 1.65 acres more ROW acquisition and 0.71 acres more temporary easements from Dakota Valley Schools due to its location along the north edge of the school property. Build Alternative 1 would require 1.78 acres of permanent acquisition and 1.87 acres of temporary easements from Dakota Valley Schools whereas Build Alternative 2 would require permanent acquisition of 0.12 acres and 1.16 acres of temporary easements. However, neither of the build alternatives would impact any of the recreational features (e.g., sport fields, playground equipment, etc.) on the property. Both alternatives would impact the McCook Lake/North Sioux City Trail due to construction. However, detours, temporary trail connections, and/or phasing would be utilized to maintain access throughout construction. Therefore, both build alternatives are anticipated to qualify for a *de minimis* finding.

Northshore Drive Realignment

Table 10. Summary of Environmental Impacts for the Build Alternatives

Resource	No Build Alternative	Build Alternative 1	Build Alternative 2
Land Use	<ul style="list-style-type: none"> Land use would remain unchanged (no impact). 	<ul style="list-style-type: none"> Would be consistent with current and planned future land uses (moderate beneficial impact). 16.46 acres of permanent ROW acquisition (minor adverse impact). 	<ul style="list-style-type: none"> Would be consistent with current and planned future land uses (moderate beneficial impact). 19.30 acres of permanent ROW acquisition (moderate adverse impact).
Bicyclists and Pedestrians	<ul style="list-style-type: none"> Traffic conditions would gradually worsen on Northshore Drive increasing potential for vehicle-pedestrian conflicts (minor adverse impact). 	<ul style="list-style-type: none"> Would include bike lanes and a new sidewalk. Would provide an access-controlled route provided for pedestrian and bicyclists (moderate beneficial impact) 	<ul style="list-style-type: none"> Would include bike lanes and a new sidewalk. Would provide an access-controlled route provided for pedestrian and bicyclists (moderate beneficial impact).
Socioeconomics	<ul style="list-style-type: none"> Congestion on Northshore Drive would gradually worsen and may discourage people from wanting to live along Northshore Drive or in the neighborhoods that connect to Northshore Drive (minor adverse impact) 	<ul style="list-style-type: none"> Would provide a new traffic corridor conducive to future residential and commercial development and eventually new housing and job opportunities. Would improve traffic operations and provide a route with fewer conflict points for pedestrians and bicyclists (major beneficial impact). Access to businesses would be maintained throughout the project. ROW required from one business property but there would be no business or residential relocations (minor adverse impact). 	<ul style="list-style-type: none"> Would provide a new traffic corridor conducive to future residential and commercial development and eventually new housing and job opportunities. Would improve traffic operations and provide a route with fewer conflict points for pedestrians and bicyclists (major beneficial impact). Access to businesses would be maintained throughout the project. ROW required from one business property but there would be no business or residential relocations (minor adverse impact).
Farmland	<ul style="list-style-type: none"> No protected farmland would be converted (no impact). 	<ul style="list-style-type: none"> This alternative would convert approximately 11.8 acres of protected farmland. Farmland Conversion Impact Rating Form AD-1006 scores below 160 which indicates that impacts would not be significant (minor adverse impact). 	<ul style="list-style-type: none"> This alternative would convert approximately 17.0 acres of protected farmland. Farmland Conversion Impact Rating Form AD-1006 scores below 160 which indicates that impacts would not be significant (moderate adverse impact).
Noise	<ul style="list-style-type: none"> No construction activities or changes in traffic (no impact). 	<ul style="list-style-type: none"> There are four impacted receptors. Noise abatement barriers did not meet the reasonableness evaluation criteria and none are recommended (minor adverse impact). 	<ul style="list-style-type: none"> There are four impacted receptors. Noise abatement barriers did not meet the reasonableness evaluation criteria and none are recommended (minor adverse impact).

