FEDERAL HIGHWAY ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT (FONSI)
FOR

PROJECT

East Side Corridor (SD100)

I-29/County Road 106 (Exit 73) to South of 26th Street Sioux Falls, South Dakota

EM-P 0100(101)405, PCN 00T7 and EM-P 0011(49)68, PCN 00CP

Minnehaha and Lincoln Counties, South Dakota

The FHWA has determined that the Revised Build Alternative will have no significant impact on the human environment. This FONSI is based on the attached Final Supplemental Environmental Assessment (EA) and Section 4(f) *De Minimis* Impact Finding, which has been independently evaluated by the FHWA and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project, and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an EIS is not required. The FHWA takes full responsibility for the accuracy, scope and content of the attached EA.

4/26/2012
Date

Marion Barber, Environmental Specialist
Federal Highway Administration
116 E. Dakota Ave., Suite A
Pierre, SD 57501

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS, ABBREVIATIONS, AND SHORT FORMS

AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Places
ARSD	Administrative Rules of South Dakota
APE	Area of Potential Effect
AST	above ground storage tank
Ave	Avenue
BA	Programmatic Biological Assessment
BNSF	Burlington Northern & Sante Fe Railway
BMPs	best management practices
BO	Biological Opinion
CEQ	Council on Environmental Quality
CIP	Capital Improvement Program
CFR	Code of Federal Regulations
dB	decibel
dBA	A-weighted decibel(s)
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EO	Executive Order
ESA	Endangered Species Act
et seq.	*et sequentia* (and the following)
Exit 73	I-29/County Road 106
Exit 402	I-90/N. Timberline Avenue
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FINDS	Facility Index System
FIS	Federal Insurance Study
FR	Federal Register
FSA	Food Security Act of 1985
HDR	HDR Engineering, Inc.
ICIS	Integrated Compliance Information System

I-29	Interstate 29
LOMA	Letter of Map Amendment
LOMC	Letter of Map Change
LOMR	Letter of Map Revision
LOS	level of service
LUST	Leaking underground storage tank
LWCF	Land and Water Conservation Fund
mph	miles per hour
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
N	North
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
the Project	East Side Corridor (SD100)
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental conditions
ROW	right-of-way
RPM	Reasonable and prudent measures
S	south
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SD11	South Dakota Highway 11
SD100	South Dakota Highway 100
SD 115	Minnesota Avenue
SDDENR	South Dakota Department of Environment and Natural Resources
SDDGFP	South Dakota Department of Game, Fish, and Parks
SDDOT	South Dakota Department of Transportation
SE	southeast

SFWPP	Sioux Falls Water Purification Plant
SIP	state air quality implementation plan
SHPO	State Historic Preservation Officer
SPILLS	South Dakota spills database
SPUI	Single Point Urban Interchange
SQG	Small quantity generator
the State	the State of South Dakota
STIP	State Transportation Improvement Plan
SWPPP	Stormwater Pollution Prevention Plan
T&E	threatened or endangered
TBD	To Be Determined
TMDL	Total Maximum Daily Load
TNM	Traffic Noise Model
TSS	Total Suspended Solids
UA	Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish & Wildlife Service
UST	underground storage tank
vpd	vehicles per day
WAPA	Western Area Power Administration

CHAPTER 1
PURPOSE OF AND NEED FOR PROPOSED ACTION

1.1 INTRODUCTION

The 1995 Sioux Falls Regional Transportation Study (Sioux Falls MPO, 1995) introduced an East Side Corridor Project to address future transportation needs in the area south and east of current city limits of Sioux Falls. The East Side Corridor was proposed to be a seventeen-mile regional arterial highway to accommodate forecasted regional travel demand in Lincoln and Minnehaha Counties (See Figure 1-1). The planned East Side Corridor (SD100), has been mentioned in several other subsequently approved reports and studies including: the Sioux Falls 2015 Comprehensive Development Plan (Sioux Falls Planning and Building Services, 2003); Sioux Falls Regional Arterial Corridor Analysis- East Side Corridor Study, Phase 1 (1999) (City of Sioux Falls, 2003); Year 2025 Long Range Transportation Plan for the Sioux Falls Metropolitan Planning Area (Sioux Falls MPO, 2005); Sioux Falls Comprehensive Development Plan: Shape Sioux Falls 2035 (City of Sioux Falls, 2009); Direction 2035: Sioux Falls MPO Long-Range Transportation Plan (Sioux Falls MPO, 2010); and the South Dakota State Transportation Improvement Plan (STIP) 2011-2015 (SDDOT, 2010).

1.2 PROJECT BACKGROUND

In order to scope possible Build Alternatives, the East Side Corridor began a scoping process that was completed in October 2001 and documented in a Sioux Falls East Side Corridor Scoping Memorandum (SEH, 2001). Through the scoping process, previously studied Build Alternatives and new Build Alternatives were analyzed by a Process Team. At the completion of the scoping process, the Process Team recommended a New Corridor-Preferred Alternative for the preparation of an Environmental Assessment (EA) (See Figure 1-2). For the purpose of this document, the New Corridor-Preferred Alternative will be referred to as the ***2003 EA Preferred Alternative***.

A Final EA for the East Side Corridor, also referred to as South Dakota Highway 100 (SD100), identified and evaluated impacts for the 2003 EA Preferred Alternative (City of Sioux Falls, 2003). The Final EA was approved by the Federal Highway Administration (FHWA) and the South Dakota Department of Transportation (SDDOT) on March 20, 2003. A Finding of No Significant Impact (FONSI) was approved by the Federal Highway Administration (FHWA) on July 16, 2003.

In 2003, the South Dakota Department of Transportation (SDDOT) initiated the design phase for the following segments of the 2003 EA Preferred Alternative:

- A 1.4 mile project along SD Highway 11 (SD11) from 0.4 miles south of 26th Street to SD Highway 42 (SD42), and
- 1.1 mile project along Powder House Road from SD42 to 0.1 miles north of Madison Street (See Figure 1-2).

During the design phase, it was determined that these segments were not feasible or practical due to the significant increase in right-of-way (ROW) costs. The increased costs led to the re-evaluation of the centerline location for these segments of SD100 to utilize the existing ROW of SD11. A Supplement to the EA (SDDOT, 2005) was prepared to address the changes made to this segment of the 2003 EA Preferred Alternative. A Supplement to the EA (SDDOT, 2005)

was issued September 22, 2005 to assess the impacts of this alignment shift for the two aforementioned segments along SD100. The supplement was approved by the FHWA and these segments have been constructed. For the purposes of this document, this segment will be referred to as the "***2005 SDDOT Supplemental Segment***" (See Figure 1-2).

The preferred alternative for the 2005 SDDOT Supplemental Segment was a four-lane highway section with a raised center median, 12-foot wide shoulders, a shared use path along the highway, and a centerline near the existing SD Highway 11 centerline. At the intersection of SD11 and SD42, the 2003 EA Preferred Alternative proposed an interchange, whereas the 2005 SDDOT Supplemental Segment proposed an at-grade intersection.

In 2006, preparation of ROW plans and plats was initiated for the remainder of the alignment of the 2003 EA Preferred Alternative (See Figure 1-2). This phase of the Project was to initiate the purchase of ROW for the 2003 EA Preferred Alternative in order to preserve the corridor for future SD100. During an open house held on February 7, 2006, several concerns about the corridor were raised. See Section 2.1.2, Build Alternatives for a discussion of concerns regarding the 2003 EA Preferred Alternative. Substantive changes were proposed in several locations along the entire corridor which modified the corridor identified by the 2003 EA Preferred Alternative.

In order to analyze the changes to the 2003 Preferred Alternative, a Supplemental EA was drafted that included the corridor from I-29/County Road 106 (Exit 73) to I-90/N.Timberline Avenue (Exit 402) excluding the 2005 SDDOT Supplemental Segment. The alternative that included the changes requested by the public is referred to as the ***Revised Build Alternative***. A Supplemental EA for the Revised Build Alternative was initiated in 2006. During the coordination for the Supplemental EA, FHWA and SDDOT determined that the northern portion of the alignment from 0.1 miles north of Madison Street to I-90/North Timberline interchange (referred to as the ***Northern Segment***) was difficult to finalize primarily due to the ongoing environmental study for a rail yard relocation project (See Figure 1-2). The project to relocate the BNSF rail yard from downtown Sioux Falls has identified two locations in the vicinity of SD100 north of Rice Street. The unknowns with regards to impacts to both SD100 and the rail yard will make it difficult to finalize the SD100 EA, therefore, it is difficult to finalize the Northern Segment until the Railroad Relocation project has progressed further.

Therefore, SDDOT and FHWA determined that a Supplemental EA should be completed for the southern portion from I-29/ County Road 106 interchange (Exit 73) to south of 26th Street (referred to as the ***Southern Segment***) (the Project). A description of the Project is included in Section 1.4, Project Description.

This Supplemental EA evaluates the Project in accordance with the provisions of the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's (CEQ's) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] §1500-1508) as well as the corresponding regulations and guidelines of the U.S. Department of Transportation (USDOT) and the FHWA. In addition, this Supplemental EA outlines the development of the route's alternative design concepts and documents potential social, economic, and environmental impacts of the alternatives as well as the involvement of the public and relevant resource agencies in the NEPA process.

1.3 STUDY AREA

The Project is located in Minnehaha and Lincoln Counties located on the southern and eastern edge of the City of Sioux Falls (See Figure 1-1). The Study Area for the 2003 Preferred

Alternative was detailed in the 2003 EA (City of Sioux Falls, 2003). The Study Area for the Revised Build Alternative includes the proposed activities of the Revised Build Alternative as described in Section 1.4, Project Description; the boundary is shown in Figures 1-2 and 1-3.

1.4 PROJECT DESCRIPTION

SD100 is a proposed limited-access regional arterial roadway being planned to address future transportation system needs and consists of a paved 17-mile roadway that will connect I-29 to I-90. The segment of SD100 discussed in this Supplemental EA is from I-29 to south of 26th Street. The proposed roadway will be constructed to accommodate six-lanes of traffic and includes interchanges at determined locations along the corridor. Initially, the facility will be striped to accommodate four lanes of traffic. When traffic volumes warrant, the facility will be restriped for six lanes of traffic. Also during the interim, the 57th Street interchange will not be built but improvements, such as additional lanes, to existing roadways such as SD 11 will be constructed due to higher traffic volumes. Direction 2035: MPO Long-Range Transportation Plan notes SD100 to be built in segments (City of Sioux Falls, 2009). As development warrants, the specific segments of the Revised Build Alternative will be constructed.

