Environmental Assessment

Proposed 85th Street Improvements:
Sundowner to Louise Avenue
Sioux Falls, South Dakota
Lincoln County, South Dakota

Project Numbers:
P 1360(01), PCN 03YF
Sioux Falls CIP Number 515099

Submitted pursuant to 42 U.S.C. 4332(2)(c)
by the
Federal Highway Administration
South Dakota Department of Transportation
and
City of Sioux Falls

FOR

Reconstruction of 85th Street between Sundowner Avenue and Louise Avenue with construction of a grade separation structure at I-29 that meets structural and geometric design standards.

November 2017

The following persons may be contact for additional information concerning this document:

Tom Lehmkuhl
Environmental Manager
SD Department of Transportation
700 East Broadway
Pierre, SD 57501
(605) 773-3721

Marion Barber, P.E.
Environmental Engineer
Federal Highway Administration
116 East Dakota
Pierre, SD 57501
(605) 224-8028

Tom Lehmkuhl, Environmental Manager
11/9/2017
Recommended for Approval Date

Marion Barber, Environmental Engineer
11/9/2017
Approved for Public Availability Date
# Table of Contents

## Section 1

### Introduction

1.1 Background

1.2 Project Status

1.3 Report Purpose

## Section 2

### Purpose and Need for the Project

2.1 Project Description

2.2 Project Purpose

2.3 Need for Action

2.3.1 System Linkage

2.3.2 Traffic Growth

2.4 Proposed Action

2.5 Other Projects

## Section 3

### Alternatives

3.1 Identification of Alternatives

3.2 Alternatives

3.2.1 Alternative 1 – No Build

3.2.2 Alternative 2 – Extension of 85th Street Over I-29 on Section Line

3.2.3 Alternative 3 – Extension of 85th Street Over I-29 South of the Section Line

## Section 4

### Affected Environment and Environmental Consequences

4.1 Land Use and Zoning

4.1.1 Land Use

4.1.2 Prime Farmland

4.1.3 Pedestrians and Bicyclists

4.2 Social

4.2.1 Population

4.2.2 Minority and Low-Income Populations

4.2.3 Community Cohesion

4.2.4 Acquisition and Relocation

4.2.5 Public Facilities and Services

4.3 Economics

4.3.1 Income and Employment

4.3.2 Tax Base

4.4 Visual Quality/Aesthetics

4.4.1 Affected Environment

4.4.2 Environmental Consequences

4.5 Air Quality

4.5.1 Affected Environment

4.5.1 Environmental Consequences

4.6 Noise

4.6.1 Affected Environment

4.6.2 Environmental Consequences
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Content</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.6.3</td>
<td>Construction Noise</td>
<td>4-34</td>
</tr>
<tr>
<td>4.6.4</td>
<td>Noise Mitigation Evaluation</td>
<td>4-35</td>
</tr>
<tr>
<td>4.7</td>
<td>Travel Patterns and access</td>
<td>4-37</td>
</tr>
<tr>
<td>4.7.1</td>
<td>Affected Environment</td>
<td>4-37</td>
</tr>
<tr>
<td>4.7.2</td>
<td>Environmental Consequences</td>
<td>4-38</td>
</tr>
<tr>
<td>4.8</td>
<td>Geology, Topography, and Soils</td>
<td>4-39</td>
</tr>
<tr>
<td>4.8.1</td>
<td>Affected Environment</td>
<td>4-39</td>
</tr>
<tr>
<td>4.8.2</td>
<td>Environmental Consequences</td>
<td>4-39</td>
</tr>
<tr>
<td>4.9</td>
<td>Hydrology and Water Quality</td>
<td>4-41</td>
</tr>
<tr>
<td>4.9.1</td>
<td>Hydrology</td>
<td>4-41</td>
</tr>
<tr>
<td>4.9.2</td>
<td>Water Quality</td>
<td>4-41</td>
</tr>
<tr>
<td>4.9.3</td>
<td>Floodplain</td>
<td>4-43</td>
</tr>
<tr>
<td>4.10</td>
<td>Waters of the United States/Wetlands</td>
<td>4-44</td>
</tr>
<tr>
<td>4.10.1</td>
<td>Affected Environment</td>
<td>4-45</td>
</tr>
<tr>
<td>4.10.2</td>
<td>Environmental Consequences</td>
<td>4-45</td>
</tr>
<tr>
<td>4.10.3</td>
<td>Wetland Mitigation</td>
<td>4-48</td>
</tr>
<tr>
<td>4.11</td>
<td>Terrestrial Wildlife and Aquatic Resources</td>
<td>4-51</td>
</tr>
<tr>
<td>4.11.1</td>
<td>Affected Environment</td>
<td>4-51</td>
</tr>
<tr>
<td>4.11.2</td>
<td>Environmental Consequences</td>
<td>4-52</td>
</tr>
<tr>
<td>4.12</td>
<td>Threatened and Endangered Species</td>
<td>4-55</td>
</tr>
<tr>
<td>4.12.1</td>
<td>Affected Environment</td>
<td>4-55</td>
</tr>
<tr>
<td>4.12.2</td>
<td>Environmental Consequences</td>
<td>4-59</td>
</tr>
<tr>
<td>4.13</td>
<td>Invasive Plant Species</td>
<td>4-61</td>
</tr>
<tr>
<td>4.13.1</td>
<td>Affected Environment</td>
<td>4-61</td>
</tr>
<tr>
<td>4.13.2</td>
<td>Environmental Consequences</td>
<td>4-61</td>
</tr>
<tr>
<td>4.14</td>
<td>Historic and Archaeological Preservation</td>
<td>4-62</td>
</tr>
<tr>
<td>4.14.1</td>
<td>Affected Environment</td>
<td>4-62</td>
</tr>
<tr>
<td>4.14.2</td>
<td>Environmental Consequences</td>
<td>4-63</td>
</tr>
<tr>
<td>4.15</td>
<td>Section 4(f) and 6(f) Properties</td>
<td>4-65</td>
</tr>
<tr>
<td>4.15.1</td>
<td>Affected Environment</td>
<td>4-65</td>
</tr>
<tr>
<td>4.15.2</td>
<td>Environmental Consequences</td>
<td>4-66</td>
</tr>
<tr>
<td>4.16</td>
<td>Regulated Materials</td>
<td>4-66</td>
</tr>
<tr>
<td>4.16.1</td>
<td>Affected Environment</td>
<td>4-67</td>
</tr>
<tr>
<td>4.16.2</td>
<td>Environmental Consequences</td>
<td>4-69</td>
</tr>
<tr>
<td>4.17</td>
<td>Construction Impacts</td>
<td>4-69</td>
</tr>
<tr>
<td>4.17.1</td>
<td>Noise</td>
<td>4-70</td>
</tr>
<tr>
<td>4.17.2</td>
<td>Air Quality</td>
<td>4-71</td>
</tr>
<tr>
<td>4.17.3</td>
<td>Visual Resources</td>
<td>4-71</td>
</tr>
<tr>
<td>4.17.4</td>
<td>Wetlands and Other Waters of the United States</td>
<td>4-71</td>
</tr>
<tr>
<td>4.17.5</td>
<td>Water Quality</td>
<td>4-72</td>
</tr>
<tr>
<td>4.17.6</td>
<td>Habitat, Fish, and Wildlife</td>
<td>4-73</td>
</tr>
<tr>
<td>4.17.7</td>
<td>Travel Patterns and Access</td>
<td>4-73</td>
</tr>
<tr>
<td>4.18</td>
<td>Cumulative Impacts</td>
<td>4-74</td>
</tr>
<tr>
<td>4.18.1</td>
<td>Past Actions</td>
<td>4-74</td>
</tr>
<tr>
<td>4.18.2</td>
<td>Present Actions</td>
<td>4-75</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

4.18.3 Reasonably Foreseeable Future Actions ............................................. 4-76
4.18.4 Cumulative Impacts by Discipline ..................................................... 4-77
4.18.5 Indirect Cumulative Development Impacts ........................................ 4-80

## Section 5
### Preferred Alternative ............................................................................. 5-1
5.1 Selection of Preferred Alternative .......................................................... 5-1
5.2 Comparison of Environmental Impacts and Other Selection Criteria .... 5-8
5.3 Description of Preferred Alternative ....................................................... 5-8
5.4 Summary ............................................................................................... 5-10

## Section 6
### Environmental Commitments ................................................................. 6-1
6.1 Commitment A: Wetlands ................................................................. 6-1
6.2 Commitment B: Federally Threatened, Endangered, and Protected Species .......................................................... 6-1
   6.2.1 Commitment B1: Construction Practices for Streams Inhabited by the Topeka Shiner ............................................. 6-1
   6.2.2 Commitment B4: Bald Eagle ....................................................... 6-2
   6.2.3 Commitment B5: Northern Long-Eared Bat ................................ 6-2
6.3 Commitment E: Storm Water ............................................................... 6-2
6.4 Commitment H: Waste Disposal ............................................................ 6-3
6.5 Commitment I: Historical Preservation Office Clearances ................. 6-3
6.6 Commitment N: Section 404 Permit ....................................................... 6-4
6.7 Commitment Q: Tree Replacement ......................................................... 6-4
6.8 Commitment S: Migratory Birds Work Restriction ............................. 6-4
6.9 Other Environmental Commitments ....................................................... 6-4
   6.9.1 Acquisition and Relocation .......................................................... 6-4
   6.9.2 Public Facilities / Services ............................................................ 6-4
   6.9.3 Visual ......................................................................................... 6-4
   6.9.4 Air Quality .................................................................................. 6-4
   6.9.5 Noise .......................................................................................... 6-5
   6.9.6 Travel Patterns ........................................................................... 6-6
   6.9.7 Soils .............................................................................................. 6-6
   6.9.8 Water Quality .............................................................................. 6-6
   6.9.9 Wildlife/Threatened and Endangered Species/Invasive Species/Aquatic Resources .................................................. 6-6
   6.9.10 Regulated Materials .................................................................. 6-7
6.10 Summary of Mitigation and Commitments ......................................... 6-7

## Section 7
### Comments and Coordination ................................................................. 7-1
7.1 Agency Coordination ........................................................................... 7-1
7.2 Tribal Coordination ............................................................................. 7-2
7.3 Public Meetings ................................................................................... 7-2
7.4 Future Public Involvement ................................................................. 7-4

## Section 8
### List of Preparers and Reviewers ............................................................ 8-1
TABLE OF CONTENTS

Section 9 References .................................................................................................................... 9-1

List of Tables
Table 4-1: Summary of Direct Land Use Changes Associated with the Build Alternatives ............ 4-5
Table 4-2: Public Resource Facilities Within 0.25-mile of the Project Boundaries ....................... 4-13
Table 4-3: Properties Affected By Build Alternatives ................................................................. 4-16
Table 4-4: National Ambient Air Quality Standards ...................................................................... 4-26
Table 4-5: Common Noise Levels ................................................................................................. 4-27
Table 4-6: Noise Abatement Criteria, Hourly A-Weighted Sound Level ....................................... 4-29
Table 4-7: Summary of Identified Noise Sensitive Areas (NSAs) ................................................. 4-31
Table 4-8: Summary of Noise Impacts ........................................................................................ 4-34
Table 4-9: Noise Abatement Recommendation Summary for Impacted NSAs ......................... 4-35
Table 4-10: Noise Impact Distances For Undeveloped Lands .................................................... 4-36
Table 4-11: Wetlands Affected By Build Alternatives ............................................................... 4-48
Table 4-12: Environmental Database Search Results ............................................................... 4-68
Table 5-1: Summary of Impacts by Alternative .......................................................................... 5-2
Table 6-1: Impacted Wetlands ..................................................................................................... 6-1
Table 6-2: Proposed Action Impacts And Mitigation/Commitments ........................................... 6-7
Table 7-1: Agency Approvals And Permits ............................................................................... 7-1

List of Figures
Figure 1-1: Regional Location Map ............................................................................................. 1-2
Figure 1-2: Study Area ................................................................................................................. 1-3
Figure 2-1: Traffic Volumes ......................................................................................................... 2-4
Figure 2-2: Current Traffic Operations – Arterial Intersections ................................................ 2-5
Figure 2-3: Future (2038) Traffic Operations Arterial Intersections .......................................... 2-6
Figure 3-1: Alternative 2 – Extend 85th Street Over I-29 on Section Line .................................... 3-2
Figure 3-2: Alternative 3 – Extend 85th Street Over I-29 South of the Section Line .................... 3-3
Figure 3-3: 85th Street Typical Section ..................................................................................... 3-5
Figure 4-1: Existing Land Use Inventory .................................................................................... 4-2
Figure 4-2: Future Land Use Plan and 2035 Growth Areas ....................................................... 4-3
Figure 4-3: Soils Map ................................................................................................................. 4-8
Figure 4-4: Potential Acquisitions Associated with Build Alternative 2 .................................... 4-19
**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-5</td>
<td>Potential Acquisitions Associated with Build Alternative 3</td>
<td>4-20</td>
</tr>
<tr>
<td>4-6</td>
<td>Traffic Noise Overview Map</td>
<td>4-30</td>
</tr>
<tr>
<td>4-7</td>
<td>Traffic Noise Future Build Results NSAs 7 and 8</td>
<td>4-32</td>
</tr>
<tr>
<td>4-8</td>
<td>Traffic Noise Future Build Results NSAs 9 through 13</td>
<td>4-33</td>
</tr>
<tr>
<td>4-9</td>
<td>Locations of Wetlands within Study Area</td>
<td>4-47</td>
</tr>
<tr>
<td>4-10</td>
<td>Wetlands Impacted by Alternative 2</td>
<td>4-49</td>
</tr>
<tr>
<td>4-11</td>
<td>Wetlands Impacted by Alternative 3</td>
<td>4-50</td>
</tr>
<tr>
<td>4-12</td>
<td>Existing Vegetation Along 85th Street</td>
<td>4-53</td>
</tr>
<tr>
<td>4-13</td>
<td>Historic and Archaeological</td>
<td>4-64</td>
</tr>
<tr>
<td>5-1</td>
<td>Preferred Alternative – Extend 85th Over I-29 on Section Line</td>
<td>5-11</td>
</tr>
</tbody>
</table>

**List of Appendices**

- Appendix A  Public Involvement
- Appendix B  Traffic Operations Technical Memorandum
- Appendix C  Agency Correspondence
- Appendix D  Traffic Noise Technical Report
- Appendix E  Wetlands Delineation and Mitigation Plan
- Appendix F  Executive Order11990 Wetlands Finding

*Note: Appendices are available online at the following webpage:*

## List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
</tr>
<tr>
<td>AM</td>
<td>ante meridiem</td>
</tr>
<tr>
<td>APE</td>
<td>Area of Potential Effects</td>
</tr>
<tr>
<td>ARSD</td>
<td>Administrative Rules of South Dakota</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>BMPs</td>
<td>Best Management Practices</td>
</tr>
<tr>
<td>Census</td>
<td>United States Census Bureau</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>dB</td>
<td>decibel</td>
</tr>
<tr>
<td>dBA</td>
<td>decibels weighted with A-level frequency</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Assessment</td>
</tr>
<tr>
<td>EDR</td>
<td>Environmental Data Resources, Inc.</td>
</tr>
<tr>
<td>EO</td>
<td>Executive Order</td>
</tr>
<tr>
<td>ERNS</td>
<td>Emergency Response Notification System</td>
</tr>
<tr>
<td>ESA</td>
<td>Endangered Species Act</td>
</tr>
<tr>
<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
</tr>
<tr>
<td>FFPA</td>
<td>Federal Farmland Protection Act</td>
</tr>
<tr>
<td>FHWA</td>
<td>Federal Highway Administration</td>
</tr>
<tr>
<td>FINDS</td>
<td>Facility Index System/Facility Registry System</td>
</tr>
<tr>
<td>FIRM</td>
<td>Flood Insurance Rate Map</td>
</tr>
<tr>
<td>FONSI</td>
<td>Finding of No Significant Impact</td>
</tr>
<tr>
<td>HGM</td>
<td>hydrogeomorphic</td>
</tr>
<tr>
<td>I-29</td>
<td>Interstate 29</td>
</tr>
<tr>
<td>I-229</td>
<td>Interstate 229</td>
</tr>
<tr>
<td>IPaC</td>
<td>Information, Planning, and Conservation</td>
</tr>
<tr>
<td>L&lt;sub&gt;eq&lt;/sub&gt;</td>
<td>equivalent steady-state sound level</td>
</tr>
<tr>
<td>L&lt;sub&gt;eq(h)&lt;/sub&gt;</td>
<td>hourly value of L&lt;sub&gt;eq&lt;/sub&gt;</td>
</tr>
<tr>
<td>L&lt;sub&gt;10&lt;/sub&gt;</td>
<td>sound level that is exceeded 10 percent of the time</td>
</tr>
<tr>
<td>L&lt;sub&gt;10(h)&lt;/sub&gt;</td>
<td>hourly value of L&lt;sub&gt;10&lt;/sub&gt;</td>
</tr>
<tr>
<td>LAST</td>
<td>Leaking Aboveground Storage Tank</td>
</tr>
<tr>
<td>LOS</td>
<td>Level of Service</td>
</tr>
<tr>
<td>LUST</td>
<td>Leaking Underground Storage Tank</td>
</tr>
<tr>
<td>MBTA</td>
<td>Migratory Bird Treaty Act</td>
</tr>
<tr>
<td>MPO</td>
<td>Metropolitan Planning Organization</td>
</tr>
<tr>
<td>MSA</td>
<td>Metropolitan Statistical Area</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
</tr>
<tr>
<td>NAC</td>
<td>Noise Abatement Criteria</td>
</tr>
<tr>
<td>NAGPRA</td>
<td>Native American Graves Protection and Repatriation Act</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
</tr>
<tr>
<td>NFIP</td>
<td>National Flood Insurance Program</td>
</tr>
<tr>
<td>NOI</td>
<td>Notice of Intent</td>
</tr>
<tr>
<td>NHPA</td>
<td>National Historic Preservation Act</td>
</tr>
<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
</tr>
<tr>
<td>NRCS</td>
<td>Natural Resources Conservation Service</td>
</tr>
<tr>
<td>NRHP</td>
<td>National Register of Historic Places</td>
</tr>
<tr>
<td>NSA</td>
<td>noise sensitive area</td>
</tr>
<tr>
<td>OW</td>
<td>open water</td>
</tr>
<tr>
<td>PEM</td>
<td>palustrine emergent</td>
</tr>
<tr>
<td>PL</td>
<td>Public Law</td>
</tr>
<tr>
<td>PM</td>
<td>post meridiem</td>
</tr>
<tr>
<td>PM$_{10}$</td>
<td>particulate matter 10 microns to 2.5 microns</td>
</tr>
<tr>
<td>PM$_{2.5}$</td>
<td>particulate matter 2.5 microns or smaller</td>
</tr>
<tr>
<td>REC</td>
<td>Recognized Environmental Condition</td>
</tr>
<tr>
<td>ROW</td>
<td>Right-of-way</td>
</tr>
<tr>
<td>Sioux Falls</td>
<td>City of Sioux Falls</td>
</tr>
<tr>
<td>SCS</td>
<td>Soil Conservation Service</td>
</tr>
<tr>
<td>SD</td>
<td>South Dakota State Highway</td>
</tr>
<tr>
<td>SDDENR</td>
<td>South Dakota Department of Environment and Natural Resources</td>
</tr>
<tr>
<td>SDDGFP</td>
<td>South Dakota Department of Game, Fish and Parks</td>
</tr>
<tr>
<td>SDDOT</td>
<td>South Dakota Department of Transportation</td>
</tr>
<tr>
<td>SDN</td>
<td>South Dakota Network</td>
</tr>
<tr>
<td>SHPO</td>
<td>State Historic Preservation Office</td>
</tr>
<tr>
<td>SPILLS</td>
<td>South Dakota Environmental Events/Spills</td>
</tr>
<tr>
<td>STIP</td>
<td>Statewide Transportation Improvement Program</td>
</tr>
<tr>
<td>SWD</td>
<td>Surface Water Discharge</td>
</tr>
<tr>
<td>SWPPP</td>
<td>Storm Water Pollution Prevention Plan</td>
</tr>
<tr>
<td>TSS</td>
<td>Total suspended solids</td>
</tr>
<tr>
<td>Uniform Act</td>
<td>Uniform Relocation Assistance and Real Property Acquisition Policies</td>
</tr>
<tr>
<td></td>
<td>Act of 1970, as amended</td>
</tr>
<tr>
<td>U.S.</td>
<td>United States</td>
</tr>
<tr>
<td>USACE</td>
<td>United States Army Corps of Engineers</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS

URS URS Corporation, Inc.
USDA United States Department of Agriculture
USDOT United States Department of Transportation
USEPA United States Environmental Protection Agency
USFWS United States Fish and Wildlife Service
USGS United States Geological Survey
WOUS Waters of the United States
1.1 BACKGROUND

The project area for the 85th Street action is located near the southwest edge of Sioux Falls, South Dakota (Figure 1-1).

The study area pertains to the area around 85th street that may be directly impacted by project activities. 85th Street runs west to east and is located just south of the Interstate 29 (I-29) and Interstate 229 (I-229) system interchange. Within the study area, 85th Street is divided by I-29 (Figure 1-2). From I-29 west to Sundowner Avenue (approximately 2,375 feet), 85th Street is a gravel road with single-family residential housing located on the north side of the street and agricultural land south of the street. From I-29 eastward, approximately 1,320 feet of the 85th street corridor has not been constructed. This area is grassed and currently used as pasture for horses. From the start of 85th Street east of I-29 to Townsley Avenue (approximately 2,550 feet), the street is a gravel road. From Townsley Avenue east to Louise Avenue (approximately 3,950 feet), 85th Street is an undivided, paved two-lane roadway. East of I-29, single-family and multi-family residential housing can be found on the north side of 85th Street and on the south side of 85th Street from Townsley Avenue to Louise Avenue. Agricultural land is located south of 85th Street from I-29 east to Townsley Avenue.

1.2 PROJECT STATUS

The 85th Street corridor and surrounding area have been part of several previous studies that included public involvement meetings. The studies include the following:

- I-29/I-229 Preliminary Draft Environmental Assessment (EA) (URS Corporation, Inc [URS] 2006a): a study to evaluate the potential alternatives for an upgraded interchange at the junction of I-29 and I-229. The EA process was stopped at the preliminary draft stage; therefore, no public input meetings were held for this study.

- I-29/I-229 Interchange Study (URS 2006b): a study where capacity improvement alternatives were developed and evaluated. These improvement alternatives included additional access points to the interstate system and for the system interchanges. Public input meetings were held during that study on March 30, 2006 and July 17, 2008.

- I-29 Corridor Study (URS 2010a): a study where capacity improvements for the interstate system and arterial street network were developed and evaluated. Improvement alternatives included in the study were the 85th Street extension across I-29 as well as the Solberg Avenue / Tallgrass Avenue extension across I-229 that was completed in August 2013 (See

---


Regional Location Map
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Legend
- State Boundary
- Interstate
- Primary US or State Highway
- Secondary State or County Highway

Project Area

Locator Map

Figure 1-1

Drawn By: JZ
Date: 12/14/2016

Checked By: JK
Project No.: P1360(01)
PCN: 03YF
Study Area

Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Figure 1-2

Drawn By: JZ
Checked By: JK
Date: 10/13/2017
Project No.: P1360(01)
PCN 03YF
bullet below). During that study, public meetings were held on February 26, 2009 and April 20, 2010.

- Solberg Avenue - Tallgrass Avenue Overpass (URS 2010b): an EA was completed for the Solberg Avenue/Tallgrass Avenue overpass at I-229. This project was recently constructed (August 2013) and includes a new four lane arterial roadway and overpass of I-229. The public meetings for this EA were coordinated with the I-29 Corridor Study and were held on February 26, 2009 and April 20, 2010.

- I-29 from north of Exit 73 (Tea) to 57th Street & I-229; I-229 from I-29 to west of the Louise Avenue Interchange; I-29 from north of Tea to South of 49th Street Categorical Exclusion (SDDOT 2015): a Categorical Exclusion document for the reconstruction of the I-29/I-229 system interchange and the addition of auxiliary lanes to I-29 from north of the Tea Interchange to north of 57th Street and on I-229 between I-29 and Louise Avenue.

Additional detail on the public involvement process from these studies is included in Section 7.3 and Appendix A of this document.

The 85th Street corridor has been identified for roadway construction and widening in the Direction 2035 Sioux Falls MPO Long Range Transportation Plan (Sioux Falls 2010) and in the Go Sioux Falls MPO 2040 Long Range Transportation Plan (Sioux Falls 2015a). The segment of 85th Street between Louise Avenue and Tallgrass Avenue is planned for construction starting in 2018 and the segment between Tallgrass Avenue and Sundowner Avenue is scheduled for construction starting in 2020. According to both the 2035 and 2040 long range transportation planning documents, the proposed roadway section for 85th Street would eventually be a four lane urban arterial roadway. Inclusion of the 85th Street in both the 2035 and 2040 long range transportation planning documents demonstrates the consistency of this project with local / regional transportation planning initiatives. The 85th Street corridor project is also listed in the following transportation program documents: SDDOT Statewide Transportation Improvement Program (STIP) 2017-2020 (SDDOT 2016a); Sioux Falls MPO 2017-2020 Transportation Improvement Program (Sioux Falls 2016a); and Sioux Falls 2017-2021 Capital Program (Sioux Falls 2016b).

---


5 SDDOT. 2015a. Categorical Exclusion. I-29 from north of Exit 73 (Tea) to 57th Street & I-229; I-229 from I-29 to west of the Louise Avenue Interchange; I-29 from north of Tea to South of 49th Street.

6 City of Sioux Falls (Sioux Falls). 2010. Direction 2035, Sioux Falls MPO Long-Range Transportation Plan. November 18

1.3 REPORT PURPOSE

The purpose of this EA is to evaluate potential alternatives to upgrade 85th Street between Sundowner Avenue and Louise Avenue in Sioux Falls, South Dakota and to inform and allow input from the public and other agencies. This EA analyzes the proposed action and will determine if there is a potential for significant social, economic, and environmental impacts.

Sioux Falls area comprehensive plans and studies (listed in Section 4.17) have indicated a desire to construct and upgrade the 85th Street corridor in order to serve future growth.

Federal funding is included with this project action; therefore, this EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), Code of Federal Regulations (CFR) 1500-1508, and Federal Highway Administration (FHWA) and United States Department of Transportation (USDOT) guidelines.

This EA does not include analysis or consideration for an interchange at 85th Street and I-29. An interchange at 85th Street is not currently identified in the regional planning documents that include the Statewide Transportation Improvement Program (STIP), Sioux Falls MPO Transportation Improvement Program or the Sioux Falls Capital Program. During the preparation of this EA, the 85th Street Business Joint Venture group came forward with a request to evaluate an interchange at 85th Street and I-29. This group is currently preparing an operational and safety analysis and an Interchange Justification Report (IJR) to be submitted to FHWA for review and approval. FHWA is required to ensure any change in access to the Interstate System does not have a significant adverse impact on the safety and operation of the Interstate facility. If the City/SDDOT determines there is adequate funding for the interchange and associated upgrades to the local street network; the work can be completed on a schedule compatible with the planned overpass; and the IJR is approved by FHWA along with any required NEPA documents, the interchange would be constructed in place of this overpass.
2.1 PROJECT DESCRIPTION

Sioux Falls, in cooperation with the South Dakota Department of Transportation (SDDOT), and the Sioux Falls Metropolitan Planning Organization (MPO), has initiated the assessment of the infrastructure needs to extend 85th Street across I-29 and upgrade 85th Street from Sundowner Avenue to Louise Avenue. The proposed project evaluates the following:

- Construction of a new section of 85th Street across I-29 with a grade separated structure.
- Reconstruction of 85th Street between Sundowner Avenue and Louise Avenue.

The study area and the existing jurisdictional authority is shown on Figure 1-2. The termini for the 85th Street proposed project were chosen based on logical connections with the north-south arterial street system. The selected western terminus is Sundowner Avenue which is the first north-south arterial roadway west of I-29 along the 85th Street corridor. The selected eastern terminus is Louise Avenue which is the first major and continuous north-south arterial roadway east of I-29 along the 85th Street corridor.

The City of Sioux Falls, City of Tea, and Delapre Township are working towards a Funding and Maintenance Agreement to cooperatively support the 85th Street Overpass project and work together to ensure this portion of 85th Street from Sundowner Avenue to Louise Avenue will be maintained by either the City of Tea or the City of Sioux Falls after construction of the overpass project. Through Sioux Falls MPO coordination, 85th is the 2035 growth boundary west of I-29, with Sioux Falls on the north side and Tea on the south side. On the east of I-29 Sioux Falls growth boundary extends south of 85th Street. The Delapre Township will not have any maintenance responsibilities after the project is completed. The funding agreement will be executed prior to requesting any Federal-aid highway funding for this project.

2.2 PROJECT PURPOSE

The purpose of this project is to improve local and regional mobility by enhancing the transportation system and improving connectivity. The proposed project would be constructed to accommodate all modes of travel in accordance with the City of Sioux Falls Complete Streets program. The project is also intended to support local and regional initiatives of the City of Sioux Falls, Sioux Falls MPO, and the SDDOT.

2.3 NEED FOR ACTION

The 85th Street project is needed to address the following:

- System Linkage
- Traffic Growth
2.3.1 System Linkage

The 85th Street corridor falls within a developing area of the Sioux Falls metropolitan area. There is development activity along the 85th Street corridor as well as regional growth that would be served by this corridor. This project is included as a planned arterial roadway project within a number of regional transportation planning documents including the following:

- SDDOT Statewide Transportation Improvement Program (STIP) 2017-2020 (SDDOT 2016a)\(^8\)
- Sioux Falls MPO 2017-2020 Transportation Improvement Program (Sioux Falls 2016a)\(^9\)
- Sioux Falls 2017-2021 Capital Program (Sioux Falls 2016b)\(^10\)
- Go Sioux Falls 2040 Long-Range Transportation Plan (Sioux Falls 2015a)

Within the southwest portion of the Sioux Falls metropolitan area, the current east-west arterial corridors that traverse I-29 (57th Street and Highway 106) are located nearly 3 miles apart. This distance between the current east-west arterial corridors require travel along the north-south roadway corridors (e.g., Sundowner Avenue, Tallgrass Avenue / Solberg Avenue) in order to reach the available east-west arterial corridors. The relatively large gap between existing east-west arterial corridors does not provide redundancy in the transportation network. This results in a less reliable transportation system in this portion of Sioux Falls. An additional system linkage along the 85th Street corridor would be spaced approximately 1 mile north of Highway 106 and 2 miles south of 57th Street.