Northshore Drive Realignment

Resource	No Build Alternative	Build Alternative 1	Build Alternative 2
Wetlands	<ul style="list-style-type: none"> No construction activities would impact wetlands (no impact). 	<ul style="list-style-type: none"> Would permanently impact 0.003 acres of wetlands and would have no temporary impacts (minor adverse impact). 	<ul style="list-style-type: none"> Would permanently impact 0.221 acres of wetlands and would have no temporary impacts (moderate adverse impact).
Water Quality	<ul style="list-style-type: none"> No construction activities (no impact). 	<ul style="list-style-type: none"> No impacts to 303(d) impaired resources are anticipated. A SWPPP would be implemented to mitigate any potential temporary impacts from construction (no impact). 	<ul style="list-style-type: none"> No impacts to 303(d) impaired resources are anticipated. A SWPPP would be implemented to mitigate any potential temporary impacts from construction (no impact).
Air Quality	<ul style="list-style-type: none"> Gradually worsening congestion on Northshore Drive (minor adverse impact). 	<ul style="list-style-type: none"> No long-term major impacts are anticipated, and no air quality standards would be violated. Temporary, minor impacts on air quality relating to increased dust levels and equipment emissions during construction. Standard BMPs would minimize impacts (minor adverse impact). A localized improvement could result from reducing congestion on Northshore Drive (minor beneficial impact). 	<ul style="list-style-type: none"> No long-term major impacts are anticipated, and no air quality standards would be violated. Temporary, minor impacts on air quality relating to increased dust levels and equipment emissions during construction. Standard BMPs would minimize impacts (minor adverse impact). A localized improvement could result from reducing congestion on Northshore Drive (minor beneficial impact).
Floodplains and Levees	<ul style="list-style-type: none"> There would be no impacts to floodplains or floodways. All areas proposed to be impacted are mapped as Zone X (no impact). 	<ul style="list-style-type: none"> There would be no impacts to floodplains or floodways. All areas proposed to be impacted are mapped as Zone X (no impact). 	<ul style="list-style-type: none"> There would be no impacts to floodplains or floodways. All areas proposed to be impacted are mapped as Zone X (no impact).
Vegetation	<ul style="list-style-type: none"> No construction activities (no impact). 	<ul style="list-style-type: none"> Ground disturbance (39.6 acres) would occur primarily within agricultural cropland and maintained ROW rather than natural vegetation communities. Ground disturbance has the potential to introduce noxious weeds, but this would be minimized by reseeding disturbed areas following South Dakota Seed Laws. Minor tree-clearing maybe necessary to low quality tree lines along the edges of agricultural fields (minor adverse impact). 	<ul style="list-style-type: none"> Ground disturbance (46.0) acres would occur primarily within agricultural cropland and maintained ROW rather than natural vegetation communities. However, this would be minimized by reseeding disturbed areas following South Dakota Seed Laws. Minor tree-clearing maybe necessary to low quality tree lines along the edges of agricultural fields (minor adverse impact).

Northshore Drive Realignment

Resource	No Build Alternative	Build Alternative 1	Build Alternative 2
Threatened and Endangered Species and Other Wildlife	<ul style="list-style-type: none"> No construction activities (no impact). 	<ul style="list-style-type: none"> Northern long-eared bat and tricolored bat are not likely to be adversely affected with the implementation of mitigation measures for tree-clearing (neutral impact with mitigation). Potential bald eagle habitat is present within one mile of the project, but impacts are unlikely. Impacts to nesting birds would be avoided by clearing trees outside the primary nesting season (neutral impact with mitigation). 	<ul style="list-style-type: none"> Northern long-eared bat and tricolored bat are not likely to be adversely affected with the implementation of mitigation measures for tree-clearing (neutral impact with mitigation). Potential bald eagle habitat is present within one mile of the project, but impacts are unlikely. Impacts to nesting birds would be avoided by clearing trees outside the primary nesting season (neutral impact with mitigation).
Cultural Resources	<ul style="list-style-type: none"> No construction activities (no impact). 	<ul style="list-style-type: none"> Determination of No Historic Properties Affected (no impact). 	<ul style="list-style-type: none"> Determination of No Historic Properties Affected (no impact).
Section 4(f) / 6(f)	<ul style="list-style-type: none"> No construction activities or ROW acquisition (no impact). 	<ul style="list-style-type: none"> 1.78 acres of permanent acquisition and 1.87 acres of temporary easements would be required from recreational areas on the Dakota Valley Schools property. However, this would not impact any of the recreational features and the “use” is expected to be <i>de minimis</i> (minor adverse impact). Portions of existing trails would be closed off during construction. However, temporary trail connections and detours will maintain access. Trail impacts are expected to be <i>de minimis</i> (minor adverse effect). Adams Homestead Nature Preserve is encumbered by Section 6(f) but would be avoided by all project activities (no impact). 	<ul style="list-style-type: none"> 0.12 acres of permanent acquisition and 1.16 acres of temporary easements would be required from recreational areas on the Dakota Valley Schools property. However, this would not impact any of the recreational features and the “use” is expected to be <i>de minimis</i> (minor adverse impact). Portions of existing trails would be closed off during construction. However, temporary trail connections and detours will maintain access. Trail impacts are expected to be <i>de minimis</i> (minor adverse effect). Adams Homestead Nature Preserve is encumbered by Section 6(f) but would be avoided by all project activities (no impact).
Regulated Materials and Hazardous Waste	<ul style="list-style-type: none"> No construction activities (no impact). 	<ul style="list-style-type: none"> There is low potential for encountering contaminated soil and/or groundwater during construction (neutral impact). 	<ul style="list-style-type: none"> There is low potential for encountering contaminated soil and/or groundwater during construction (neutral impact).

4.3 Selection of the Preferred Alternative

The No Build Alternative would not meet the project purpose and need nor would it fulfill any of the project goals. Therefore, this alternative has been eliminated from consideration as the Preferred Alternative. Both of the build alternatives would meet the purpose and need. However, only Build Alternative 1 meets each of the project goals, namely that of providing a route from the intersection of Northshore Drive with Streeter Drive to Dakota Valley High School that is faster than using the existing Northshore Drive. Build Alternative 1 also has the shortest travel time between the intersection of Northshore Drive with Streeter Drive. Build Alternative 1 would result in fewer environmental impacts as demonstrated in **Table 10**. Considering cost as a factor, Build Alternative 1 is anticipated to be the cheaper construction option. The advantages of Build Alternative 1 over Build Alternative 2 are summarized below. Based on these factors, Build Alternative 1 has been selected as the Preferred Alternative. A comparison of the factors used in determining a Preferred Alternative are summarized in **Table 11** below.