Posted speed limits will range from 45 mph to 55 mph based on speed studies to be performed following the opening of SD100. The horizontal and vertical alignments are based on a design speed of 60 mph. The proposed highway will be located within the City of Sioux Falls' year 2025 growth area east and south of the current jurisdictional limits.

The area of study for the Revised Build Alternative begins at the I-29/ County Road 106 interchange (Exit 73) and travels eastward until the alignment intersects with SD11 at which point the alignment curves north traveling along SD11, ending south of 26th Street. The Project also includes the SD11 improvements and an earthwork borrow site (See Figures 1-2 and 1-3). Therefore, this Supplemental EA will address the Revised Build Alternative of the Southern Segment that includes the following:

- *Main Alignment*- Analyze the Revised Build Alternative (Southern Segment) proposed changes from I-29/ County Road 106 interchange (Exit 73) to south of 26th Street (See Figure 1-2).
- *SD 11 Improvements*- Analyze the proposed widening to SD11 from 57th Street to south of 69th Street (See Figure 2-2). The proposed improvements include widening the existing roadway to include a left turning lane. As noted in the 2010 MPO Direction 2035 document, the SD 11 corridor will be congested from Sioux Falls to Harrisburg by 2035 and additional capacity should be planned (Sioux Falls MPO, 2010). A portion of these improvements will be in the location of the proposed 57th Street Interchange; the traffic volumes do not currently justify an interchange, but are high enough to warrant improving existing SD11 (See Figure 1-3).
- *Borrow Site*- Analyze the use of the Best Management Practice (BMP) Pond 401-2 detention area for a borrow site for the portion of the Project from south of 26th Street to south of 69th Street. This area has previously been designated as a storm drainage detention area by the City with the material excavated from the pond construction utilized as earthwork borrow material (See Figure 1-3).
- *Interchanges* – Analyze the proposed interchange along SD100 at 57th Street.
- *Grade-separated crossings* – Analyze the proposed SD100 crossing over 85th Street and over the BNSF railroad tracks east of Cliff Avenue.

1.5 PURPOSE AND NEED OF THE PROJECT

The purpose and need for SD100 identified in the 2003 EA focused on the transportation needs for year 2025. The purpose and need for SD100 in this Supplemental EA is the same as the 2003 EA except that the transportation needs of year 2035 are also included. The purpose and need for SD100 is to:

- Adequately prepare the City of Sioux Falls for the year 2025 and 2035 transportation system needs consistent with planning decisions and future construction of other public and private infrastructure investments.
- Prevent study area deficiencies that will occur by the year 2025 and 2035 if nothing is done. These potential deficiencies include travel trip/street discontinuity in the southeast region, street design deficiencies, 2025 and 2035 capacity issues, 2025 and 2035 safety issues, and 2025 and 2035 access issues.
- Accommodate the 2025 and 2035 traffic growth needs of the Study Area.

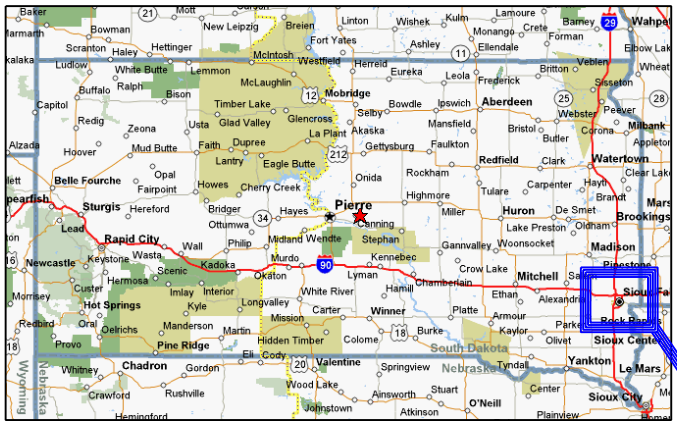
1.6 OTHER PROJECTS

Several transportation projects are planned in the vicinity of the Project and each of them have been or will be addressed in separate NEPA documents. If these projects listed below, intersect with this Project, design will accommodate the design of SD100. For example, the Minnesota Avenue (SD 115) Improvements will need to consider the intersection with SD100. Figure 1-4, Other Projects, show the locations of the referenced roadways and intersections, in addition to SD100. These following projects are currently programmed in the Statewide Transportation Improvement Plan (STIP) for FY 2012 to 2016 (SDDOT, 2011):

- Sioux Falls Railyard Relocation Project – *Project *EM 1225(03)*- An Environmental Assessment is being completed by the City of Sioux Falls, SDDOT, and FHWA to study relocation of the existing rail switchyard currently located in downtown Sioux Falls.
- Intersection of Arrowhead Parkway (Old SD 42) and Sycamore in Sioux Falls- *Project PH 2024 (27)* - Widen roadway for an additional left turn lane on south and west legs of intersection in 2013.
- Solberg Avenue/Tallgrass Avenue Overpass – *Project IM 2292(88)0*- Construction of a Solberg Avenue and I-229 Overpass in 2011.
- South Solberg Avenue - *Project *1344(01)*- ROW acquisition, grading, curb and gutter from West 59th Street, South to West 69th Street in Sioux Falls.
- Minnesota Avenue (SD 115) Improvements—*Project P0115(48)76*- Reconstruction to 4 lane segment from Lincoln County 110 (Harrisburg corner) to 85th Street in Sioux Falls.
- 41st Street Improvements- *Project P1400(13), PCN 02S9* from SD 11 west 0.2 mile to Harmodon Park for 2012.
- 57th Street Improvements- *Project P1432(03), PCN 02CY* from Sycamore Avenue east 1 mile to SD 11 for 2012.
- I-229/I-29 Area Improvement- *Project *IM 0293(96)75 and IM2292(90)0* - Reconstruction project of the I-229 and I-29 area for 2013.
- Harmodon Park entrance road and BMP 401-2- *City of Sioux Falls Project*— Construction of an access road from 57th Street to Harmodon Park and detention basin called BMP 401-2.

Additional projects identified for long range transportation improvement within the area:

- I-29/I-229/85th Street Area- Area is planned regional employment center. An interchange on I-29 at 85th Street is being studied to provide access and congestion relief (Sioux Falls MPO, 2010).
- County Road 106 west of I-29 – This roadway leading from I-29 to the city of Tea is currently operating at or near failing conditions. The roadway will need to be improved within the next ten years and should be designed to handle significant volumes out to the year 2035 (Sioux Falls MPO, 2010).
- South Cliff Avenue and South SD 115- Both corridors leading from Sioux Falls to Harrisburg show significant volumes that must be accommodated with additional lanes to maintain acceptable levels of service (Sioux Falls MPO, 2010).
- West Side Corridor – A corridor study and preliminary EA was completed in 2004. The final EA was delayed due to the inability to obtain landowner access permission to complete cultural resources surveys. Currently, an additional alternative is being explored that follows the Tea-Ellis corridor from the I-29 to I-90. (Sioux Falls MPO, 2010).



N

NTS

Legend

2003 Preferred EA Alternative

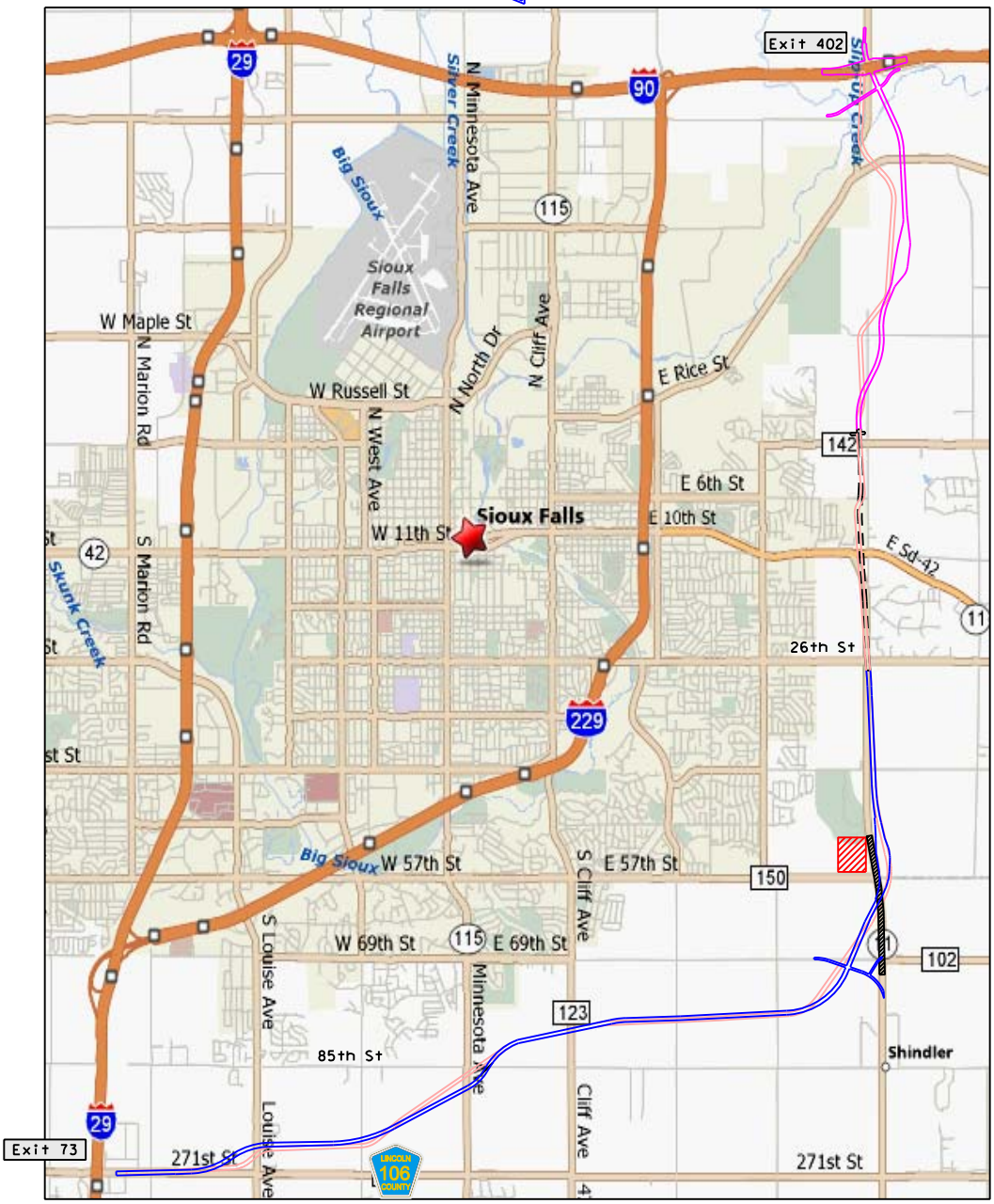
Revised Build Alternative (Southern Segment)