Along the existing 85th Street corridor there are no sidewalks available for pedestrian movements. The City of Sioux Falls has a Complete Streets Policy (Sioux Falls 2015b)\(^11\) that requires the needs of pedestrian and bicyclists be considered whenever reconstructing or constructing a new arterial roadway. The extension and reconstruction 85th Street corridor would provide a pedestrian / bicycle accessibility for the corridor and with the construction of adjacent roadway projects a future system linkage network would be established for these modes.

2.3.2 Traffic Growth

Traffic volumes were evaluated for both existing and future (2038) conditions. Existing traffic volumes in the study area and southwest Sioux Falls were collected from available SDDOT and

---


Sioux Falls data sources. The traffic operations looked at the 85th Street intersections and the intersections located along arterial roadways in southwest Sioux Falls.

The 2038 traffic forecasts developed for this project were based on application of the Sioux Falls MPO’s regional 2035 travel model and volumes were adjusted to account for three additional years of traffic growth. The travel model is a computer application that estimates daily traffic volumes on the regional street and highway network for a given land use and transportation scenario. Figure 2-1 displays the traffic volumes for current, future no-build and future build conditions.

Figure 2-2 displays the current (2013) conditions operations analysis for the arterial intersections within the study area and throughout southwest Sioux Falls. A summary of the traffic operations for current and future conditions is provided in the Traffic Operations Memorandum (Appendix B). For current conditions, there are a few arterial intersections within southwest Sioux Falls that do not meet acceptable levels (minimum acceptable traffic operating conditions are level of service [LOS] D). These intersections include:

- 57th Street / Sundowner Avenue (ante meridiem [AM]/post meridiem [PM] peaks)
- Louise Avenue / I-229 Southbound (AM/PM peaks)
- Highway 106 / Sundowner Avenue (AM/PM peaks)

The traffic operations picture is anticipated to change considerably between the current conditions and the 2038 horizon year as traffic volumes in the 85th Street corridor are projected to grow considerably and the resulting volumes along 85th Street will range from 14,000 to 21,000 per day for the Build condition. Substantial traffic growth for 85th Street is also projected under the No-Build condition. The other arterial roadways in southwest Sioux Falls are also projected to see marked increases in traffic volumes between current conditions and the 2038 horizon year. For the Interstate system, the forecasted 2038 traffic in the I-29 and I-229 corridors are projected to be approximately double current volumes. Without capacity enhancing improvements, congestion in the morning and afternoon peak hours is expected to increase substantially from current conditions for most of the arterial roadways within southwest Sioux Falls. Figure 2-3 displays the 2038 arterial intersection operations within the study area and southwest Sioux Falls.

For the purposes of this analysis, a deficiency is defined as LOS E or worse. Applying the LOS D minimum operations threshold, a number of arterial intersections within the study area and southwest Sioux Falls do not meet acceptable congestion levels under the future year no-build conditions. These intersections include:

- 57th Street / Sundowner Avenue (AM/PM peaks)
- 57th Street / Marion Road (AM/PM peaks)
- 57th Street / Solberg Avenue (AM/PM peaks)
- 57th Street / Louise Avenue (AM/PM peaks)
- Louise Avenue / I-229 Southbound (AM/PM peaks)
Traffic Volumes
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Figure 2-1
Figure 2-2

Current (2013) Traffic Operations
Arterial Intersections
Sioux Falls, South Dakota

Legend
- LOS A/B
- LOS C
- LOS D
- LOS E/F
- AM/PM Junction LOS

Drawn By: JZ
Date: 12/16/2016
Project No. P1360(01) PCN 03YF

Legend
Study Area
Area of Influence
Interstate
Local Road
Future (2038) No-Build Traffic Operations, Arterial Intersections

Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Figure 2-3


• 69th Street / Louise Avenue (AM / PM peaks)
• 85th Street / Sundowner Avenue (AM / PM peaks)
• Highway 106 / Sundowner Avenue (AM / PM peaks)
• Highway 106 / I-29 (AM / PM peaks)
• Highway 106 / Tallgrass Avenue (AM / PM peaks)
• Highway 106 / Louise Avenue (AM / PM peaks)

2.4 PROPOSED ACTION

Based on these results, it was determined that alternatives to address system connectivity, increased capacity of 85th Street and/or decrease demand on other roadways within southwest Sioux Falls warranted consideration. Potential alternatives include alignment options that minimize impacts while facilitating travel for all transportation modes within the study area.

2.5 OTHER PROJECTS

In the vicinity of this study area and southwest Sioux Falls, there are a number of additional transportation improvement projects. These projects are listed below and were identified in the SDDOT Statewide Transportation Improvement Program (STIP) 2017-2020 (SDDOT 2016a), Sioux Falls MPO 2017-2020 Transportation Improvement Program (Sioux Falls 2016a), Sioux Falls 2017-2021 Capital Program (Sioux Falls 2016b), and Go Sioux Falls 2040 Long-Range Transportation Plan (Sioux Falls 2015a). Each project listing also includes a project number, reference number, or planning horizon year, shown in parenthesis, as listed in these planning documents.

SDDOT Statewide Transportation Improvement Program (STIP) 2017-2020

• 85th Street: Sundowner Avenue to Tallgrass Avenue (P 1360(01))

Sioux Falls MPO 2017-2020 Transportation Improvement Program

• 85th Street: Sundowner Avenue to Tallgrass Avenue (P 1360(01))
• 85th Street / I-29 Grade Separation (11017)
• 85th Street: Louise Avenue to Sundowner Avenue (11006)
• Tallgrass Avenue: 69th Street to 85th Street (11006)
• Sundowner Avenue: 69th Street to 85th Street (11006)
SECTION TWO

Purpose and Need for the Project

Sioux Falls 2017-2021 Capital Programs

- 85th Street: Louise Avenue to Sundowner Avenue (11006)
- Tallgrass Avenue: 69th Street to 85th Street (11006)
- 85th Street / I-29 Grade Separation (11017)
- Sundowner Avenue: 67th Street to 85th Street (11006)
- 69th Street: Tallgrass Avenue to Louise Avenue (11006)

Go Sioux Falls 2040, Sioux Falls MPO Long-Range Transportation Plan

- 85th Street: Louise Avenue to Sundowner Avenue (Funded / Committed)
- 85th Street / I-29 Grade Separation (Funded / Committed)
- Sundowner Avenue: 67th Street to 85th Street (Funded / Committed)
- Tallgrass Avenue: 69th Street to 85th Street (Funded / Committed)
- 271st Street: Heritage Avenue to 0.2 Miles East of Sundowner Avenue (Funded / Committed)
- 85th Street: Ellis Road to Sundowner Avenue (2021-2025)
- 69th Street: Sundowner Avenue to Solberg Avenue – I-29 Grade Separation Structure (2021-2025)
- Sundowner Avenue: 85th Street to 271st Street (2021-2025)
- 85th Street: Louise Avenue to Audie Avenue (2026-2030)
- Sundowner Avenue: 57th Street to 67th Street (2026-2030)
- 69th Street: Solberg Avenue to 0.5 Mile East (2026-2030)
- Louise Avenue: 93rd Street to Co. 106 (2026-2030)
- Tallgrass Avenue: 85th Street to Co. 106 (2031-2035)
- 69th Street: Tea-Ellis Road to Sundowner Avenue (2036-2040)
- SD 100: I-29 to Louise Avenue (beyond 2040)
3.1 IDENTIFICATION OF ALTERNATIVES

The No Build Alternative was identified for study in accordance with NEPA requirement that impacts of no action be considered. This alternative also serves as a basis of comparison with the Build Alternatives. The extension and expansion of the 85th Street corridor was previously identified in the I-29 Corridor Study (URS 2010a). Based on review of existing right of way (ROW), future land use plans, future traffic projections, regional planning documents, and previous studies completed for the area, a number of Build Alternatives were identified for detailed evaluation. Each Build Alternative was developed with respect to the project purpose and needs. A summary of each alternative evaluated in this EA is provided in the next section.

3.2 ALTERNATIVES

Two build alternatives were considered in this EA. In addition, the No Build Alternative has been included to satisfy NEPA requirements and FHWA guidelines. The three alternatives being considered in the EA are:

- Alternative 1 – No Build;
- Alternative 2 – Extension of 85th Street Over I-29 on Section Line (Figure 3-1); and
- Alternative 3 – Extension of 85th Street Over I-29 South of the Section Line (Figure 3-2).

These alternatives are detailed in the following subsections. One additional build alternative was evaluated as part of the alternative selection process. This alternative would have extended 85th Street across I-29 by elevating the I-29 mainline over 85th Street. This alternative was dismissed from consideration because it would take the longest time to construct, have the most traffic impacts, and the highest costs. Therefore, this alternative was not considered feasible or prudent to construct and was not evaluated further.

3.2.1 Alternative 1 – No Build

The No Build Alternative assumes that no changes would be made to the 85th Street corridor. 85th Street would not be upgraded from Sundowner Avenue to Louise Avenue and would not be extended over I-29. However, the No Build Alternative would include any proposed maintenance/improvements to the existing 85th Street corridor and surrounding areas (such as resurfacing, painting and signalizing intersection for traffic control), which are identified in the 2017-2020 STIP (SDDOT 2016a). The NEPA process requires that the No Build alternative be considered as a basis for assessing the effects of action alternative(s) being considered.
Alternative 3 - Extend 85th Street Over I-29 South of the Section Line
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Figure 3-2
3.2.2 Alternative 2 – Extension of 85th Street Over I-29 on Section Line

Activities associated with this alternative include increasing regional accessibility to/from southwestern Sioux Falls through completing an arterial connection across I-29 at 85th Street. This alternative would extend 85th Street from Sundowner Avenue to Louise Avenue with a grade separation at I-29. This grade separation would elevate 85th Street over I-29 on the existing section line. The grade separation and associated bridge over I-29 would be approximately 2,000 feet in length and have a maximum embankment width of approximately 300 feet. Alternative 2 is shown on Figure 3-1.

The arterial connection (Arterial II in the city’s definition [Sioux Falls 2016c]), is proposed as a four-lane median divided urban section with sidewalks (6 feet) on both sides of the roadway. Consistent with Sioux Falls street design standards a ROW of 100 feet is proposed. The assumed cross section is shown on Figure 3-3 and key features are listed below:

- Four, 11 or 12-foot through lanes.
- Bike lanes (4 feet wide) are assumed along both the eastbound and westbound directions. The lanes would be signed and striped as bike lanes.
- A center median of 16 to 32 feet depending on the number of turn lanes required.
- Four curb and gutter sections of 2.5 feet each.
- Design speed of 45 miles per hour.

As an Arterial II, the first full access (a median break) along 85th Street would be 0.25 mile east and west of I-29. If it can be demonstrated through a traffic impact study that signalization of the 0.25 mile access points would not adversely impact operations at 85th Street/Tallgrass Avenue and 85th Street/Sundowner Avenue, a signal could be allowed at the 0.25 mile locations.

In addition to these features, the intersections of Sundowner Avenue and 85th Street and Tallgrass Avenue and 85th Street would require modifications to connect to the 85th Street four-lane configuration. These modifications would be designed in accordance with Sioux Falls Engineering Design Standards (Sioux Falls 2016c) and SDDOT Road Design Manual (SDDOT 2016b).

Alternative 2 would require the least amount of farmland conversion, but requires the most property and structure acquisitions. Additionally, by staying on the section line and not elevating I-29, Alternative 2 would minimize impacts to utilities outside the current corridor ROW. Section 4 provides the detailed analysis of impacts.

---


3.2.3 Alternative 3 – Extension of 85th Street Over I-29 South of the Section Line

This alternative would extend 85th Street from Sundowner Avenue to Louise Avenue, including a grade separation at I-29. This grade separation would elevate 85th Street over I-29 along a route approximately 150 feet south of the existing section line. The grade separation would be the same as described for Alternative 2 (approximately 2,000 feet in length and a maximum width of 300 feet). Design specifics for 85th Street, including cross sections and access spacing, would be the same as those described for Alternative 2. Figure 3-2 shows the layout of this alternative.

In addition to these features, the intersections of Sundowner Avenue and 85th Street and Tallgrass Avenue and 85th Street would require modifications to connect to the 85th Street four-lane configuration.

Alternative 3 would require the least amount of new ROW and no structure acquisitions. However, Alternative 3 would require the relocation of a major water line, adding to the cost of construction. The reverse curve would be inconsistent with driver expectations. A combination of a horizontal curve with a vertical curve is less desirable according to the SDDOT Road Design Manual (SDDOT 2016b). Section 4 provides the detailed analysis of impacts.
4.1 LAND USE AND ZONING

4.1.1 Land Use

4.1.1.1 Affected Environment

The study area is located in Lincoln County, South Dakota. Even though, the southwest portion of the study area is outside the existing Sioux Falls city limits, it is within the planning and zoning approval jurisdiction for Sioux Falls. Existing land uses within the project area are shown on Figure 4-1. Land use south of 85th Street from Sundowner Avenue to approximately 0.5 mile east of Tallgrass Avenue is agricultural (tilled fields, pasture, wetland areas, etc.). Along the south side of 85th Street for the remainder of the corridor, the existing land use is residential. On the north side of 85th Street from Sundowner to I-29, rural residences represent the existing land use. East of I-29 for approximately 0.25 mile is pasture and east of the pasture to Louise Avenue is residential with a mixture of rural residences and urban housing.

Recent developments within the project area include the development of townhome complexes on the north and south sides of 85th Street west of Brett Avenue. Additionally, two single family residences have been removed on the north side of 85th Street west of I-29 (personal communication; Shannon Ausen, City of Sioux Falls and Jim Kollbaum, URS, November 16 and 22, 2016).

The Lincoln County 2016 Planning Map (Lincoln County 2016)\(^{14}\) shows the southwest quadrant of the 85th Street and I-29 area as commercial land use. The project area is also located in the growth area for the City of Tea. The Tea 2030 Comprehensive Plan (City of Tea 2011)\(^{15}\) shows the area from Sundowner to I-29 south of 85th Street as residential and mixed use community land use.

4.1.1.2 Environmental Consequences

Figure 4-2 shows the future land use within the project area. According to Sioux Falls, the area along 85th Street is a major focus of growth for the metropolitan area (personal communication; Jeff Schmitt, City of Sioux Falls and Jim Kollbaum, URS, December 18 and 19, 2014).

Alternative 1 – No Build

As shown on Figure 4-2, land use surrounding 85th Street is expected to change from the production of agricultural crops to developed urban areas by the end of the planning period (2038). Lincoln County and the City of Tea planning documents indicate this area is expected to be developed for commercial and mixed uses. Sioux Falls is projecting to continue to grow in

---


Existing Land Use Inventory
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Figure 4-1

Legend
- Study Area
- Single Family Residential
- Multi-Family Residential
- Office and Public Service
- Institution, Education, and Public Assembly
- Commercial
- Industrial
- Parks, Trails, and Athletic Fields
- Conservation and Other Green Space
- Agriculture and Transition Sites

Locator Map

Sioux Falls

Drawn By: JZ
Date: 12/16/2016

Checked By: JK
Project No. P1360(01)
PCN 03YF
Future Land Use Plan and 2035 Growth Areas
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Legend
- Study Area
- Future Residential
- Future Commercial (Retail, Office, Employment Center)
- Tea

Arterial Types
- Regional
- Tier 1
- Tier 2
- Tier 3

Figure 4-2

Drawn By: JZ
Checked By: JK
Date: 12/16/2016
Project No. P1360(01)
PCN 03YF
employment opportunities and population, similar to the growth in recent years. Therefore, development would occur even without the project, but likely at a slower rate than with the Build Alternatives. With the No Build Alternative, no construction activities related to this project would occur along 85th Street and no land would be converted from the identified use to road ROW.

**Alternative 2 – Extension of 85th Street Over I-29 on Section Line**

Alternative 2 would require approximately 24 acres of new ROW and 7 acres of construction easement for the proposed project features. Approximately 12 acres of cropland and pastureland would be converted to a transportation corridor. The conversion would occur on the edge of existing fields; therefore, segmentation of fields would not occur with Alternative 2. The conversion of cropland and pastureland along the existing roadway to transportation corridor use would be consistent with the land use plans for the area (Figure 4-2).

Land use in the project area is primarily agricultural and single family residences. Future land use for the project area is planned as commercial (Retail, Office, Employment Center) (City of Tea 2011; Lincoln County 2016). Therefore, existing land use is expected to be changed to commercial land use in the future. With a change in land use, density of use would be expected to increase. These changes would be expected to occur without the project. However, they may occur more quickly with the construction of the project.

Within the residential areas, the additional 10 acres of ROW would generally be associated with the widening of the transportation corridor, which would involve converting a strip of maintained lawn adjacent to the existing ROW to transportation use. This additional ROW would reduce the distance between 85th Street and homes located on the effected residential properties by approximately 15 feet. Approximately 0.1 acre of commercial property and 2 acres of vacant land comprise the remainder of the ROW land use.

This alternative would result in the acquisition of four residential parcels located north of 85th Street and west of I-29. Two of these parcels include structures and are occupied. Two parcels have no structures and are unoccupied. The ROW required for the bridge embankment would either directly impact the residences or not allow room for access to the homes. Acquisitions and Relocations are discussed further in **Section 4.2.4**. Access to the remaining residences west of I-29 would be spaced at 0.25-mile intervals which is consistent with Sioux Falls Comprehensive plan (Sioux Falls 2016d)\(^\text{16}\). Access is addressed further in **Section 4.6**.

Direct impact land use changes associated with Alternative 2 are summarized in **Table 4-1** below.

SECTION FOUR

Affected Environment and Environmental Consequences

Alternative 3 – Extension of 85th Street Over I-29 South of the Section Line

Alternative 3 would require approximately 22 acres of additional ROW and 6.5 acres of construction easement. Alternative 3 would result in approximately 17.5 acres of farmland being converted to a transportation corridor. The majority of the conversion would occur on the edge of existing fields. Therefore, segmentation of fields would be minimized. The conversion of cropland and pastureland along the existing roadway to transportation corridor use would be consistent with the land use plans for the area (Figure 4-2). Land use and density changes for Alternative 3 would be expected to be similar to those discussed for Alternative 2.

Within the residential areas, the additional 2.5 acres of ROW would generally be associated with the widening of the transportation corridor, which would involve converting a strip of maintained lawn adjacent to the existing ROW to transportation use. East of I-29, this additional ROW would reduce the distance between 85th Street and homes located on the affected residential properties by approximately 15 feet. A similar reduction would occur from Sundowner Avenue east for approximately 1300 feet. Approximately 0.1 acre of commercial property and 2 acres of vacant land comprise the remainder of the ROW land use. This alternative would not require the acquisition of any structures. Similar to Alternative 2, post-project access to property would be space at 0.25 mile intervals, which is consistent with Sioux Falls planning documents.

Direct land use changes associated with Alternative 3 are summarized in the table below.

Table 4-1: Summary of Direct Land Use Changes Associated with the Build Alternatives

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Roadway ROW (acres)</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>Construction Easement (acres)</td>
<td>7</td>
<td>6.5</td>
</tr>
<tr>
<td>Cropland/pasture land Conversion (acres)</td>
<td>12</td>
<td>17.5</td>
</tr>
<tr>
<td>Residential land conversion (acres)</td>
<td>10</td>
<td>2.5</td>
</tr>
<tr>
<td>Commercial property conversion (acres)</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Acquisitions</td>
<td>2 structures/ 4 parcels</td>
<td>0 structures</td>
</tr>
<tr>
<td>Vacant land conversion (acres)</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

4.1.2 Prime Farmland

The Federal Farmland Protection Act (FFPA) was enacted in 1981 (Public Law [PL] 98-98) to minimize the unnecessary conversion of farmland to nonagricultural uses as a result of federal actions. In addition, FFPA seeks to assure federal programs are administered in a manner compatible with state and local policies and programs developed to protect farmland. The policy of the Natural Resources Conservation Service (NRCS) is to protect significant agricultural lands from conversions that are irreversible and result in the loss of an essential food and environmental resource.
The NRCS has developed criteria for assessing the effects of federal actions on converting farmland to other uses, including Farmland Conversion Impact Rating Forms (CPA-106 and AD-1006) that document a site-scoring evaluation process to assess its potential agriculture value. Prime farmland has been identified by NRCS as a significant agricultural resource that warrants protection. The FPPA defines prime farmland as land that has the physical and chemical characteristics for producing food, feed, fiber, forage, and oilseed crops and is available for these uses. Prime farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.

### 4.1.2.1 Affected Environment

Soils (Figure 4-3) within the proposed study area were identified using the NRCS Web Soil Survey (NRCS 2012a)\(^{17}\). Soils in the study area include the following:

- Chancellor-Tetonka silty clay loams
- Chancellor-Viborg silty clay loams
- Egan silty clay loam with 3 to 6 percent slopes
- Egan-Chancellor silty clay loam with 0 to 4 percent slopes
- Egan-Worthing complex with 0 to 6 percent slopes
- Huntimer silty clay loam with 0 to 2 percent slopes
- Baltic silty clay loam, ponded
- Tetonka silty clay loam
- Wentworth silty clay loam with 0 to 2 percent slopes
- Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes
- Worthing silty clay

The NRCS’s on-line database was also used to obtain a list of soils within Lincoln County, which are considered prime farmland (NRCS 2012b)\(^{18}\). Soils considered to be prime farmland in the study area are listed below.

- Chancellor-Tetonka silty clay loams
- Chancellor-Viborg silty clay loams
- Egan silty clay loam with 3 to 6 percent slopes
- Egan-Chancellor silty clay loam with 0 to 4 percent slopes

---


- Huntimer silty clay loam with 0 to 2 percent slopes
- Tetonka silty clay loam
- Wentworth silty clay loam with 0 to 2 percent slopes
- Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes

These soil-mapping units comprise the majority of the soils within the proposed 85th Street extension corridor.

The NRCS was initially contacted via letter on October 9, 2013 (Appendix C) about the project and potential impacts to prime farmland. The NRCS was re-contracted on August 11 and 15, 2014 (Appendix C) with updated farmland impacts.

4.1.2.2 Environmental Consequences

The 85th Street corridor was originally part of a larger project area. The impacts discussed below are based on that larger project area and may slightly overestimate farmland impacts for the 85th Street specific project area.

**Alternative 1 – No Build**

The No Build Alternative involves no construction activities related to this project. However, development in the project area would still occur. Therefore, the conversion of prime farmland would occur with this alternative, although at a slower rate than would be expected with the build alternatives.

**Alternative 2 – Extension of 85th Street Over I-29 on Section Line**

Alternative 2 would result in the conversion of approximately 12 acres of farmland (cropland and pasture land) to road ROW. Most of the converted farmland is comprised of soils that are considered to be prime farmland soils. Since prime farmland would be affected by the alternative, a Farmland Conversion Impact Rating Form AD-1006 was completed for Alternative 2 (See September 4, 2014 letter, Appendix C) and it received a score of 138. Since the score was less than 160, the alternative would require no further coordination with the NRCS regarding prime farmland.

In addition to the direct conversion of prime farmland to the transportation use, prime farmland would be converted to other uses as the area surrounding the 85th Street corridor develops. Lincoln County and the City of Tea planning documents indicate this area is expected to be developed for commercial and mixed uses. This development and concurrent conversion of prime farmland may occur faster following the completion of the project.
Soils Legend

- Ca - Chancellor-Tetonka silty clay loams
- Cd - Chancellor-Viborg silty clay loams
- EaB - Egan silty clay loam, 3 to 6 percent slopes
- EcB - Egan-Chancellor silty clay loams, 0 to 4 percent slopes
- EwB - Egan-Worthing complex, 0 to 6 percent slopes
- HuA - Huntimer silty clay loam, 0 to 2 percent slopes
- Mh - Baltic silty clay loam, ponded
- Te - Tetonka silty clay loam
- WeA - Wentworth silty clay loam, 0 to 2 percent slopes
- WhA - Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes
- Ws - Worthing silty clay

Figure 4-3

Soils Map
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Locator Map

Legend

- Study Area
- Project ROW

Drawn By: JZ
Checked By: JK
Date: 12/16/2016
Project No. P1360(01)
PCN 03YF
Alternative 3 – Extension of 85th Street Over I-29 South of the Section Line

With Alternative 3, approximately 17.5 acres of farmland (cropland and pasture land) would be converted to road ROW. Majority of the converted farmland contain soils that are classified as prime farmland. Since prime farmland would be affected by the alternative, a Farmland Conversion Impact Rating Form AD-1006 was completed for Alternative 3 (See September 4, 2014 letter, Appendix C). Alternative 3 received a score of 136. With a score less than 160, the alternative would require no further coordination with the NRCS regarding prime farmland.

Indirect impacts would be similar to those discussed for Alternative 2.

4.1.3 Pedestrians and Bicyclists

4.1.3.1 Affected Environment

Sioux Falls has 80 city parks scattered throughout the city and approximately 28 miles of existing bicycle trails primarily located in the central part of the city (Sioux Falls 2015a; 2015b). Platinum Valley Park is located next to Harrisburg Elementary School approximately 0.5 mile northwest of the 85th Street / Louise Avenue intersection. The 85th Street corridor has been identified in the Sioux Falls Bicycle Plan as part of its long range bicycle trail plan (Sioux Falls 2015c)19. The Sioux Falls MPO 2040 Long-Range Transportation Plan (Sioux Falls 2015a) lists the 85th Street project from Sundowner Avenue to Tallgrass Avenue as a multimodal roadway project supporting the bicycle objective.

Currently, there are no sidewalks along 85th Street throughout the corridor. Pedestrians and bicyclists must walk/ride in the roadway or ditches.

4.1.3.2 Environmental Consequences

No Build Alternative

The No Build Alternative assumes no construction activities related to this project would occur related to the existing 85th Street corridor. Therefore, no new bicycle trails would be constructed along 85th Street and no existing parks or bike trails would be impacted. However, the 2015 Sioux Falls Bike Plan indicated a very high priority goal to develop a complete bicycle network through the addition of on-street and trail facilities (Sioux Falls 2015c). The No Build Alternative would negatively affect Sioux Falls ability to meet this goal.

Build Alternatives

No parks or bicycle trails are located adjacent to the construction zones associated with either build alternative. Therefore, construction of either build alternative design would not impact the

http://www.siouxfalls.org/bikeplan
existing bicycle trails and park system in Sioux Falls. However, both build alternative designs for the 85th Street corridor include 6-foot sidewalks on both sides of the roadway and bike lanes along both the eastbound and westbound lanes. Adding bicycle lanes and sidewalks to the upgraded 85th Street would assist Sioux Falls MPO in achieving its goal of accommodating all modes of traffic (Sioux Falls 2015a) and the Sioux Falls Bike Plan (Sioux Falls 2015c) goal of “complete street” designs that accommodate all forms of transportation within the ROW for all roadway projects. The Sioux Falls Comprehensive Plan (Sioux Falls 2016d) also includes multi-modal/complete street design for future roadway development.

The sidewalks would tie-in to existing sidewalks at Hughes Street and Louise Avenue, making the area safer for pedestrian by taking them out of the roadway. Although the bike lanes along 85th Street would not be directly connected to the existing trail system, the lanes would be in-place for future tie-in by future projects. Therefore, the build alternatives would have long-term positive impact for pedestrians and bicyclists.

4.2 SOCIAL

4.2.1 Population

4.2.1.1 Affected Environment

Sioux Falls has grown from 74,488 in 1970 to 153,888 in 2010 (Sioux Falls 2016d; United States Census Bureau [Census] 2010a)\(^{20}\). The population increased 12 percent between 1970 and 1980, increased 24, 23, and 24 percent during 1980s, 1990s, and 2000s, respectively. Sioux Falls had a positive net in-migration of almost 30,000 people from 2000 to 2010; a substantial increase from the almost 11,000 net in-migration from 1980 to 1990 (Sioux Falls 2016d). Based on the population growth trends, the primary social issues would be associated with travel patterns, housing, schools, and urban-rural interface.

The median age in Sioux Falls increased from 25.9 in 1970 to 32.0 in 2010 (Census 2010a). Between 1990 and 2000, the 40-64 age group increased 47 percent; the 5-19 age group grew by 24 percent, and the 20 to 39 age group grew by 11 percent. These increases reflect job growth and the net in-migration of new employees (Sioux Falls 2016d). Of the Sioux Falls population over 25 years of age, 90.9 percent are high school graduates and 32.0 percent are college graduates (Census 2010a). In comparison, within Lincoln County of the population over 25 years of age, 95.4 percent are high school graduates and 36.4 percent are college graduates (Census 2010b)\(^{21}\). The percent of high school graduates in both Sioux Falls and Lincoln County is substantially higher than the national average of 85.0 percent.


4.2.1.2 Environmental Consequences

No Build Alternative

The No Build Alternative involves no changes to the exiting 85th Street corridor related to this project. Therefore, the alternative would have no direct effect on the population or growth pattern of Sioux Falls. This portion of the Sioux Falls metropolitan area has been identified as an area of growth and this growth would occur even under the No Build scenario. As development from Sioux Falls and Tea continue to sprawl into the area, urban needs would push westward replacing rural features.

Build Alternatives

The build alternatives would have minor, direct effect on population and growth patterns along the 85th Street corridor and the surrounding western and southern sectors of Sioux Falls. As the area along 85th Street developments, population density in the vicinity would also increase. This effect could be perceived as either positive or negative depending on perspective. Some in the area may view further development as a negative impact due to increased traffic and development density. Additionally, they may view an influx of commercial development as detracting from the suburban experience. Others may view growth as providing opportunities for individuals and the community as a whole. The growth expected to occur in this area would be consistent with Sioux Falls and MPO development plans (Sioux Falls 2016b, 2016d).

As the area around 85th Street develops and the population of the area increases, development and population growth would spread further out from Sioux Falls. This would be an indirect impact of this project.