Advantages of Build Alternative 1

- ▶ Meets goal of providing a faster travel route than using the existing Northshore Drive to travel between Dakota Valley High School and the Northshore Drive/Streeter Drive intersection.
- ▶ Shortest distance and fastest travel route between the Northshore Drive/Streeter Drive intersection and Westshore Drive, resulting in less travel delay.
- ▶ Requires less ROW acquisition than Build Alternative 2.
- ▶ Lower construction costs than Build Alternative 2.
- ▶ Less conversion of farmland to non-farmland land uses and would not bisect the existing agricultural field.
- ▶ Would have lower wetland impacts than Build Alternative 2.
- ▶ More public comments in support of Build Alternative 1.

Advantages of Build Alternative 2

- ▶ Would require less ROW acquisition from the Dakota Valley Schools recreational areas than Build Alternative 1.

Table 11. Comparison of Build Alternatives

Evaluation Factors	Build Alternative 1	Build Alternative 2
Traffic Movements*	Would achieve an acceptable LOS per SDDOT standards for minor arterials and collectors on Northshore Drive (i.e., LOS B or better).	Would achieve an acceptable LOS per SDDOT standards for minor arterials and collectors on Northshore Drive (i.e., LOS B or better).
Congressionally Directed Spending	Fulfills the congressionally directed requirements to route traffic off the existing Northshore Drive.	Fulfills the congressionally directed requirements to route traffic off the existing Northshore Drive.
Construction Cost	\$22,121,272	\$24,608,343
Anticipated Permanent ROW Acquisition	16.46 acres	19.30 acres
Anticipated Temporary Easements	13.89 acres	15.93 acres

Northshore Drive Realignment

Evaluation Factors	Build Alternative 1	Build Alternative 2
Pedestrian and Bicyclist Safety*	Would improve safety for pedestrians and bicyclists by providing an access-controlled route through the area with fewer vehicle and pedestrian conflict points.	Would improve safety for pedestrians and bicyclists by providing an access-controlled route through the area with fewer vehicle and pedestrian conflict points.
Travel Time between Intersection of Northshore Drive with Streeter Drive and Westshore Drive*	1.83 minutes	2.12 minutes
Travel Time from Intersection of Northshore Drive with Streeter Drive to Dakota Valley Schools*	1.76 minutes (Faster than using Northshore Drive)	2.37 minutes (Slower than using Northshore Drive)
Land Use/ Farmland	Lesser conversion of prime farmland (11.8 acres). Would not bisect agricultural field.	Greater conversion of prime farmland (17.0 acres). Would bisect existing agricultural field.
Socioeconomic	ROW required from one business. No business or residential relocations.	ROW required from one business. No business or residential relocations.
Wetlands	0.003 acres of permanent impacts to wetlands.	0.221 acres of permanent impacts to wetlands.
Section 4(f)	1.78 acres of permanent acquisition and 1.87 acres of temporary easements from Dakota Valley Schools recreational property.	0.12 acres of permanent acquisition and 1.16 acres of temporary easements from Dakota Valley Schools recreational property.
Public Input	Three public comments expressed support for Build Alternative 1.	One public comment expressed support for Build Alternative 2.
Evaluation Summary	<p>Advantages:</p> <ul style="list-style-type: none"> • Lower construction cost • Less ROW acquisition • Faster travel time and less delay • More likely to be utilized for travel to school due to being fastest route • Less impacts to farmland. • Lower impacts to wetlands • More public comments in support <p>Disadvantages:</p> <ul style="list-style-type: none"> • More ROW required from Section 4(f) Dakota Valley Schools property 	<p>Advantages:</p> <ul style="list-style-type: none"> • Less ROW required from Section 4(f) Dakota Valley Schools property. <p>Disadvantages:</p> <ul style="list-style-type: none"> • Higher construction cost • More ROW Acquisition • Slower travel time with more delay • Less likely to be utilized for travel to school due to not being fastest route • More impacts to farmland. • Greater impacts to wetlands • Fewer public comments in support
PREFERRED ALTERNATIVE	YES	NO

* Data from the Northshore Drive Realignment Alternatives Analysis (FHU 2024).

5. ENVIRONMENTAL COMMITMENTS

This chapter includes a summary of the environmental commitments for the project described throughout this document. **Table 12** summarizes the environmental commitments that would be carried forward into final design and construction for the project. The responsible parties for compliance with the commitment is denoted in parenthesis and include Engineer (the design engineer of record), Contractor (construction company retained to construct the project), and SDDOT. The timing of the commitments include Design (planning and design phase), Pre-Construction (during or after design but before construction), and Construction (when the project is actively being constructed). The SDDOT Environmental Procedure Manual identifies environmental commitments which may be required for transportation projects in South Dakota (SDDOT 2019). Section A Plan Note commitments relevant to this project have been incorporated into **Table 12**.