Revised Build Alternative (Northern Segment)

2005 SDDOT Supplemental Segment

BMP Pond 401-2 / Borrow Site

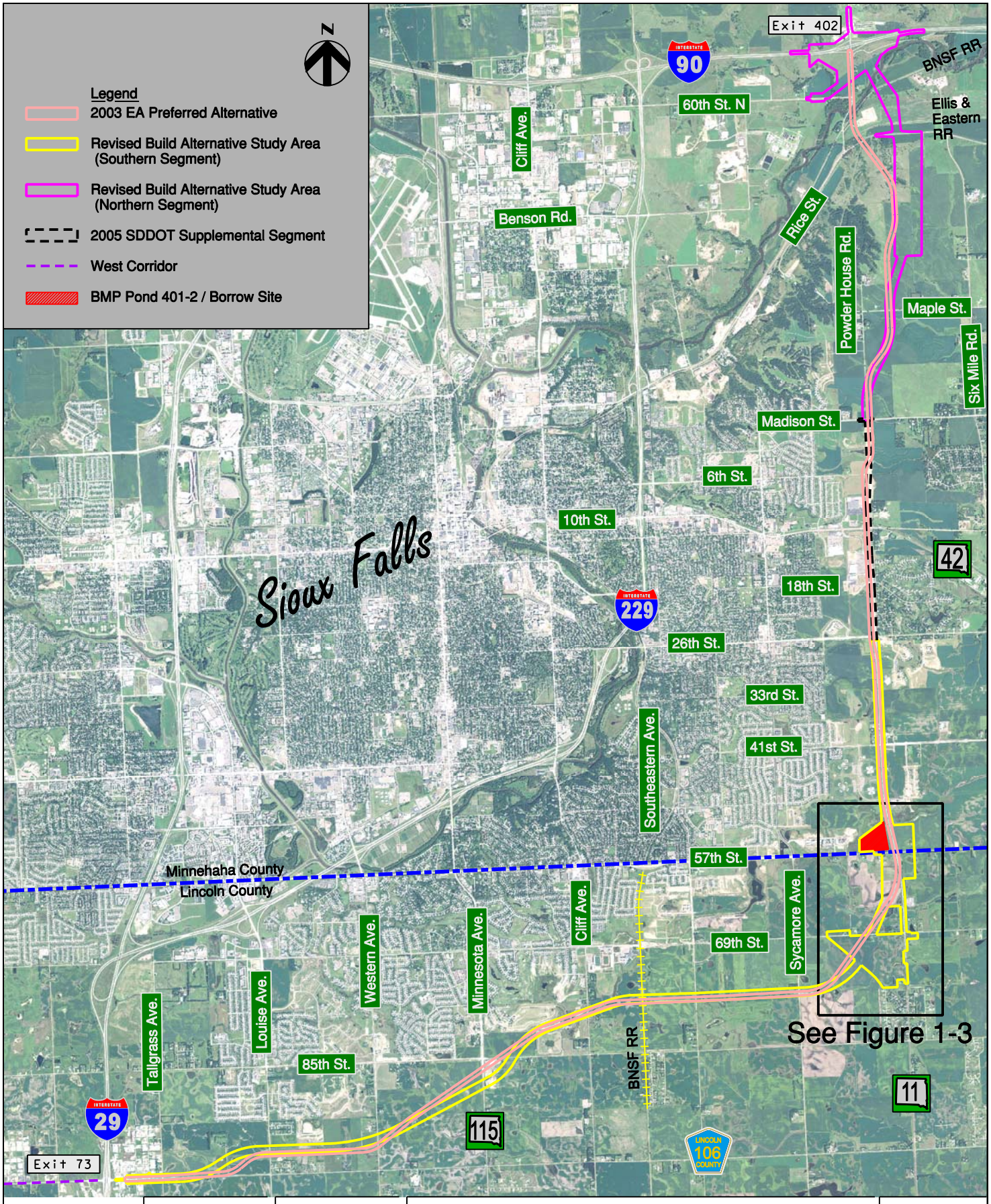
SD11 Improvements



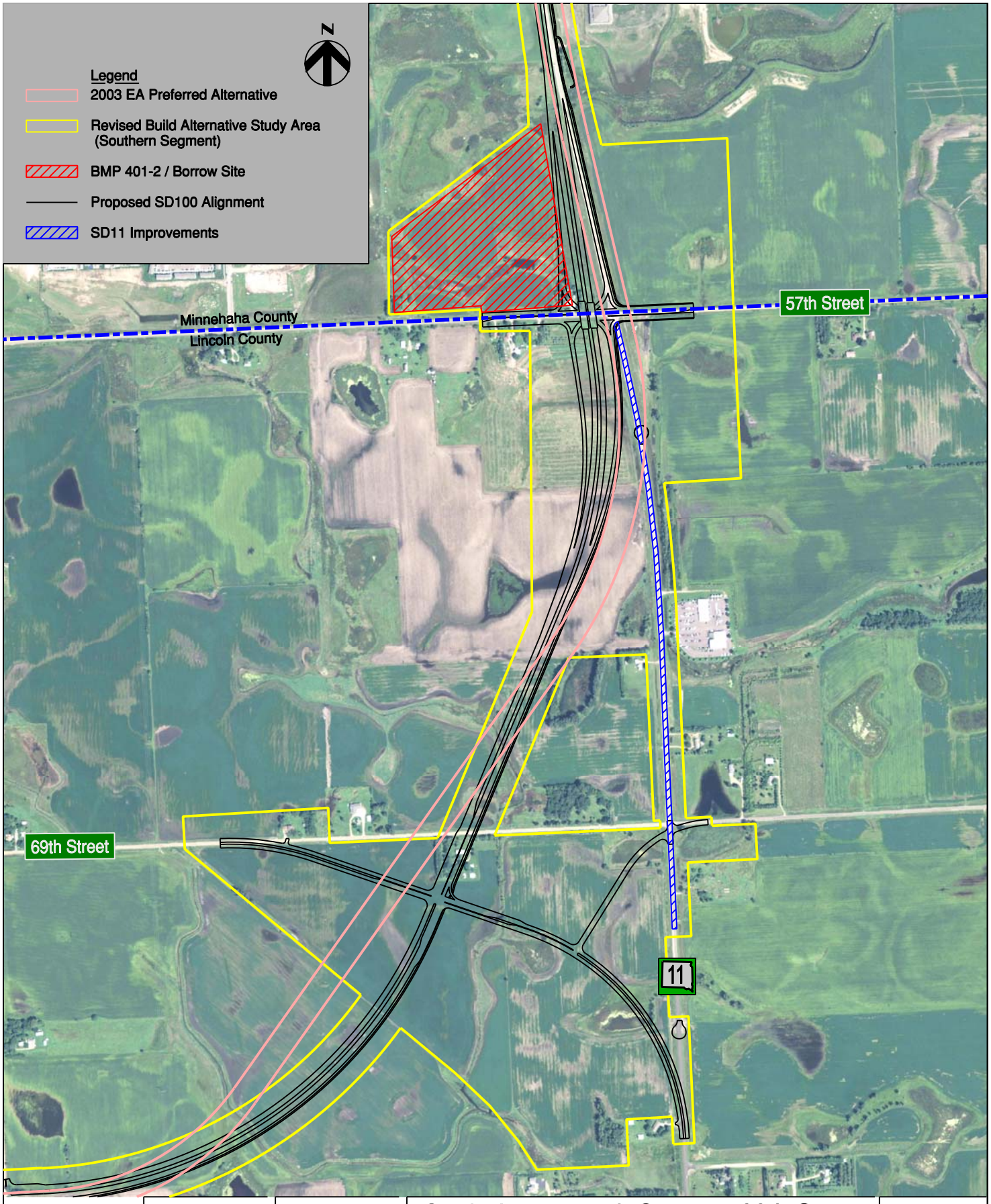
Project Location Map

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 1-1



	SDDOT	HDR	Study Area Eastside Corridor (SD100) - I-29 to South of 26th Street	Figure 1-2



Study Area at 57th Street to 69th Street

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 1-3

Date of Aerial Photography: 2010

Other Projects

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 1-4

CHAPTER 2
ALTERNATIVES

This chapter discusses the 2003 EA Preferred Alternative and 2005 SDDOT Supplemental Segment, explains the reasoning for the creation of the Revised Build Alternative, presents rationale for selecting the preferred alternative, and summarizes potential impacts of implementing the preferred Revised Build Alternative as compared to the No-Build Alternative and 2003 EA Preferred Alternative. Chapter 2 also presents the project design criteria and identifies the project cost.