4.2.2 Minority and Low-Income Populations

4.2.2.1 Affected Environment

EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), dated February 1, 1994, directs Federal agencies to “make environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” Since the proposed project would receive federal funding and obtain federal permit(s), the project would need to comply with EO 12898.

Based on the 2010 Census, the population of Sioux Falls is 153,888 (Census 2010a). Whites comprise approximately 86.8 percent of the population. The three largest minority populations are Hispanic or Latino Race (4.4 percent), Black or African American (4.2 percent), and American Indian/Alaska Native (2.7 percent) (Census 2010a). In comparison, Lincoln County in 2010 was reported to have a population of 46,793 of which 96 percent were White, 0.7 percent were Black or African American, 0.7 percent were American Indian/Alaska Native, 1.1 percent were Asian, and 1.4 percent were Hispanic or Latino Race (Census 2010b).
According to the 2010 census data, 11.1% and 5.1% of the individuals in Sioux Falls and Lincoln County, respectively, have incomes that are below established poverty levels (Census 2010a; 2010b). Both percentages are well below the national average. The census tracts within the study area were checked to determine if the information for Lincoln County and Sioux Falls were representative of the study area. No minority population was identified in the study area and the percentage of people living below the poverty was similar to the percentage reported for Lincoln County and Sioux Falls (Census 2010a; 2010b).

In the study area, approximately 25 single-family houses are located along the north side of 85th Street between Sundowner Avenue and approximately 0.5 mile west of Louise Avenue. A neighborhood containing multi and single-family residences is located north and south of 85th Street just west of Louise Avenue on 85th Street. An apartment complex is located in the southwest corner of the Louise Avenue and 85th Street intersection. Based on information from the Lincoln County Assessor’s Website (Lincoln County 2012) and the 2010 Census (Census 2010b), the 85th Street corridor would not be considered a low-income area.

### 4.2.2.2 Environmental Consequences

**No Build Alternative**

There would be no potential impacts to low-income and/or minority populations with the No Build Alternative because no construction activities related to this project would occur.

**Build Alternatives**

The 85th Street corridor is not considered a low-income area and no minority populations are located in the study area. Therefore, neither build alternative would have a direct adverse impact on these populations. Extending 85th Street across I-29 would improve travel for citizens in southwest Sioux Falls and portions of Lincoln County, including areas with concentrations of low-income and minority populations. Travel would be improved by providing connectivity and increasing roadway capacity within this corridor. The improved travel would be considered a positive impact.

### 4.2.3 Community Cohesion

#### 4.2.3.1 Affected Environment

Community cohesion is the unity or identity that a group of inhabitants of a common geographic area gains as a result of their close proximity and common goals and objectives. This includes, and may be a result of, participation in public or community groups, or use of facilities (such as libraries, schools, or places of worship) by the residents of an area. Community cohesion is affected by access to these facilities, especially for pedestrians, school-aged children, and the elderly.

---

Table 4-2 lists the public resource facilities within 0.25-mile of the 85th Street project.

These facilities are all located toward the eastern end of the project area. There are no public resources located along the 85th Street corridor. Additionally, there are no health care facilities, libraries, post offices, and police/fire stations located within 0.25-mile of the project.

Table 4-2: Public Resource Facilities Within 0.25-mile of the Project Boundaries

<table>
<thead>
<tr>
<th>Facility</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td></td>
</tr>
<tr>
<td>Harrisburg Explorer Elementary</td>
<td>4010 W 82nd Street</td>
</tr>
<tr>
<td>Heidelberg Theological Seminary</td>
<td>7301 S Louise Avenue</td>
</tr>
<tr>
<td>Churches</td>
<td></td>
</tr>
<tr>
<td>Trinity Reformed Church-RCUS</td>
<td>7301 S Louise Avenue</td>
</tr>
<tr>
<td>Living Word Free Lutheran Church</td>
<td>7901 S Meredith Avenue</td>
</tr>
<tr>
<td>Daycares</td>
<td></td>
</tr>
<tr>
<td>Jack-N-Jill Family Daycare</td>
<td>4005 W 83rd Street</td>
</tr>
<tr>
<td>Parks/Recreational Facilities</td>
<td></td>
</tr>
<tr>
<td>Platinum Valley Park</td>
<td>Near Harrisburg Explorer Elementary School</td>
</tr>
</tbody>
</table>

4.2.3.2 Environmental Consequences

No Build Alternative

No construction activities related to this project would occur with the No Build Alternative. Scheduled maintenance on the existing roadway would continue. The No Build Alternative would not separate or isolate any distinct neighborhoods, ethnic groups, or other specific groups. The No Build Alternative would have no impact on the current conditions.

Build Alternatives

Currently, 85th Street includes a mix of gravel and paved roadway; however, these sections do not have shoulders or sidewalks. Existing land use in the project area is primarily single-family housing and agricultural fields. Displacements/relocations for the project area would occur only west of I-29. Alternative 2 would take 2 structures, all related to occupied, single-family residences. The displacements would occur outside an established neighborhood. Alternative 3
would take only property, no structures. Additionally, east of I-29, no structures would need to be acquired for either build alternative. Acquisitions and Relocations are discussed in detail in Section 4.2.4.

The project would not restrict access to any existing public or community services, businesses, or commercial areas. In the long-term, the community would benefit from the proposed project through improved mobility for the area. The proposed project would include the construction of sidewalks and bike lanes along the corridor. These components would ultimately enhance safety for cyclists and pedestrians throughout the project area. The increased mobility for pedestrians and cyclists would also improve community cohesion. Additionally, the build alternatives would provide improved access to both sides of I-29 in the southwestern Sioux Falls metro area. The increased access would help improve community cohesion.

The proposed project would not affect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups. The proposed project would not discourage or provide disincentives to commercial, industrial, or residential development. None of the schools, places of worship, other public resource facilities, or parks discussed in this section would be displaced as a result of the proposed project. The proposed project would not divide, separate, or isolate any neighborhood or community; therefore, community cohesion would likely remain intact. The Build Alternatives would not bisect any communities that are not already bisected by the existing corridor and would not sever or alter the social interaction of the communities along the corridor.

The project could have a positive impact on travel patterns of police, fire protection, or emergency medical services within the project area by providing a connection across I-29 in the southwestern portion of the Sioux Falls metro area.

The wider roadway would require pedestrians and motorists to traverse additional travel lanes when crossing 85th Street. One side street that is currently used by pedestrians is Hughes Avenue, which serves as a main corridor for students attending Harrisburg Explorer Elementary. The Hughes Avenue intersection is approximately 0.25 mile from the Louise Avenue intersection and as such is a candidate for future traffic signal control. As the project moves forward into final design a signal warrant analysis would need to be completed for all potential signalized intersections along the 85th Street corridor.

During construction there would be short-term restrictions for access points and side street intersections along the 85th Street corridor. Due to the importance of the Hughes Avenue intersection for pedestrian traffic the construction schedule would need to be developed to avoid closures for pedestrians during the school year.

As the land surrounding the project area develops and new schools are added, the district lines could be redrawn changing the school which a student attends. This would be a negative indirect impact on community cohesion for the existing community. However, new communities would develop over time based on the new school districts.
4.2.4 Acquisition and Relocation

Relocation of residences to accommodate purchase of new ROW and subsequent construction of new roadway segments is an unavoidable consequence of reconstructing transportation systems in urban areas. In some instances, displacement would involve only a portion of an existing property. In other instances, it would involve the entire property. Temporary construction easements are also needed. Impacts, whether positive or negative for a particular piece of property, could include influences on free market prices that might be paid for certain properties and could make renting or leasing certain properties easier or more difficult. The positive and negative impacts cannot be quantified due to the number of variables that influence property values such as economy, ease of access, condition of property, unemployment rate, and demand for housing. Though the type of buyers attracted to this area may change as a result of this project, it is unlikely property values would be negatively affected due to the growth and low unemployment rate currently experienced within the Sioux Falls metropolitan area.

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

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

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

4.2.4.1 Affected Environment

Twenty-two single family houses are located along the north side of 85th Street between Sundowner Avenue and approximately 0.5 mile west of Louise Avenue. A neighborhood containing multi-and single family residences is located north and south of 85th Street just west of Louise Avenue on 85th Street. An apartment complex is located in the southwest corner of the Louise Avenue and 85th Street intersection. Recent developments within the project area include the development of townhome complexes on the north and south sides of 85th Street west of Brett Avenue. Additionally, two single family residences have been removed on the north side of 85th Street west of I-29 (personal communication; Shannon Ausen, City of Sioux Falls and Jim Kollbaum, URS, November 16 and 22, 2016).

4.2.4.2 Environmental Consequences

The types and amounts of property impacts associated with each of the build alternatives are provided in Table 4-3. The parcels with property impacts are shown on Figures 4-4 and 4-5 for Alternatives 2 and 3, respectively. Specific impacts associated with each alternative are discussed below. Additional information related to the ROW and construction easement impacts was provided earlier in Section 4.1.1.

Table 4-3: Properties Affected By Build Alternatives

<table>
<thead>
<tr>
<th>Type of Property Impact</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisitions / Relocations (parcels)</td>
<td>4 Residential Parcels</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>(2 occupied single family residences)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2 unoccupied parcels)</td>
<td></td>
</tr>
<tr>
<td>Right of Way (acres)</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>Construction Easements (acres)</td>
<td>7</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Alternative 1 – No Build

With the No Build Alternative, 85th Street would not be extended; therefore, no additional ROW would be required and no structures or land would need to be acquired or relocated.

Alternative 2 – Extension of 85th Street Over I-29 on Section Line

This alternative would result in the acquisition of four residential parcels located north of 85th Street and west of I-29. A total of two structures located on two residential parcels would need to be acquired for this alternative. The ROW required for the bridge embankment would either directly impact the residences or not allow room for access to the homes. The other two parcels currently have no structures and would be limited to acquisition of the parcel. Figure 4-4 shows the location of these potential acquisitions in red.
**Figure 4-4** also shows the other parcels that would be impacted by easement and ROW requirements. These parcels would be only partial acquisitions. The easement parcels would have a temporary impact, limited to the duration of construction. These parcels are noted as green in **Figure 4-4**. The ROW parcels would have a permanent impact. None of these parcels would be impacted in their entirety. In addition, no structures would be impacted; however, the need for additional ROW would acquire approximately 2 to 10 feet of the existing front yards and bring traffic closer to the homes. These ROW parcels are noted in yellow on **Figure 4-4**. The resulting distance between the proposed roadway edge of the outside travel lane to the adjacent homes is shown on **Figure 3-3**. All acquisitions would comply fully with the Uniform Act.

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

Several billboards located in the vicinity of 85th Street and I-29 may require temporary relocation outside of the proposed construction easement. Owners of the billboards would be contacted, as necessary, to relocate the billboards. When construction is completed, the billboards would be returned to their previous locations.

**Alternative 3 – Extension of 85th Street Over I-29 South of the Section Line**

This alternative would not require the acquisition of any structures. However, partial acquisition of parcels would be required for the additional ROW and construction easements. **Figure 4-5** shows the parcels that would be impacted by easement and ROW requirements. The easement parcels would have a temporary impact, limited to the duration of construction. These parcels are noted in green on **Figure 4-5**. The ROW parcels would have a permanent impact and are shown in yellow on **Figure 4-5**. None of these parcels would be impacted in their entirety and no structures would be impacted; however, the need for additional ROW would acquire a portion of the front yards. West of I-29, the property acquisition for the first six parcels is needed for the bridge embankment and ROW. Traffic for these six parcels would be further away than it is currently. For the next five parcels (moving west), the 85th Street alignment would be back on the section line and traffic would be closer to the homes.

Similarly, ROW and easement impacts east of I-29 are shown on **Figure 4-5** in green and yellow. The alignment of 85th Street in the vicinity of existing residences would bring traffic closer to the homes. These impacts would be the same as those discussed under Alternative 2.

All acquisitions would comply fully with the Uniform Act.

Impacts to billboards would be the same as those discussed under Alternative 2.
4.2.5 Public Facilities and Services

4.2.5.1 Affected Environment

Public facilities include but are not limited to government buildings, schools, libraries, hospitals, and roadways. Public facilities located in or near the study area include:

- Harrisburg Explorer Elementary, and
- Heidelberg Theological Seminary.

Public services include police, fire, emergency services, and sheriff’s department. None of these services has a facility located within the study area. Parks are discussed in Section 4.1.4. Public services also include utilities such as electricity, natural gas, cable, internet, and telephone. Utility suppliers in the study area include Southeastern Electric, Lincoln County Rural Water, Lewis and Clark Regional Water, Century Link/Qwest, Midcontinent Communications, South Dakota Network (SDN), Sioux Falls, WOW/Knology, Xcel Energy, Prairie Wave, and MidAmerican Energy.

Utility Coordination Meetings were held on August 11, 2013 and May 28, 2014. A summary of these meetings is provided in Appendix C. An additional Utility Coordination Meeting would be organized by Sioux Falls and the SDDOT prior to any construction activities to verify utility locations. Below is a description of utility features located in the 85th Street study area based on a utility survey and the coordination meetings.

- Lincoln County Rural Water services northern Lincoln County and has a waterline crossing the study area on the north side of 85th Street. Utility signs were noted in the northeast corner of Sundowner Avenue and 85th Street and on the north side of 85th Street at I-29.
- PrairieWave has a fiber optic cable located near the corner of Sundowner and 85th Street.
- Lewis and Clark Regional Water has a 36-inch waterline crossing the study area on the south side of 85th Street from Sundowner Avenue east toward Louise Avenue. It should be noted Lewis and Clark Regional Water coordinated the current alignment of this waterline with the SDDOT and Sioux Falls to avoid the likely alignment of a future 85th Street overpass. At the time of the coordination effort, the parties agreed the most likely 85th Street alignment would follow the section line and the waterline was located to the south of 85th Street to avoid this alignment. The Alternative 3 alignment overlaps the waterline alignment.
- Sioux Falls has plans to install a new water line crossing under I-29 near the Lewis and Clark Regional Water line along the south side of 85th Street and to install a new sanitary sewer line crossing under I-29 in the area between 85th Street and the I-29/I-229 interchange.
- Century Link/Qwest provides high speed internet, cable television, and telephone service to the study area. The company has both copper and fiber lines in the study area. There is a toll fiber on private easement along the west side of I-29 southbound from the Tea Interchange to 69th Street. In addition, CenturyLink/Qwest has a buried cable located in the northeast corner of the Sundowner/85th Street intersection. Qwest survey flags were noted in the southeast corner of Tallgrass Avenue and 85th Street.
Potential Acquisitions Associated with Build Alternative 2
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Legend
- Study Area
- No ROW or Easement Impacts
- Temporary Easement Impacts
- ROW and Easement Impacts
- Complete Parcel Take

Figure 4-4
Figure 4-5

Potential Acquisitions Associated with Build Alternative 3
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Legend
- Study Area
- No ROW or Easement Impacts
- Temporary ROW and Easement Impacts
- ROW and Easement Impacts
- Complete Parcel Take

Project No. P1360(01)
PCN 03YF

Drawn By: JZ
Checked By: JK
Date: 12/16/2016

Locator Map

Sioux Falls
Brandon
Tea
Lennox

0 750 1500 3000 Feet
SDN, a partnership of 27 independent telecom providers, has fiber optic cable located along the east side of I-29 from the Tea Interchange to I-229.

Xcel Energy has an overhead power line running along the east side of I-29 northbound from approximately Tea Interchange to 85th Street. At 85th Street, the line turns east to run along the south side of 85th Street.

WOW, also known as Knology, provides high speed internet, cable television and phone service to the Sioux Falls area. The company has a 2-inch fiber cable running north along the west side of I-29 from north of the Tea Interchange to approximately 57th Street.

CenturyLink/Qwest, WOW/Knology, SE Electric, MidAmerican, and Midcontinent survey flags were located on the west side of I-29 at the 85th Street. Utility meter boxes are also located in this area.

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

### 4.2.5.2 Environmental Consequences

#### No Build Alternative

The No-Build Alternative would not impact any of the public facilities or public utilities in the vicinity of the study area.

#### Build Alternatives

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

Multiple utilities are located within the existing ROW of 85th Street. Based on the build alternative selected and final design, several of these utilities would likely have to be relocated within the new ROW or into a new utility easement. The relocation of utilities would be a short-term negative impact associated with the build alternatives. This impact would be considered a common impact associated with roadway and other development projects. For Build Alternative 3, the Lewis and Clark water pipeline would need to be relocated, which would require additional construction activities and relocating this utility even though they had already spent considerable effort in coordinating with the SDDOT and Sioux Falls previously. This would be an additional negative impact associated with Alternative 3.

SDDOT and Sioux Falls would coordinate with the utility companies about specific utility relocations prior to construction activities. During construction, the public would be informed of any service interruption prior to the loss of service. Interruptions would be temporary and minimized to the extent possible.
Emergency services would be accommodated through construction at all times, but response times along 85th Street could be negatively impacted during construction activities. This impact would be limited to the area in the immediate vicinity of the construction zone. Post-project, emergency response times in southwest Sioux Falls and northern Lincoln County would be shortened due to better access across I-29 and improvements to LOS (see Section 4.6). This would be positive long-term impact associated with the project.

4.3 ECONOMICS

4.3.1 Income and Employment

4.3.1.1 Affected Environment

Sioux Falls has experienced a steady growth of population, combined with an increase in land acquisition and development. As growth continues, commuter demands on existing and new roadway systems would continue to increase in the future. Sioux Falls’ growth can be attributed to a number of reasons. The Sioux Falls Metropolitan Statistical Area (MSA) is the largest and fastest-growing labor market area in the state of South Dakota. Between 2000 and 2008, approximately 18,000 new jobs were created in Sioux Falls (Sioux Falls 2016d). New employment opportunities continue to be created in many industries, including the following growth areas:

- Finance
- Health care and other services
- Retail/wholesale trade
- Construction and mining

Non-farm employment in the Sioux Falls MSA grew 13 percent from 2000 to 2008. Employment in the finance industry grew by 34 percent from 2000 to 2008, making it the fastest growing area of employment. The services sector and the construction and mining sector also grew more rapidly than the rate for total employment during the same period, increasing 21 and 20 percent, respectively. The wholesale and retail trade sector increased by 1.5 percent from 2000 to 2008 (Sioux Falls 2016d).

Continued expansion of employment opportunities in Sioux Falls is expected to sustain the level of in-migration seen during the last two decades. Projections assume the national trend of large employers relocating or expanding into medium-sized Midwestern cities recognized as safe, clean communities with a high quality of life will continue. Additionally, South Dakota’s favorable tax climate is anticipated to remain a primary competitive advantage supporting further employment opportunities (Sioux Falls 2016d).

The annual per capita income for Sioux Falls and Lincoln County residents is $27,997 and $33,958, respectively. The annual median family income for Sioux Falls and Lincoln County are $51,831 and $70,043, respectively (Census 2010a; 2010b). The values for Sioux Falls are similar
to the national averages. The values for Lincoln County are slightly higher than the national average.

4.3.1.2 Environmental Consequences

**No Build Alternative**

Under the No-Build Alternative, income and employment opportunities would remain similar to existing conditions and changes would be in response to development activity in the surrounding area.

**Build Alternatives**

Regardless of which Build Alternative is implemented, Sioux Falls is projecting to continue to grow in employment opportunities and population, similar to the growth in recent years. Specifically, the project area is zoned for commercial/mixed use growth (Lincoln County 2016; City of Tea 2011).

During construction, residents, businesses and visitors would likely encounter temporary impacts to economic resources including nominally increased travel times for brief durations. However, access to vital resources would be maintained throughout the construction period; therefore, impacts are expected to be minimal and short-lived.

Sioux Falls and Lincoln County would experience a short-term beneficial economic impact due to the purchase of goods and services during the construction of any of the build alternatives. Post-construction, the extension of 85th Street over I-29 would provide additional connectivity in the area and may hasten development in the area. There is a potential for long-term economic benefit to Sioux Falls if the upgraded transportation system aides in the recruitment of businesses and associated jobs to the area. Additionally, development along 85th Street could provide an economic benefit to those currently living along the roadway, as their properties may become more desirable for development.

4.3.2 Tax Base

4.3.2.1 Affected Environment

Sources of revenue for Lincoln County include general property taxes and revenue shared from the State of South Dakota. In 2015, current general property taxes produced approximately $10 million for Lincoln County. The taxable value of Lincoln County in 2015 was more than $4.7 billion. This includes over $600 million in agricultural valuation, nearly $3 billion in owner-occupied valuation, and over $1 billion in other valuation (South Dakota Department of Revenue 2015)\(^{23}\).

---

\(^{23}\) South Dakota Department of Revenue. 2015. 2015 Annual Report.  
4.3.2.2 Environmental Consequences

No-Build Alternative

Under the No-Build Alternative, the tax base would remain similar to existing conditions and change in response to development activities.

Build Alternatives

The tax base would decrease with both Build Alternatives because of the acquisition of residences for conversion of land to non-taxable ROW. However, the overall impact on the Study Area would be minimal because the maximum loss in revenue would be less than 0.01 percent of the total county revenue. A long term positive impact on the tax base would occur if development of the area occurs, especially commercial development.

4.4 VISUAL QUALITY/AESTHETICS

4.4.1 Affected Environment

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

4.4.2 Environmental Consequences

No Build Alternative

Much of the area located along 85th Street is predicted to develop in the future (Sioux Falls 2016d). As this development occurs, the viewshed would be changed from a rural setting to an urban setting which is consistent with planned commercial development for the area. This development and resulting change in the viewshed is not dependent on the extension and upgrade of 85th Street.

Build Alternatives

During the construction of either build alternative, the viewshed would be temporarily altered by construction activities and construction equipment. The bridge structures for both build alternatives would add a new built feature to the general viewshed resulting in a minor change to the visual aesthetics of the area. Although the build alternatives would occupy a larger footprint, the overall viewshed would not be markedly impacted. Modifications associated with the build alternatives would occur adjacent to existing transportation corridors and would be typical for this type of roadway project.

The indirect residential and commercial development projected to occur in the surrounding areas would present a greater change in the viewshed than the proposed roadway changes. The area
SECTION FOUR

Affected Environment and Environmental Consequences

available for development is generally zoned commercial and mixed use. The rate of
development would likely occur faster with the completion of the project due to improved access
to the area.

4.5 AIR QUALITY

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

4.5.1 Affected Environment

The United States Environmental Protection Agency (USEPA) delegated the protection of the
ambient air quality in South Dakota to the South Dakota Department of Environment and Natural
Resources (SDDENR) in 1972. The SDDENR adopted the federal air pollution control
regulations by reference and these are shown in Table 4-4 (SDDENR 2016a)\(^\text{24}\). As part of
the state’s program, the SDDENR operates a network of air monitoring samplers. The samplers
determine the existing concentrations of regulated pollutants for different areas in the state.
Currently, Sioux Falls and Lincoln County are considered attainment areas for all of the
regulated air pollutants, meaning entities are in compliance with all of the NAAQS
(USEPA 2016)\(^\text{25}\).

4.5.1 Environmental Consequences

4.5.1.1 No Build Alternative

No construction activities related to this project would occur with the No Build Alternative. The
area surrounding the 85\(^{th}\) Street corridor, primarily zoned commercial, would develop and traffic
volumes in the area would increase from this local development. The increased traffic volumes
would have the potential to result in localized air quality impacts related to vehicle exhaust,
especially during AM and PM peak hours. However, no long-term major impacts are anticipated
with the No Build Alternative and no air quality standards would be violated.

\(^{24}\) South Dakota Department of Environment and Natural Resources (SDDENR). 2016a. Air Quality Program. Ambient

Table 4-4: National Ambient Air Quality Standards

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur Dioxide</td>
<td>Annual (1)</td>
<td>0.03 ppm</td>
</tr>
<tr>
<td></td>
<td>Twenty Four Hour (1)</td>
<td>0.14 ppm</td>
</tr>
<tr>
<td></td>
<td>One Hour</td>
<td>0.075 ppm</td>
</tr>
<tr>
<td>Particulates (PM10)</td>
<td>Twenty Four Hour(1)</td>
<td>150 µg/m³</td>
</tr>
<tr>
<td>Particulates (PM2.5)</td>
<td>Annual</td>
<td>12 µg/m³</td>
</tr>
<tr>
<td></td>
<td>Twenty Four Hour</td>
<td>35 µg/m³</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>One Hour (1)</td>
<td>35 ppm</td>
</tr>
<tr>
<td></td>
<td>Eight Hour (1)</td>
<td>9 ppm</td>
</tr>
<tr>
<td>Ozone</td>
<td>Eight Hour</td>
<td>0.070 ppm</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>Annual</td>
<td>0.053 ppm</td>
</tr>
<tr>
<td></td>
<td>One Hour</td>
<td>0.100 ppm</td>
</tr>
<tr>
<td>Lead</td>
<td>Three Month Arithmetic Mean</td>
<td>1.5 µg/m³</td>
</tr>
</tbody>
</table>

(1) Not to be exceeded more than once per year.
ppm = Parts of pollutant per million parts of air (by volume) at 25° Celsius.
µg/m³ = Micrograms of pollutant per cubic meter of air.
Source: SDDENR 2016a

4.5.1.2 Build Alternatives

The SDDENR indicated in a letter dated November 7, 2013 (Appendix C) that SDDOT projects could have a minor impact on air quality through point source and fugitive emissions. During construction, the build alternatives would have temporary, minor impacts on air quality relating to increased dust levels and vehicle exhaust. Any adverse impacts would be short-term and localized, and no permit would be required. However, if dust were to become a problem, the contractor would be required to implement dust control procedures (i.e., water down the work area). Even with higher traffic volumes in the future, no long-term major impacts are anticipated with either build alternative and no air quality standards would be violated.

4.6 NOISE

Sound is the sensation produced in the ears when the movement of an object creates waves of air. The relative impact of sound waves depends on the amount of pressure they generate. The unit of measure for sound pressure is the decibel (dB). Decibels are based on a logarithmic scale because the range of sound pressures is too great to be accommodated on a linear scale.

The measured noise level from a given source does not necessarily correspond to our perception of “loudness”. For instance, a three dB increase from a noise source represents a doubling of the noise level (as measured in sound pressure) on the logarithmic scale. However, this change is barely perceptible for human beings. Furthermore, an increase in 10 dBs from a noise source is a tenfold increase in noise pressure, but is only perceived as a doubling in the loudness by the human ear.

Noise is generally regarded as unwanted sound. Man-made noise is everywhere, from the busiest urban centers to the most remote national park. Excessive noise can interfere with sleep,
work, recreation, and health. One of the major contributors of noise in society is highway or traffic noise.

### 4.6.1 Affected Environment

For traffic noise analysis, the FHWA has specified that noise be predicted and evaluated in dBS weighted with the A-level frequency response; this unit of measure is referred to as dBA. Measurements in dBA incorporate a human’s reduced sensitivity to both low frequency and very-high frequency noises to better correlate with our subjective impression of loudness. **Table 4-5** displays noise levels common to our everyday activities.

**Table 4-5: Common Noise Levels**

<table>
<thead>
<tr>
<th>Common Outdoor Noise Levels</th>
<th>Noise Level (dBA)</th>
<th>Common Indoor Noise Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jet Flyover at 1,000 feet</td>
<td>110</td>
<td>Rock Band</td>
</tr>
<tr>
<td>Diesel Truck at 50 feet</td>
<td>100</td>
<td>Inside Subway Train</td>
</tr>
<tr>
<td>Noisy Urban Daytime</td>
<td>90</td>
<td>Food Blender at 3 feet</td>
</tr>
<tr>
<td>Gas Lawn Mower at 100 feet</td>
<td>80</td>
<td>Garbage disposal at 3 feet</td>
</tr>
<tr>
<td>Commercial Area</td>
<td>70</td>
<td>Vacuum Cleaner at 10 feet</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>Normal Speech at 3 feet</td>
</tr>
<tr>
<td>Quiet Urban Daytime</td>
<td>50</td>
<td>Large Business Office</td>
</tr>
<tr>
<td>Quiet Urban Nighttime</td>
<td>40</td>
<td>Dishwasher Next Room</td>
</tr>
<tr>
<td>Quiet Suburban Nighttime</td>
<td>30</td>
<td>Small Theater</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>Library</td>
</tr>
<tr>
<td>Quiet Rural Nighttime</td>
<td>20</td>
<td>Bedroom at Night</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Broadcast &amp; Recording Studio</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Threshold of Hearing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 dBA = decibels weighted with the A-level frequency response</td>
</tr>
</tbody>
</table>

The amount of traffic noise exposure would vary from location-to-location throughout a roadway corridor. Three general concepts that affect the level of traffic noise exposure along a roadway corridor are:

- **Traffic characteristics**: Noise levels increase as traffic volumes or travel speeds increase. For example, a doubling of the traffic volumes (holding the relative composition of traffic constant) on a roadway would double the sound levels from the roadway, an increase of three dBAs. The mix/composition of the vehicles (portion of trucks, cars, buses, and motorcycles) also affects noise levels; heavy trucks emit more noise than automobiles.

- **Distance to the noise source**: Noise levels decrease as the distance between the noise receiver and the highway traffic increases. For instance, someone standing 200 feet from a
roadway would be exposed to twice the level of noise, or three more dBA, than someone standing 400 feet away from a roadway.

- **Line of sight between the noise source and the noise receiver**: Noise levels are highest when there is a direct line of sight, without obstructions, between the source of the noise and the noise receiver. Objects that block the line of sight between the noise source and receiver would reduce noise levels to some extent. Solid, continuous obstructions (whether man-made or natural) can act to greatly reduce noise levels, often between 5 and 10 dBA.

23 CFR Part 772 includes FHWA’s procedures for noise studies and noise abatement measures. 23 CFR 772 contains noise abatement criteria (NAC), which are based on the equivalent level (Leq) noise descriptor. The noise levels experienced by most persons adjacent to a roadway corridor are not steady over time, since noise levels vary as adjacent traffic conditions vary. The L_{eq}(h) is a descriptor that summarizes a “snapshot” sound level that is equivalent (in terms of acoustic energy) to the varying noise levels experienced over the peak traffic noise hour.

**Table 4-6** documents the desired upper limits of Leq(h) by activity category, as established by the NAC. At a sensitive noise receiver, any noise levels that approach or exceed these criteria would not be desirable and would be categorized a noise impact.