Table 12. Environmental Commitments

Resource	Environmental Commitment	Timing
Land Use	ROW acquisition would be completed in conformance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended (42 USC 4601 et seq). (Engineer)	Design
Bicyclists and Pedestrians	All bike lanes, sidewalks, and related crosswalks and ramps will be constructed according to the ADA requirements. (Engineer, Contractor) Access to the McCook Lake/North Sioux City Trail will be maintained during construction activities via construction of temporary trail connection and phasing and/or an approved detour. The proposed detour for the pedestrian crossing at the intersection of Northshore Drive with Westshore Drive would utilize existing sidewalks along Suncoast Drive and Izaak Walton Drive. (Engineer, Contractor)	Design
Socioeconomics	Access to businesses will be maintained during construction. (Engineer, Contractor)	Design / Construction
Farmland	No farmland commitments required.	N/A
Noise	During construction, contractors would be required to comply with sound control requirements identified in the SDDOT Standard Specifications for Roads and Bridges (SDDOT 2015). (Contractor) Local officials will be provided with information on noise compatible planning techniques that can be used to prevent future highway traffic noise impacts. The name of the local official given data, the date of transmittal, and summary of the data transferred should be documented in the NEPA project file. 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 as defined within (23 CFR 772- 17(a)(2)). This will be accomplished by providing a copy of the final noise analysis report to the local official, including the distance to the approach criteria for each land use category on undeveloped lands. The local official will also be provided with an estimation of future noise levels for various distances from the highway (noise contours) Local officials can find information for each land use category on undeveloped lands in 23 CFR 772-17(a)(2). Type II noise compatible land use planning concepts can be found on FHWA's Noise Compatible planning page (https://www.fhwa.dot.gov/ENVIronment/noise/noise_compatible_planning/federal_approach/land_use/qz02.cfm). (SDDOT)	Construction / Pre-Construction

Northshore Drive Realignment

Resource	Environmental Commitment	Timing
Wetlands	Obtain a Section 404 Permit for impacts to wetlands, including jurisdictional wetlands. (Engineer)	Pre-Construction
Water Quality	<p>Construction BMPs will be implemented as part of the SWPPP required for the General Permit for Stormwater Discharges Associated with Construction Activities from SDDANR required for the project. (Engineer, Contractor)</p> <p>The SWPPP will be developed prior to the submittal of the NOI and will be implemented for all construction activities for compliance with the permit. The SWPPP must be kept on-site and updated as site conditions change. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. (Engineer, Contractor)</p> <p>The DOT 298 Form will be used for site inspections and to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents and retained for a minimum of three years. (Engineer, Contractor)</p> <p>The inspection will include disturbed areas of the construction site that have not been finally stabilized, areas used for storage materials, structural control measures, and locations where vehicles enter or exit the site. These areas will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP will be observed to ensure that they are operating correctly, and sediment is not tracked off the site. (Engineer, Contractor)</p> <p>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. (Engineer, Contractor)</p>	Construction
Air Quality	<p>An air quality permit may be required to operate equipment with point source emissions. A permit application can be obtained from the Air Quality or Minerals and Mining Program. (Engineer, Contractor)</p> <p>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. During construction, fugitive emissions would be monitored and would be mitigated (such as watering to suppress dust) as needed. (Engineer, Contractor)</p>	Pre-Construction / Construction
Floodplains and Levees	No floodplain or levee commitments required.	N/A

Resource	Environmental Commitment	Timing
Vegetation	<p>Disturbed areas should be seeded with mixtures that comply with South Dakota Seed Laws in order to reduce the potential for invasive plant infestations and to comply with South Dakota laws regarding weed and pest control. (Engineer, Contractor)</p> <p>The SDDANR Resource Conservation and Forestry (RCF) provided the following comments (Appendix E): Special construction measures may have to be taken to preserve and protect tree health by avoiding damage to tree roots, stems, or branches. At a minimum, the storage of equipment, machinery, or trucks under or against a tree should be avoided. Barriers or sturdy fencing should be placed around trees that will remain on site following construction. Barriers should be placed a minimum of 1 foot radius from the base of the tree's trunk for every 1 inch in diameter measured 4.5 feet above the ground. This will protect against soil compaction, alteration of the natural soil level under the live canopy and any damage from occurring to the trunk of the tree. Eighty-five to ninety percent of a tree's root system lies within the top 6-12 inches of soil extending out one to one and a half times the height of the tree. Trenching through this critical root zone could severely destabilize a tree and adversely affect its health. Tunneling under or around the root system is much less damaging and encouraged. Trees often do not die immediately following construction damage but can decline over several months/years. A tree that sustains damage meeting or exceeding the following limits must be removed and, if conditions allow, replaced to maintain the canopy and ecosystem benefits of tree cover: A) The top or main stem of the tree is broken. B) The live crown of the tree is reduced below 30 percent. C) More than 1/3 of the circumference of a tree's main root system (a root 4 inches in diameter or larger) is injured such that the cambium layer (living tissue) is exposed. D) More than 1/3 of tree's total root system is severed or torn. E) More than 1/3 of the circumference of the trunk's cambium layer exposed. (Engineer, Contractor)</p> <p>Trees would be planted within the boulevard of the newly constructed roadway with approximately 50-foot spacing. Trees would consist of species including Kentucky coffee tree, thornless honey locust, American elm, swamp white oak, and Japanese tree lilac. (Engineer, Contractor)</p>	Design / Construction