2.1 IDENTIFICATION OF ALTERNATIVES

The No-Build Alternative was identified for study in accordance with the NEPA requirement that impacts of no action be considered; this alternative also serves as a basis of comparison with the Build Alternatives. Based upon review of the 2003 EA Preferred Alternative, the City of Sioux Falls and SDDOT determined that a 2.5-mile segment of the alternative would move into the design phase; this segment was addressed in the 2005 SDDOT Supplemental. Subsequently, a Revised Build Alternative that accounts for alignment and intersection changes in the segment of SD100 from I-29/County Road 106 (Exit 73) to south of 26th Street to connect with the 2005 SDDOT Supplemental Segment would also move forward through a Supplemental EA (See Section 1.4). Figures 2-1a through 2-1d shows the alignments for the 2003 EA Preferred Alternative, the Revised Build Alternative, and the 2005 SDDOT Supplemental Segment. A summary of the No-Build Alternative, 2003 EA Preferred Alternative, and the Revised Build Alternative follows in Sections 2.1.1 and 2.1.2; the 2005 SDDOT Supplemental Segment is not discussed further in this Supplemental EA since the Project was considered under a separate Supplemental EA. The criteria used to evaluate the alternatives were construction and ROW costs, traffic safety, design criteria, property impacts, and other environmental issues.

2.1.1 No-Build Alternative

Under the No-Build Alternative, SD100 would not be constructed. The 2003 EA indicated that the No-Build Alternative would not accommodate the year 2025 traffic growth needs of the region (City of Sioux Falls, 2003). Therefore, the No-Build Alternative would also not accommodate the 2035 traffic growth. The No-Build Alternative has not changed since the 2003 EA and does not merit further discussion in this Supplement.

2.1.2 Build Alternatives

2003 EA Preferred Alternative

The 2003 EA Preferred Alternative was a limited access 17-mile long, 45-mph roadway with four-lanes and a single turning lane at intersections that would be located within a 200-foot wide corridor. The roadway section was comprised of 12-foot wide lane widths, a 20-foot wide median, 10-foot wide shoulders, 10-foot wide boulevards, and 10-foot wide paved pedestrian trails. The 2003 EA is incorporated by reference per 40 CFR § 1502.21 and provides additional details of the 2003 EA Preferred Alternative (City of Sioux Falls, 2003).

Revised Build Alternative

In 2006, during the public involvement process for the corridor preservation phase, the public expressed several concerns regarding the 2003 EA Preferred Alternative including:

- Posted speed limit
  - Due to the limited access classification and one-mile access spacing along the southern portion of the corridor (Timberline Avenue to 41st Street), the public commented on the short sightedness of the proposed posted speed limit of 45 mph. Depending on the timing of

construction, the corridor may be through a primarily rural area and the corridor would be a speed trap area. Several comments were received requesting consideration of a higher posted speed limit until development adjacent to the corridor occurs.
  - Also, the 2003 EA labeled the corridor as "High Speed" corridor. The public did not consider a 45 mph posted speed limit as high speed.
- Intersection safety
  - Several comments were received regarding the angle of the corridor alignment through intersecting roads and the poor visibility and difficult turning movements that would occur at the intersections.
- Corridor safety
  - Comments received from the public regarding corridor safety were closely tied to the previously discussed concerns. A limited access corridor with minimal adjacent development would provide ample opportunities for the public to travel 10 to 15 mph over the 45 mph posted speed limit creating dangerous situations through the undeveloped corridor.

The public concerns were addressed through refinements to the original alignment. The new alignment and design considerations are referred to as the "Revised Build Alternative". The Revised Build Alternative takes into account comments from the SDDOT, City of Sioux Falls, FHWA, and public.

The Revised Build Alternative incorporates the following design and safety considerations:

- Higher design speed.
- Improved alignment at major intersections.
- Less impacts to wetland areas.
- Improved Level of Service (LOS) with improved intersection geometrics, additional turning lanes, and additional driving lanes.
- Use of 2035 traffic volumes versus 2025 traffic volumes.

In order to determine a roadway section that will meet future traffic demands, a corridor traffic study was conducted and documented (HDR, March 2007, Updated November 2011). The traffic study can be found in Appendix A. Initially, the facility will be striped to accommodate four lanes of traffic. When traffic volumes warrant, the facility will be restriped for six lanes of traffic. The traffic study (HDR, March 2007, Updated November 2011) identified two primary typical sections as detailed below. The roadway typical sections are shown in Figure 2-2 for the typical sections of the Revised Build Alternative.

I-29 to 69th Street

The typical section of SD100 from I-29 to 69th Street will accommodate six lanes of traffic separated by a raised median. The width of the raised median will allow for dual left turn lanes at each full-intersection location. Curb and gutter will be placed along each side of the raised median and along the outside of each roadway section. A shared-use path will be located along the south side of the roadway and will accommodate pedestrian and bicyclist traffic. Access to SD100 will be limited to major signalized intersections located at approximately one-mile spacing. The exception to the one-mile intersection spacing will be from I-29 east to Tallgrass Avenue where spacing is reduced to accommodate existing development access locations. The one-mile intersection spacing is utilized in order to maintain the designation of the corridor as a limited access highway. Two overpasses will be constructed within this section to maintain free-flow. The first overpass will be located at the intersection of 85th Street and the second overpass will be located at the Burlington Northern and Sante Fe Railway (BNSF) railroad crossing located between Cliff Avenue and Southeastern Avenue. The I-29/County Road 106 interchange will be utilized to provide full access to and from SD100.

69th Street to 26th Street

Main Alignment

The typical section of SD100 from 69th Street to 26th Street will accommodate six lanes of traffic separated by a raised median. The width of the raised median will allow for dual left turn lanes at each full-intersection location. Curb and gutter will be placed along each side of the raised median and along the outside of each roadway section. A shared-use path will be located along the south/east side of the roadway and will accommodate pedestrian and bicyclist traffic. Access to SD100 will be limited to approximately one-half mile spacing throughout this section with the exception of one-mile spacing between 57th Street and 41st Street. Along with the at-grade intersections, a grade separated interchange is proposed at the intersection with 57th Street due to high traffic projections.

SD11 Improvements

The segment along SD11 from 57th Street to south of 69th Street will be widened from the existing two lane section to a three lane section (See Figure 2-2). The middle lane will serve as a two way left turn lane to accommodate relatively high volumes of left turning traffic. As part of this widening, the existing drainageway on the west side of SD11 will be shifted approximately 10' to 15' to the west.

Corridor Interchange

Based on SDDOT policy regarding designing roadway improvements to a desirable Level of Service (LOS) C and a minimum LOS D, the traffic study (HDR, March 2007, Updated May 2011) identified one intersection within this segment of the Revised Build Alternative that will require a grade separated interchange. The location is at the intersection of SD100 and 57th Street. Additional discussion of this interchange can be found in Appendix C.

The design of the Revised Build Alternative also considered access management. In 2008, a SD100 Access and Noise Plan was approved by the Transportation Commission. See Appendix B for the SD100 Access and Noise Plan.

2.2 DETERMINATION OF ALTERNATIVES TO CARRY FORWARD

The following text discusses the alternatives carried forward for a detailed evaluation in this Supplemental EA.

2.2.1 Build Alternatives

The ***2003 EA Preferred Alternative*** was considered in the 2003 EA (City of Sioux Falls, 2003). For the purposes of this analysis, the ***Modified 2003 EA Preferred Alternative*** denotes the 2003 EA Preferred Alternative excluding the segment addressed by the 2005 SDDOT Supplement Segment.

The ***Revised Build Alternative*** considered in this EA is the southern segment of SD100. The Revised Build Alternative follows a similar alignment of the Modified 2003 EA Preferred Alternative from I-29 east to 26th Street with shifts in the alignment of approximately 100 to 200 feet. The benefits of the Revised Build Alternative, when compared to the Modified 2003 EA Preferred Alternative include:

- Decreased construction costs: Interchanges identified in the 2003 EA were eliminated via an improved alignment which improved the angle of intersection and increased separation between the corridor and adjacent principal arterials.
- Improved constructability: The redesign of the alignment allowed for better accommodation of available material directly adjacent to the project.
- Increased design speed from 45 mph to 60 mph.
- Increased safety: The redesign of the alignment allowed for improved intersection angles (See Figures 2-1a through 2-1d).

- Straddles the property lines from 1,000 feet west of Louise Avenue to Western Avenue and 1,000 feet west of Cliff Avenue to 1,000 feet east of Sycamore Avenue.

The cons of the Revised Build Alternative include:

- Take of property, two residences taken versus 2003 Preferred Alternative avoided the residences.
- One business will be acquired due to the Revised Build Alternative.
- Impact to Harmodon Park, considered a Section 4(f) resource.
- Additional noise within the Study Area from the improvements to SD11 as well as the new roadway alignment.

Several interchange options were developed and considered for the interchange at 57th Street. Appendix C discusses the interchanges considered at each of the locations. For the purpose of discussion and analysis of the Revised Build Alternative, the interchange at 57th Street was analyzed with a Single Point Interchange (SPI), which is the preferred interchange option.

2.3 PREFERRED ALTERNATIVE

Based on an evaluation of potential impacts and favorable public comment, the Revised Build Alternative has been identified as the preferred alternative for SD100.

2.4 SUMMARY OF IMPACTS

Table 2-1 presents a comparison of impacts under the alternatives carried forward for detailed analysis. The impacts for the 2003 EA Preferred Alternative were noted as identified in the EA. The 200 foot corridor was utilized for the ROW and is shown in Figures 2-3a through 2-3d. Table 2-2 displays the impacts of the Modified 2003 EA Preferred Alternative.

Impacts associated with the Revised Build Alternative were calculated utilizing construction limits, ROW limits, and/or temporary easement limits based on preliminary design. At times, the construction limits extend outside the proposed ROW. Approximately 40 acres of temporary easements have been identified for the areas that the construction limits extend beyond the proposed ROW. The ROW required for the Revised Build Alternative is approximately 239.8 acres and includes 69th Street, SD 11 Improvements, and 57th Street Interchange. Table 2-2 summarizes the long-term impacts associated with the two build alternatives evaluated in this EA. Chapter 3, Affected Environment and Environmental Impacts, includes a detailed description of each potentially affected resource, as well as potential impacts from traffic and maintenance of the improved transportation system. Construction impacts are summarized in Section 3.22.