The NAC specified in the SDDOT Noise Analysis and Abatement Guidance (SDDOT 2011) outlines the SDDOT’s program to implement the FHWA noise standards found at 23 CFR 772. The SDDOT noise guidance states that a sound level is considered to approach the NAC level when the Leq(h) sound level is 1 dBA less than the NAC identified in 23 CFR 772 (SDDOT 2011). This means that a peak hour noise level of 66 dBA is considered to approach the NAC of 67 dBA, but 65 dBA does not. The SDDOT noise guidance defines a noise increase as substantial when the predicted traffic noise levels with project implementation exceed existing noise levels by 15 dBA.

This project would expand the roadway footprint and add capacity to 85th Street. These improvements would result in the project being classified as a Type I project according to the SDDOT Noise Analysis and Abatement Guidance. Sioux Falls follows FHWA and SDDOT guidelines when assessing potential noise impacts associated with roadway projects.

Land use in the study area was field verified in April 2014 and updated in November 2016.
### Table 4-6: Noise Abatement Criteria, Hourly A-Weighted Sound Level

<table>
<thead>
<tr>
<th>Activity Category</th>
<th>Activity Criteria2</th>
<th>Evaluation Location</th>
<th>Description of Activity Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>( L_{eq}(h) = 57 )</td>
<td>Exterior</td>
<td>Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.</td>
</tr>
<tr>
<td>B(^3)</td>
<td>( L_{eq}(h) = 67 )</td>
<td>Exterior</td>
<td>Residential.</td>
</tr>
<tr>
<td>C(^3)</td>
<td>( L_{eq}(h) = 67 )</td>
<td>Exterior</td>
<td>Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, radio studios, recreation areas, and schools.</td>
</tr>
<tr>
<td>D</td>
<td>( L_{eq}(h) = 52 )</td>
<td>Interior</td>
<td>Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, radio studios, and schools.</td>
</tr>
<tr>
<td>E(^3)</td>
<td>( L_{eq}(h) = 72 )</td>
<td>Exterior</td>
<td>Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.</td>
</tr>
<tr>
<td>F</td>
<td>( L_{eq}(h) = --- )</td>
<td>Exterior</td>
<td>Agriculture, airports, bus yards, emergency services, industrial, maintenance facilities, manufacturing, retail facilities, and utilities.</td>
</tr>
<tr>
<td>G</td>
<td>( L_{eq}(h) = --- )</td>
<td>---</td>
<td>Undeveloped lands that are not permitted.</td>
</tr>
</tbody>
</table>

1 Either \( L_{eq}(h) \) or \( L_{10}(h) \) (but not both) may be used on a project.
2 The \( L_{eq}(h) \) and \( L_{10}(h) \) Activity Criteria values are for impact determination only, and are not design standards for noise.
3 Includes undeveloped lands permitted for this activity.

\( L_{eq}(h) = \) hourly value of the equivalent steady-state sound level

\( L_{10}(h) = \) hourly value of the sound level exceeded 10 percent of the time

4.6.2 Environmental Consequences

A traffic noise study was completed for the proposed study area as part of a larger study area and is included in Appendix D. For consistency with the noise study, the numbering system used in the noise study has been retained for the project assessment. However, only those aspects of the noise study pertinent to the 85th Street corridor are discussed in this EA.

The noise analysis for the larger study included a total of five short-term (15 to 30 minutes) noise measurement locations (ST1-ST5). Of those five locations, two were located within the 85th Street corridor (ST4 and ST5). Within the 85th Street corridor there are 199 predicted receptors representing 248 individual noise sensitive dwelling units. In order to simplify the reporting of noise levels, noise impacts, noise mitigation, and adherence with preferred SDDOT analysis methodology, the 85th Street study area receptors were organized into 8 separate Noise Sensitive Areas (NSAs) (NSA 7 through NSA 13) shown in Figure 4-6. NSAs 1 through 6 are located outside the 85th Street corridor and not discussed in this document. The short-term measurement locations are also shown on Figure 4-6.
Existing noise levels were predicted to determine the extent of the noise impact relative to the project edge of roadway (SDDOT requires analysis out to 300 feet unless impacts are predicted to exist beyond that limit). Future Year 2038 noise levels were modeled for the Future Build scenario using standard FHWA and SDDOT methodologies. The predicted Future Build levels were compared to the existing noise conditions and evaluated for potential impacts as defined by FHWA and SDDOT criteria. Table 4-7 presents a summary of each NSA in the study area along with its associated FHWA/SDDOT noise impact, land use, Activity Category, NAC, number of predicted receptor locations, number of representative equivalent units (dwelling units) and estimated existing noise level.

Table 4-7: Summary of Identified Noise Sensitive Areas (NSAs)

<table>
<thead>
<tr>
<th>NSA</th>
<th>Land Use</th>
<th>Activity Category</th>
<th>NAC (Leq, dBA)</th>
<th>Predicted Locations</th>
<th>Represented Equivalent Units</th>
<th>Existing Level Leq(1h), dBA (Range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Residential</td>
<td>B</td>
<td>66</td>
<td>10</td>
<td>7</td>
<td>49-63</td>
</tr>
<tr>
<td>8</td>
<td>Residential</td>
<td>B</td>
<td>66</td>
<td>4</td>
<td>4</td>
<td>51-56</td>
</tr>
<tr>
<td>9</td>
<td>Residential</td>
<td>B</td>
<td>66</td>
<td>21</td>
<td>24</td>
<td>44-55</td>
</tr>
<tr>
<td>10</td>
<td>Residential</td>
<td>B</td>
<td>66</td>
<td>38</td>
<td>38</td>
<td>44-55</td>
</tr>
<tr>
<td>11</td>
<td>Residential</td>
<td>B</td>
<td>66</td>
<td>32</td>
<td>32</td>
<td>44-55</td>
</tr>
<tr>
<td>12A</td>
<td>Residential</td>
<td>B</td>
<td>66</td>
<td>47</td>
<td>77</td>
<td>32-55</td>
</tr>
<tr>
<td>12B</td>
<td>Residential</td>
<td>B</td>
<td>66</td>
<td>13</td>
<td>13</td>
<td>43-55</td>
</tr>
<tr>
<td>13</td>
<td>Residential</td>
<td>B</td>
<td>66</td>
<td>34</td>
<td>53</td>
<td>44-55</td>
</tr>
</tbody>
</table>

1 See Table 4-6

dBA = decibels weighted with the A-level frequency response

Leq = equivalent level noise descriptor

NSA = Noise Sensitive Area

Noise levels were predicted for all receptor locations for the Future Build scenario using the FHWA Traffic Noise Model, Version 2.5, the most recent version available. Predictions assumed worst case hourly equivalent noise levels (1-hour Leq, dBA) using projected peak-hour design year traffic volumes and speeds. The highest predicted future noise levels for each NSA (among the range of noise levels for each NSA), are summarized in Table 4-8.

The SDDOT noise guidance defines a traffic noise impact under two separate conditions: 1) when the future predicted traffic noise level approaches or exceeds the SDDOT NAC, or 2) when the future predicted traffic noise level creates a substantial increase of 15 dBA over existing noise levels. NAC values vary depending on land use, but are generally either 66 dBA (1-hr Leq, exterior) for residential, institutional, and outdoor active use areas; or 71 dBA (1-hr Leq, exterior) for noise sensitive commercial areas, (including hotels and offices with exterior use areas). NAC values for each NSA are indicated in Table 4-7. A summary of all predicted noise impacts (NAC or substantial increase) for each of the identified NSAs is presented in Table 4-8 and shown on Figures 4-7 and 4-8.
Traffic Noise Future Build Results
NSAs 7 and 8
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Figure 4-7
Figure 4-8

Traffic Noise Future Build Results
NSAs 9 through 13
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Legend

Modeled Receptors

- Impacted
  - Impacted, Benefited
  - Impacted, Not Benefited
  - Impacted, Design Goal Achieved

- Not Impacted
  - Not Impacted, Benefited
  - Not Impacted, Not Benefited
  - Not Impacted, Design Goal Achieved

- Demolished
- Road
- Noise Sensitive Area
- Project End Line
- Match Line
- Analyzed Barrier - Recommended
- Existing Barrier
- Analyzed Barrier - Not Recommended
- Buildings

Locator Map

Project No.
PCN 03YF
P000(01)

Date:
10/13/2017

Figure 4-8
Table 4-8: Summary of Noise Impacts

<table>
<thead>
<tr>
<th>NSA ID</th>
<th>Highest Predicted Noise Level in Leq (1h), dBA</th>
<th>Total Number of Noise Impacts (Receptors)</th>
<th>Impact Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>66</td>
<td>3</td>
<td>NAC/Substantial Increase</td>
</tr>
<tr>
<td>8</td>
<td>67</td>
<td>2</td>
<td>NAC</td>
</tr>
<tr>
<td>9</td>
<td>68</td>
<td>6</td>
<td>NAC</td>
</tr>
<tr>
<td>10</td>
<td>67</td>
<td>9</td>
<td>NAC</td>
</tr>
<tr>
<td>11</td>
<td>68</td>
<td>5</td>
<td>NAC/Substantial Increase</td>
</tr>
<tr>
<td>12A</td>
<td>67</td>
<td>16</td>
<td>NAC/Substantial Increase</td>
</tr>
<tr>
<td>12B</td>
<td>67</td>
<td>1</td>
<td>NAC</td>
</tr>
<tr>
<td>13</td>
<td>67</td>
<td>4</td>
<td>NAC</td>
</tr>
</tbody>
</table>

dBA = decibels weighted with the A-level frequency response  
Leq = equivalent steady-state sound level  
Leq(1h) = 1 hour value of the equivalent steady-state sound level  
NAC = noise abatement criteria  
NSA = Noise Sensitive Area

4.6.3 Construction Noise

Neither FHWA nor SDDOT have identified specific construction noise impact criteria. In addition, the detailed information required to predict actual construction noise levels (construction schedules, phasing, equipment lists, laydown areas, etc.) has not yet been determined. However, the 2015 SDDOT Standard Specifications for Roads and Bridges, Section 7.22, describes the sound control requirements (SDDOT 2015b)27. Sioux Falls follows FHWA and SDDOT guidelines related to construction noise. A list of commonly-used equipment and their associated noise levels is included in the Noise Study (Section 6, Appendix D).

Areas adjacent to the roadway ROW and other construction areas (laydown and staging areas) can temporarily be exposed to high levels of noise during peak construction periods. Additionally, it is reasonable to assume that the same NSAs that were identified for potential traffic noise impacts might also expect to experience elevated noise levels during construction. The effect of noise on the local area can be reduced if the hours and days of construction activity are limited to less sensitive time periods. The project construction standard noise specifications help minimize the effects of construction noise.

Construction noise impacts would be short-term and limited to the duration of construction. Special provisions and potential noise abatement measures related to construction activity and noise are discussed in Section 4.6.4. More detailed information can be found in the Noise Study (Appendix D).

During construction of the 85th Street bridge over I-29 there would be overnight closures to allow for bridge girder placement. This would require I-29 traffic to detour along Highway 106, Louise

---

Affected Environment and Environmental Consequences

Avenue and I-229. This work and the number of nighttime detours is similar to the Solberg Avenue / I-229 overpass project, which required eight nighttime detours. The traffic noise impacts for homeowners along the detour route would be elevated, temporary, and short-term in duration.

4.6.4 Noise Mitigation Evaluation

FHWA and SDDOT policy (SDDOT 2011) require that when noise impacts are identified, noise abatement must be evaluated. If noise abatement is found to be reasonable and feasible, it must be incorporated into the project. The SDDOT noise guidance specifies that for noise abatement to be feasible, it must be capable of providing a 5 dBA noise reduction for 60 percent of front row receptors, and that it must meet safety, constructability, and access requirements (SDDOT 2011). For an abatement measure to be reasonable, it must meet cost effectiveness requirements, typically with an estimated cost effectiveness value of less than $21,000 per benefited receptor provide at least 7 dBA noise reduction for 40 percent of benefited receptors, and it must also be accepted by a majority of benefited residents and owners (SDDOT 2011). Sioux Falls follows the FHWA and SDDOT guidelines related to noise mitigation and abatement.

Each impacted NSA was evaluated to determine if noise abatement, typically in the form of noise walls, was reasonable and feasible. The results of this analysis are presented in Table 4-9 and indicate abatement is recommended at two of the potentially impacted NSAs. Results of the noise mitigation evaluation are also shown on Figures 4-7 and 4-8.

Table 4-9: Noise Abatement Recommendation Summary for Impacted NSAs

<table>
<thead>
<tr>
<th>Impacted NSA</th>
<th>Activity Category(^1)</th>
<th>Abatement Feasible</th>
<th>Abatement Reasonable</th>
<th>Abatement Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>B</td>
<td>No</td>
<td>N/A</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>B</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td>B</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>10</td>
<td>B</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>11</td>
<td>B</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>12A</td>
<td>B</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>12B</td>
<td>B</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>13</td>
<td>B</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

\(^1\) See Table 4-6

N/A = Not Applicable

NSA = Noise Sensitive Area

For NSA 9, the feasible and reasonable noise barrier would be 350 feet long and have an average height of 6 feet. For NSA 12A, noise abatement in the form of a noise barrier was initially found to be feasible and reasonable. However, during final review it was determined that the proposed noise wall at this location conflicted with a Lewis and Clark Rural Water System pipeline easement, causing the estimated cost of the wall, and any potential costs of relocating easements or wall, to exceed the reasonable allowable costs for the wall. This conclusion was later reviewed and approved by SDDOT staff (email from Tom Lehmkuhl SDDOT Environment Engineering...
Manager, 8/17/2017), and therefore a noise barrier is not recommended for this location. The complete noise abatement evaluation is provided in Appendix D.

A Public Meeting/Open House for the Noise Study Findings and 85th Street Improvements was held on September 14, 2017 (Sioux Falls) at the Harrison Explorer Elementary School in Sioux Falls, SD. Twenty-eight people attended the meeting. At least 14 days prior to the meeting, a packet was mailed to adjacent property owners and persons who live adjacent to the project area. The packet included the location, time, and date of the meeting, a brief letter explaining the purpose for the meeting, locations of recommended noise barriers, and a noise wall opinion ballot. During the meeting, a presentation was made to review the purpose of the project and noise study process and findings. During the meeting, a presentation was made to review the purpose of the project and noise study process and findings. SDDOT and City staff were available with project maps and roadway details to discuss the project and receive public input. Benefited property owners and residents were given an opportunity to vote on noise abatement by ballot. The voting was carried out in accordance with the SDDOT noise guidance. The majority of the benefited property owners and residents voted in favor of construction of the proposed noise wall.

Table 4-10 presents potential noise impact distances for various undeveloped areas along the proposed project alignment. This information may be used by local officials to help avoid future incompatible land use with regard to noise generated by this project.

<table>
<thead>
<tr>
<th>Undeveloped Land Location</th>
<th>66 dBA Contour Distance (ft)</th>
<th>71 dBA Contour Distance (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S of 85th St, W of I-29 (not within NSA)</td>
<td>45</td>
<td>&lt;10</td>
</tr>
<tr>
<td>S of 85th St., at Hanson Pl (not within NSA)</td>
<td>50</td>
<td>&lt;10</td>
</tr>
<tr>
<td>N of 85th St, E of Hanson Pl (NSA9)</td>
<td>50</td>
<td>&lt;10</td>
</tr>
<tr>
<td>N of 85th St, W of Louise Ave (NSA11)</td>
<td>90</td>
<td>&lt;10</td>
</tr>
<tr>
<td>S of 85th St, W of Louise Ave (NSA13)</td>
<td>85</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>

dBA = decibels weighted with the A-level frequency response  
E = east  
f = feet  
N = north  
NSA = Noise Sensitive Area  
S = south  
W = west

Sioux Falls and the SDDOT do not have any specific abatement measure related to construction noise; however, the following best management practices (BMPs) may be incorporated to minimize noise impacts on surrounding properties during construction:

- All equipment used shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have unmuffled exhaust.
- All equipment shall comply with pertinent equipment noise standards of the USEPA.
- Notify the local public in advance of construction activities that may generate particularly high noise levels.
• Reduce night time detour traffic noise on Highway 106 and Louise Avenue by only closing one direction of I-29 at a time during 85th Street bridge construction activity.

• Noise created by truck movement shall not exceed 88 dBA at a distance of 50 feet.

• When working between 7:00 PM and 10:00 PM, use “smart alarms” instead of standard reverse signal alarms or use spotters. When working between 10:00 PM and 7:00 AM use spotters.

• Have portable noise meters on the job at all times for noise level spot checks on specific operations.

• Limit construction to greater than 1,000 feet from an occupied dwelling unit on Sundays, legal holidays, or between the hours of 10:00 PM and 6:00 AM on other days without approval of the Sioux Falls/SDDOT construction project manager.

• No pile driving or blasting operations would be performed within 3,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 8:00 PM and 8:00 AM on other days without approval of the Sioux Falls/SDDOT construction project manager.

• The noise from temporary rock crushing or screening operations performed within 3,000 feet of any occupied dwelling shall be mitigated by strategic placement of material stockpiles between the operation and the affected dwelling or by other means approved by the Sioux Falls/SDDOT construction project manager.

If a specific noise impact complaint is received during construction, one or more of the following may be implemented:

• Locate stationary construction equipment as far from nearby noise-sensitive properties as feasible.

• Shut off idling equipment.

• Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.

• Notify nearby residents whenever extremely noisy work will be occurring.

• Install temporary or portable acoustic barriers around stationary construction noise sources.

• Operate electrically powered equipment using line voltage power or solar power.

**4.7 TRAVEL PATTERNS AND ACCESS**

**4.7.1 Affected Environment**

Within the southwest portion of Sioux Falls metropolitan area, east-west roadways crossing I-29 are limited to 57th Street and Highway 106, which are located nearly 3 miles apart. Therefore, drivers must use north-south roadways (i.e., Sundowner Avenue, Tallgrass Avenue/Solberg Avenue) to get to one of the two streets that provide access across I-29. Currently, traffic on 85th Street is primarily limited to local traffic (i.e., people who live on 85th Street or their
visitors), especially on the west side of I-29. Traffic on 85th Street east of I-29 is generally heavier not only because the area is more heavily developed, but also due to direct access to main streets in the city (i.e., Solberg Avenue, Tallgrass Avenue, Louise Avenue). Traffic levels have also increased since the completion of the Solberg Bridge over I-229.

Currently, traffic on 85th Street is primarily residential and properties have full access. Section 2 and Appendix B provide a more detailed discussion of traffic patterns in the study area.

4.7.2 Environmental Consequences

4.7.2.1 No Build Alternative

The No Build Alternative would not require any redirection of traffic or any changes in accessibility. Therefore, the No Build Alternative would have no impact on traffic patterns and accessibility.

4.7.2.2 Build Alternatives

The extension and upgrade of 85th Street would require the redirection of traffic along 85th Street during construction. This redirection of traffic may result in some traffic delays in the immediate vicinity of the construction zone. However, access to all residences, businesses and farm fields would be maintained throughout the construction period.

A traffic control plan would be developed prior to construction to minimize the amount of disruption to traffic and ensure the safety of motorists. This would include using appropriate signage and construction barriers to alert motorists to altered traffic conditions. In addition, coordination with emergency service providers and schools would be conducted prior to changing any access. The traffic delays and impact during construction would be similar for both build alternatives.

During construction of the 85th Street bridge over I-29 there would be overnight closures to allow for bridge girder placement. This would require I-29 traffic to detour along Highway 106, Louise Avenue and I-229. This work and the number of nighttime detours is similar to the Solberg Avenue / I-229 overpass project, which required eight nighttime detours. The traffic noise impacts for homeowners along the detour route would be elevated, temporary, and short-term in duration.

Post-construction, full movement access along 85th Street would be limited to 0.25 mile. Properties between the 0.25 mile access points would be limited to right in/right out movements. Overall, the project would be anticipated to have a long-term beneficial impact on traffic patterns and access for the Sioux Falls metro area due to the new east-west connection across I-29. This new connectivity would provide an alternative route from the east to west sides of Sioux Falls, especially for those persons who live and work in the southern portion of the city.
Additionally, it is anticipated that post-construction, traffic on 85th Street would increase due to the connection with the roadway across I-29. This is an indirect impact associated with construction of the roadway. Locally, the increased traffic could be viewed as a negative impact.

### 4.8 GEOLOGY, TOPOGRAPHY, AND SOILS

#### 4.8.1 Affected Environment

The structurally high Pre-Cambrian Sioux Quartzite Ridge underlies the entire local area. This west tending structural arch is composed of Pre-Cambrian granites and Sioux Quartzite. The overall project area is located at the extreme southern edge of the Coteau des Prairies Section of the Central Lowland Province that is located in western United States. Four glaciers (the Nebraskan, the Kansan, the Illinoian, and the Wisconsin) have crossed the project area. The advance and receding of these glaciers had a large impact on the surficial geology and topography of the local area. Glacial action ground up and eroded bedrock and mixed it with material that was carried down from the north. When the glaciers receded, silt, clay, sand, and gravel were left as unconsolidated deposits. Following these depositions, wind (loess soils) and water (alluvial soils) have transported and redistributed portions of the glacial materials (Soil Conservation Service [SCS] 1964)\(^28\).

Local topography consists of moderately undulating glacial uplands that occur within the Big Sioux River Basin. The valleys of the watershed are flat and wide with local relief usually 20 to 50 feet. Within Lincoln County, elevation ranges from less than 1,300 feet along the Big Sioux River to about 1,500 feet on uplands (SCS 1976)\(^29\).

Soils are comprised predominantly of clay loams and silty clay loams (NRCS 2012a). The soils along the 85th Street corridor have not been markedly changed by development and are still used for agricultural purposes, especially on the south. In the more developed areas along 85th Street, development activities have disturbed the native soils.

#### 4.8.2 Environmental Consequences

Neither the No Build Alternative nor the two build alternative have the potential to effect geology or topography. Potential impacts to soils with each of the alternatives being evaluated are provided in the following subsections. Issues associated with impacts on prime farmland including soils that support the prime farmland classification are discussed in Section 4.1.2.

---


4.8.2.1 Alternative 1 – No Build

No construction or reconstruction activities related to this project would occur with the No Build Alternative. Therefore, this alternative would have no potential to adversely impact soils within the study area.

4.8.2.2 Alternative 2 – Extension of 85th Street Over I-29 on Section Line

This alternative would disturb approximately 29 acres of soil of which 6 acres are presently occupied by a road surface that is either paved or graveled. The reconstruction of 85th Street would result in an additional 10 acres of soils being covered with pavement. Soils located beneath components of the new roadway would be permanently impacted. The remaining impacted soils (approximately 13 acres) would be temporarily impacted during the construction phase. Soil comprised of the existing vegetative structure (topsoil) would be salvaged, replaced, and re-vegetated following construction.

BMPs, such as silt fences and/or hay bales, would be utilized during the reconstruction of 85th Street to prevent or reduce soil erosion within disturbed areas and the movement of sediment into local streams including the Big Sioux River (located down gradient of the study area). An additional, important feature in the control of soil erosion would be a re-vegetation program of disturbed areas once construction has been completed.

None of the soils that have the potential to be affected are scarce within Lincoln County as there are more than 3,000 acres of each within the county (SCS 1976). The disturbance of approximately 23 acres of soils along existing roadways coupled with the identified BMPs would not be considered to be an unacceptable impact.

4.8.2.3 Alternative 3 – Extension of 85th Street Over I-29 South of the Section Line

This alternative would disturb approximately 33 acres of soil. The area presently occupied by existing road surface (6 acres) and the amount of new road surface (approximately 10 acres) that would be added is the same as discussed for Alternative 2. Soils located beneath components of the new roadway would be permanently impacted. The remaining soils (approximately 17 acres) would be temporarily impacted during the construction phase. Soil comprised of the existing vegetative structure (topsoil) would be salvaged, replaced, and re-vegetated following construction.

BMPs utilized during the construction of the alternative’s components would be the same as discussed for Alternative 2.

None of the soils that have the potential to be affected are scarce within Lincoln County, as there are more than 3,000 acres of each within the county (SCS 1976). The disturbance of approximately 27 acres of soils along existing roadways coupled with the identified BMPs would not be considered to be an unacceptable impact.
4.9 HYDROLOGY AND WATER QUALITY

4.9.1 Hydrology

The largest hydrological feature in the vicinity of the study area is Big Sioux River, which lies approximately 1.5 miles east-northeast of the study area. Neither the No Build Alternative nor either of the build alternatives have the potential to affect hydrology (flow) of any stream within or in the vicinity of the study area. Therefore, no additional discussion regarding hydrology is provided in this document.

4.9.2 Water Quality

The USEPA’s National Pollutant Discharge Elimination System (NPDES) Program requires all construction activities that disturb more than 1 acre to receive a construction NPDES permit. The SDDENR issues the NPDES permits under its Surface Water Discharge (SWD) Program.

4.9.2.1 Affected Environment

No streams or rivers are located within the study area. However, portions of the Big Sioux River and Skunk Creek are located approximately 1.5 miles east-northeast of the study area. Various pollutants are commonly encountered in roadway runoff generated during storm events. These include eroded soil, nutrients, metals, and petroleum compounds.

The SDDENR has identified the following beneficial uses of the Big Sioux River from its confluence with the Missouri River upstream to the Sioux Falls Diversion (SDDENR 2016b):

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

Based on information compiled in 2012, it was reported that the portion of the Big Sioux River from the confluence of Skunk Creek downstream to the Missouri River was non-supportive of its designated uses due to elevated levels of fecal coliform bacteria and total suspended solids (TSS) (SDDENR 2016c). The SDDENR was contacted via letter on October 9, 2013 (Appendix C).

---

4.9.2.2 Environmental Consequences

Alternative 1 – No Build

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

Alternative 2 – Extension of 85th Street Over I-29 on Section Line

Construction of Alternative 2 would result in the disturbance of approximately 29 acres. Since more than 1 acre would be disturbed, Alternative 2 would also require the contractor to obtain a NPDES Construction Surface Water Discharge Permit under the South Dakota SWD program. The permit application would require the identification of appropriate BMPs to control soil erosion. This is normally achieved through the development of a Storm Water Pollution Prevention Plan (SWPPP). The Big Sioux River east-northeast of the study area is presently impaired by elevated levels of fecal coliform bacteria and TSS. Therefore, BMPs would be required to assure that TSS levels in the river are not elevated by project related activities.

The SDDENR indicated in a letter dated November 7, 2013 (Appendix C) the office had no objections to the project with regards to surface water quality impacts assuming the following requirements are met:

- All fill material is free of substances in quantities, concentrations or combinations which are toxic to aquatic life.
- Removal of vegetation shall be confined to those areas absolutely necessary to construction.
- Appropriate erosion and sediment control measures are installed and a NPDES obtained from SDDENR.
- All removed waste material is disposed of appropriately and not in a wetland.
- Steps are taken to minimize the spillage of petroleum, oils, and lubricants used in construction vehicles.

With the SDDENR and SWPPP BMPs, this build alternative would not have any adverse impacts on surface water quality.

A SWD permit would be required if any construction dewatering should occur with project action.

Prior to construction, Sioux Falls/SDDOT would submit a Notice of Intent (NOI) to SDDENR for coverage under the General Storm Water Permit for Construction Activities. The SWPPP would be prepared prior to the NOI.
Indirect impacts to quality water could occur post-construction as the area surrounding the roadway develops. An increase in the amount of impermeable surface could cause increase stormwater runoff which has a negative impact on water quality downstream. As the area develops, governing bodies would need to assure appropriate stormwater sewer capacity is available to capture the runoff before it reaches downstream waters.

**Alternative 3 – Extension of 85th Street Over I-29 South of the Section Line**

With the construction of the Alternative 3, approximately 33 acres would be disturbed. With more than 1 acre being disturbed, this alternative would also require the contractor to obtain a NPDES Construction Surface Water Discharge Permit under the South Dakota SWD program. As discussed for the previous alternative, the permit application would require the development of a SWPPP and the identification of appropriate BMPs to control soil erosion. The Big Sioux River east-northeast of the study area is impaired by elevated levels of TSS. Therefore, BMPs would be required to assure that TSS levels in the river are not elevated by project-related activities.

The SDDENR requirements identified for Alternative 2 would also apply to this build alternative. With the SDDENR and SWPPP BMPs, Alternative 3 would not have any adverse impacts on surface water quality.

A SWD permit would be required if any construction dewatering should occur with project action.

Prior to construction, Sioux Falls/SDDOT would submit a NOI to SDDENR for coverage under the General Storm Water Permit for Construction Activities. The SWPPP would be prepared prior to the NOI.

Indirect impacts would be the same as discussed for Alternative 2.

**4.9.3 Floodplain**

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

**4.9.3.1 Affected Environment**

Sioux Falls and Lincoln County both participate in the National Flood Insurance Program (NFIP). By participating in the NFIP, Sioux Falls and Lincoln County have implemented controls, zoning, and development regulations, along with effective land use planning to reduce and control development that occurs within the 100-year floodplain. The study area is not located in a floodplain as designated on Flood Insurance Rate Map (FIRM) Panels 46083C0131C, 46083C0133C, 46083C0134C, and 460099C0607D.
4.9.3.2 Environmental Consequences

No Build Alternative

Alternative 1 involves no construction activities related to this project; therefore, it would have no effect on identified floodplains within the study area.

Build Alternatives

As stated above, the study area is not located within a designated floodplain; therefore, regardless of the build alternative selected, no floodplains would be impacted.

4.10 Waters of the United States/Wetlands

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

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

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

United States Geological Survey (USGS) National Map, which includes the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory maps, and a site visit in October 2012 were used to determine the location of wetland areas within and in the immediate vicinity of the study area. As with the noise study, the wetlands for this project were evaluated as part of a larger study area. The numbering applied in the overall study is maintained in this document for consistency with the initial survey. However, this section discusses only those wetlands located within the 85th Street study area.