Northshore Drive Realignment

Resource	Environmental Commitment	Timing
Threatened and Endangered Species	<p>Trees with suitable habitat will be removed November 1st – March 31st to avoid impacts to listed bat species. (Engineer, Contractor)</p> <p>Migratory birds are known to use the project area for nesting, which primarily occurs from April 1st to July 15th. (Engineer, Contractor)</p> <p>If an eagle nest is observed within one mile of the project site, notify the project engineer immediately so that he/she can consult with the SDDOT Environmental Office for an appropriate course of action. (Contractor)</p> <p>To protect False Map Turtles, no work will occur in and immediately around McCook Lake (e.g., along the shoreline) during the nesting season, which typically runs from May through August. (Engineer, Contractor)</p> <p>The following conservation conditions should be considered during the planning and construction of the project as it pertains to False Map Turtles (<i>Graptemys pseudogeographica</i>) (Engineer, Contractor).</p> <ol style="list-style-type: none"> 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. Avoid any work in and around McCook Lake during May-August to avoid impacts to nesting False Map Turtles. 	Design / Construction

Northshore Drive Realignment

Resource	Environmental Commitment	Timing
Cultural Resources	<p>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. (Contractor)</p> <p>The archeological site within the APE will be marked for avoidance on project plans as an Environmental Sensitive Site. No work will be allowed within the boundaries of the Environmental Sensitive Site until appropriate actions have been taken by the SDDOT Environmental office. (Engineer, Contractor)</p> <p>If cultural resources are encountered during construction activities, construction would be stopped and the SDSHPO would be contacted. Construction would not be resumed until appropriate coordination has occurred and SDSHPO approval has been received. (Engineer, Contractor)</p> <p>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. (Engineer, Contractor)</p>	Construction
Section 4(f) / 6(f)	<p>Access to all Dakota Valley School recreational properties will be maintained during construction activities. (Engineer, Contractor)</p> <p>Access to the McCook Lake/North Sioux City Trail will be maintained during construction activities via construction of temporary trail connection and phasing and/or an approved detour. The proposed detour for the pedestrian crossing at the intersection of Northshore Drive with Westshore Drive would utilize existing sidewalks along Suncoast Drive and Izaak Walton Drive. (Engineer, Contractor)</p> <p>Temporary construction fencing will be installed along proposed construction limits prior to the start of construction activities to protect the Dakota Valley Schools 4(f) properties and the public. (Engineer, Contractor)</p> <p>The staging and/or storage of construction equipment or materials will not take place outside proposed construction limits that are within the defined boundaries of the 4(f) property. (Engineer, Contractor)</p> <p>Project coordination meetings will be held with Dakota Valley School's superintendent (i.e., OWJ) during final design. (Engineer)</p> <p>Adams Homestead and Nature Preserve will be marked as an Environmental Sensitive Site for avoidance on project plans. (Engineer)</p> <p>Access to Adams Homestead and Nature Preserve would be maintained throughout project construction. (Engineer, Contractor)</p>	Design / Construction

Northshore Drive Realignment

Resource	Environmental Commitment	Timing
Regulated Materials and Hazardous Waste	<p>During construction, the Project Engineer will monitor the construction site to ensure that the avoidance measures or remediation have been accomplished in accordance with the plans. If contamination is encountered during construction, the Project Engineer will contact the Environmental Office (EO), which will contact SDDANR and a qualified consultant to inspect and monitor removal of any contaminated soil. Removal of soil will be completed under a separate bid. The Environmental Project Coordinator (EPC) will document DOT-272 and construction findings in the project file. (Engineer)</p> <p>When the Contractor is 30 days from start of construction activities, a written notification will be sent to the Area Engineer and SDDANR. Another written notice will be sent to the Project Engineer 7 days in advance of the start of work. This commitment will include the estimated cubic yards of contaminated materials that will be removed and list the landfill that accepts such materials. (Contractor)</p> <p>It is possible that locations of contaminated material exist within the project limits which have not been documented. If the Contractor encounters contaminated soil, the Project Engineer must contact the EO, and contact will then be made with SDDANR, so the site can be inspected and monitored while material is removed. (Engineer, Contractor)</p> <p>Tanks and spills - If contamination is encountered or if a spill occurs during onsite construction activity, that contamination or spill must be reported to SDDANR at 605-773-3296 (605-773-3231 after hours). Contaminated soil that has been excavated should be segregated from clean soil and sampled to determine disposal requirements. Further, any piping, equipment, or other material to be placed in a location where it will be in contact with contaminated soil or groundwater, should be evaluated to determine if it is compatible with the contaminant. If you have questions, please contact Baylee Hoff at baylee.hoff@state.sd.us or (605) 773-3296. (Engineer, Contractor)</p>	Pre-Construction / Construction

6. COORDINATION AND PUBLIC INVOLVEMENT

6.1 Agency Coordination

Agency coordination was conducted with State and Federal agencies including SDDANR, SDGFP, USFWS, NRCS, and SDSHPO. Project information was provided including a project summary, map, and request for feedback on the proposed project. Responses are summarized in **Table 13** and correspondence is provided in **Appendix E**.