Table 2-1
Comparison of Alternatives

Criteria	2003 EA PREFERED ALTERNATIVE (I-29 TO 26TH STREET)	REVISED BUILD ALTERNATIVE (I-29 TO 26TH STREET)
ROW, acquisition, and construction cost Acres Cost (million $)	 192.3[5] 87.6 (2011 dollars)[2]	 239.8[1] 161.6 (2011 dollars)
Roadway Length (miles) • Main Alignment Corridor • SD 11 Improvements • Intersections o 69th Street	 10.4 N/A N/A	 10.4 0.9 1.2
Identified Interchanges	• SD 115 (Minnesota Avenue) • SD 11	• 57th Street
Residential Relocation (units) • Permanent Residence • Permanent Buildings (sheds, etc.)	 0 0	 2 1
Meets all AASHTO design criteria	Yes	Yes
Farmland Impacts (acres)	187[6]	258[4]
Business Impacts	7	1
Environmental Impacts	Minimal impacts to Harmodon Park	Minimal impacts to Harmodon Park
Constructability	Moderately complex	Moderately complex
Rail Crossings (Active) • At Grade • Grade Separated	 0 1	 0 1
Meets Purpose and Need of Project	Yes	Yes

Notes:

1 See Figures 2-3a through 2-3d for specific areas of right-of-way impacts. Right-of-way acres include the realignments of 69th Street and SD 11 Improvements.

2 The cost estimate includes right-of-way acquisition, design, and construction (City of Sioux Falls, 2003). All ROW, funding, design, and construction costs are in 2002 dollars. For this EA the cost per mile was utilized to estimate the cost and an inflation rate of 7% per year.

3 The cost estimate includes right-of way, project engineering, construction engineering, and construction. All ROW, roadway, structure, and total construction costs are in 2011 dollars.

4 See Figure 2-3a through 2-3d for specific areas of indirectly converted farmland impacts.

5 Area was calculated with 200 foot corridor and areas that ROW would need to be acquired.

6 Area was calculated with 200 foot corridor and farmland areas.

Table 2-2
Summary of Long-Term Impacts for the Build Alternatives

	Modified 2003 EA Preferred Alternative (I-29 TO I-90)	Revised Build Alternative (I-29 TO 26TH STREET)
Resource	Impact	Impact
Air Quality	No significant impact	No significant impact
Water Quality	No significant impact	No significant impact
Pedestrians and Bicycles	Provides access	Provides access
Noise	No significant impact	Residences at 41st and SD11
Threatened and Endangered Species	Affects lined snake habitat	Topeka Shiner-*May affect, likely to adversely affect* Western prairie fringed orchid- *Surveys required season prior to construction*
Floodplains Floodway 100 Year	No significant impact	 0.73 acre 4.75 acres
Archaeological Sites and Historic Structures	No significant impact	No Adverse Effect
Section 4(f) and 6(f) Resources	Harmodon Park[4]	*De Minimis* Impact
Regulated Materials	No significant impact	No significant impact
Land Use • Right-of-Way • Future Land Use	 192.3[5] Compatible	 239.8 acres Compatible
Public Facilities and Service	No significant impact	No significant impact
Visual Impacts and Aesthetics	No significant impact	No significant impact
Farmland	No significant impact	No significant impact
Economic Resources	Seven business affected by land acquisition or partially affected	One businesses permanently affected
Environmental Justice	No impact	No impact
Habitat, Fish, and Wildlife[1]	Minor loss of habitat, moderate in Cactus Hills	Minor loss of habitat
Wetlands and Other Waters of the U.S. • Wetlands[3] • Stream Channel	 58.7 acres Spring Creek Unnamed intermittent streams	 50.7 acres Spring Creek Unnamed intermittent streams

Notes:

[1] *Impacts for habitat are consistent with impacts for wetlands and other waters of the U.S. Impacted wetlands would be mitigated per Section 404 of the Clean Water Act.*

[2] *Other waters of the U.S. identified within the Study Area for this Project include only stream channels with the presence of a definable bed and bank.*

[3] *Jurisdiction is to be determined by the U.S. Army Corps of Engineers.*

[4] *Harmodon Park was mentioned in the 2003 EA, but was not analyzed as a 4(f) resource.*

[5] Amount not specified in 2003 EA. *Area was calculated with 200 foot corridor and areas that ROW would need to be acquired.*

Sources:
40 CFR 81.342, Attainment Status Designations, South Dakota.;Administrative Rules of South Dakota (ARSD) Article 74:51, Surface Water Quality, January 1999.; Augustana College Archeology Laboratory, 2006 , 2007, and 2010; EDR, December 2006; Federal Emergency Management Agency (FEMA), 2008 and 2009;U.S. Census Bureau, 2000 and 2010.

2.5 DESIGN CRITERIA

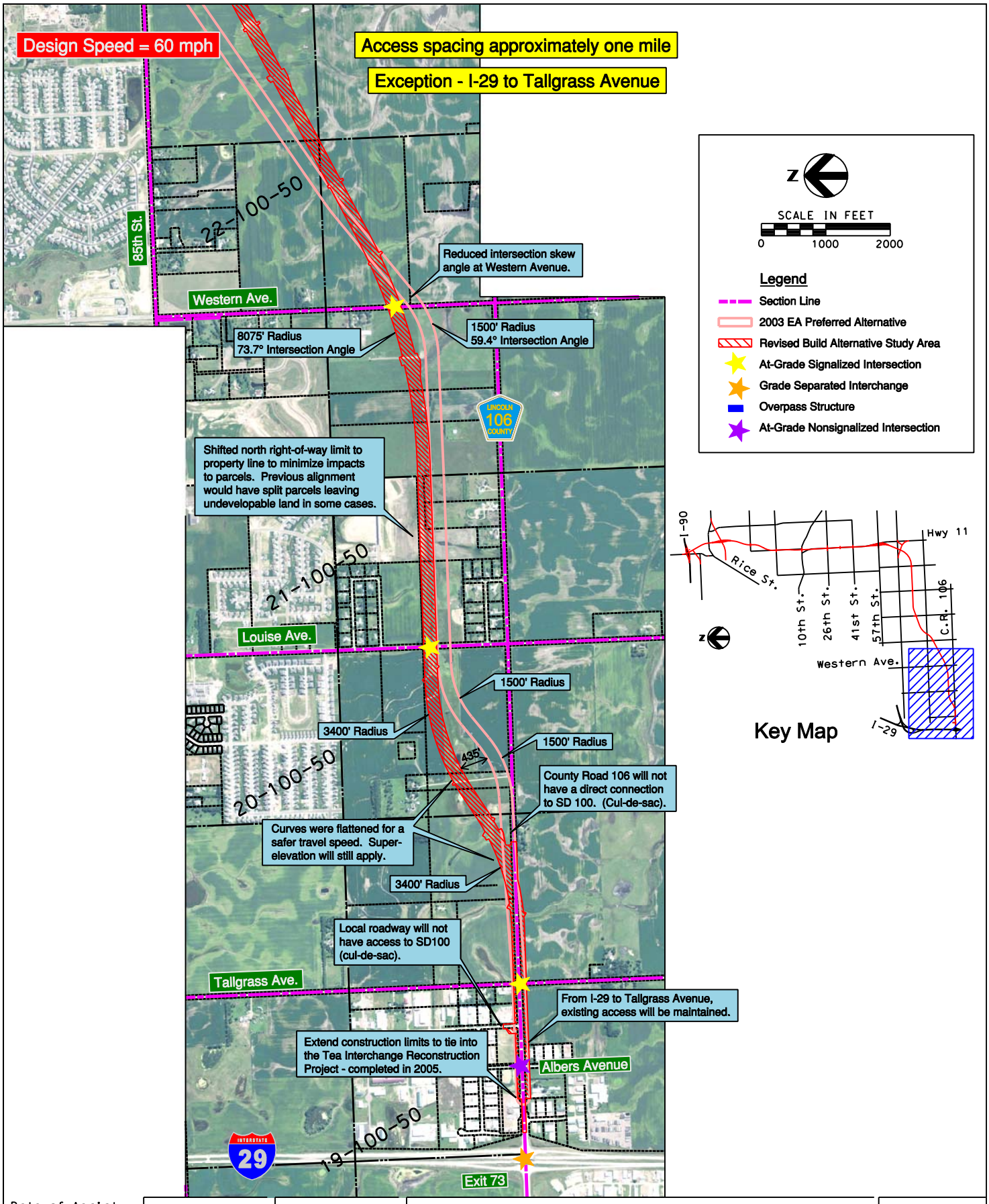
The project will be designed and constructed in accordance with SDDOT and, if more stringent, City of Sioux Falls standards for a principle arterial. Bridge or box culvert design will be completed in accordance with SDDOT standard practices and the latest version of the AASHTO LRFD Bridge Design Specifications. Details of the proposed roadway design elements are noted in the Table 2-3. The details of the 2003 EA Preferred Alternative are also noted in Table 2-3, as a comparison to the Revised Build Alternative.

Table 2-3
Major Roadway Design Elements

Major Design Element	Modified 2003 EA Preferred Alternative	Revised Build Alternative (Southern Segment)
Design Traffic Volume • 1-29 E to 69th Street • 69e Street to 26th Street	18,000 vpd[1] (2015 Growth Plan) 18,000 vpd[1] (2015 Growth Plan)	37,200 vpd[1] (2035 Forecasts) 46,800 vpd[1] (2035 Forecasts)
Vehicle Classification	Unknown	90.7% cars 4.2% medium trucks 3.3% heavy trucks 0.7% Buses 1.1% Motorcycles
Surface Type	Concrete	Concrete
Traffic Lane Width	12-14 feet	12 feet
Right-turn Lanes	14 feet	12 feet
Shared Use Path	10 feet on both sides of the roadway	10 feet on the south/east side of the main alignment
Posted Speed • I-29 E to 69th Street • 69th Street to 26th Street	 45 mph 45 mph	 55 mph 45 mph
Design Speed	45 mph	60 mph
Proposed Right-of-Way Width	200 feet	200 feet minimum
Project Length	10.4 miles	10.4 miles (Main Alignment) 1.2 mile (69th St.) 0.9 mile (SD11)
Access Spacing • ½-mile Spacing[2] • 1-mile Spacing	 26th Street to Madison Street I-29 to 26th Street	 41st Street to 26th Street I-29 to 41st Street

[1] vpd – Vehicles per Day

2 Other "intersecting roads" not shown as having access to SD100 will not be allowed as right-in/right-out when respective segments of SD100 are constructed and are planned to be cul-de-sac. There are a few isolated farms that if the current access is still being used for same purpose when a segment of SD100 is constructed, this current access may be allowed as right-in/right-out until development occurs and/or land use changes. In the event development occurs prior to construction of a segment of SD100, the development will need to follow the SD100 Access & Noise Plan and Supplemental EA so that access is provided at shown intersections or to City streets that connect to these intersections.