Twenty-two wetland areas were delineated within the 85th Street study area (Figure 4-9). These wetlands consist of primarily palustrine emergent wetlands (PEM). Several of the wetlands located within the study area had been delineated previously and the results of the wetland survey were provided to the USACE. In a letter related to the previous study, the USACE indicated both jurisdictional and non-jurisdictional were present in the previous study area. However, none of the jurisdictional wetlands are located within the 85th Street study area. The Preliminary Wetlands Assessment for the current survey for the larger study area (including the 85th Street corridor) was provided to the USACE on October 30, 2013 and is included as Appendix E. In a letter dated January 7, 2014 (Appendix C) the USACE indicated the 22 identified wetlands within the 85th Street study area are considered to be isolated waters and not jurisdictional. Figure 4-9 shows the 22 isolated waters identified within the 85th Street project corridor.

As indicated above, at the time of the wetlands field observations, in October 2012, 22 wetland areas were identified within the 85th Street study area. However, two wetlands (PEM-2 and PEM-4) which were located on the south side of 85th Street, west of I-29, have since been filled in by persons unknown. Therefore, the number of wetlands potentially impacted has been reduced to 20.

4.10.2 Environmental Consequences

Seventeen of the twenty non-jurisdictional wetland areas were determined to have the potential to be affected by one or more of the build alternatives. The area of each wetland that would be affected by one or more of the build alternatives is provided in Table 4-11. The locations of the wetlands are shown on Figures 4-10 and 4-11 for Alternatives 2 and 3, respectively. As shown on Table 4-11, affected areas within individual wetlands ranged from less than 0.1 acre to 0.4 acre. Specific impacts associated with each alternative are discussed below.

4.10.2.1 No Build Alternative

The No Build Alternative would involve no construction activities related to this project. However, some development in the area would be expected to occur, even under the No Build Alternative. This development would have the possibility of impacting wetlands in the area. These impacts cannot be quantified at this time. Additionally, private development is not bound by EO11990; therefore, impacts could potentially be greater than those associated with Build Alternatives.
4.10.2.2 Alternative 2 – Extension of 85th Street Over I-29 on Section Line

This alternative would affect approximately 1.65 acres of non-jurisdictional wetlands. No jurisdictional wetlands would be impacted; therefore, a Section 404 permit is not required. However, non-jurisdictional wetlands would need to be mitigated under EO 11990. Due to the large number of wetlands present with the general study area and the limited ability to modify the designs because of engineering constraints, it would be impossible to avoid all of the wetlands. Non-jurisdictional wetlands would be mitigated in accordance with FHWA regulation 23 CFR 777.9. With the implementation of the mitigation measures, there would be no net impact on wetlands. Impacted wetlands are shown in Figure 4-10 and listed in Table 4-11.

4.10.2.3 Alternative 3 – Extension of 85th Street Over I-29 South of the Section Line

This alternative would affect approximately 1.65 acres of non-jurisdictional wetlands. No jurisdictional wetlands would be impacted; therefore, a Section 404 permit is not required. However, non-jurisdictional wetlands would still need to be mitigated under EO 11990. As discussed for Alternative 2, due to the large number of wetlands present with the general study area and the limited ability to modify the designs because of engineering constraints, it would be impossible to avoid all of the wetlands. Non-jurisdictional wetlands would be mitigated in accordance with FHWA regulation 23 CFR 777.9. With the implementation of the mitigation measures, there would be no net impact on wetlands. Impacted wetlands are shown in Figure 4-11 and listed in Table 4-11.
Locations of Wetlands within Study Area
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Legend
- Study Area
- Wetland Area

Note: PEM-2 and PEM-4 have been filled and no longer occur in the project area.
### Table 4-11: Wetlands Affected By Build Alternatives

<table>
<thead>
<tr>
<th>Wetland Identification</th>
<th>Alternative 2 (acres)</th>
<th>Alternative 3 (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEM-1</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>PEM-3</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>PEM-5</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>PEM-6*</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>PEM-7*</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>PEM-8*</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>PEM-9</td>
<td>0.1</td>
<td>NA</td>
</tr>
<tr>
<td>PEM-10*</td>
<td>0.4</td>
<td>NA</td>
</tr>
<tr>
<td>PEM-11</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>PEM-12</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>PEM-14</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>PEM-15</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>PEM-16</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>PEM-25</td>
<td>0.1</td>
<td>0.6</td>
</tr>
<tr>
<td>PEM-34</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>PEM-45</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>OW-1</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1.65</strong></td>
<td><strong>1.6</strong></td>
</tr>
</tbody>
</table>

Note: Wetland impacts shown as <0.1 acre were included in the total impact estimate as 0.05 acre.

*These wetlands would have additional impacts due to the proposed I-29 widening project.

PEM = Palustrine Emergent
OW = open water
< = less than

### 4.10.3 Wetland Mitigation

The 17 wetlands located within the construction footprint are depressional features which lack a connection to other jurisdictional waters and therefore are considered non-jurisdictional waters.

The mitigation plan for the proposed action would recommend off-site mitigation at a mitigation bank. The EO 11990 Wetland Finding is documented in Appendix F. Off-site mitigation is being recommended because it is difficult to develop and maintain quality mitigation sites adjacent to roadways. Wetland mitigation for unavoidable impacts related to this project would be accomplished through the purchase of mitigation bank credits from a wetland mitigation bank such as the Tetonka Wetland Mitigation Bank, located in Minnehaha County, South Dakota. The Tetonka Wetland Mitigation Bank is a wetland complex with riverine and pothole wetlands.
Note: PEM-2 and PEM-4 have been filled and no longer occur in the project area.
Wetlands Impacted by Alternative 3
Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Figure 4-11

Note: PEM-2 and PEM-4 have been filled and no longer occur in the project area.
SECTION FOUR

Affected Environment and Environmental Consequences

A Preliminary Wetland Mitigation Plan was completed for a larger study area which included the 85th Street corridor. This document is provided in Appendix E. As part of this mitigation plan, a Hydrogeomorphic (HGM) Assessment was completed on the non-jurisdictional wetlands potentially impacted by the proposed action. The unique conditions of the Tetonka Wetland Mitigation Bank make it possible to use HGM as the common dominator for the different types of wetlands found within the study area. A similar bank may also be used to mitigate wetland impacts. The preliminary HGM assessment determined approximately 4.55 Functional Capacity Units which equates to 4.55 acres (1:1 ratio) that would need to be purchased from the wetland bank. The Tetonka Wetland Mitigation Bank has adequate capacity to mitigate wetland impacts regardless of the alternative selected.

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

4.11 TERRESTRIAL WILDLIFE AND AQUATIC RESOURCES

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

4.11.1 Affected Environment

No water bodies are located within the study area; however, the Big Sioux River is located approximately 1.5 miles east-northeast of the study area.

A wide variety of vegetation presently exists within and adjacent to the study area: planted grasses within road ROWs, tilled cropland, pastureland, manicured lawns with planted grasses and ornamental type trees, wetlands, and idle land. All of the vegetation types listed above are present within and/or adjacent to the 85th Street study area. Additionally, the 85th Street corridor includes trees which may be used as nesting sites for migratory birds, such as songbirds. Figure 4-12 shows pictures of the existing vegetation along 85th Street.

The quality of the wildlife habitat present within and adjacent to the study area is heavily influenced by existing vegetation and associated land use. The grassed road ROWs, cropland, and manicured lawns are not the preferred habitat for most terrestrial wildlife species; however, wildlife species have adapted to use available habitat in urban areas. Additionally, the trees within manicured lawns have the potential to be used as nesting habitat by song birds such as robins, finches, cardinals, etc. Depending on the amount of grazing that occurs, the pastureland...
would be expected to provide fair habitat for wildlife species especially ground nesting birds, reptiles, and small mammals. The idle land and wetland areas represent the best terrestrial wildlife habitat within the study area as these areas would provide nesting habitat for marsh type birds, and cover and foraging habitat for amphibians, reptiles, and small to medium sized mammals. Large mammals such as deer and coyotes would also be expected to utilize these areas on occasion. Wetlands with open water areas would also have the potential to be used by nesting and migration waterfowl. Proximity to existing urban features would limit the usage level of many wildlife species within all of the habitats.

4.11.2 Environmental Consequences

4.11.2.1 Aquatic Resources

No Build Alternative

With the No Build Alternative, there would be no construction activities related to this project. However, the area would likely experience other development. Private development would be unlikely to directly impact the Big Sioux River which is located approximately 1.5 miles east-northeast (down gradient) of the study area. Additionally, with the use of BMPs, such as silt fences and/or bales, and other stipulations in the NPDES construction permit required for all projects disturbing one acre or more, the No Build Alternative would not have any indirect adverse effects on the Big Sioux River and associated aquatic resources.

Build Alternatives

Although the Big Sioux River is located approximately 1.5 miles east-northeast (down gradient) from the study areas neither build alternative would directly impact the river. With the use of BMPs, such as silt fences and/or bales, and other stipulations in the NPDES construction permit required for the project, neither build alternative would have an indirect adverse effect on the Big Sioux River and associated aquatic resources.

4.11.2.2 Vegetation and Terrestrial Wildlife

No Build Alternative

With the No Build Alternative, there would be no construction activities related to this project. However, development would likely occur in the area. The expected land use changes associated with the development would be consistent with city and county development plans for the area (Lincoln County 2016, Sioux Falls 2016d, City of Tea 2011). Any adverse impacts to vegetation and terrestrial wildlife would be expected to less than those associated with either build alternative.
Locator Map

Legend

-existing vegetation along 85th street
environmental assessment
85th street improvements
sioux falls, south dakota

figure 4-12

drawn by: jz
checked by: jk

location map

photograph location (arrow indicates direction)

study area

project no.
p1360(01)

figure 4-12
Build Alternatives

Although the actual location of disturbances may vary slightly between the three build alternatives, impacts to vegetation located in the existing ROW would essentially be the same for both build alternatives with approximately 18 acres of planted grasses being affected during construction. In addition to the existing ROW, between 22 acres and 24 acres of additional ROW and 6.5 to 7 acres of construction easement would need to be acquired depending on the alternative selected. In total, the number of acres of vegetation that would be affected during the construction of a build alternative would be between 28 and 31 acres. Of these 28 to 31 acres, up to 10 acres would be converted to paved surface and the remaining (19 to 21) disturbed acres would be re-vegetated to approved grass species. The loss of up to 10 acres of various types of vegetation (prairie grass, mowed lawn, crops) would be considered a minor impact given the amount of similar vegetation in the study area. Adverse impacts to existing vegetation would include the conversion of up to approximately 1.7 acres of wetlands and 17.5 acres of farmland. As discussed previously, impacts to wetlands would be mitigated by the purchase of credits in an existing wetland bank. Farmland conversion associated with both build alternatives was determined to not require further consideration. Since vegetation within residential yards and the road ROW is generally planted grasses, conversion of residential yards to road ROW would not be considered a major effect on vegetation within the study area.

Projected land use in the project surrounding is primarily commercial and/or mixed use; therefore, the land conversions discussed above are consistent with city and county development plans for the area (Lincoln County 2016, Sioux Falls 2016d, City of Tea 2011).

Impacts to terrestrial wildlife involve both quantity and quality of usable habitat and both depend on expected changes in vegetation. As stated in the previous paragraph, up to 10 acres existing ROW would be converted from road ROW to paved surfaces and represents the loss of 10 acres of habitat. Most of the remaining changes are associated with the conversion of lawns and cropland to road ROW which is useable habitat. Very limited quantities of pastureland (fair quality) and idle land (fair quality) would be converted to road ROW. Depending on the alignment of the final design, some trees located within the study area may be designated for removal during construction of the roadway. These trees could be used as nesting habitat by migratory birds. Regardless of the alternative selected there would be approximately 1.7 acres of wetland affected by the extension of 85th Street. All wetland impacts would be mitigated in a manner that results in no net loss of wetlands. With both build alternatives, there would be a minor reduction in the quality of terrestrial wildlife habitat within limited areas (pasture land and idle land) within the study area. Therefore, both build alternatives would only have minimal impact on the terrestrial wildlife species within the study area.

Mitigation Measures

Adherence to the MBTA and its amendments and USFWS regulations should result in the avoidance and/or minimization of most impacts to migratory birds. Vegetation removal, including the removal of trees would be timed to the extent possible to avoid the migratory bird breeding and fledging season (April 1 through July 15). If any trees need to be removed during this time period, the trees would be surveyed for nests by a qualified biologist and cleared prior
to the initiation of work. If a nest is identified in any of the trees to be removed, a migratory bird nest depredation permit under the MBTA would be obtained from the USFWS, or appropriate inactive nest removal and hazing/exclusion measures would be incorporated into the work to avoid the need to disturb active migratory bird nests. The mitigation plan would stipulate trees and/or brush would be replaced at a ratio of at least 2:1 acres planted versus acres impacted.

The bald eagle is no longer a federal-listed species; however, it is protected under the Bald and Golden Eagle Protection Act and the MBTA. Pre-construction surveys are recommended prior to construction to determine if any active bald eagle nests are located in the project area. Sioux Falls would notify the USFWS if a bald eagle nest is located within one-mile of the construction site at time of construction. The Project Engineer would be notified immediately so a course of action can be determined. Additionally, the project would comply with the National Bald Eagle Management Guidelines (USFWS 2007a)\(^32\).

**4.12 THREATENED AND ENDANGERED SPECIES**

Section 7 of the ESA of 1973 (16 U.S.C. § 1536) requires federal agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of threatened, endangered, or proposed species or cause destruction or adverse modification of their critical habitats. Each federal agency is responsible to determine if a proposed project has the potential to affect a federally listed or proposed for listing species and/or its habitat. If any federal-listed or proposed for listing species and/or its habitat have the potential to be adversely affected by the action of a federal agency, coordination (formal or informal) with the USFWS is required. To facilitate this evaluation process, the USFWS has developed procedures for many of the listed species that should be followed in determining effects and for identifying avoidance and/or mitigation measures.

State threatened and/or endangered species and Species of Management Concern are codified under South Dakota Statues 34A-8 and 34A-8A, respectively. The SDDGFP and the South Dakota Department of Agriculture are responsible for the enforcement of the provisions of the threatened and endangered species statutes.

**4.12.1 Affected Environment**

**4.12.1.1 Federal Listed Species**

According to information available from the USFWS Information, Planning, and Conservation (IPaC) website (USFWS 2012)\(^33\), three federally listed species and two candidate species have the potential to occur in Lincoln County, South Dakota. These species and their designated status are:

---


The proposed project and official species list were initially discussed with the USFWS via telephone on November 13, 2012 (Appendix C). Additionally, the listed species were discussed with USFWS in letters dated October 9, 2013, November 19, 2014, and January 7, 2015 (Appendix C).

Habitat requirements and site specific information is provided in the following subsections for these three federally listed species and two candidate species.

**Pallid Sturgeon**

Pallid sturgeons are a large river fish that primarily reside in the main channel of large rivers within the Missouri River and Mississippi River drainages. The species has been reported to be collected occasionally in major tributaries. Recent studies indicate the species also uses braided channels, sand bars, sand flats and gravel bars (USFWS 2016). The species is bottom oriented and their flattened snout is beneficial to them while occupying the main channel habitat in the large rivers. Pallid sturgeons are long-lived and old records indicate that individuals may weigh up to 80 pounds. Females may not reach sexual maturity until they are 15 to 20 years old (Dryer and Sandvol 1993). Spawning has been reported to occur between June and August (USFWS 2007b).

**Topeka Shiner**

The Topeka shiner is a small, stout minnow that does not exceed 3 inches in length. They most often occur in pool and run areas of streams and are seldom found in riffle areas. Recent surveys in Iowa have also documented their use of cut-off channels and oxbows. Generally, the streams they occur in are small to mid-sized prairie streams with relatively high water quality; cool to moderate temperatures; and permanent flows. Topeka shiners can tolerate limited intermittent flows during summer and prolong drought periods (USFWS 2005). The Topeka shiner is known to occur in Slip-Up Creek (tributary to Big Sioux River north of Sioux Falls) and is occasionally found in the Big Sioux River near Sioux Falls.

36 USFWS. 2007b. Pallid sturgeon (Scaphirhynchus albus) 5-Year Review – Summary and Evaluation. 120 pp
Western Prairie Fringed Orchid

The western prairie fringed orchid, federally listed as threatened, inhabits wet tall-grass meadows with calcareous silt loam, wet-mesic tall-grass prairies, and sub-irrigated sand prairies. Declines in the western prairie fringed orchid populations have been caused by the drainage and conversion of its habitats (native prairies) to agricultural production, channelization, siltation, road and bridge construction, grazing, haying, and the application of herbicides. The western prairie fringed orchid has not been documented in South Dakota since the early 1900s. Potential habitat for the species occurs in the native prairie found in and around Cactus Hills located several miles east and north of the study area.

Rufa Red Knot

The Rufa Red Knot, federally listed as threatened, a master of long-distance aviation. Some knots fly more than 9,300 miles from south to north every spring and repeat the trip in reverse every autumn, making this bird one of the longest-distance migrants in the animal kingdom. The knot’s unique and impressive life history depends on suitable habitat, food and weather conditions at far-flung sites across the Western Hemisphere, from the extreme south of Tierra del Fuego to the far north of the central Canadian Arctic. Knots need to encounter these favorable habitat, food and weather conditions within narrow seasonal windows as the birds hopscotch along migration stopovers between wintering and breeding areas. The bird breeds in drier tundra areas, such as sparsely vegetated hillsides. Outside of breeding season, it is found primarily in intertidal, marine habitats, especially near coastal inlets, estuaries, and bays. The Rufa Red Knot is rare in South Dakota (Personal communication with Charlene Bessken, USFWS, November 19, 2014).

Northern Long-Eared Bat

The Northern long-eared bat, federally listed as threatened, spends winters hibernating in caves and mines, called hibernacula. They typically use large caves or mines with large passages and entrances; constant temperatures; and high humidity with no air currents. During the summers, northern long-eared bats roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Males and non-reproductive females may also roost in cooler places, like caves and mines. This bat seems opportunistic in selecting roosts, using tree species based on suitability to retain bark or provide cavities or crevices. It has also been found, rarely, roosting in structures like barns and sheds. (USFWS 2014)

4.12.1.2 State Listed Species

According to information available from the SDDGFP database (SDDGFP 2008), in addition to the three federally-listed threatened and endangered species, four state listed species have the potential to occur in Lincoln County, South Dakota. These species and their designated status are:

---

SECTION FOUR  Affected Environment and Environmental Consequences

- Peregrine falcon (*Falco peregrinus*) Endangered
- Lined snake (*Tropidoclonion lineatum*) Endangered
- Bald eagle (*Haliaeetus leucocephalus*) Threatened
- River otter (*Lontra canadensis*) Threatened

The proposed project and official species list were discussed with the SDDGFP via telephone on November 8, 2012 (Appendix C).

Habitat requirements and utilization and site specific information is provided in the following subsections for these four state listed species.

**Peregrine Falcon**

The peregrine falcon is a crow-sized bird with pointed wings, a narrow tail and rapid wingbeat, adults have slate-blue colored backs and cream-colored underside with horizontal bars. The peregrine falcon migrates along larger bodies of water often close to waterfowl and shorebird concentrations, feeding primarily on small birds and rarely small mammals, lizards, fish, and insects. Suitable nesting habitat is general rocky cliffs 200 to 300 feet high, large stick nest of other species, and man-made structures. Although the peregrine falcon has a worldwide distribution, it is uncommon in South Dakota. Only a few breeding sites, including one in Minnehaha County, have been recorded in South Dakota. (SDDGFP 2008)

**Lined Snake**

The lined snake is approximately 8 to 15 inches in length and resembles a garter snake. It has a variable colored, light stripe running down the middle of its back with stripes along the sides. Two rows of black, crescent-shaped blotches run the entire length of the snake’s light-colored underside. The lined snake is primarily nocturnal and prefers hillsides and woodland areas. The snake is active from April to October or November, especially after a rain. The lined snake primarily feeds on earthworms. The lined snake has been documented in Lincoln County, primarily along the Big Sioux River, from Palisades State Park south to Union County. (SDDGFP 2008)

**Bald Eagle**

The bald eagle is a large raptor, measuring 31 to 37 inches in length and a wingspan of 6 to 8 feet. The adult has a uniform dark brown body with a white head and tail. The bald eagle is almost always found near water, primarily on river systems, large lakes, reservoirs and coastal areas. These birds are mainly scavengers, feeding on dead and dying fish, but will eat waterfowl, rabbits, rodents, and other animals, taken mostly as carrion. Bald eagles generally roost together in large mature trees. Nests are placed high in trees and used each year. The bald eagle has a

---

39 South Dakota Department of Game, Fish & Parks (SDDGFP). 2008. Fragile Legacy, Rare Animals of South Dakota Third Edition
widespread distribution through Canada and portions of the United States. This species historically nested in southeastern South Dakota. Bald eagle pairs have nested successfully in many counties across South Dakota, and it continues to increase each year. Nesting sites have been documented in Lincoln County (SDDGFP 2008). Bald eagles overwinter in the Black Hills and along the Missouri River in areas where they find open water, feeding perches, overnight roost sites, and prey.

**River Otter**

The river otter length ranges from 35 to 54 inches and weighs 11 to 33 pounds. The thick, tapering tail measures one third of the body length. It has a dark brown coat, with a silver-gray throat and white whiskers. The river otter is found in rivers, lakes, and unpolluted waters in wooded areas. Key habitat components are riparian vegetation, temporary den, and resting sites and adequate food. It will occupy dens built by other animals, logjams, and unused manmade structures. River otters primarily eat fish, but will eat frogs, crayfish, and turtles. The river otter is distributed throughout North America. Evidence of river otter locations have been documented throughout South Dakota, including Lincoln County. (SDDGFP 2008)

**4.12.2 Environmental Consequences**

**4.12.2.1 No Build Alternative**

With the No Build Alternative, no construction or other ground disturbance activities related to this project would occur. However, some development in the area would be expected to occur, even under the No Build Alternative. This development would have the possibility of impacting listed species in the area. These impacts cannot be quantified at this time. Additionally, private development is not bound by the regulations; therefore, impacts could potentially be greater than those associated with Build Alternatives.

**4.12.2.2 Build Alternatives**

The BMPs required by SDDENR (Section 4.9.2.2) and identified in the SWPPP would be used to control soil erosion and to control the movement of sediment off-site; therefore, the water quality of the Big Sioux River would not be adversely affected by any of the build alternatives. Therefore, the build alternatives would not adversely impact the Topeka shiner or pallid sturgeon that may rarely occur in the Big Sioux River.

Preferred habitat for the federal-listed/proposed for listing species and state-listed species does not occur within the study area. Therefore, construction activities associated with the 85th Street extension and upgrade regardless of the build alternative selected would not directly or indirectly affect any habitat important to the federally listed western prairie fringed orchid, the rufa red knot, or state listed species.

If an occupied bald eagle nest is observed within one-mile of the construction site, the Project Engineer would be notified immediately so a course of action can be determined. Additionally, the project would comply with the National Bald Eagle Management Guidelines.
SECTION FOUR
Affected Environment and Environmental Consequences

(USFWS 2007a). Sioux Falls and SDDOT would preserve any trees with active or unoccupied eagle nests.

The study area doesn’t contain winter hibernacula (caves and mines) for the northern long-eared bat. However, the potential for summer roosting sites exists within the area. Live and dead trees as well as several manmade structures which could serve as roosting habitat occur within the study area. A habitat survey was completed on July 19, 2017 to determine if structures planned for removal within the project area (two houses and two sheds) are serving as roosting habitat for the northern long-eared bat. The survey concluded none of the structures were being used by the bats. The survey is provided in Appendix C as part of the online consultation. The survey is valid for 12 months; therefore, follow-up habitat survey will be completed within one year of construction to verify the presence or absence of structure use by the bats.

In December 2016, the USFWS completed a revised Programmatic Biological Opinion (PBO) for Transportation Projects in the Range of the Indiana Bat and the northern long-eared bat. Coordination for this project was completed by submitting the online consultation form and habitat survey to the USFWS on August 17, 2017. The form and associated information is included in Appendix C. Based on the concurrence verification letter from the USFWS dated August 17, 2017, USFWS has 14 calendars day to notify the lead Federal agency (FHWA) or its designated non-federal representative (SDDOT) that the project does not meet the criteria for a “Not Likely to Adversely Affect” determination under the PBO. If not notified within that timeframe, the project may proceed under the terms of the “Not Likely to Adversely Affect” concurrence provided in the PBO. The USFWS did not notify FHWA or SDDOT that the project does not meet the “Not Likely to Adversely Affect” determination under the PBO. Therefore, the project may proceed under the aforementioned determination.

Both build alternatives would require some tree removal. Tree removal activities would occur in accordance with the requirements of the MBTA and the Avoidance and Minimization Measures identified as part of the Range-wide Programmatic Consultation between the USFWS and FHWA for the Indiana Bat and Northern Long-eared Bat. Tree removal activities would occur outside of migratory bird nesting season and bat roosting period. Tree removal would occur after October and before April. Tree to be removed would be clearly demarcated prior to removal to assure no additional trees would be accidently removed from the project area. Therefore, bird nesting habitat would be removed outside of the nesting season and potential bat roosting habitat would be removed during the hibernation period when the roosting sites are not being used by the bats.

Therefore, it has been determined that the build alternatives would have No Effect on the federal listed or candidate species, except the Northern long eared bat, and would have no impact on the state listed species. The Northern long eared bat determination was Not Likely to Adversely Affect. These determinations were provided to the USFWS and SDDGFP via letters dated October 9, 2013, January 7, 2015, and August 17, 2017. USFWS responded on October 22, 2013 and February 17, 2015 that there was no objection to the proposed project. USFWS concurred with the norther long eared bat determination via a letter dated August 17, 2017. The SDDGFP indicated via email on November 25, 2013 that the project would have no impact on fish and wildlife resources. USFWS and SDDGFP correspondence is provided in Appendix C.
### 4.13 INVASIVE PLANT SPECIES

Invasive species coordination occurs under the FHWA guidance that followed the implementation of EO 13112. This guidance calls on Executive Branch agencies to work to prevent and control the introduction and spread of invasive species. FHWA guidance for NEPA analysis states that the study should address the likelihood of introducing or spreading invasive species and a description of measures being taken to minimize potential harm. The project does not have the potential to lead to the spread of invasive terrestrial or aquatic species. Therefore, only invasive plants species are addressed in this section.

Currently, noxious weeds, which would include invasive species, are controlled through the management efforts of the South Dakota Weed and Pest Board. The SDDOT works with the Weed and Pest Board regarding roadside management actions that are appropriate for control of noxious weeds within highway ROWs.

#### 4.13.1 Affected Environment

The study area contains a variety of vegetation uses and types including mowed lawns, ornamental trees and grasses, row crops and pasture grasses. No problem areas related to invasive or noxious plant species have been observed in the study area (Personal communication with Greg Thompson, Lincoln County Planning Department and Weed Board with Quentin Bliss, 2012; Appendix C).

The United States Department of Agriculture (USDA) South Dakota state-listed noxious weeds list was consulted to identify potential noxious species in the study area. The list includes species such as Canada thistle, milk thistle, dodder, St. Johnswort, and several others (USDA 2016).

#### 4.13.2 Environmental Consequences

##### 4.13.2.1 No Build Alternative

Since the No Build Alternative involves no ground disturbance, it would not contribute to the spread of an invasion species.

##### 4.13.2.2 Build Alternatives

No invasive/noxious plant species issues were identified within the study area; therefore, construction equipment and associated construction activities would not result in the spread of an invasive plant species. Soil disturbance during construction provide areas where an invasive species could become established via wind borne seeds or in the grass seed mixture used to re-vegetate the disturbed area. All seed mixtures used by Sioux Falls/SDDOT for re-vegetation of disturbed areas need to be certified free of noxious weeds. In addition, SDDOT’s standard

---

roadside vegetation management actions include chemical and biological control of weeds where warranted. SDDOT and Sioux Falls would monitor the re-vegetation of disturbed areas until the desired level of vegetation density has been achieved. Therefore, it is expected that neither of the build alternatives would result in an increase in the spread of any invasive plant species.

4.14 HISTORIC AND ARCHAEOLOGICAL PRESERVATION

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

Under NHPA, the agency must consult with the State Historic Preservation Officer (SHPO), Indian tribes, representatives of local governments, and the public. Section 101 of the NHPA requires Federal agencies to consult with Indian tribes, when these tribes attach religious and cultural significance to historic properties off tribal land. Historic properties of religious and cultural significance are frequently located on ancestral, aboriginal or ceded lands of the Indian tribes and tribal concerns for these properties should be considered when complying with the provisions of the NHPA.

36 CFR Section 800.2(c)(3)(iv) states, “When Indian tribes and Native Hawaiian organizations attach religious and cultural significance to historic properties off tribal lands, section 101(d)(6)(B) of the Act requires Federal agencies to consult with such Indian tribes and Native Hawaiian organizations in the section 106 process. Federal agencies should be aware that frequently historic properties of religious and cultural significance are located on ancestral, aboriginal or ceded lands of Indian tribes and Native Hawaiian organizations and should consider that when complying with the procedures in this part.” Eight Indian Tribes have expressed interest in highway projects in Lincoln County.

4.14.1 Affected Environment

As with wetlands, the 85th Street study area was evaluated for cultural resources as part of a larger study area. Only those resources that have the potential to be affected by extending 85th Street across I-29 are discussed in this EA.

The improvement area for this project is along 85th Street near I-29. The 85th Street location is a 10,560-foot long segment of improvements from South Louise Avenue west to Sundowner Avenue. The APE for direct project effects along 85th Street includes the present road plus a
buffer of 100 feet to the north and 200 feet to the south of the current road. The APE for indirect project effects is defined as one legal parcel out from the edge of the direct APE. The APE was determined by the survey crew. Extending the APE out one entire parcel allows the entire parcel, including all the elements of the resource, to be assessed, not just the building(s) or a portion of the property. Figure 4-13 shows the APE for the study area.

On February 7, 2013, the records maintained by the Archaeological Research Center of the South Dakota State Historical Society were searched for all previous projects and known cultural resources within 1 mile of the project’s direct APE. The records search revealed that 34 cultural resources inventories were completed between 1990 and 2012 and 49 cultural resources have been documented within 1 mile of the direct APE. More than two dozen historic structures are found along South Tallgrass Avenue, which bisects 85th Street, approximately 0.5 mile east of I-29. Approximately half of these structures are considered eligible for listing in the NRHP, while the other half have been evaluated as not eligible for listing in the NRHP. Most of these structures are outside the APE for direct and indirect effects, but they suggest the kinds of sites that might be present along 85th Street.