Table 13. Agency Correspondence

Date	Agency	Summary
9/29/2023	SDGFP	The Adams Homestead and Nature Preserve is encumbered in entirety under LWCF 6(F) encumbrance.
10/02/2023	SDGFP	2017 record of Fals Map Turtles noted in McCook Lake. Avoid impacts along shoreline of McCook Lake from May through August. No anticipated significant impact to fish and wildlife resources.
10/16/2023	SDDANR	Recommendations for Tanks and Spills, Solid and Hazardous Waste, Air Quality, Drinking Water, Surface Water, Ground Water, Water Rights, and Forestry.
5/22/2024	SDDANR	Additional recommendations for Tanks and Spills.
2/29/2024	NRCS	Confirmed project does impact prime farmland and completed part IV of Form AD-1006.
6/11/2024	USFWS	May Affect, Not Likely to Adversely Affect Northern Long-Eared Bat and Tricolored Bat; No Effect for all other listed species.
12/9/2024	SDSHPO	SDSHPO concurs with a determination of "No Historic Properties Affected" for the proposed undertaking.
1/24/2025	SDSHPO	After updates to APE, SDSHPO concurs with a determination of "No Historic Properties Affected" for the proposed undertaking.
11/13/2023	Dakota Valley Schools	Overview of project was presented to Board of Education.
4/22/2024	Dakota Valley Schools	Confirmation of Superintendent as OWJ for Section 4(f) recreational resources on the Dakota Valley School property.
1/17/2025	Dakota Valley Schools	Notification to OWJ of intent to find a de minimis with proposed mitigation and after public comment period.
4/18/2024	North Sioux City	Confirmation of OWJ at the City of North Sioux City for the McCook Lake/North Sioux City Trail.
1/17/2024	North Sioux City	Notification to OWJ of intent to find a de minimis with proposed mitigation and after public comment period.
9/16/2024	North Sioux City Council	Project update to North Sioux City Council.

6.2 Tribal Coordination

Tribal coordination letters were sent to the following tribes on September 28, 2023. No responses were received from any of the below tribes.

- ▶ Chippewa Cree Tribe
- ▶ Crow Creek Sioux Tribe
- ▶ Iowa Tribe of Oklahoma
- ▶ Lower Brule Sioux Tribe
- ▶ Ponca Tribe of Nebraska
- ▶ Rosebud Sioux Tribe
- ▶ Sisseton-Wahpeton Oyate
- ▶ Three Affiliated Tribes (Mandan Hidatsa Arikara Nation)
- ▶ Yankton Sioux Tribe

6.3 Public Open House

A public open house meeting was held on October 30, 2023 at the City of North Sioux City Community Center and 89 people signed in as attendees. The purpose of the meeting was to provide information and gather input from the public about the proposed project. This included information on the environmental reviews being conducted for the project in support of NEPA. Stakeholders and the public were notified of the meetings through mailings, the project website, press release, and local newspaper ads. The open house allowed for one-on-one discussion with project representatives including consultants, City staff, and SDDOT. Project representatives were available to answer questions, discuss the project, and receive community input. Poster-board exhibits were set up at the meeting and comment forms were provided. Additionally, project information, including all public meeting materials, was posted online at www.NorthshoreBypass.com and is included in **Appendix H**. Comments were solicited through a 30-day comment period. Twenty comments were received, including twelve comments submitted via the project website and eight additional comments received in writing. Comments generally discussed:

- ▶ Support for a bypass due to large amount of traffic on Northshore Drive and concern for students walking to school.
- ▶ Concern about land acquisition for a new bypass route.
- ▶ Questions on whether a new bypass route is warranted and/or would be fiscally irresponsible.
- ▶ Questions about access to neighborhoods, schools, interstate.
- ▶ Preferences both for and against connecting Penrose Drive to a new bypass and preference for no roundabouts.

Based on public input, the design speed at the west end of the project was reduced for both build alternatives, which reduced the radius of the curves and decreased the property impact and required ROW from a business.

6.4 Public Engagement Update

Additional public involvement included a public engagement update of the status of the project with a 30-day comment period beginning on September 12 and ending on October 12, 2024. Updated project information was provided via a mailer, a public announcement, and website updates. The purpose was to inform the public of project updates to scope and schedule; present a draft Purpose and Need; and note the potential for impacts to Section 4(f) resources. The purpose was also to coordinate with the public to consider feedback when making project decisions. The public was invited to submit comments via the project website, www.NorthshoreBypass.com. Public involvement materials are included in **Appendix H**. Comments were received from 24 individuals, most of whom were supportive of the proposed project. Comments received generally discussed:

- ▶ Support for a bypass due to the large amount of traffic on Northshore Drive and concern for students walking to school.
- ▶ Concerns with roundabouts.
- ▶ Support for widening the existing Northshore Drive.
- ▶ Questions/concerns on how the project might impact future flooding.
- ▶ More opportunities for public comment.

Based in part on public feedback, the roundabout alternatives for project intersections were eliminated from consideration as the part of the build alternatives. Regarding flood control, this is not part of the project purpose and could have unintended consequences of shifting floodwaters to new areas or interfering with the USACE flood emergency plan for the Big Sioux River. Therefore, this option was not pursued.

6.5 Future Public Involvement

A public information meeting will be held to present the findings of this EA and in accordance with Section 4(f) requirements. These requirements involve providing the public an opportunity to review and comment on proposed *de minimis* determination to Section 4(f) resources, including the Dakota Valley Schools and City of North Sioux City. The public comment period will be provided for 30 days concurrent with the release of the EA when it is made available to the general public and public agencies. The EA will be available on the project website (northshorebypass.com) and at North Sioux City, City Hall. After the public comment period, formal concurrence of the *de minimis* determination would be required from the OWJs.