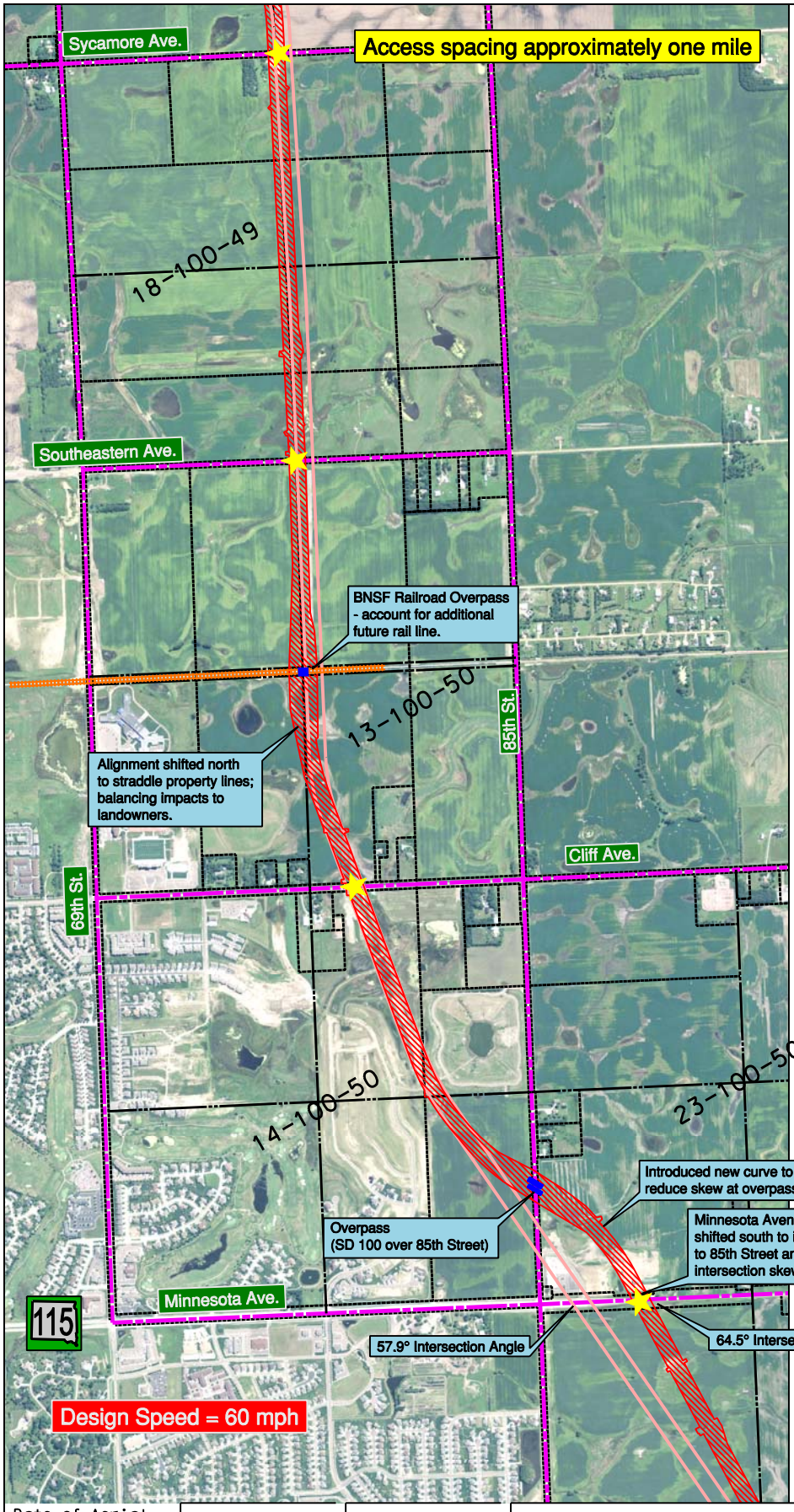


Date of Aerial Photography: 2010

Realignment Considerations

Eastside Corridor (SD100) - I-29 to South of 26th Street

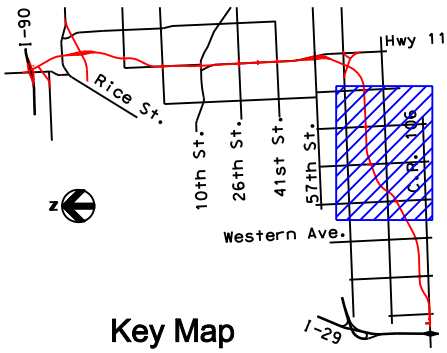
Figure 2-1a



SCALE IN FEET
0 1000 2000

Legend

- Section Line
- 2003 EA Preferred Alternative ROW
- Revised Build Alternative ROW
- At-Grade Intersection
- Grade Separated Interchange
- Overpass Structure



Key Map

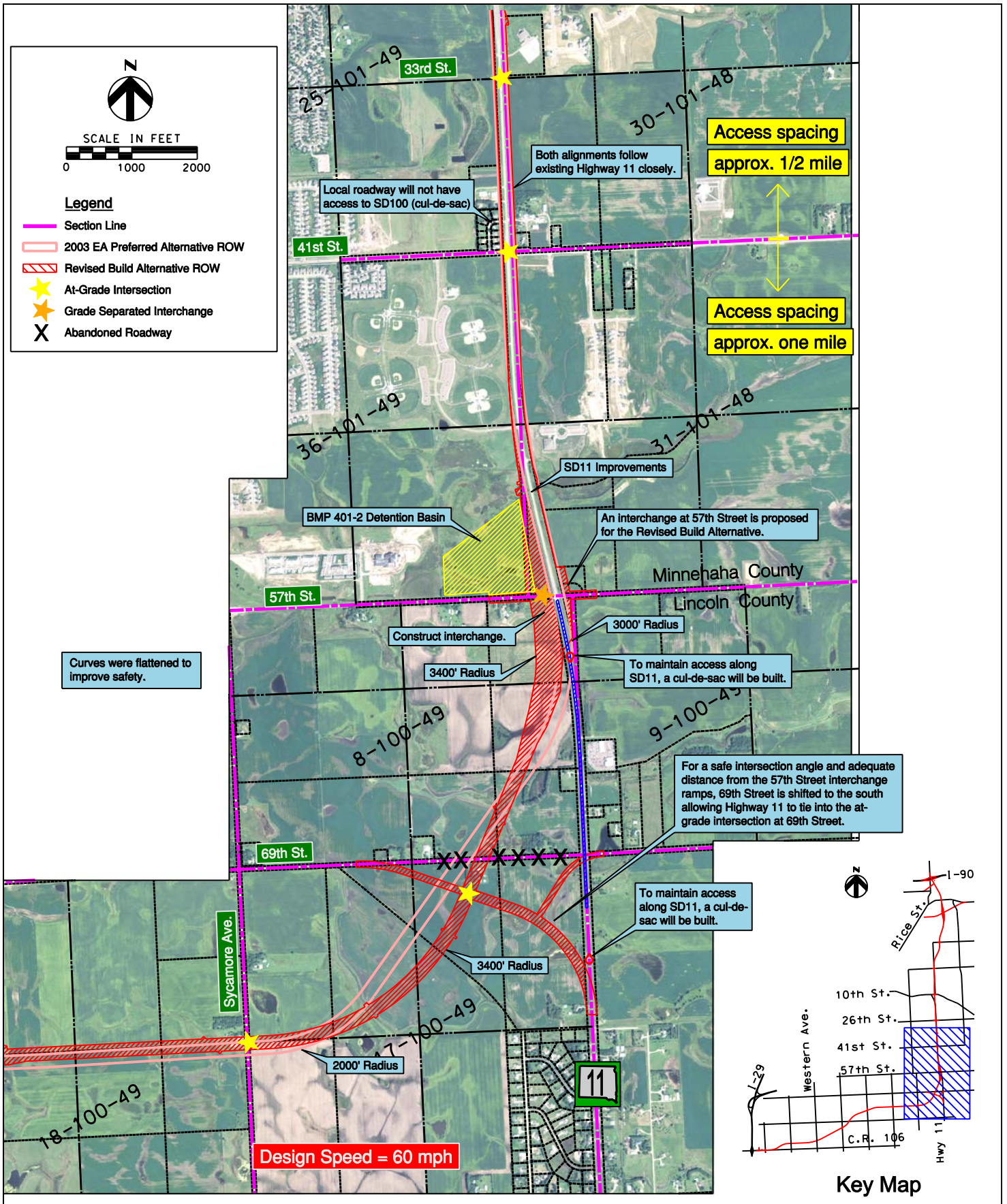
* Traffic study at-grade intersection recommended at Minnesota Avenue versus a grade-separated interchange.