In September 2013, all built environment sites (historic buildings and structures) within the indirect APE were documented. An intensive cultural resources survey of the direct APE, which encompasses approximately 142 acres, was completed in November 2013 (URS 2014)\(^1\). This survey documented eight built environment sites with 13 features and no archaeological resources.

These eight sites are either historic farms and ranches dating to the early twentieth century or historic residences associated with early suburban development in the mid-twentieth century, located on either side of 85th Street. Two previously recorded sites are also found within the indirect APE: P. Mueller Farm (LN04400001), dating to the 1902s and 1930s, and a farmstead (LN1600001), dating to the early 1920s.

The Mueller Farm, recorded in 1991, is located 0.25 mile south of the direct APE, remains unaltered from its original condition, and was not re-recorded. The second historic farm, also recorded in 1991, has been removed and only a modern residence, garage, and metal outbuildings remain. The results of the survey were provided to the SHPO in August 2014.

\subsection{4.14.2 Environmental Consequences}

\subsubsection{4.14.2.1 No Build Alternative}

Because no construction activities related to this project are associated with this alternative, the No Build Alternative would not adversely affect any known historic properties.

\footnote{\textsuperscript{1} URS. 2014. I-29 Design Improvements Project: Results of a Class III Cultural Resources Inventory, Lincoln and Minnehaha Counties, South Dakota. May 15, 2014}
Legend

- Direct Area of Potential Effect
- Indirect Area of Potential Effect

Historic and Archaeological Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Figure 4-13
4.14.2.2 Build Alternatives

The eight historic structures that have been documented on 85th Street are considered not eligible for listing in the NRHP.

Letters were sent on October 4, 2013 to eight Indian Tribes that have expressed interest in highway projects in Lincoln County (Appendix C). A response of “No Objections” was received from the Flandreau Santee Sioux Tribe on October 10, 2013 (Appendix C). No other responses were received from the Indian Tribes. A list of the Indian Tribes that were consulted regarding the Project is provided in Section 7.2.

Therefore, based on available information, the FHWA and SDDOT made on August 5, 2014 a determination of **No Historic Properties Affected** for this undertaking. The SHPO concurred with this determination on September 3, 2014. SHPO coordination and response letters are included in Appendix C.

The contractor would be responsible for assuring any borrow brought in from outside the study area is obtained from an approved site.

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

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

### 4.15 SECTION 4(F) AND 6(F) PROPERTIES

#### 4.15.1 Affected Environment

Section 4(f) of the USDOT Act of 1966, now codified in 49 U.S.C. 303 and 23 U.S.C. 138, declares that it is the policy of the United States Government that special effort should be made to preserve 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.

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). Substantial impairment would only occur when the utility of the
resource in terms of prior significance is substantially diminished or destroyed. More specifically, not all impacts invoke protection under Section 4(f), but rather those that affect the present value of the property to the public and the public uses of that property. Any inconvenience to property owners, from whatever source, is not relevant to Section 4(f).

Temporary occupancy of land for construction easements are not a use under Section 4(f) provided it is of temporary duration, involves only minor work, has no permanent adverse physical impacts, includes full restoration of the land to pre-construction conditions, and there is documented agreement from the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.

No Section 4(f) properties are located within the APE for direct or indirect effects.

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

According to the SDDGFP, no Section 6(f) properties are located within the study area (Appendix C).

4.15.2 Environmental Consequences

4.15.2.1 No Build Alternative

The No Build Alternative assumes no construction activities related to this project would occur related to the 85th Street corridor. Therefore, no 4(f) or 6(f) properties would be impacted by this alternative.

4.15.2.2 Build Alternatives

No Section 4(f) properties would be directly or indirectly affected by project activities. Additionally, the SHPO concurred with a determination of No Historic Properties Affected with the project undertaking (see Section 4.14). Therefore, no Section 4(f) properties would be affected by any of the build alternatives.

No Section 6(f) properties occur within the study area. Therefore, no Section 6(f) properties would be directly or indirectly impacted by any of the build alternatives.

4.16 REGULATED MATERIALS

The section discusses the potential for soil, surface water, or groundwater contamination to be encountered during within the study area. This section discusses existing and potential environmental conditions in the study area that could affect the project.
SECTION FOUR  Affected Environment and Environmental Consequences

Conditions include properties where hazardous material spills or leaks have occurred and may present risk to the purchaser of that property. Contaminated, or potentially contaminated, properties are of interest for transportation projects because of the potential liability associated with acquiring contaminated property for ROW, the potential cleanup costs, and the safety concerns related to exposure to contaminated media (i.e., soil, surface water, or groundwater).

The American Society for Testing and Materials (ASTM) Standard E 1527-05 defines a recognized environmental condition (REC) as “the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release. Or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property.” (ASTM 2005).

4.16.1 Affected Environment

An Environmental Data Resources, Inc. (EDR) database search was completed on October 26, 2012, for the limits of 85th Street from Sundowner Avenue through Louise Avenue (EDR 2012a). Due to the size of the site, EDR standard search distances were extended by one half mile to ensure all sites were identified within their respective recommended search radius. The EDR database report was reviewed to identify known/recorded active and retired environmental action sites within the project’s construction corridor (0.25 mile on either side of the project). The identified sites were then evaluated to determine if they represented a REC to the construction corridor. The sites identified in the EDR report are summarized in Table 4-12.

One Leaking Underground Storage Tank (LUST) site was identified within the construction corridor. The facility was identified as ATP – Hackrott Property and located at 27012 Louise Avenue. One 560 gallon gasoline tank was removed from the property and the information regarding the removal was reported on February 2, 2005. The site was closed with No Further Action on February 7, 2005. Based on the status of the LUST facility, this site does not represent a REC to the construction corridor.

One South Dakota Environmental Events/Spills (SPILLS) site was identified within the construction corridor. The facility was identified as 85th Street & Hughes Diesel Spill and located at the intersection of 85th Street and Hughes Avenue. Approximately 25 gallons of diesel fuel were released in a surface spill at the identified intersection. The site was reported on February 4, 2003 and closed on February 7, 2003. Based on the type of spill and the limited amount of materials released to the surface, this site does not represent a REC to the construction corridor.

---


43 Environmental Resources Data, Inc. (EDR). 2012a. EDR Radius Map with GeoCheck. 85th Street Extension Project, 85th Street/Louise Avenue, Sioux Falls, SD 57108. Inquiry Number: 3441859.1s. October 26
Table 4-12: Environmental Database Search Results

<table>
<thead>
<tr>
<th>Regulatory Database</th>
<th>Search Distance Utilized (miles)</th>
<th>Sites Listed Within Construction Corridor (Yes/No)</th>
<th>Number of Sites Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Conservation and Recovery Act (RCRA) Small Quantity Generator (SQG)</td>
<td>0.75</td>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>Resource Conservation and Recovery Act (RCRA) Conditionally Exempt Small Quantity Generator (CESQG)</td>
<td>0.75</td>
<td>No</td>
<td>2</td>
</tr>
<tr>
<td>Emergency Response Notification System (ERNS)*</td>
<td>0.5</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>Leaking Underground Storage Tank (LUST)</td>
<td>1.0</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>Leaking Aboveground Storage Tanks (LAST)</td>
<td>1.0</td>
<td>No</td>
<td>2</td>
</tr>
<tr>
<td>Landfill/Solid Waste Disposal Sites (SWRCY) Businesses that Accept Recyclables</td>
<td>1.0</td>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>South Dakota Environmental Events/Spills (SPILLS)</td>
<td>0.5</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>Facility Index System/Facility Registry System (FINDS)</td>
<td>0.5</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>National Pollutant Discharge Elimination System (NPDES) – Wastewater Permit Listings</td>
<td>0.5</td>
<td>Yes</td>
<td>8</td>
</tr>
</tbody>
</table>

* The ERNS site was identified on the EDR orphan listing and its exact location is unknown.

One Facility Index System/Facility Registry System (FINDS) site was identified within the construction corridor. The facility was identified as Harrisburg Explorer Elementary – 04 and located at 4010 West 82nd Street. The facility was listed on the FINDS database due to its identification on the Environmental Interest/Information System database. This database identified Harrisburg Explorer Elementary due to the collection of data related to the site by the National Center for Education Statistics. Based on the information provided, this site does not represent a REC to the construction corridor.

Five NPDES sites were identified within the construction corridor. The facilities identified included three construction sites, the Verhey Gravel Pit, and Harrisburg Elementary School. The NPDES sites are not considered to represent RECs to the construction corridor.

Twenty six orphan sites were identified in the EDR report. Orphan sites are facilities listed on EDR databases reviewed that contain general location information (name of city) but have inadequate information to identify their specific location on a map. These facilities were reviewed to determine if they are located within close proximity to the construction corridor. One of the Orphan sites was potentially located in or near the construction corridor. This facility is an Emergency Response Notification System (ERNS) site identified as Intersection of West 85th Street. A site report was obtained from EDR for this facility. The report indicated that a natural gas release occurred during an excavation with a back hoe (EDR 2012b).  

release identified at the site, the ERNS site is not considered to represent a REC to the construction corridor.

The remaining facilities identified in the EDR report, but not discussed in the preceding paragraphs, are located outside of the construction corridor. Based on distance considerations, regulatory status, and information provided in the EDR report these facilities are not considered to represent RECs to the construction corridor.

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

The SDDENR was contacted about this project in a letter dated October 9, 2013 (Appendix C).

4.16.2 Environmental Consequences

4.16.2.1 Alternative 1 – No Build

The No Build Alternative would not involve any construction activities related to this project. Furthermore, no RECs were identified within the construction corridor.

4.16.2.2 Build Alternatives

No regulated materials issues were identified within the construction corridor. Therefore, construction of any of the build alternatives would not impact any REC sites.

The SDDENR indicated in a letter dated November 7, 2013 (Appendix C) the office had no objections to the project but provided the following requirements:

- Should any hazardous waste be generated during the implementation of the project, the generator must abide by all applicable hazardous waste federal, state and local regulations found at Administrative Rules of South Dakota (ARSD) 74:28 and 40 CFR Part 262.
- If any contamination is encountered during construction activities, the contractor, owner, or party responsible for the release must report the contamination to the SDDENR.

4.17 CONSTRUCTION IMPACTS

The impacts of construction would be temporary and limited to the period of construction. Impacts during construction would be related to noise, air quality, visual resources, wetlands and other WOUS, water quality, habitat, fish, threatened and endangered species, and wildlife. In addition, there would be temporary impacts on travel patterns and accessibility. Because detailed discussion of construction impacts is not feasible until final design has been completed for the build alternative, general impacts are discussed in this section. However, all practical precautions would be taken to limit and minimize the temporary impacts of construction activities. Construction-related impacts for the Project would be minimized by compliance with the
SECTION FOUR  

Affected Environment and Environmental Consequences

SDDOT Construction Field Manual (SDDOT 2004)\textsuperscript{45} and Sioux Falls General Conditions, Specifications, and Policies (Sioux Falls 2015e)\textsuperscript{46}.

4.17.1 Noise

4.17.1.1 Impacts

Temporary noise impacts on areas adjacent to the 85\textsuperscript{th} Street ROW and construction areas (laydown and staging areas) would occur during construction activities. Activities such as large construction equipment and pile driving would create new and additional noise sources for the Study area. The project area and study area currently consists of farmland, residences, and commercial/industrial areas (see Section 4.1, Land Use). Future land use in the Project Area and study area are projected to be residential, mixed use community, and commercial/industrial. The receptors located adjacent to the construction areas are likely to experience impacts associated with construction activities, such as noise generated from machinery required for road and bridge construction. These construction activities may include excavating, filling, grading, pile driving, and other related activities. These construction related noise impacts would be short-term and limited to the duration of construction.

During the construction of the bridge over I-29, there would be overnight re-routing of I-29 traffic on to existing roadways (i.e. Louise, County Highway 106). Traffic detours could create additional noise impacts to areas not directly adjacent to the construction area due to re-routing traffic. This work and the number of nighttime detours is similar to the Solberg Avenue / I-229 overpass project, which required eight nighttime detours. These impacts would be temporary, short-term and minor and no mitigation would be necessary.

For a discussion of long-term impacts relating to traffic noise, see Section 4.6, Noise.

4.17.1.2 Avoidance, Minimization, and Mitigation

Previously identified noise BMPs, in accordance with SDDOT construction manuals and Sioux Falls General Conditions, Specifications, and Policies, would be used to mitigate construction-related noise impacts. An example of one BMP would be to limit construction to greater than 1,000 feet from an occupied dwelling unit on Sundays, legal holidays, or between the hours of 10:00 PM and 6:00 AM on other days without approval of the Sioux Falls/SDDOT construction project manager. This BMP would reduce noise levels in any neighboring residential areas during the evening and at night, the most sensitive timeframe for noise impacts. Additional noise BMPs are provided in Section 4.6.4.


4.17.2 Air Quality

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

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

4.17.2.1 Impacts

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

4.17.2.2 Avoidance, Minimization, and Mitigation

To minimize air quality impacts during construction, the following BMPs would be implemented:

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

4.17.3 Visual Resources

4.17.3.1 Impacts

Impacts on visual resources during construction would be temporary and negligible.

4.17.3.2 Avoidance, Minimization, and Mitigation

For any construction areas that would remain un-vegetated for an extended period of time, such as over the winter, temporary seeding would be required in accordance with the SWPPP (Section 4.9.2.2). This would be required around residential areas and any other area where fugitive dust over an extended period of time would be an unacceptable visual impact.

4.17.4 Wetlands and Other Waters of the United States

4.17.4.1 Impacts

Construction of either build alternative would result in the filling of wetlands and other WOUS. Regardless of the build alternative selected, approximately 1.7 acres of palustrine emergent wetlands would be impacted.
4.17.4.2 Avoidance, Minimization, and Mitigation

Per EO 11990, a mitigation plan and wetlands finding have been prepared to address impacts to non-jurisdictional wetlands. These documents are provided in Appendix E and F, respectively. Impacted wetlands would be mitigated in accordance with FHWA guidelines (23 CFR 777.9).

4.17.5 Water Quality

4.17.5.1 Impacts

The Big Sioux River and Skunk Creek are located approximately 1.5 miles east-northeast of the Study area. Although these waterbodies would not be directly impacted by any of the Build Alternatives, construction activities could discharge sediment and other potential pollutants into intermittent small drainages within the study area and ultimately into the Big Sioux River or Skunk Creek.

4.17.5.2 Avoidance, Minimization, and Mitigation

The contractor would be required to implement BMPs in accordance with the SDDOT construction manual and Sioux Falls construction standards to minimize temporary impacts on water quality during construction. The SDDENR administers the Federal NPDES program and issues general permits for stormwater discharges from construction activities. The purpose of the program is to improve water quality by reducing or eliminating contaminants in stormwater, and reducing stormwater runoff into streams and other WOUS. The NPDES program requires preparation of a SWPPP for construction sites of more than 1 acre, which would be applicable for both build alternatives.

The specific sediment control, erosion control, and spill prevention measures would be developed during the detailed design phase and would be included in the plans and specifications. The SWPPP would address SDDOT construction manual requirements and Sioux Falls General Conditions, Specifications, and Policies. Because the impacted area is in a wellhead/aquifer protection zone (SDDENR 2017), the SWPPP would include such BMPs as installation of silt fences, buffer strips, or other features to be used in various combinations as well as the stipulation that drums of petroleum products be placed in secondary containment to prevent leakage onto ground surfaces. As part of standard construction BMPs, water detention basins could also be constructed to minimize pollutant loading of surface waters. Another standard construction BMP is revegetation and stabilization of roadside ditches to provide opportunities for the runoff from the impermeable area to infiltrate, reduce velocities, and minimize increases in sedimentation.

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

4.17.6 Habitat, Fish, and Wildlife

4.17.6.1 Impacts

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

4.17.6.2 Avoidance, Minimization, and Mitigation

Impacts on fisheries in the Big Sioux River and Skunk Creek would be reduced by implementation of BMPs identified in the SWPPP to minimize impacts on the water quality of these streams (see Sections 4.9 and 4.10, Water Quality and Terrestrial Wildlife and Aquatic Resources, respectively). These BMPs would be employed during the project construction.

As discussed in Section 4.11.2, Sioux Falls and the SDDOT determined neither build alternative would impact any of the federal or state listed threatened and endangered species. The USFWS and SDDGFP agreed no listed threatened and endangered species or species purposed for listing would be impacted by project activities; therefore, there are no special BMPs or mitigation measure associated with this project for federal or state listed species.

SDDOT construction manual and Sioux Falls General Conditions, Specification, and Policies; and BMPs would also be employed for minimizing impacts on disturbed upland habitat, which would be restored by seeding the disturbed areas with a native grass and forb mixture. The seeding would stabilize soil and decrease soil erosion.

With the planned BMPs and other stipulations in the NPDES construction permit required for the project, neither build alternatives would have an indirect adverse effect on the Big Sioux River and associated aquatic resources.

4.17.7 Travel Patterns and Access

4.17.7.1 Impacts

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

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

4.18 CUMULATIVE IMPACTS

Cumulative impacts are beneficial and/or adverse effects that would result when impacts from the Project are considered with other local or regional impacts. Section 1508.7 of CEQ regulations define cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions.” Assessing cumulative impacts involves taking the impacts associated with individual actions and looking at them collectively, over a period of time. Cumulative impacts may arise from single or multiple actions and result in additive or interactive effects. Before cumulative impacts can be evaluated, a proposed action must be far enough in the planning process that its implementation is reasonably foreseeable. Reasonably foreseeable actions are those which are likely to occur based on reliable sources, and are typically characterized in planning documents.

The following paragraphs identify past, present, and reasonably foreseeable future actions, discuss the potential resulting cumulative impacts, and evaluate the impacts on affected resources.

Sources of information for proposed projects include the Sioux Falls Comprehensive Development Plan: Shape Sioux Falls 2035(Sioux Falls 2016d); Go Sioux Falls 2040 Long-Range Transportation Plan (Sioux Falls 2015a); Sioux Falls MPO 2017-2020 Transportation Improvement Program (Sioux Falls 2016a), Sioux Falls 2017-2021 Capital Program (Sioux Falls 2016b) and the most recent South Dakota STIP 2017-2020 (SDDOT 2016a).

4.18.1 Past Actions

Past actions that have affected resources within the area:

- Agricultural activity since the settlement of the area has resulted in the conversion of native prairie to cropland.
- Commercial/industrial and residential development has occurred along Louise Avenue, Solberg Avenue, Sundowner Avenue, Tallgrass Avenue, 69th Street, 85th Street, and I-29 at the Tea Interchange.
- Other development, such as road and utilities has occurred in the area.
These past actions have resulted in an increase of impervious surfaces and impacts to water quality, wildlife and wildlife habitat, land use, traffic volumes/patterns, economics, farmland, and WOUS in the southwestern Sioux Falls metro area and the study area. In the 150 years, development has markedly changed the veiwshed of of the Sioux Falls and surrounding area from native prairie to urban-suburban settlements and farmland. The proposed project would involve the construction of storm sewers to help manage stormwater flow.

Farmland conversion and reduction of habitat is an on-going effect associated with development, especially in metropolitan areas. The State has established Waterfowl Production Areas and other habitats near metropolitan areas to minimize impacts to wildlife and their habitat. Currently, rural areas provide adequate habitat for hunting, fishing, and conservation. Development and agricultural activities have also reduced the amount of wetlands in the Sioux Falls area; however, current protections and requirements for replacement of wetlands would minimize and mitigate impacts.

4.18.2 Present Actions

Present actions near the project corridor include commercial development independent of the proposed roadway improvement. As addressed in Chapter 2, Purpose of and Need for Proposed Action, the project is needed to help with system linkage and accommodate traffic growth in the southwestern area of Sioux Falls. Development is occurring without the 85th Street project. Recent developments within the project area include the construction of townhome complexes on the north and south sides of 85th Street west of Brett Avenue. These development activities are subject to compliance with various environmental protection laws and requirements, including avoidance, minimization, or mitigation of impacts.

Current development would increase the impervious surface area; however, stormwater systems are being developed to minimize runoff and facilitate groundwater recharge. Noise would be generated as a temporary impact during construction of these projects. Continued development would also impact air and water qualities, visual aesthetics, land use, farmlands, wetlands, and WOUS. Impacts to these resources would be limited by the size of the developments and regulatory requirements, such as limits on stormwater runoff under NPDES permits. Impacts to wetlands and WOUS would be further limited by permit and mitigation requirements. Most of the impacts would be short-term, primarily during construction. However, the conversion of agricultural land and other lands for development as part of other present actions independent of the project would also cause long-term impacts to air and water qualities, land uses, and visual aesthetics. Air quality would be affected from the conversion of cropland to industrial areas; emissions would be released from boilers, heaters, and other types of machinery. Increased traffic volumes would also have an impact on increased emissions in the study area. The conversion of cropland to urban development would also cause additional stormwater runoff that would need to be managed by the stormwater sewer system and less recharge to groundwater aquifers due to an increase in impermeable surfaces.
4.18.3 Reasonably Foreseeable Future Actions

The 85th Street extension project is one of several transportation projects/studies under consideration within the southwest portion of the Sioux Falls metropolitan area. Projects in the vicinity of this study area which are included in the SDDOT STIP 2017-2020 (SDDOT 2016a), Sioux Falls MPO 2017-2020 Transportation Improvement Program (Sioux Falls 2016a) and the City of Sioux Falls 2017-2021 Capital Program (Sioux Falls 2016b) are listed below:

- 85th Street: Sundowner Avenue to Louise Avenue
- I-29 / 85th Street Grade Separation Structure
- Sundowner Avenue: 67th Street to 85th Street
- Tallgrass Avenue: 69th Street to 85th Street
- 69th Street: Tallgrass Avenue to Louise Avenue

Additional transportation projects planned in the future (by year 2040) in the southwest portion of the Sioux Falls metropolitan area are identified in Go Sioux Falls 2040, Sioux Falls MPO Long-Range Transportation Plan (Sioux Falls 2015a) and include the following:

- 271st Street: Heritage Avenue to 0.2 Miles East of Sundowner Avenue
- 85th Street: Ellis Road to Sundowner Avenue
- 69th Street: Tea-Ellis Road to Sundowner Avenue
- 69th Street: Sundowner Avenue to Solberg Avenue – I-29 Grade Separation Structure
- 85th Street: Louise Avenue to Audie Avenue
- 69th Street: Solberg Avenue to 0.5 Mile East
- Louise Avenue: 93rd Street to Co. 106
- Tallgrass Avenue: 85th Street to Co. 106
- Sundowner Avenue: 85th Street to 271st Street
- SD 100: I-29 to Louise Avenue
- Sundowner Avenue: 57th Street to 67th Street

In addition to the street projects listed above, the City has received a number of plats and/or preliminary planning work from developers for properties along the 85th Street corridor and north along Tallgrass. These projects are for mixed use or commercial developments. Additionally, the 2017-2021 Capital Plan from City of Sioux Falls includes a 2020 project to upgrade roads for a new school/park site located about a 0.5 mile south of 85th Street between Tallgrass Avenue and Louise Avenue.

As discussed in Section 2 and indicated above, residential and commercial development in this area of Sioux Falls is projected to increase substantially. The cumulative effect of these roadway improvements is to improve traffic operations and access for this growing area.
Many of these transportation facilities currently exist and the capacity improvements listed above would enhance traffic operations throughout this area of Sioux Falls. These potential roadway improvement projects are projected to result in similar impacts as the 85th Street extension. Projected impacts for environmental elements from these projects include ROW, farmland conversion, noise impacts to existing residential uses, and impacts to wetlands. As those studies progress into the environmental stage, steps would be taken to minimize impacts on these environmental resources and throughout the ongoing project development process. Sioux Falls, the SDDOT, and local agencies would continue to evaluate mitigation measures that could be employed to minimize project related impacts. Likewise, as the proposed action progresses into final design, Sioux Falls, the SDDOT, and local agencies would continue to look for ways to minimize project related impacts.

It is also foreseeable an interchange could be constructed at 85th Street and I-29. Projected environmental impacts include additional ROW, farmland conversion, noise impacts, a change in traffic patterns, economic impacts, and impacts to wetlands. The rate of development in the area would likely occur at a much faster rate with the construction of an interchange due to a direct connection to the interstate system. If an interchange is proposed for construction, steps would be taken to avoid, minimize, and/or mitigate impacts on environmental resources throughout the project development process.

4.18.4 Cumulative Impacts by Discipline

**Land Use**

The City of Tea, Sioux Falls, and Lincoln County all have identified future land uses throughout their respective jurisdictions. Land use in the project area is primary agricultural and single family residences. Future land use for the project area and surrounding property is planned as commercial or mixed use. Other surrounding areas are designated for residential use. As the area continues to grow and population increases, it is likely more of the available space would be converted from agricultural use to residential/commercial uses as designated by the governing municipality. Therefore, existing land use is expected to change in the future. However, municipalities are already making provisions for land use changes in their zoning. Therefore, although land use changes may occur more quickly as more development occurs, the cumulative effect on land use from additional projects would be manageable and not unexpected.

**Soils/Prime Farmland**

Most of the projects identified in the sections above, either involve the upgrade to the road to accommodate more lanes of traffic and/or wider shoulders or the construction of buildings. All of the identified project would result in soils being disturbed. The cumulative effect of these projects on soils affected would be the sum of the acres of soils affected by each individual project. However, many of the identified project features have not been designed; therefore, the cumulative impact on soils cannot be quantified. Although the number of acres of soils cannot be precisely determined, the magnitude of the soil disturbance would be relatively small when compared to the number of acres present within the county.
As development continues to occur on the boundary of the metropolitan areas, conversion of farmland would also continue to occur. As with soils in general, the cumulative number of acres of farmland and prime farmland cannot be determined at this time. However, most of the identified roadway projects are located within the more urban areas of the Lincoln County and Sioux Falls; therefore, farmland would not be impacted by those projects. Some areas designated for development are currently farmland, including prime farmland. Development of these areas would result in the conversion of farmland to non-agricultural uses. Although the number of acres of farmland/prime farmland cannot be precisely determined, the magnitude of the loss would be relatively small when compared to the total number of farmland acres present within the county.

**Pedestrians/Bicyclists**

It is anticipated that new roadway projects throughout the city would add bicycle lanes and sidewalks to assist Sioux Falls MPO in achieving its goal of accommodating all modes of traffic and the Sioux Falls Bike goal of “complete street” designs. Therefore, the future projects would have cumulative positive impact for pedestrians and bicyclists.

**Social**

Development is a necessary consequence of population growth and population density tends to increase following development. The cumulative effect of identified projects on population would be that areas of lower density population could see an increase in density. This effect could be perceived as either positive or negative depending on perspective. Some in the area may view further development as a negative impact due to increased traffic and development density. Additionally, they may view an influx of commercial development as detracting from the suburban experience. Others may view growth as providing opportunities for individuals and the community as a whole.

As development occurs neighborhood boundaries would likely change. The sense of community for some could also change. However, new “communities” would form as development continues throughout the city and county. Therefore, the cumulative impact on community cohesion could be positive or negative based on perspective.

**Economics**

Sioux Falls has already experienced a steady population growth resulting in commuter demands on existing and new roadway systems. The area also has a fast growing labor market with new employment opportunities in many industries. This growth is expected to continue. The identified roadway projects and development would add in the industrial expansion in the area by providing a good working infrastructure and desirable facilities for continued population growth which provides a labor force. The cumulative effect on economics would positive.
Acquisition and Relocation

Several of the projects identified above require the acquisition of additional ROW which could involve a partial take or total property acquisition depending on the amount of ROW needed and the proximity of the property to the project area. The acquisition could also include structures, such as houses or farmsteads. Although the number of acquisition cannot be quantified at this time, there is enough housing availability and options within Sioux Falls and Lincoln County to accommodate the people who may be impacted by these acquisitions and/or relocations. All ROW acquisition and relocation would be in accordance with the Uniform Act, which require that just compensation be paid to the owner of private property taken for public use. Therefore, cumulatively, these impacts would be considered acceptable and mitigatable.

Noise

Noise levels increase as traffic volumes or travel speeds increase. Noise levels also increase in areas near commercial and residential development. The cumulative impact of the identified projects would be an increase in local noise levels.

Travel Patterns

Travel patterns are set by the availability of roadways and the location of commercial and residential development. Future roadway project would likely maintain or upgrade existing roadways or add roadways in areas of need in response to development. Commercial and residential development also follows roadway development. Therefore, the identified projects would determine future travel patterns with the area. Assuming roadway development keeps pace with commercial and residential development, cumulative impact on travel patterns would be positive.

Water Quality

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

Due to either time or space separation, the impacts associated with the individual projects are not additive and would not have a cumulative effect. However, most of the identified projects also result in the creation of more impervious surfaces. Runoff from these areas could accelerate the movement of contaminants to local streams. Runoff entering a stream from more than one of the projects would represent a cumulative effect. However, the amount of contaminants being carried to a specific stream would not be expected to result in established water quality criteria.
being exceeded. As future projects are designed, assessment of adjacent development would be conducted and the potential for impacts to water quality would be evaluated in order to obtain permits for the roadway improvements or development approval.

Wetlands

The acquisition of additional ROW could potential impact wetlands. The cumulative effect of these projects would be additive (sum of the acres of wetlands affected by the individual projects). It is expected that wetlands would be mitigated as per the requirements that would be established by the USACE during the issuance of a Section 404 Permit. Since the design of many of the identified projects has not been finalized, the exact quantification of the cumulative impacts on wetlands cannot be made. Generally, wetland mitigation requires the creation of more acres of wetland for each acre of wetland lost.

Vegetation, Wildlife, and Aquatic Life

As with many areas in the country, vegetation communities and wildlife habitat in South Dakota are being fragmented or lost due to increasing populations, development, and linear projects. Habitat fragmentation or loss would occur from residential, commercial, and industrial development, as well as road improvement projects. The habitat fragmentation and loss impacts associated with the 85th Street project would be cumulative to vegetation communities and wildlife habitat impacts associated with other projects in the area, but would likely not result in substantial changes in wildlife populations in the area.