FHWA will take into consideration all verbal and formal comments received during the comment period in determining whether Build Alternative I would or would not result in significant social, economic, and environmental impacts. Following the comment period, if FHWA agrees that a finding of no significant impact (FONSI) is appropriate, a FONSI will be issued to conclude the environmental review process and document the decision. If FHWA determines the Project would result in significant environmental impacts, the City of North Sioux City and SDDOT may prepare an Environmental Impact Statement or select the No Build Alternative as its Preferred Alternative. All comments received will be included in the final administrative record. Other future public involvement may occur during the design and construction phases of the project.

7. REFERENCES

7 Code of Federal Regulation (CFR) 658. Farmland Protection Policy Act.

23 United States Code (USC) 120. Federal Shares Payable.

23 CFR 710.501. Early acquisition.

23 CFR 772. Procedures for abatement of highway traffic noise and construction noise.

36 CFR 800. Protection of historic properties.

40 CFR § 1508.8. Effects.

40 CFR 1502.14. Alternatives including the proposed action.

42 USC 4321 et seq. National Environmental Policy Act.

49 Code of Federal Regulations [CFR], Subtitle A, Part 24, Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs

75 FR 17758. Approved Recovery Plan for the Scaleshell Mussel.

Administrative Rules of South Dakota (ARSD) 70:09, Appendix A: South Dakota Access-Location Criteria. Accessed December 2024 from [Administrative Rule 70:09 | South Dakota Legislature](#)

Beacon. 2024. Union County, South Dakota. Accessed February 2024 from <https://beacon.schneidercorp.com/Application.aspx?AppID=66&LayerID=428&PageTypeID=1&PageID=962>

Dakota Dunes and North Sioux City, SD. January 23, 2018. Study Report – Dakota Dune/N. Sioux City Planning Study – Operations Analysis and Recommendations.

Felsburg Holt & Ullevig (FHU). 2025. Traffic Noise Impact Assessment for Northshore Drive Realignment.

FHU. 2024. Northshore Drive Realignment Alternatives Analysis. Prepared for City of North Sioux City.

FHU. 2023. Wetland Delineation Report – Northshore Drive Realignment.

Federal Emergency Management Agency. 2021. Flood Insurance Rate Map Panel Number 4600870392E and 4602420392E, effective date January 15, 2021.

Federal Highway Administration (FHWA). 2023. *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents Memorandum*. January 2023 Interim Guidance. Accessed from: https://www.fhwa.dot.gov/environMent/air_quality/air_toxics/policy_and_guidance/msat/

Northshore Drive Realignment

- FHWA. 2022. Memorandum: Allocation of Highway Infrastructure Programs Projects designated in Division L of the Consolidated Appropriations Act, 2022. Accessed April 2024 from <https://www.fhwa.dot.gov/specialfunding/hip/220628.pdf>
- FHWA. 2011. Highway Traffic Noise: Analysis and Abatement Guidance.
- FHWA. 1987. Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*. October 30.
- North Sioux City (City of). 2020. Master Planning North of Northshore Drive.
- House of Representatives (H.R.) – 117th Congress (2021-2022): Congressional Record: Proceedings and Debates of the 117th Congress, Second Session. Division L – Transportation Housing and Urban Development, and Related Agencies Appropriations Act, 2022. Accessed April 2024 from <https://www.congress.gov/117/crec/2022/03/09/168/42/CREC-2022-03-09-bk4.pdf>
- McCormick, Shannon and Austin Buhta. 2024. Level III Cultural Resources Investigation of the Proposed Northshore Drive Realignment Project, McCook Lake, Union County, South Dakota.
- McCormick, Shannon and Austin Buhta. 2025. A Letter Concerning Revisions to a Segment of Corridor Alternative I of the Proposed Northshore Drive Bypass and Potential Impacts to Cultural Resources. Submitted to Stockwell on January 15, 2025.
- Nebraska Game and Parks Commission (NGPC). 2024. Piping plover Web Page. Accessed June 2024 from <https://outdoornebraska.gov/learn/nebraska-wildlife/nebraska-animals/birds/piping-plover/>
- North Sioux City (City of). 2023. Zoning Map. Accessed February 2024 from <https://northsiouxcity-sd.gov/wp-content/uploads/2023/05/4-2023-Zoning-Map.pdf>
- North Sioux City (City of). 2024. City Council Regular Meeting Minutes – November 4, 2024. Accessed January 2025 from: [2024 Minutes | North Sioux City, SD](#)
- North Sioux City (City of). 2025. River Bend Business Park Web Page. Accessed February 2025 from: <https://northsiouxcity-sd.gov/property/>
- Pflieger, W.L. 1997. The fishes of Missouri, revised edition. Missouri Department of Conservation, Jefferson City, Missouri. 343 pp. Public Law 117-58. Infrastructure Investment and Jobs Act.
- Public Law 117-103. Consolidated Appropriations Act, 2022.
- Rounds, Michael. 2021 Disclosure letter to Subcommittee on Transportation, Housing and Urban Development, and Related Agencies. Accessed April 2024 from https://www.rounds.senate.gov/imo/media/doc/THUD%20CDS%20Disclosure%20for%20Web%20site_final.pdf

Northshore Drive Realignment

South Dakota Code. 2005. South Dakota Weed and Pest Control, Chapter 38-22, Article 12:62.