Date of Aerial Photography: 2010

Realignment Considerations

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 2-1b

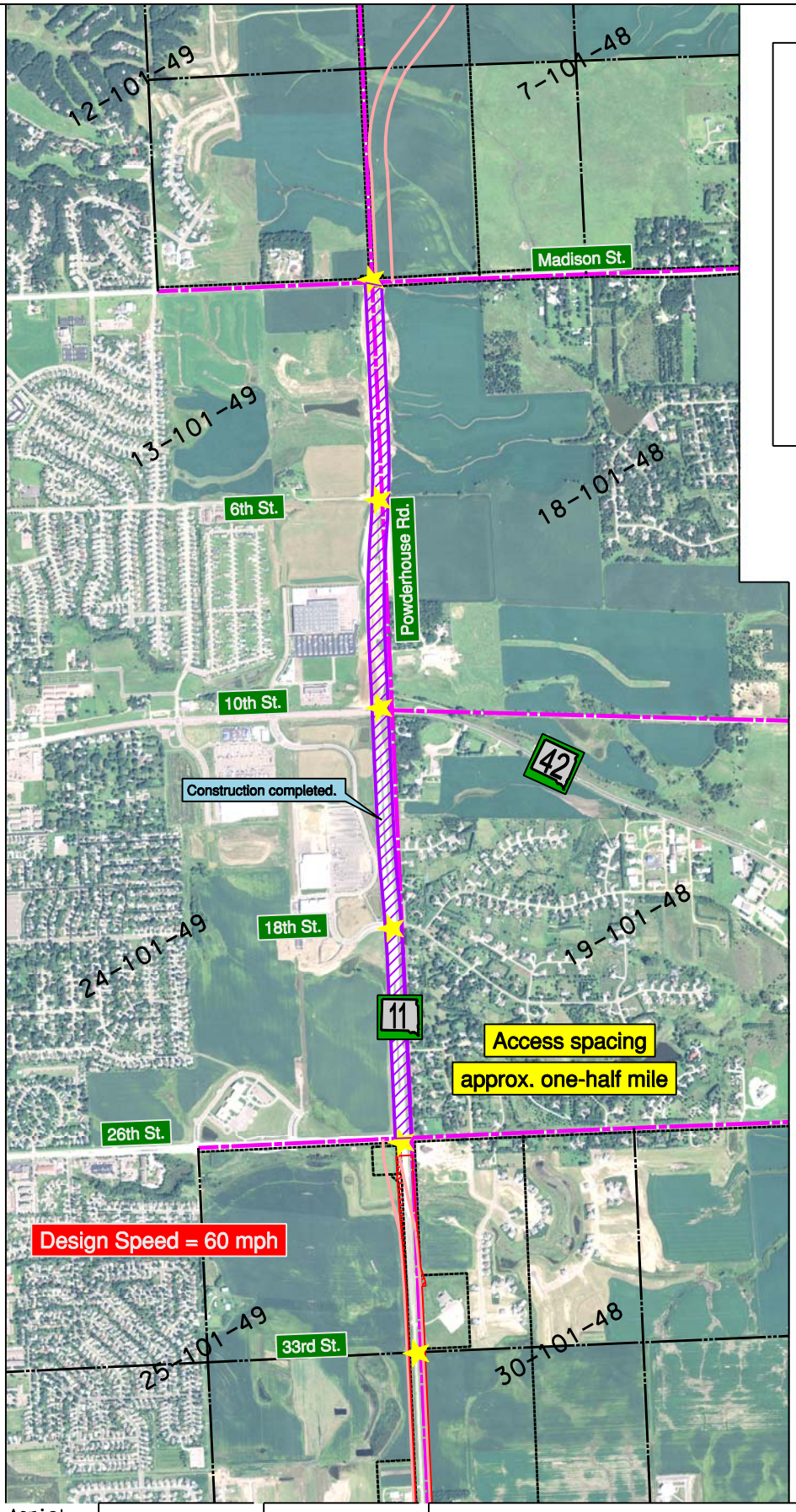


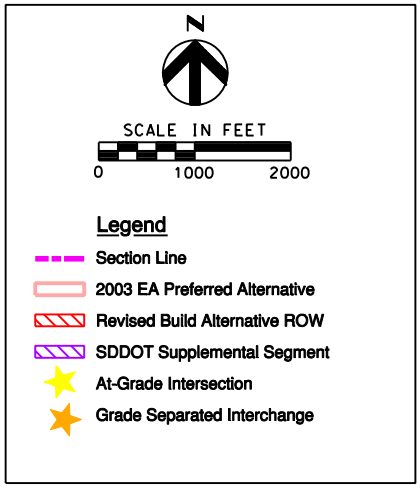
Date of Aerial Photography: 2010

Realignment Considerations

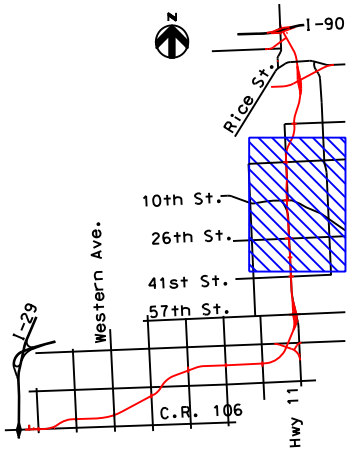
Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 2-1c





2005 SDDOT Supplemental Segment has been constructed.



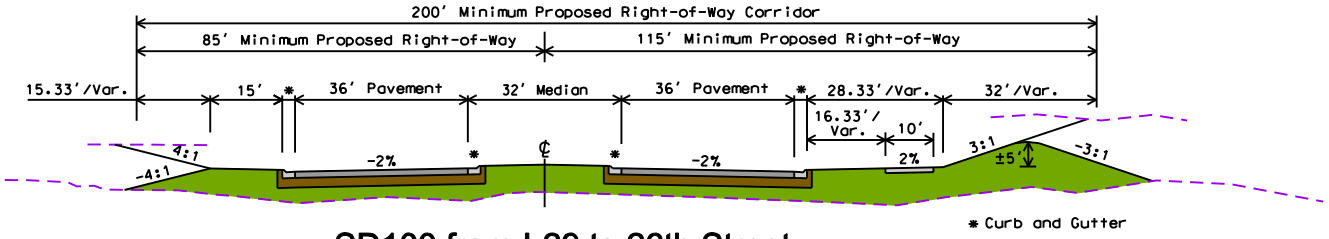
Key Map

Date of Aerial Photography: 2010

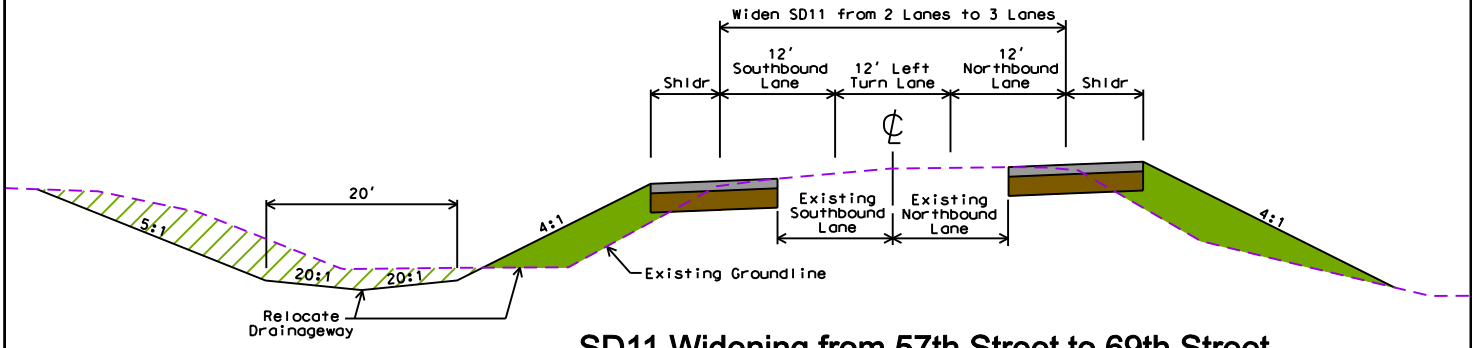
Realignment Considerations

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 2-1d

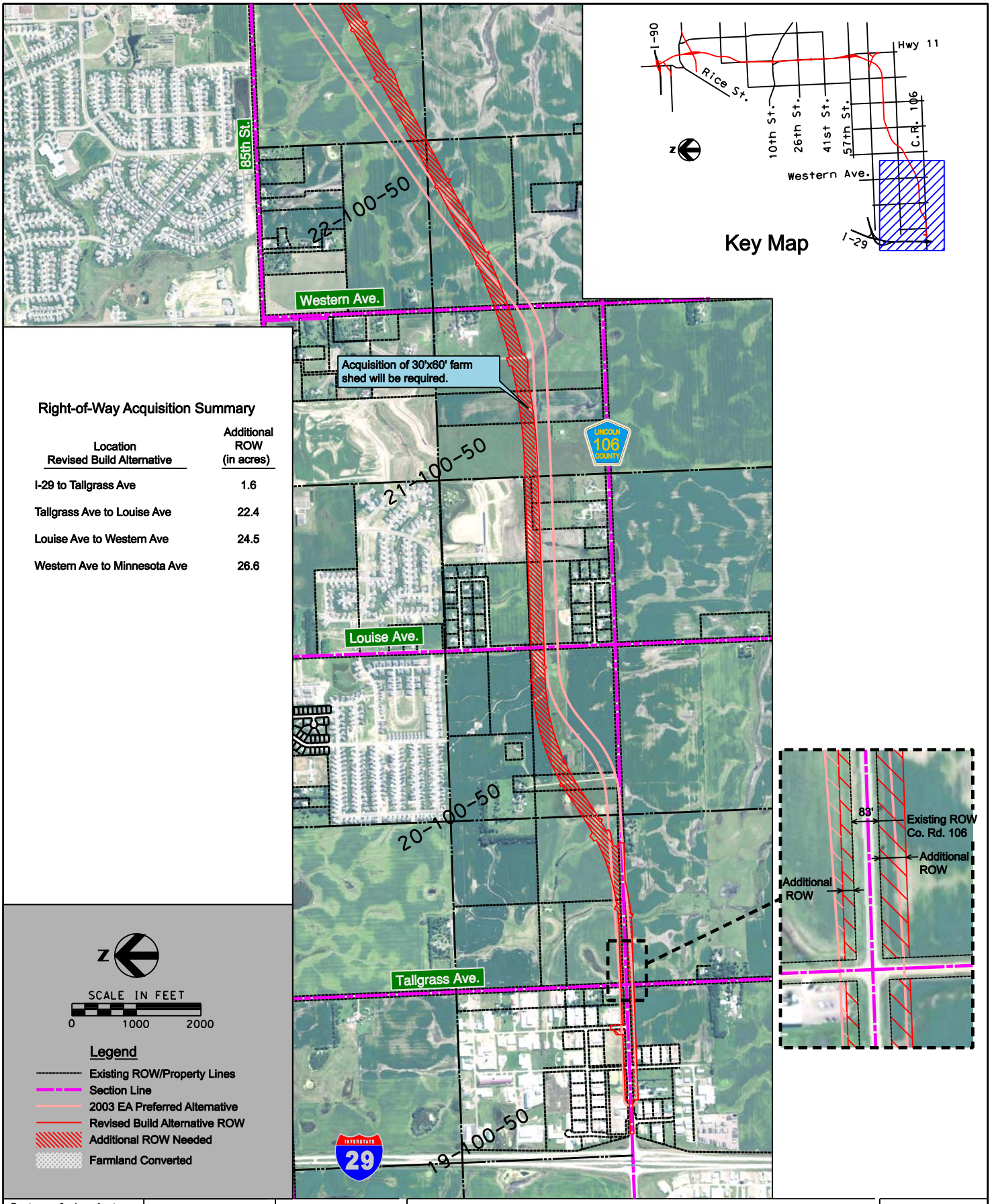


SD100 from I-29 to 26th Street



SD11 Widening from 57th Street to 69th Street

SD DOT Connecting South Dakota and the Nation	HDR	Typical Roadway Sections Eastside Corridor (SD100) - I-29 to South of 26th Street	Figure 2-2