Threatened, Endangered, Candidate, and State-Listed Species

Three federally listed species, two candidate species, and four state listed species have the potential to occur in Lincoln County. The proposed project was determined to not have the potential to adversely affect any federally or state listed threatened, endangered, or candidate or their required habitat. Therefore, the proposed project does not have the potential to contribute to cumulative impacts on threatened, endangered, or candidate species nor state listed species.

4.18.5 Indirect Cumulative Development Impacts

The southwestern portion of Sioux Falls is expected to increase. Establishing the 85th Street connection across I-29 would create a new arterial corridor between employment opportunities east of I-29 and south of I-229 and future residential areas outside the current Sioux Falls city limits. The new arterial connection would not result in changes for the future development concepts in undeveloped areas to the south, but it could result in moving the timing of residential developments to an earlier period. The arterial could result in some acceleration of commercial or industrial development concepts in the area; however, they rely more on improved connections with regional facilities, such as I-29 and I-229. The proposed arterial crossing does not result in enhanced access to the interstate system. While the 85th Street project may increase the rate of commercial/industrial development in the area, the increase would be less than would occur with a connection to the interstate system.
5.1 SELECTION OF PREFERRED ALTERNATIVE

The information presented in Section 4 documents the potential positive and negative environmental criteria impacts associated with the identified alternatives, including:

- Alternative 1 – No Build
- Alternative 2 – Extend 85th Street Over I-29 on Section Line
- Alternative 3 – Extend 85th Street Over I-29 South of Section Line

The environmental analysis is a critical determinant in selection of the locally preferred alternative, but it is not the only determinant and is not necessarily the controlling determinant. The Preferred Alternative should be the concept that best meets the local, regional, and state transportation system goals. Environmental stewardship is one of the transportation goals, but not the only goal.

Determining which of the alternatives is the locally preferred alternative takes into account balancing:

- Environmental review results.
- Local and regional transportation system connectivity and continuity beyond the limits, but influenced by current concept under consideration.
- Potential for positive and/or negative impacts to current and/or anticipated development in the adjacent area.
- Cost of one alternative relative to the others.
- How each of the alternatives addressed transportation goals for the community and the region.
- Support from the public.

The process employed in the selection of the Preferred Alternative is outlined below:

- Complete the evaluation of potential environmental impact associated with viable alternatives through the preparation of this EA. The results of this evaluation are provided in Section 4 of this document and summarized in Table 5-1.
- Present a summary of the findings associated with the no build and build alternatives to a broad range of planning and design personnel from the SDDOT and the City of Sioux Falls.
- With personnel from each of the departments listed, determine which of the alternatives best meets the regional and local transportation system goals.
- Document the preliminary recommendation of the Preferred Alternative to the public and agencies for comment.
<table>
<thead>
<tr>
<th>Environmental Resource</th>
<th>Alternative 1 - No Build</th>
<th>Alternative 2 - Extension of 85th Street Over I-29 on Section Line</th>
<th>Alternative 3 - Extension of 85th Street Over I-29 South of Section Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Use and Zoning</td>
<td>-Development and land use changes would occur at a slower rate than with either build alternative.</td>
<td>-Approximately 24 acres of new ROW</td>
<td>-Approximately 22 acres of new ROW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Approximately 7 acres of construction easement</td>
<td>-Approximately 6.5 acres of construction easement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-East and West of I-29 at 85th Street current</td>
<td>-East and West of I-29 at 85th Street current</td>
</tr>
<tr>
<td></td>
<td></td>
<td>land use is residential; future land use is</td>
<td>land use is residential; future land use is</td>
</tr>
<tr>
<td></td>
<td></td>
<td>designated as commercial</td>
<td>designated as commercial</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Acquisition of 4 residential parcels for the</td>
<td>-No structure acquisitions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bridge embankment ROW</td>
<td></td>
</tr>
<tr>
<td>Prime Farmland</td>
<td>-Conversion of farmland due to development activities would occur at a slower rate than with either build alternative.</td>
<td>-Farmland Conversion Impact Rating Form AD-1006 score of 138</td>
<td>-Farmland Conversion Impact Rating Form AD-1006 score of 136</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Approximately 12 acres of cropland and</td>
<td>-Approximately 17.5 acres of cropland and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pasture land converted to a transportation</td>
<td>pasture land converted to a transportation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>corridor</td>
<td>corridor</td>
</tr>
<tr>
<td>Considerations Related to</td>
<td>-No new bike lanes along 85th Street Corridor.</td>
<td>-Bike lanes along east and west bound lanes of</td>
<td>-Bike lanes along east and west bound lanes of</td>
</tr>
<tr>
<td>Pedestrians and Bicyclists</td>
<td></td>
<td>85th Street Corridor</td>
<td>85th Street Corridor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Assists Sioux Falls MPO in achieving goal of</td>
<td>-Assists Sioux Falls MPO in achieving goal of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>accommodating all modes of traffic</td>
<td>accommodating all modes of traffic</td>
</tr>
<tr>
<td>Population/Demographics</td>
<td>-No effect on population growth pattern in Sioux Falls</td>
<td>-Minor, positive effect on residential and</td>
<td>-Minor, positive effect on residential and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>commercial growth in western and southern</td>
<td>commercial growth in western and southern</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sectors of Sioux Falls</td>
<td>sectors of Sioux Falls</td>
</tr>
<tr>
<td>Community Cohesion</td>
<td>-No separation or isolation of any distinct neighborhoods, ethnic groups, or other specific groups.</td>
<td>-No access restriction to any existing public or community services, businesses, or commercial areas.</td>
<td>-No access restriction to any existing public or community services, businesses, or commercial areas.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Displacement/relocation associated with 2 structures related to single family residences.</td>
<td>-Long term benefit of improved mobility, safety and the operational efficiency of the existing facilities throughout the project area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Long term benefit of improved mobility, safety and the</td>
<td>-Improved access to both sides of I-29.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>operational efficiency of the existing facilities</td>
<td>-No separation or isolation of any distinct neighborhoods, ethnic groups, or other specific groups.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>throughout the project area.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Improved access to both sides of I-29.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-No separation or isolation of any distinct neighborhoods, ethnic groups, or other specific groups.</td>
<td></td>
</tr>
<tr>
<td>Environmental Justice</td>
<td>-No direct adverse impact to low-income and/or minority populations</td>
<td>-No direct adverse impact to low-income and/or minority populations</td>
<td>-No direct adverse impact to low-income and/or minority populations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-A total of two structures located on two</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>residential parcels would need to be acquired</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>for this alternative. Two additional parcels with no structures</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>would also need to be acquired. Other parcels would have partial</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>acquisition of land.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Approximately 24 acres of new ROW</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Approximately 7 acres of construction easement.</td>
<td></td>
</tr>
<tr>
<td>Acquisitions/Relocations</td>
<td>-No structures or land would need to be acquired or relocated</td>
<td></td>
<td>-Alternative would not require the acquisition of any structures.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-Partial acquisition of parcels would be required for the additional ROW (22 acres) and construction easements (6.5 acres).</td>
</tr>
</tbody>
</table>

Table 5-1: Summary of Impacts by Alternative
Table 5-1: Summary of Impacts by Alternative

<table>
<thead>
<tr>
<th>Environmental Resource</th>
<th>Alternative 1 - No Build</th>
<th>Alternative 2 - Extension of 85th Street Over I-29 on Section Line</th>
<th>Alternative 3 - Extension of 85th Street Over I-29 South of Section Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Facilities and Services</td>
<td>-No Impact</td>
<td>-Several of these utilities would likely have to be relocated within the new ROW or into a new utility easement. These utilities could include cable, phone, fiber optic, and water lines. Relocations of utilities represent a short-term negative impact. SDDOT and Sioux Falls would coordinate with the utility companies about specific utility relocations prior to construction activities. During construction, the public would be informed of any service interruption prior to the loss of service. Interruptions would be temporary and minimized to the extent possible.</td>
<td>-Several of these utilities would likely have to be relocated within the new ROW or into a new utility easement. These utilities could include cable, phone, fiber optic, and water lines. The large Lewis and Clark water pipeline would need to be relocated with this alternative. This relocation would require additional construction activities and coordination with the utility. Relocations of utilities represent a short-term negative impact. SDDOT and Sioux Falls would coordinate with the utility companies about specific utility relocations prior to construction activities. The public would be informed of any service interruption prior to the loss of service. Interruptions would be temporary and minimized to the extent possible.</td>
</tr>
<tr>
<td>Economics/Tax Base</td>
<td>-Income, employment opportunities, and tax base would remain similar to existing conditions and changes would be in response to development activity in the surrounding area.</td>
<td>-During construction, temporary impacts to economic resources including nominally increased travel times for brief durations. Short-term beneficial economic impact due to the purchase of goods and services during construction. Post-construction, the extension of 85th Street over I-29 would provide additional connectivity in the area and may hasten development in the area. Potential for long-term economic benefit to Sioux Falls if the upgraded transportation system aides in the recruitment of businesses and associated jobs to the area. Potential for economic benefit to those currently living along the roadway, as their properties may become more desirable for development. Slight tax base would decrease due to conversion of land to non-taxable ROW. Maximum loss in revenue would be less than 0.01 percent of the total county revenue. A long term positive impact on the tax base would occur if development of the area occurs, especially commercial development.</td>
<td>-During construction, temporary impacts to economic resources including nominally increased travel times for brief durations. Short-term beneficial economic impact due to the purchase of goods and services during construction. Post-construction, the extension of 85th Street over I-29 would provide additional connectivity in the area and may hasten development in the area. Potential for long-term economic benefit to Sioux Falls if the upgraded transportation system aides in the recruitment of businesses and associated jobs to the area. Potential for economic benefit to those currently living along the roadway, as their properties may become more desirable for development. Slight tax base would decrease due to conversion of land to non-taxable ROW. Maximum loss in revenue would be less than 0.01 percent of the total county revenue. A long term positive impact on the tax base would occur if development of the area occurs, especially commercial development.</td>
</tr>
<tr>
<td>Visual Quality/Aesthetics</td>
<td>-As this development occurs, the viewshed would be changed from a rural setting to an urban setting.</td>
<td>Temporarily altered by construction activities and construction equipment</td>
<td>Temporarily altered by construction activities and construction equipment</td>
</tr>
</tbody>
</table>
### Table 5-1: Summary of Impacts by Alternative

<table>
<thead>
<tr>
<th>Environmental Resource</th>
<th>Alternative 1 - No Build</th>
<th>Alternative 2 - Extension of 85th Street Over I-29 on Section Line</th>
<th>Alternative 3 - Extension of 85th Street Over I-29 South of Section Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Quality/Aesthetics, cont’d</td>
<td>- Post-construction minor change due to new overpass bridge at 85th Street</td>
<td>- Post-construction minor change due to new overpass bridge at 85th Street</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The indirect residential and commercial development projected to occur in the surrounding areas would present a greater change in the viewshed than the proposed roadway changes.</td>
<td>- The indirect residential and commercial development projected to occur in the surrounding areas would present a greater change in the viewshed than the proposed roadway changes.</td>
<td></td>
</tr>
<tr>
<td>Air Quality</td>
<td>- Increased traffic volumes would have the potential to result in localized air quality impacts related to vehicle exhaust, especially during AM and PM peak hours.</td>
<td>- Temporary, minor impacts on air quality relating to increased dust levels and vehicle exhaust during construction - Impacts would be short-term and localized, and no permit would be required.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- If dust were to become a problem, the contractor would be required to implement dust control procedures (i.e., water down the work area. - No long-term major impacts are anticipated and no air quality standards would be violated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The indirect residential and commercial development projected to occur in the surrounding areas would present a greater change in the viewshed than the proposed roadway changes.</td>
<td>- Temporary, minor impacts on air quality relating to increased dust levels and vehicle exhaust during construction - Impacts would be short-term and localized, and no permit would be required. - If dust were to become a problem, the contractor would be required to implement dust control procedures (i.e., water down the work area. - No long-term major impacts are anticipated and no air quality standards would be violated.</td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td>- No Impact</td>
<td>- Construction noise impacts would be short-term and limited to the duration of construction - 20 receptors have the potential to incur a substantial noise increase. - Detour traffic for I-29 traffic for 85th Street bridge construction would result in elevated noise levels that would be short-term and temporary.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Some traffic delays and rerouting expected during construction - Access to all residences and businesses would be maintained throughout the construction period - Post-construction, full movement access along 85th Street would be limited to 0.25 mile. Properties between the 0.25 mile access points would be limited to right in/right out movements. - Long-term beneficial impact on traffic patterns and access for the Sioux Falls metro area due to the new east-west connection across I-29. - Anticipated that post-construction traffic on 85th Street would increase due to the extension across I-29.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Some traffic delays and rerouting expected during construction - Access to all residences and businesses would be maintained throughout the construction period - Post-construction, full movement access along 85th Street would be limited to 0.25 mile. Properties between the 0.25 mile access points would be limited to right in/right out movements. - Long-term beneficial impact on traffic patterns and access for the Sioux Falls metro area due to the new east-west connection across I-29. - Anticipated that post-construction traffic on 85th Street would increase due to the extension across I-29.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geology, Topography, and Soils</td>
<td>- No Impact</td>
<td>- Approximately 29 acres of soil disturbance, including the area presently occupied by existing road surface (6 acres), the amount of new road surface (approximately 10 acres), and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Approximately 33 acres of soil disturbance, including the area presently occupied by existing road surface (6 acres), the amount of new road surface (approximately 10 acres), and</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 5-1: Summary of Impacts by Alternative

<table>
<thead>
<tr>
<th>Environmental Resource</th>
<th>Alternative 1 - No Build</th>
<th>Alternative 2 - Extension of 85th Street Over I-29 on Section Line</th>
<th>Alternative 3 - Extension of 85th Street Over I-29 South of Section Line</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Approximately 13 acres temporarily impacted during construction.</td>
<td>- Approximately 17 acres temporarily impacted during construction.</td>
<td>- Approximately 17 acres temporarily impacted during construction.</td>
</tr>
<tr>
<td></td>
<td>- Soil comprised of the existing vegetative structure (topsoil) would be salvaged, replaced, and re-vegetated following construction.</td>
<td>- Soil comprised of the existing vegetative structure (topsoil) would be salvaged, replaced, and re-vegetated following construction.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- BMPs, such as silt fences and/or hay bales, would be utilized during construction to prevent or reduce soil erosion within disturbed areas.</td>
<td>- BMPs, such as silt fences and/or hay bales, would be utilized during construction to prevent or reduce soil erosion within disturbed areas.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Re-vegetation program of disturbed areas once construction has been completed.</td>
<td>- Re-vegetation program of disturbed areas once construction has been completed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- None of the soils that have the potential to be affected are scarce within Lincoln County</td>
<td>- None of the soils that have the potential to be affected are scarce within Lincoln County</td>
<td></td>
</tr>
<tr>
<td>Hydrology and Water Quality</td>
<td>- Potential for indirect impacts to quality water could occur as the area surrounding the roadway develops. Increased impermeable surface could cause increased storm-water runoff which has a negative impact on water quality downstream.</td>
<td>- NPDES Permit (General Permit for Storm Water Discharges Associated with Construction Activities) under the South Dakota SWD program would be required.</td>
<td>- Development of a SWPPP that outlines the BMPs.</td>
</tr>
<tr>
<td></td>
<td>- Development in the area would be expected to occur. This development would have the possibility of impacting wetlands in the area. These impacts cannot be quantified at this time. Additionally, private development is not bound by EO11990; therefore, impacts could potentially be greater than those associated with Build Alternatives.</td>
<td>- Development in the area would be expected to occur. This development would have the possibility of impacting wetlands in the area. These impacts cannot be quantified at this time. Additionally, private development is not bound by EO11990; therefore, impacts could potentially be greater than those associated with Build Alternatives.</td>
<td>- Development in the area would be expected to occur. This development would have the possibility of impacting wetlands in the area. These impacts cannot be quantified at this time. Additionally, private development is not bound by EO11990; therefore, impacts could potentially be greater than those associated with Build Alternatives.</td>
</tr>
<tr>
<td>Waters of the United States/Wetlands</td>
<td>- Approximately 1.65 acres of non-jurisdictional wetlands impacted.</td>
<td>- No Section 404 Permit required.</td>
<td>- No Section 404 Permit required.</td>
</tr>
<tr>
<td></td>
<td>- No Section 404 Permit required.</td>
<td>- Approximately 1.65 acres of non-jurisdictional wetlands impacted.</td>
<td>- Approximately 1.65 acres of non-jurisdictional wetlands impacted.</td>
</tr>
</tbody>
</table>
### Table 5-1: Summary of Impacts by Alternative

<table>
<thead>
<tr>
<th>Environmental Resource</th>
<th>Alternative 1 - No Build</th>
<th>Alternative 2 - Extension of 85th Street Over 1 1/29 South of Section Line</th>
<th>Alternative 3 - Extension of 85th Street Over 1 29 South of Section Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terrestrial Wildlife and Aquatic Resources</td>
<td>- BMPs, such as silt fences and/or bales, and other stipulations in the NPDES construction permit required for all projects disturbing one acre or more, the No Build Alternative would not have any indirect adverse effects on the Big Sioux River and associated aquatic resources. - The expected land use changes associated with the development would be consistent with city and county development plans for the area. Therefore, any adverse impacts to vegetation and terrestrial wildlife would be expected to less than those associated with either build alternative.</td>
<td>- Loss of up to 10 acres of various types of vegetation (prairie grass, mowed lawn, crops, wetlands) - Conversion of poor quality habitat (lawns and cropland) to road ROW which is considered to be poor quality habitat - With the use of BMPs, such as silt fences and/or bales, and other stipulations in the NPDES construction permit required for the project, no indirect adverse effect on the Big Sioux River and associated aquatic resources. - Adherence to the MBTA and its amendments and USFWS regulations should result in the avoidance and/or minimization of most impacts to migratory birds. Vegetation removal including the removal of trees would be timed to the extent possible to avoid the migratory bird breeding and fledging season (April 1 through July 15).</td>
<td>- Loss of up to 10 acres of various types of vegetation (prairie grass, mowed lawn, crops, wetlands) - Conversion of poor quality habitat (lawns and cropland) to road ROW which is considered to be poor quality habitat - With the use of BMPs, such as silt fences and/or bales, and other stipulations in the NPDES construction permit required for the project, no indirect adverse effect on the Big Sioux River and associated aquatic resources. - Adherence to the MBTA and its amendments and USFWS regulations should result in the avoidance and/or minimization of most impacts to migratory birds. Vegetation removal, including the removal of trees would be timed to the extent possible to avoid the migratory bird breeding and fledging season (April 1 through July 15).</td>
</tr>
<tr>
<td>Threatened and Endangered Species</td>
<td>- Potential for impact to federal and state-listed species due to private development. Impacts cannot be quantified at this time. Private development not bound by regulations.</td>
<td>- Preferred habitat for the federal-listed/proposed for listing species and state-listed species does not occur within the study area. - No Effect determination for all federal listed and candidate species, except the northern long eared bat. The bat determination was Not Likely to Adversely Affect. - No impact on state listed species.</td>
<td>- Preferred habitat for the federal-listed/proposed for listing species and state-listed species does not occur within the study area. - No Effect determination for all federal listed and candidate species, except the northern long eared bat. The bat determination was Not Likely to Adversely Affect. The removal of trees would be timed to the extent possible to avoid the NLEB roosting season (April through October). - No impact on state listed species.</td>
</tr>
<tr>
<td>Invasive Species</td>
<td>- No Impact</td>
<td>- No invasive/noxious plant species issues were identified within the study area; therefore, construction equipment and associated construction activities would not result in the spread of an invasive plant species. - All seed mixtures used for re-vegetation of disturbed areas need to be certified free of noxious weeds. - Vegetation management actions include chemical and biological control of weeds where warranted. - SDDOT and Sioux Falls would monitor the re-vegetation of disturbed areas until the desired level of vegetation density has been achieved.</td>
<td>- No invasive/noxious plant species issues were identified within the study area; therefore, construction equipment and associated construction activities would not result in the spread of an invasive plant species. - All seed mixtures used for re-vegetation of disturbed areas need to be certified free of noxious weeds. - Vegetation management actions include chemical and biological control of weeds where warranted. - SDDOT and Sioux Falls would monitor the re-vegetation of disturbed areas until the desired level of vegetation density has been achieved.</td>
</tr>
</tbody>
</table>
### Table 5-1: Summary of Impacts by Alternative

<table>
<thead>
<tr>
<th>Environmental Resource</th>
<th>Alternative 1 - No Build</th>
<th>Alternative 2 - Extension of 85th Street Over I-29 on Section Line</th>
<th>Alternative 3 - Extension of 85th Street Over I-29 South of Section Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic and Archaeological Resources</td>
<td>-No Impact</td>
<td>-No Historic Properties Affected</td>
<td>-No Historic Properties Affected</td>
</tr>
<tr>
<td>Section 4(f) Properties and Section 6(f) Properties</td>
<td>-No Impact</td>
<td>-No Section 4(f) properties would be directly affected by project activities</td>
<td>-No Section 4(f) properties would be directly affected by project activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-No Section 6(f) properties occur within the study area</td>
<td>-No Section 6(f) properties occur within the study area</td>
</tr>
<tr>
<td>Regulated Materials</td>
<td>-No Impact</td>
<td>-No regulated materials issues were identified within the construction corridor.</td>
<td>-No regulated materials issues were identified within the construction corridor.</td>
</tr>
</tbody>
</table>
5.2 COMPARISON OF ENVIRONMENTAL IMPACTS AND OTHER SELECTION CRITERIA

As summarized in Table 5-1, many of the potential environmental impacts associated with the alternatives were similar, regardless of the alternative. The areas where the largest differences in impacts occurred included land use, prime farmland, acquisitions, and public facilities and services. In addition to the environmental impacts other criteria were also considered in selecting the Preferred Alternative. These criteria included constructability, cost, sound engineering and design, and safety.

The No Build Alternative would have the least impact on the physical environment; however, this alternative would not satisfy the purpose and need for the project. Arterial roadway connectivity, future traffic demands, increased congestions, system reliability, safety, and increased air pollution would continue to be an issue in the area with the No Build Alternative.

Alternative 2 would require more ROW than Alternative 3. The alternative would require the least amount of farmland conversion, but requires the most acquisitions (4 parcels: two structures and two without structures plus some partial parcels). By staying on the section line and not elevating I-29, Alternative 2 would minimize impacts to utilities outside the current corridor ROW.

Alternative 3 would require the least amount of new ROW because no entire residential parcels would need to be acquired, but more farmland would be converted to transportation use than with Alternative 2. Wetland impacts would be the same as Alternative 2. Alternative 3 would not require any structure acquisitions. However, Alternative 3 would require the relocation of the Lewis and Clark water line. This utility was originally located away from the section line, so if 85th Street was widened it would not require relocation. The south alignment would require further coordination with the utility and relocation would markedly increase the cost of the project. Additionally, this alignment would include a reverse curve as it crosses over I-29. This reverse curve would require the traveling public to shift south of the section line and then shift back to the section line with only a short straight road segment in between the curves (see Figure 3-3). The reverse curve would be inconsistent with driver expectations and increase the potential for accidents within this roadway segment. A combination of a horizontal curve with a vertical curve is a less desirable according to the SDDOT Road Design Manual (SDDOT 2016b).

5.3 DESCRIPTION OF PREFERRED ALTERNATIVE

The 85th Street corridor falls within a developing area of the Sioux Falls metropolitan area. Within the southwest portion of the Sioux Falls metropolitan area, the current east-west arterial corridors that traverse I-29 (57th Street and Highway 106) are located nearly 3 miles apart. This distance between the current east-west arterial corridors require travel along the north-south roadway corridors (e.g., Sundowner Avenue, Tallgrass Avenue / Solberg Avenue) in order to reach the available east-west arterial corridors. The relatively large gap between existing east-west arterial corridors does not provide redundancy in the transportation network. This results in
a less reliable transportation system in this portion of Sioux Falls. Additionally, there are not sidewalks or bike lanes/trails located in this area of Sioux Falls limiting pedestrian and bicyclist connection to other areas of the city. Therefore, there is a need to improve system linkage to developing areas in southwest Sioux Falls.

As the southwestern area of Sioux Falls develops, traffic volumes will increase. Traffic volumes in the 85th Street corridor are projected to grow 500 to 1,000 vehicles per day and the resulting volumes along 85th Street will range from 8,000 to 15,000 per day. The other arterial roadways in southwest Sioux Falls are also projected to see marked increases in traffic volumes between current conditions and the 2038 horizon year. For the Interstate system, the forecasted 2038 traffic in the I-29 corridor are projected to more than double and in the I-229 corridor the traffic projections increase by more than 40 percent. Without capacity enhancing improvements, congestion in the morning and afternoon peak hours is expected to increase substantially from current conditions for most of the arterial roadways within southwest Sioux Falls.

Based on the above considerations and identified potential impacts, the Preferred Alternative is Alternative 2 the extension of 85th Street over the Interstate along the existing section line.

The Preferred Alternative would construct an arterial connection across I-29 along the 85th Street corridor from Sundowner Avenue to Louise Avenue on the existing section line. The arterial would be a four-lane median divided urban section with sidewalks (6 feet) on both sides. Consistent with Sioux Falls street design standards the redesigned arterial would have a ROW of 100 feet. The general assumed cross section for the 85th Street upgrade and extension is listed below:

- Four through lanes (11 or 12 feet wide).
- Bike lanes (4 feet wide) are assumed along both the eastbound and westbound directions.
- Six foot sidewalks along both the eastbound and westbound directions.
- A center median of 16 feet depending on the number of turn lanes required.
- Four curb and gutter sections of 2.5 feet each.
- Design speed of 45 miles per hour.

The general assumed cross section for the 85th Street grade separated structure over I-29 is listed below:

- Four through lanes (11 or 12 feet wide).
- Bike lanes (4 feet wide) are assumed along both the eastbound and westbound directions.
- Six foot sidewalks along both the eastbound and westbound directions.
- No center median on the bridge structure.
- Two jersey barriers (3.33 feet each) that separate the sidewalks from the travel lanes.
- Design speed of 45 miles per hour.
Full access (a median break) along 85th Street would be allowed at a 0.25 - mile spacing between Sundowner Avenue and Tallgrass Avenue. If it can be demonstrated through a traffic impact study that signalization of the quarter mile access points would not adversely impact operations at 85th Street/Tallgrass Avenue and 85th Street/Sundowner Avenue a signal could be allowed at the 0.25 - mile locations.

The Preferred Alternative is shown in Figure 5-1.

5.4 SUMMARY

Overall, implementation of the Preferred Alternative would not result in major impacts on any of the environmental resources. Noise impacts to existing residences, property acquisition, access, and utilities are considered to be the environmental elements that are affected the most by the Preferred Alternative. This type of development and environmental impacts are consistent with the regional planning documents that include:

- Sioux Falls Comprehensive Development Plan: Shape Sioux Falls 2035 (Sioux Falls 2016d)
- Go Sioux Falls 2040 Long Range Transportation Plan (Sioux Falls 2015a)
- Direction 2035 Sioux Falls MPO Long Range Transportation Plan (Sioux Falls 2010)
- SDDOT Statewide Transportation Improvement Program (STIP) 2017-2020 (SDDOT 2016a)
- Sioux Falls MPO 2017-2020 Transportation Improvement Program (Sioux Falls 2016a)
- Sioux Falls 2017-2021 Capital Program (Sioux Falls 2016b)

As stated previously, steps have already been taken to minimize impacts on these environmental resources and throughout the on-going project development process Sioux Falls and the SDDOT would continue to evaluate mitigation measures that could be employed to further reduce project related impacts.

An Environmental Commitment is a measure that Sioux Falls and the SDDOT commit to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor’s primary contact regarding matters associated with these commitments would be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the FHWA, Sioux Falls, and SDDOT Environmental Offices. The environmental commitments associated with this project are provided in the following sections and would be incorporated into the Construction Plan for the project.
Preferred Alternative - Extend 85th Street Over I-29 on Section Line

Environmental Assessment
85th Street Improvements
Sioux Falls, South Dakota

Figure 5-1
6.1 COMMITMENT A: WETLANDS

Wetland mitigation is required under EO 11990 for all projects that have impacts to non-jurisdictional wetlands. Approximately 1.65 acres of non-jurisdictional wetlands will be impacted by this project. These unavoidable wetland impacts will be mitigated off-site through an approved wetland mitigation bank. The impacted wetlands are listed below.

Table 6-1: Impacted Wetlands

<table>
<thead>
<tr>
<th>Wetland Identification</th>
<th>Class</th>
<th>Alternative 3 (acres)</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEM-1</td>
<td>PEMC</td>
<td>0.2</td>
<td>43.47566</td>
<td>-96.8037</td>
</tr>
<tr>
<td>PEM-3</td>
<td>PEMC</td>
<td>&lt;0.1</td>
<td>43.47556</td>
<td>-96.802257</td>
</tr>
<tr>
<td>PEM-5</td>
<td>PEMC</td>
<td>&lt;0.1</td>
<td>43.47555</td>
<td>-96.7998</td>
</tr>
<tr>
<td>PEM-9</td>
<td>PEMC</td>
<td>0.1</td>
<td>43.47606</td>
<td>-96.7945</td>
</tr>
<tr>
<td>PEM-10</td>
<td>PEMC</td>
<td>0.4</td>
<td>43.47577</td>
<td>-96.7956</td>
</tr>
<tr>
<td>PEM-11</td>
<td>PEMC</td>
<td>0.1</td>
<td>43.47657</td>
<td>-96.7925</td>
</tr>
<tr>
<td>PEM-12</td>
<td>PEMC</td>
<td>0.1</td>
<td>43.47462</td>
<td>-96.7922</td>
</tr>
<tr>
<td>PEM-14</td>
<td>PEMA</td>
<td>0.1</td>
<td>43.47320</td>
<td>-96.7883</td>
</tr>
<tr>
<td>PEM-15</td>
<td>PEMA</td>
<td>0.3</td>
<td>43.47473</td>
<td>-96.7849</td>
</tr>
<tr>
<td>PEM-16</td>
<td>PEMC</td>
<td>0.1</td>
<td>43.47459</td>
<td>-96.7809</td>
</tr>
<tr>
<td>PEM-25</td>
<td>PEMA</td>
<td>0.1</td>
<td>43.47479</td>
<td>-96.7945</td>
</tr>
<tr>
<td>OW-1</td>
<td>PEMA</td>
<td>&lt;0.1</td>
<td>43.4762</td>
<td>-96.7927</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td>1.65</td>
</tr>
</tbody>
</table>

Note: Wetland impacts shown as <0.1 acre were included in the total impact estimate as 0.05 acre.
PEM = Palustrine Emergent
OW = Open water
< = less than

Non-jurisdictional wetlands will be mitigated in accordance with EO 11990 and FHWA regulation 23 CFR 777.9. A mitigation plan was developed under EO 11990 and FHWA regulations. Sioux Falls and the SDDOT plan to utilize 4.55 credits (4.55 acres based on a 1:1 ratio) from the Tetonka Wetlands Mitigation Bank or other equivalent bank. The credits will be purchased prior to letting the contract. Temporary impacts will not be mitigated as original grades would be re-established.