State of South Dakota. Accessed February 2024 from

<https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=12:62&Type=All>

South Dakota Department of Agriculture and Natural Resources (SDDANR). 2022. The 2022 South Dakota Integrated Report for Surface Water Quality Assessment. Accessed February 2024 from

<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/waterqualitystandards/integratedreports.aspx/1000>

SDDANR. 2023. State Noxious Weed & Pest List. Accessed February 2024 from:

<https://danr.sd.gov/Conservation/PlantIndustry/WeedPest/WeedandPestInfo/StateNoxious/default.aspx>

Siouxland Interstate Metropolitan Planning Council (SIMPCO). 2021. 2045 Long Range Transportation Planning. Accessed March 2024 from:

<https://simpco.org/divisions/transportation-planning/long-range-transportation-plans-lrtp/>

South Dakota Department of Transportation (SDDOT). 2015 Standard Specifications for Roads and Bridges, 2015. Accessed June 2024 from:

https://dot.sd.gov/media/documents/2015_SDDOT_SpecBook.pdf

SDDOT. 2019. Environmental Procedures Manual. Accessed April 2024 from:

[EnvironmentalProceduresManual.pdf \(sd.gov\)](#)

SDDOT. 2020. South Dakota DOT 2020 Decennial Interstate Corridor Study. Accessed December 2024 from: [SDDOT ICS_Phase I Report_Final_body text only.pdf](#)

SDDOT. 2023. Noise Analysis and Abatement Guidance.

SDDOT. 2024. I-29 Corridor Study Website. Accessed February 2024 from:

<https://i29corridorsd.com/>

Stockwell. 2019. Community Gateway and Streetscape Master Plan – Exit 4. https://northsiouxcity-sd.gov/wp-content/uploads/2018/11/2018_10_31-Exit-4-Plan.pdf

Stockwell. 2020. North Sioux City Master Plan for North of Northshore Drive.

Ulteig. 2022. Union County Master Transportation Plan – Final Report. Accessed February 2024 from

https://dot.sd.gov/media/documents/Union%20County%20MTP_Final%20Report%20_5-26-22.pdf

Union County. 2022. Union County Master Transportation Plan – Final Report. Accessed February 2024 from dot.sd.gov/media/documents/Union_County_MTP_Final_Report_5-26-22.pdf

US Army Corps of Engineers (USACE). 1982. Operation and Maintenance Manual – Big Sioux River Flood and Erosion Control Project. Sioux City Iowa and South Dakota.

- US Census Bureau (USCB). 2025a. Industry for the Civilian Employed Population 16 Years and Over in North Sioux City, South Dakota. Accessed February 2025 from <https://data.census.gov/vizwidget?g=160XX00US4645700&infoSection=Industry>
- USCB. 2025b. Sioux City, Iowa Income and Poverty Data. Accessed February 2025 from https://data.census.gov/profile/Sioux_City_city,_Iowa?g=160XX00US1973335#income-and-poverty
- USCB. 2025c. Community Profiles for North Sioux City, Union County, Sioux City, IA, and the State of South Dakota. Accessed February 2025 from <https://www.census.gov/programs-surveys/ac>
- USCB. 2024a. 2020 Census Redistricting Data (Public Law 94-171), Table P2. Accessed January 2024 from <https://www.census.gov/data.html>
- USCB. 2024b. 2018–2022 American Community Survey. Table B17021 and Table B16004 accessed January 2024 from <https://www.census.gov/data.html>
- USCB. 2023. American Community Survey. Table DP03 accessed February 2025 from <https://www.census.gov/programs-surveys/acs>
- USCB. 2020. 2020 U.S. Census. Accessed February 2025 from <https://www.census.gov/data.html>
- US Department of Agriculture (USDA). 2024. Natural Resources Conservation Service (NRCS). Web Soil Survey. Union County – South Dakota. Accessed February 2024 from <https://websoilsurvey.nrcs.usda.gov/app/>
- US Fish and Wildlife Service (USFWS) 2024a. U.S. Fish & Wildlife Service Monarch Butterfly Web Page. Accessed June 2024 from <https://www.fws.gov/species/monarch-danaus-plexippus>
- USFWS 2024b. U.S. Fish & Wildlife Service Pallid Sturgeon Web Page. Accessed June 2024 from <https://www.fws.gov/species/pallid-sturgeon-scaphirhynchus-albus>
- USFWS. 2024c. U.S. Fish & Wildlife Service Tricolored Bat Web Page. Accessed June 2024 from <https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus> [Regal Fritillary Field Guide](#)
- USFWS. 2025a. Information Planning and Consultation (IPaC) tool. Accessed January 2025 from <https://ipac.ecosphere.fws.gov/>
- USFWS. 2025b. U.S. Fish & Wildlife Service Regal Fritillary Web Page. Accessed January 2025 from <https://www.fws.gov/species/regal-fritillary-speyeria-idalia>