6.2 COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

6.2.1 Commitment B1: Construction Practices for Streams Inhabited by the Topeka Shiner

The Big Sioux River is located approximately 1.5 miles east-northeast (down gradient) from the study areas and none of the build alternatives would directly impact the river. With the planned BMPs and other stipulations in the NPDES construction permit required for the project, none of
the build alternatives will have an indirect adverse effect on the Big Sioux River and associated aquatic resources.

### 6.2.2 Commitment B4: Bald Eagle

Bald eagles are known to occur in the Sioux Falls vicinity. The bald eagle is no longer a federal-listed threatened or endangered species; however, it is protected under the Bald and Golden Eagle Protection Act and the MBTA and is a state listed species. If an occupied bald eagle nest is observed within 1 mile of the construction site, the Project Engineer will be notified immediately so a course of action can be determined. Additionally, the project will comply with the National Bald Eagle Management Guidelines (USFWS 2007a). Sioux Falls and SDDOT will preserve any trees with active or unoccupied eagle nests.

### 6.2.3 Commitment B5: Northern Long-Eared Bat

Summer roosting sites exists within the area. Live and dead trees as well as several manmade structures which could serve as roosting habitat occur within the study area. Because habitat surveys are only valid for 12 months, a follow-up habitat survey will be completed within one year of construction to verify the presence or absence of structure use for roosting by the bat. Tree removal activities would occur in accordance with the requirements of the Avoidance and Minimization Measures identified as part of the Range-wide Programmatic Consultation between the USFWS and FHWA for the Indiana Bat and Northern Long-eared Bat. Tree removal activities would occur outside of bat roosting period. Tree removal would occur after October and before April. Trees to be removed will be clearly demarcated prior to removal to assure no additional trees will be accidently removed from the project area. Therefore, potential bat roosting habitat would be removed during the hibernation period when the roosting sites are not being used by the bats.

### 6.3 COMMITMENT E: STORM WATER

This project would impact more than 1 acre of land; therefore, the contractor will be required to implement BMPs in accordance with the SDDOT construction manual and Sioux Falls construction standards to minimize temporary impacts on water quality during construction. The SDDENR administers the Federal NPDES program and issues general permits for stormwater discharges from construction activities. The NPDES program requires preparation of a SWPPP for construction sites of more than 1 acre.

The specific sediment control, erosion control, and spill prevention measures will be developed during the detailed design phase and will be included in the plans and specifications. The SWPPP will address SDDOT construction manual requirements and Sioux Falls construction standards. Because the impacted area is in an aquifer protection zone, the SWPPP will include such BMPs as installation of silt fences, buffer strips, or other features to be used in various combinations as well as the stipulation that drums of petroleum products be placed in secondary containment to prevent leakage onto ground surfaces. As part of standard construction BMPs, water detention basins could also be constructed to minimize pollutant loading of surface waters.
Another standard construction BMP is revegetation and stabilization of roadside ditches to provide opportunities for the runoff from the impermeable area to infiltrate, reduce velocities, and minimize increases in sedimentation.

Additional SDDENR stipulated commitments will be implemented to minimize impacts to water quality. Fill material will be free of substances in quantities, concentrations or combinations which are toxic to aquatic life. Removal of vegetation shall be confined to those areas absolutely necessary to construction. All removed waste material will be disposed of appropriately and not in a wetland. Steps will be taken to minimize the spillage of petroleum, oils, and lubricants used in construction vehicles. A SWD permit will be required if any construction dewatering should occur with project action.

Prior to construction, Sioux Falls and the SDDOT will submit a NOI to SDDENR for coverage under the General Storm Water Permit for Construction Activities a minimum of 15 days prior to the beginning construction activities.

6.4 COMMITMENT H: WASTE DISPOSAL

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project. The waste disposal site(s) will be managed and reclaimed in accordance with the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the SDDNR.

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

6.5 COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

Sioux Falls and the FHWA/SDDOT has obtained concurrence with the SHPO for all work included within the project limits. The contractor will be responsible for assuring any borrow brought in from outside the study area is obtained from an approved site.

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

In the unlikely event that human skeletal remains or associated funerary objects are inadvertently discovered during construction activities, all work in the immediate area of the find will immediately cease and the following protocol be followed, pursuant to the provisions of South Dakota Codified Law 34-27.
6.6 COMMITMENT N: SECTION 404 PERMIT

No jurisdictional wetlands are located within the study area; therefore, a Section 404 permit is not required for this project.

6.7 COMMITMENT Q: TREE REPLACEMENT

Trees and/or brush will be replaced within the vicinity of the project at a 2:1 acre ratio.

6.8 COMMITMENT S: MIGRATORY BIRDS WORK RESTRICTION

Migratory birds are known to use the study area for nesting, which primarily occurs from April 1 to July 15. If any trees need to be removed during this time period, the trees will be surveyed for nests and cleared by a qualified biologist prior to the initiation of work, and a migratory bird nest depredation permit under the MBTA will be obtained (if necessary), or appropriate inactive nest removal and hazing/exclusion measures will be incorporated into the work to avoid the need to disturb active migratory bird nests. The mitigation plan will stipulate trees and/or brush will be replaced at a ratio of at least 2:1 acres planted versus acres impacted.

6.9 OTHER ENVIRONMENTAL COMMITMENTS

6.9.1 Acquisition and Relocation

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

6.9.2 Public Facilities / Services

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

6.9.3 Visual

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

6.9.4 Air Quality

Construction contractors would be required to Compliance with the State statutory regulations for air pollution control and obtain appropriate permits. Contractors will adhere to requirements regarding open burning of grub material, fugitive dust, visible emissions, and permits. Water sprinkling schedule would be developed and followed to control dust.
6.9.5 Noise

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

Reduce night time detour traffic noise on Highway 106 and Louise Avenue by only closing one direction of I-29 at a time during 85th Street bridge construction activity.

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

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

The noise study indicated 35 receptors have the potential to incur a substantial noise increase and that a noise barrier would be feasible and reasonable for 3 of those receptors. For NSA 9, the feasible and reasonable noise barrier would be 350 feet long and have an average height of 6 feet. For NSA 12A, noise abatement in the form of a noise barrier was initially found to be feasible and reasonable. However, during final review it was determined that the proposed noise wall at this location conflicted with a Lewis and Clark Rural Water System pipeline easement, causing the estimated cost of the wall, and any potential costs of relocating easements or wall, to exceed the reasonable allowable costs for the wall. Therefore, a noise barrier is not recommended for this location.

Before the barrier is constructed it must be accepted by a majority of the benefited residents and landowners. A Public Meeting/Open House for the Noise Study Findings and 85th Street Improvements was held on September 14, 2017 (Sioux Falls) at the Harrison Explorer Elementary School in Sioux Falls, SD. Twenty-eight people attended the meeting. Prior to the
meeting, a packet was mailed to adjacent property owners and persons who live adjacent to the project area. The packet included the location, time, and date of the meeting, a brief letter explaining the purpose for the meeting, locations of recommended noise barriers, and a noise wall opinion ballot. Benefited property owners and residents were given an opportunity to vote on noise abatement by ballot. The voting was carried out in accordance with the SDDOT noise guidance. The majority of benefited NSA 9 property owners and residents voted to accept construction of a noise barrier.

6.9.6 Travel Patterns

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

During construction of the 85th Street bridge over I-29 there would be overnight closures to allow for bridge girder placement. This would require I-29 traffic to detour along Highway 106, Louise Avenue and I-229. This work and the number of nighttime detours is similar to the Solberg Avenue / I-229 overpass project, which required eight nighttime detours.

6.9.7 Soils

BMPs, such as such as silt fences and/or hay bales, will be used to prevent or reduce soil erosion within disturbed areas and the movement of sediment into local streams. Disturbed areas will be revegetated with an approved grass mixture following construction.

6.9.8 Water Quality

Fill material will be free of substances in quantities, concentrations or combinations which are toxic to aquatic life. Removal of vegetation shall be confined to those areas absolutely necessary to construction. Appropriate erosion and sediment control measures will be installed and a NPDES obtained from SDDENR. All removed waste material will be disposed of appropriately and not in a wetland. Steps will be taken to minimize the spillage of petroleum, oils, and lubricants used in construction vehicles. A SWD permit will be obtained if any construction dewatering is required for the project. Prior to construction, Sioux Falls/SDDOT will submit a NOI to SDDENR for coverage under the General Storm Water Permit for Construction Activities. A SWPPP would be prepared prior to the NOI.

6.9.9 Wildlife/Threatened and Endangered Species/Invasive Species/Aquatic Resources

Disturbed areas will be revegetated with an approved grass mixture following construction. Chemical and biological control of weeds will be used where warranted. Revegetated areas will be monitored until the desired level of vegetation density has been achieved. Tree removal activities would occur outside of migratory bird nesting season and Northern Long-eared bat roosting period. No trees will be removed between April 1 and October 31. Use of BMPs, such
as silt fences and/or bales, and other stipulations in the NPDES construction permit will be used to minimize erosion and sedimentation to protect aquatic resources.

6.9.10 Regulated Materials

Should any hazardous waste be generated during the implementation of the project, the generator must abide by all applicable hazardous waste federal, state and local regulations found at Administrative Rules of South Dakota (ARSD) 74:28 and 40 CFR Part 262. If any contamination is encountered during construction activities, the contractor, owner, or party responsible for the release must report the contamination to the SDDENR.

6.10 SUMMARY OF MITIGATION AND COMMITMENTS

Table 6-2 provides a summary of the environmental impacts related to the proposed action and the proposed mitigation and commitment measures. In addition to the environmental commitments presented in the sections above, the table also includes mitigation/commitments identified in Section 4 for categories not included in the SDDOT’s Estimate of Quantities and Environmental Commitments.

Table 6-2: Proposed Action Impacts And Mitigation/Commitments

<table>
<thead>
<tr>
<th>Category</th>
<th>Identified Impacts</th>
<th>Identified Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Use and Zoning: Land use, Prime Farmland, Pedestrians and Bicyclists</td>
<td>Up to approximately 24 acres of additional ROW needed. Up to approximately 17.5 acres of prime farmland converted to transportation use. Positive impacts on pedestrians and bicyclist due to new bike lanes.</td>
<td>None Required / Warranted</td>
</tr>
<tr>
<td>Social: Population, Minority/Low Income, Community Cohesion</td>
<td>Minor, positive effect on residential and commercial growth in southwestern Sioux Falls No environmental justice impacts.</td>
<td>None Required / Warranted</td>
</tr>
<tr>
<td>Acquisition / Relocation</td>
<td>Up to 24 acres of new ROW Up to 7 acres of construction easement Up to two residences have the potential to be acquired or relocated depending on the alternative.</td>
<td>Property will be acquired or relocated in accordance with the Uniform Act (PL-91-646 and amendments) SDDOT and Sioux Falls will coordinate temporary relocation of billboards with owners.</td>
</tr>
<tr>
<td>Public Facilities / Services</td>
<td>Several utilities are located within the construction limits for one or more of the alternatives. Long-term positive impact on emergency response times.</td>
<td>Utilities located within the new roadway alignment would be relocated. SDDOT and Sioux Falls would coordinate with the utility companies regarding utility relocations prior to construction activities. The public would be informed of any service interruption prior to the loss of service.</td>
</tr>
<tr>
<td>Economics</td>
<td>Long-term positive impact.</td>
<td>None Required/Warranted</td>
</tr>
</tbody>
</table>
### Table 6-2: Proposed Action Impacts And Mitigation/Commitments

<table>
<thead>
<tr>
<th>Category</th>
<th>Identified Impacts</th>
<th>Identified Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual</td>
<td>Minor temporary construction impacts. 85th Street Bridge will add a built feature to the current view shed, creating a potential minor/ minimal impact.</td>
<td>For any construction areas that would remain un-vegetated for an extended period of time, such as over the winter, temporary seeding would be required in accordance with the SWPPP.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Short-term minor impacts associated with construction. No long-term impacts anticipated.</td>
<td>Construction contractors would be required to comply with the State statutory regulations for air pollution control and obtain appropriate permits. Adherence to requirements regarding open burning of grub material, fugitive dust, visible emissions, and permits. Water sprinkling schedule would be developed and followed to control dust.</td>
</tr>
<tr>
<td>Noise</td>
<td>Potential long term noise impacts to 3 of 8 identified noise sensitive areas. Short-term impacts associated with construction.</td>
<td>Construct noise wall for NSA 9, beginning at station 22+50 left side, measured from the centerline of Tallgrass Avenue. The proposed noise wall will be 350 long and end at station 26+00 left side. Abatement determined to be “reasonable” and “feasible” for one of the 3 impacted NSAs. A public informational meeting was held as part of the process for a final determination of whether abatement would be reasonable. Benefited property owners and residents were given an opportunity to vote on noise abatement by ballot. The voting was carried out in accordance with the SDDOT noise guidance. The majority of benefited NSA 9 property owners and residents voted to accept construction of a noise barrier. All equipment used shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have unmuffled exhaust. All equipment shall comply with pertinent equipment noise standards of the USEPA. Notify the local public in advance of construction activities that may generate particularly high noise levels. Noise created by truck movement shall not exceed 88 dBA at a distance of 50 feet. When working between 7:00 PM and 10:00 PM, use “smart alarms” instead of standard re-verse signal alarms or use spotters. When working between 10:00 PM and 7:00 AM use spotters. Have portable noise meters on the job at all times for noise level spot checks on specific operations. Limit construction to greater than 1,000 feet from an occupied dwelling unit on Sundays, le-gal holidays, or between the hours of 10:00 PM and 6:00 AM on other days without approval of the Sioux Falls/SDDOT construction project manager.</td>
</tr>
</tbody>
</table>
### Table 6-2: Proposed Action Impacts And Mitigation/Commitments

<table>
<thead>
<tr>
<th>Category</th>
<th>Identified Impacts</th>
<th>Identified Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise, Cont’d</td>
<td>No pile driving or blasting operations would be performed within 3,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 8:00 PM and 8:00 AM on other days without approval of the Sioux Falls/SDDOT construction project manager. Strategic placement of material stockpiles between the operation and affected dwellings or by other means approved by the Sioux Falls/SDDOT construction project manager. Locate stationary construction equipment as far from nearby noise-sensitive properties as feasible. Shut off idling equipment. Reschedule construction operations to avoid periods of noise annoyance identified in the complaint. Notify nearby residents whenever extremely noisy work will be occurring. Reduce night time detour traffic noise on Highway 106 and Louise Avenue by only closing one direction of I-29 at a time during 85th Street bridge construction activity. Install temporary or portable acoustic barriers around stationary construction noise sources. Operate electrically powered equipment using line voltage power or solar power.</td>
<td></td>
</tr>
<tr>
<td>Travel Patterns</td>
<td>Redirection of traffic during construction. Potential for short-term delays. Post-construction, existing residence’s access to 85th Street will be limited to “right in – right-out”. Post-construction traffic on 85th Street would increase due to the connection with the roadway on the east side of I-29.</td>
<td>Traffic Control Plan, including appropriate signage and construction barriers to alert motorists to altered traffic conditions. Coordination with emergency service providers and schools. Access to all residences and businesses will be maintained throughout the construction period. Reduce night time detour traffic on Highway 106 and Louise Avenue by only closing one direction of I-29 at a time during 85th Street bridge construction activity.</td>
</tr>
<tr>
<td>Geology / Topography / Soils</td>
<td>Up to approximately 33 acres of soil impacted by construction activities.</td>
<td>BMPs, such as such as silt fences and/or hay bales to prevent or reduce soil erosion within disturbed areas and the movement of sediment into local streams. Re-vegetation of disturbed areas with approved grass mixture following construction.</td>
</tr>
<tr>
<td>Hydrology / Water Quality / Floodplain Zoning</td>
<td>Increase in the amount of impermeable surface No water bodies near the study area – No adverse impacts. No impact on floodplains.</td>
<td>Fill material will be free of substances in quantities, concentrations or combinations which are toxic to aquatic life. Removal of vegetation shall be confined to those areas absolutely necessary to construction. Appropriate erosion and sediment control measures are installed and a NPDES obtained.</td>
</tr>
</tbody>
</table>
### Table 6-2: Proposed Action Impacts And Mitigation/Commitments

<table>
<thead>
<tr>
<th>Category</th>
<th>Identified Impacts</th>
<th>Identified Mitigation</th>
</tr>
</thead>
</table>
| **Hydrology / Water Quality / Floodplain Zoning, cont’d** | | from SDDENR.  
All removed waste material is disposed of appropriately and not in a wetland.  
Steps are taken to minimize the spillage of petroleum, oils, and lubricants used in construction vehicles.  
A SWD permit would be required if any construction dewatering should occur with project action.  
Prior to construction, Sioux Falls/SDDOT will submit a NOI to SDDENR for coverage under the General Storm Water Permit for Construction Activities. The SWPPP would be prepared prior to the NOI. |
| **Wetlands** | Up to 1.7 acres of wetlands could be impacted by build alternatives. | Mitigation plan developed under EO11990 and FHWA regulations.  
Mitigation of impacts would occur through use of the Tetonka Wetland Mitigation Bank or other equivalent bank.  
Wetland credits will be purchased prior to letting contract.  
Non-jurisdictional wetlands will be mitigated in accordance with FHWA regulation 23 CFR 777.9. |
| **Wildlife / Threatened and Endangered Species / Invasive Species/Aquatic Resources** | Minimal impact on terrestrial wildlife or migratory birds.  
No Effect for all federal and state-listed species except the NLEB. May Affect Not Likely to Adversely Affect is the determination for the NLEB.  
No effect on the spread of invasive species. | Adherence to the MBTA and its amendments and USFWS regulations.  
Vegetation removal, including the removal of trees will be timed to the extent possible to avoid the migratory bird breeding and fledging season and the NLEB roosting period (April through October). Tree to be removed would be clearly demarcated prior to removal to assure no additional trees would be accidently removed from the project area. Therefore, bird nesting habitat would be removed outside of the nesting season and potential bat roosting habitat would be removed during the hibernation period when the roosting sites are not being used by the bats.  
If any trees need to be removed during this time period, the trees will be surveyed for nests by a qualified biologist and cleared prior to the initiation of work. If a nest is identified in any of the trees to be removed, a migratory bird nest depredation permit under the MBTA will be obtained from the USFWS, or appropriate inactive nest removal and hazing/exclusion measures will be incorporated into the work to avoid the need to disturb active migratory bird nests.  
Project Engineer will be notified immediately if an occupied bald eagle nest is observed within one-mile of a construction site.  
Compliance with the National Bald Eagle Management Guidelines. |
### Table 6-2: Proposed Action Impacts And Mitigation/Commitments

<table>
<thead>
<tr>
<th>Category</th>
<th>Identified Impacts</th>
<th>Identified Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildlife / Threatened and Endangered Species / Invasive Species / Aquatic Resources, cont’d.</td>
<td>Preservation of any trees with active or unoccupied eagle nests.</td>
<td>Trees and/or brush will be replaced at a ratio of at least 2:1 acres planted versus acres impacted.</td>
</tr>
<tr>
<td></td>
<td>Re-vegetation of disturbed areas with approved grass mixture following construction.</td>
<td>Chemical and biological control of weeds where warranted.</td>
</tr>
<tr>
<td></td>
<td>Monitor the re-vegetation of disturbed areas until the desired level of vegetation density has been achieved.</td>
<td>Use of BMPs, such as silt fences and/or bales, and other stipulations in the NPDES construction permit.</td>
</tr>
<tr>
<td>Historic / Cultural Resources</td>
<td>No historic properties affected</td>
<td>If cultural resources are encountered during construction activities, construction would be stopped and the SHPO would be contacted.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Construction would not be resumed until appropriate coordination has occurred and SHPO approval has been received.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In the unlikely event that human skeletal remains or associated funerary objects are inadvertently discovered during construction activities, all work in the immediate area of the find will immediately cease and the following protocol be followed, pursuant to the provisions of South Dakota Codified Law 34-27.</td>
</tr>
<tr>
<td>Section 4(f) / 6(f) Properties</td>
<td>None</td>
<td>None Required / Warranted</td>
</tr>
<tr>
<td>Regulated Materials</td>
<td>None - No hazardous material sites were identified within the study area.</td>
<td>Should any hazardous waste be generated during the implementation of the project, the generator must abide by all applicable hazardous waste federal, state and local regulations found at Administrative Rules of South Dakota (ARSD) 74:28 and 40 CFR Part 262.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If any contamination is encountered during construction activities, the contractor, owner, or party responsible for the release must report the contamination to the SDDENR.</td>
</tr>
</tbody>
</table>
This chapter includes a summary of agency coordination and public involvement that has taken place during development of this EA.

### 7.1 AGENCY COORDINATION

Federal, State, and Local agencies that were consulted regarding the Project are:

- U.S. Fish and Wildlife Services – South Dakota Field Office
- South Dakota Department of Game, Fish and Parks
- Natural Resources Conservation Service
- Lincoln County Planning Department and Weed Board
- South Dakota Department of Environment and Natural Resources
- State Historic Preservation Office
- U.S. Army Corps of Engineers

The consultation letters sent to each agency and the agency responses are provided in Appendix C and summarized in Table 7-1.

<table>
<thead>
<tr>
<th>Government Agency</th>
<th>Type of Approval or Permit</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal Highway Administration</td>
<td>EA Approval</td>
<td>Pending</td>
</tr>
<tr>
<td></td>
<td>Environmental Impact Statement (EIS)</td>
<td>Pending</td>
</tr>
<tr>
<td></td>
<td>Need Decision</td>
<td>Pending</td>
</tr>
<tr>
<td></td>
<td>Mitigation Plan Approval</td>
<td>Pending</td>
</tr>
<tr>
<td>U.S. Army Corps of Engineer</td>
<td>Section 404 Permit</td>
<td>Not Required</td>
</tr>
<tr>
<td>USFWS</td>
<td>Concurrence with No Effect determination</td>
<td>Received No Objection letter</td>
</tr>
<tr>
<td>USDA Natural Resource Conservation Service</td>
<td>Minor impacts on farmland</td>
<td>Received</td>
</tr>
<tr>
<td><strong>State</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD Department of Transportation</td>
<td>Preliminary EA Approval</td>
<td>Received with Comments</td>
</tr>
<tr>
<td></td>
<td>Layout Approval</td>
<td>Pending</td>
</tr>
<tr>
<td>SD Department of Environment and Natural Resources</td>
<td>National Pollutant Discharge Elimination System Permit</td>
<td>Pending</td>
</tr>
<tr>
<td>SD Department of Game, Fish, and Parks</td>
<td>No impact on state listed species</td>
<td>Received</td>
</tr>
<tr>
<td>State Historic Preservation Office</td>
<td>Concurrence with No Historic Properties Affected</td>
<td>Received</td>
</tr>
<tr>
<td><strong>Local</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sioux Falls</td>
<td>Preliminary EA Approval</td>
<td>Received</td>
</tr>
</tbody>
</table>
7.2 TRIBAL COORDINATION

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

- Flandreau Santee Sioux Tribe
- Iowa Tribe of Oklahoma
- Ponca Tribe of Nebraska
- Lower Brule Sioux Tribe
- Sisseton-Wahpeton Oyate Tribe
- Standing Rock Sioux Tribe
- Yankton Sioux Tribe
- Three Affiliated Tribes of North Dakota

Consultation letters were sent to each tribe on October 4, 2013 (Appendix C). One comment was received from Carol Robertson, Cultural Preservation Officer for the Flandreau Santee Sioux Tribe on October 10, 2013 (Appendix C) indicating “No Objections” to the proposed project. Ms. Robertson’s letter indicated that if human skeletal remains and/or any objects falling under the Native American Graves Protection and Repatriation Act (NAGPRA) are uncovered during construction, work should be stopped and the appropriate persons (State and Tribal NAGPRA representatives) be contacted. No other comments were received.

7.3 PUBLIC MEETINGS

During the course of the planning process, “open house” style meetings were held on March 30, 2006, July 17, 2008, February 26, 2009, and April 20, 2010 to gather input and provide project information to the public regarding the I-29 Corridor Study. An additional public meeting was held to discuss the Noise Study. Staff from the SDDOT, Sioux Falls, and the engineering consultant for the project was available to respond to questions.

All of the meetings provided an informal forum for the public to learn about the study and offer comment. The meetings were publicized through paid advertisements in the Sioux Falls Argus Leader, a large local newspaper.

During each meeting, a brief slide presentation explaining the EA process, the status of the study, and the purpose for the meeting was provided to the public. Additionally, aerial photographs with overlays of the potential design alternatives for the overall study corridor were displayed for public review. People were encouraged to review the information provided on the aerial displays and ask questions and/or discuss the project with SDDOT and other team representatives. To provide adequate personal attention necessary to the success of the meeting, SDDOT and other team staff were available to clarify project objectives, describe the process, answer questions, and record comments.
Comments received from the approximately 100 people who attended the meetings were mostly general and were in regards to the meeting, study process, and prioritization of projects. Each comment was read and considered after the meeting. Some comments were used in the alternative selection process. The sign-in forms and written public comments are included in Appendix A. Video recordings of the July 17, 2008 and February 26, 2009 meetings are available for viewing on the SDDOT website.

A Public Meeting/Open House for the I-29/I-229 Interchange Reconstruction and 85th Street Extension was held on May 2, 2013 (URS 2013)48 at the Explorer Elementary School in Sioux Falls, SD. Eighty-eight people attended the meeting. A presentation was made to review the EA process, the purpose of the project, the proposed improvements and alternatives, and potential impacts. A handout was made available containing the slides from the presentation. Additionally, the presentation was recorded and made available on the SDDOT website. SDDOT and City staff were available with project maps and roadway details to discuss the project and receive public input. The meeting was publicized through paid advertisements in the Sioux Falls Argus Leader.

Several verbal questions/comments were addressed at the meeting. Twelve written comment letters or emails were received in response to the meeting. All comments were reviewed by the SDDOT for consideration in the design process. The slide presentation, sign-in forms and written public comments with responses are included in Appendix A.

A Public Meeting/Open House for the Noise Study Findings and 85th Street Improvements was held on September 14, 2017 (Sioux Falls)49 at the Harrison Explorer Elementary School in Sioux Falls, SD. Twenty-eight people attended the meeting. Prior to the meeting, a packet was mailed to adjacent property owners and persons who live adjacent to the project area. The packet included the location, time, and date of the meeting, a brief letter explaining the purpose for the meeting, locations of recommended noise barriers, and a noise wall opinion ballot. During the meeting, a presentation was made to review the purpose of the project and noise study process and findings. The presentation is available on the Sioux Falls website. SDDOT and City staff were available to discuss the project and receive public input. The meeting was publicized through a paid advertisement in the Sioux Falls Argus Leader.

Several verbal questions/comments were addressed at the meeting. Two written comments were received in response to the meeting. All comments were reviewed by the City and SDDOT for consideration in the design process. The slide presentation, sign-in forms and written public comments with responses are included in Appendix A.

---


7.4 FUTURE PUBLIC INVOLVEMENT

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

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

The FHWA will take into consideration all verbal and formal comments received during the comment period in determining whether the preferred alternative will or will not result in significant social, economic, and environmental impacts. If a Finding of No Significant Impacts (FONSI) is determined, this will be posted on the SDDOT website shown above.

A public information meeting to present the findings of the EA will be scheduled during the comment period. If it is found that project does not result in significant impacts, a Finding of No Significant Impacts (FONSI) will be prepared and submitted to FHWA. The FHWA will take into consideration all verbal and formal comments received during the comment period in determining whether the preferred alternative will or will not result in significant social, economic, and environmental impacts. If a Finding of No Significant Impacts (FONSI) is determined, this will be posted on the SDDOT website shown above. If not, the agencies will consider whether the project will be pursued under an Environmental Impact Statement.
The following persons, presented alphabetically, were primarily responsible for preparing this EA or for performing environmental studies.

**URS Corporation, Inc.**
- Quentin Bliss; Environmental Analyst
- Jim Kollbaum; Traffic Engineer
- Christine Murray; Public Relations
- Peggy Philson; Environmental Analyst
- Margie Krell, Design Engineer
- Kevin Slates, Wetlands Biologist
- Sue Volkmer; Environmental Analyst

The EA was reviewed by SDDOT, Sioux Falls, and FHWA. The reviewers for each of these entities are listed below.

**South Dakota Department of Transportation**
- Cary Cleland; Project Manager
- Travis Dressen; Sioux Falls Area Engineer
- Tom Lehmkuhl, Environmental Manager
- Brad Remmich, MPO Coordinator
- Brooke White, Access Management Engineer
- Scott Jansen; Region Traffic Engineer
- Brian Raecke; Chief Road Design Manager

**Sioux Falls**
- Shannon Ausen, Public Works
- Sam Trebilcock; Planning
- Heath Hoftiezer; City Traffic Engineer

**Federal Highway Administration**
- Marion Barber; Environmental Engineer
- Mark Hoines; Planning and Civil Rights Specialist
- Brett Hestdalen; Pavements and Materials Engineer


SDDOT. 2015a. Categorical Exclusion. I-29 from north of Exit 73 (Tea) to 57th Street & I-229; I-229 from I-29 to west of the Louise Avenue Interchange; I-29 from north of Tea to South of 49th Street.


URS. 2014. I-29 Design Improvements Project: Results of a Class III Cultural Resources Inventory, Lincoln and Minnehaha Counties, South Dakota. May 15, 2014