Right-of-Way Acquisition Summary

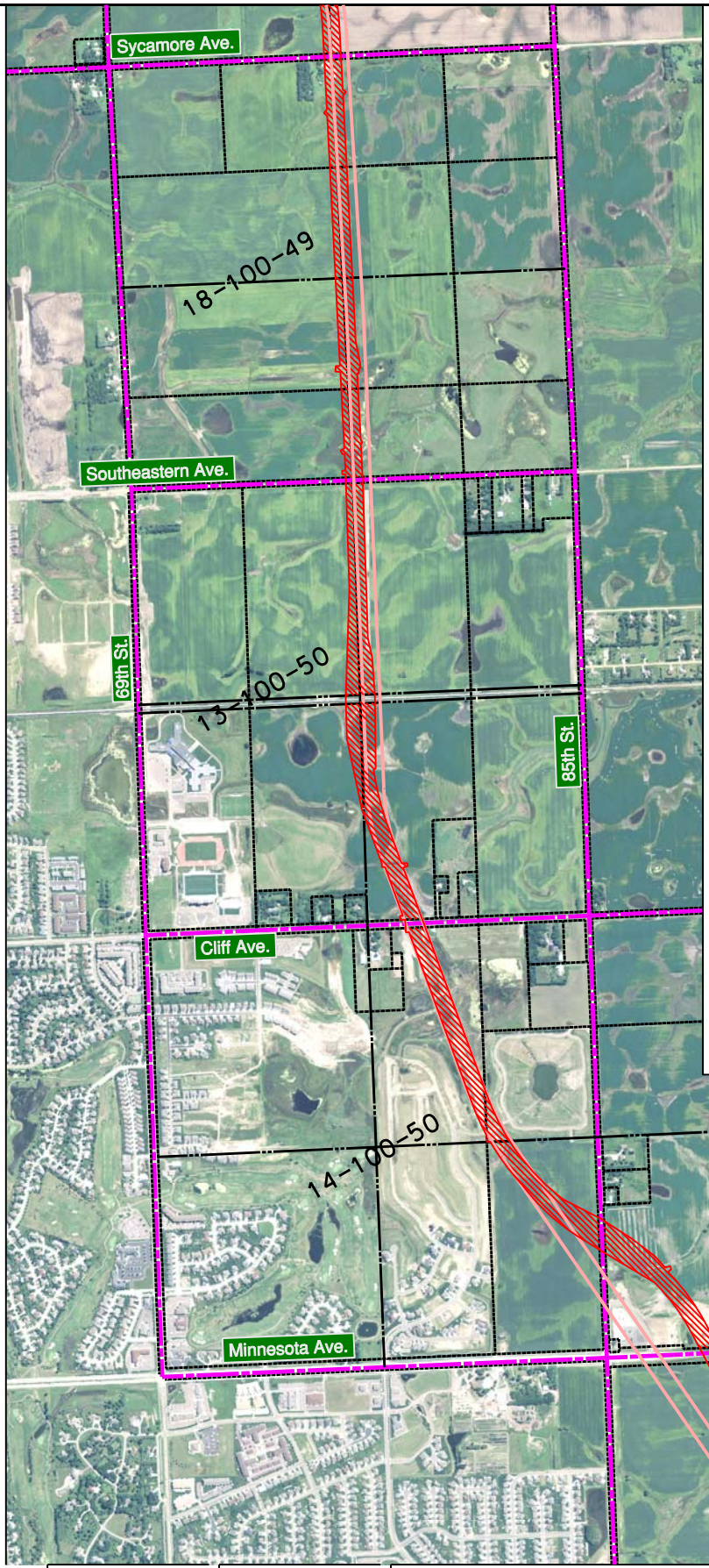
Location Revised Build Alternative	Additional ROW (in acres)
I-29 to Tallgrass Ave	1.6
Tallgrass Ave to Louise Ave	22.4
Louise Ave to Western Ave	24.5
Western Ave to Minnesota Ave	26.6

Date of Aerial Photography: 2010

Right-of-Way and Farmland Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 2-3a



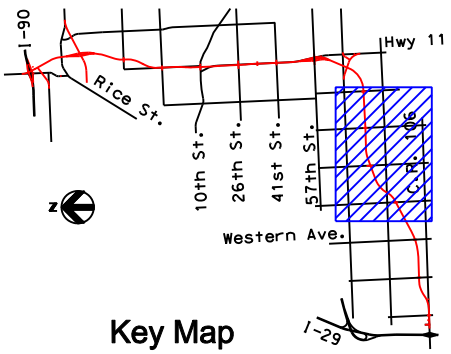
SCALE IN FEET
0 1000 2000

Legend

- Existing ROW/Property Lines
- Section Line
- 2003 EA Preferred Alternative
- Revised Build Alternative ROW
- Additional ROW Needed
- Farmland Converted

Right-of-Way Acquisition Summary

Location Revised Build Alternative	Additional ROW (in acres)
Minnesota Ave to Cliff Ave	31.5
Cliff Ave to Southeastern Ave	29.5
Southeastern Ave to Sycamore Ave	23.3



Key Map

Date of Aerial Photography: 2010

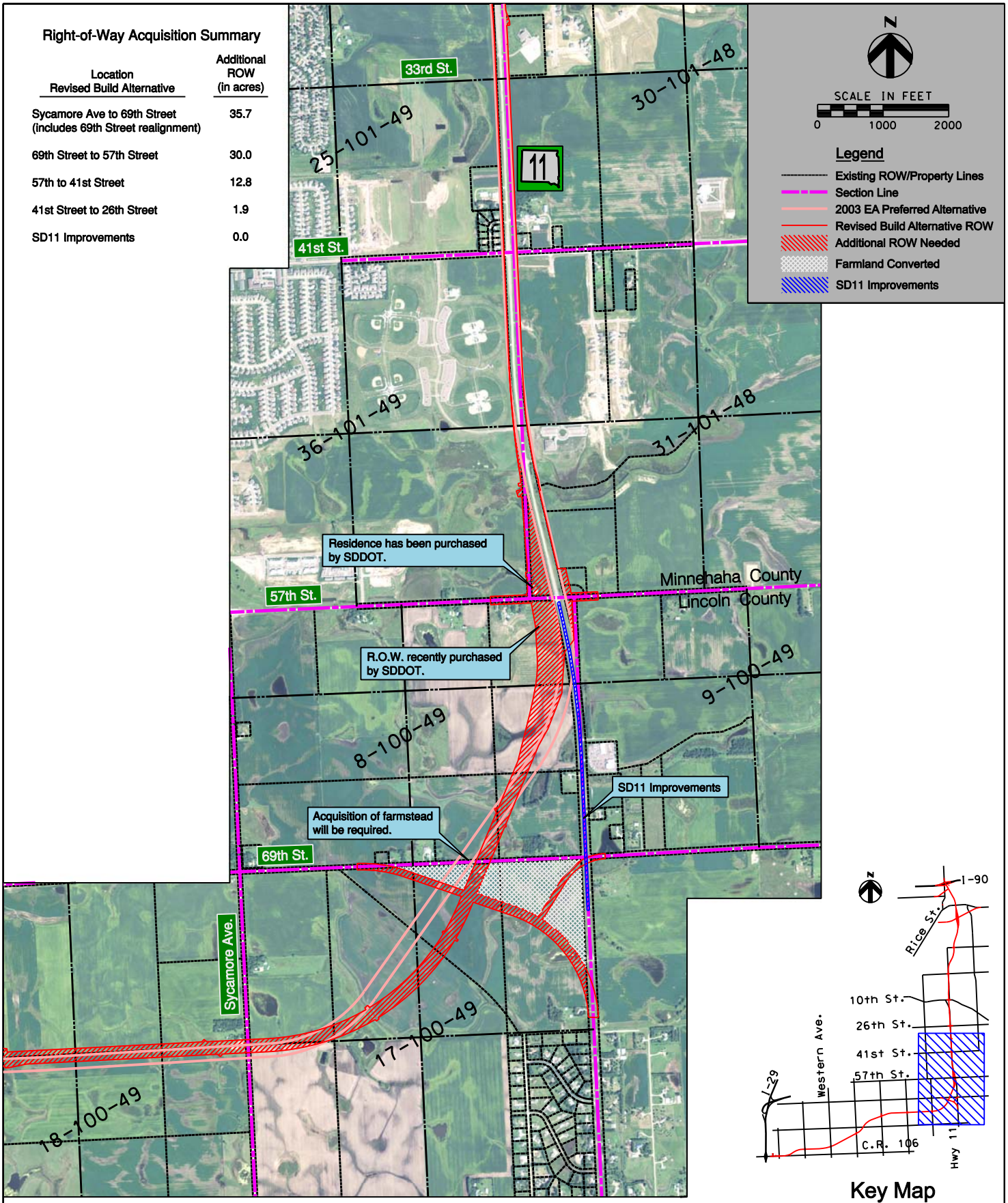
Right-of-Way and Farmland Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 2-3b

Right-of-Way Acquisition Summary

Location Revised Build Alternative	Additional ROW (in acres)
Sycamore Ave to 69th Street (includes 69th Street realignment)	35.7
69th Street to 57th Street	30.0
57th to 41st Street	12.8
41st Street to 26th Street	1.9
SD11 Improvements	0.0



Key Map

Date of Aerial Photography: 2010

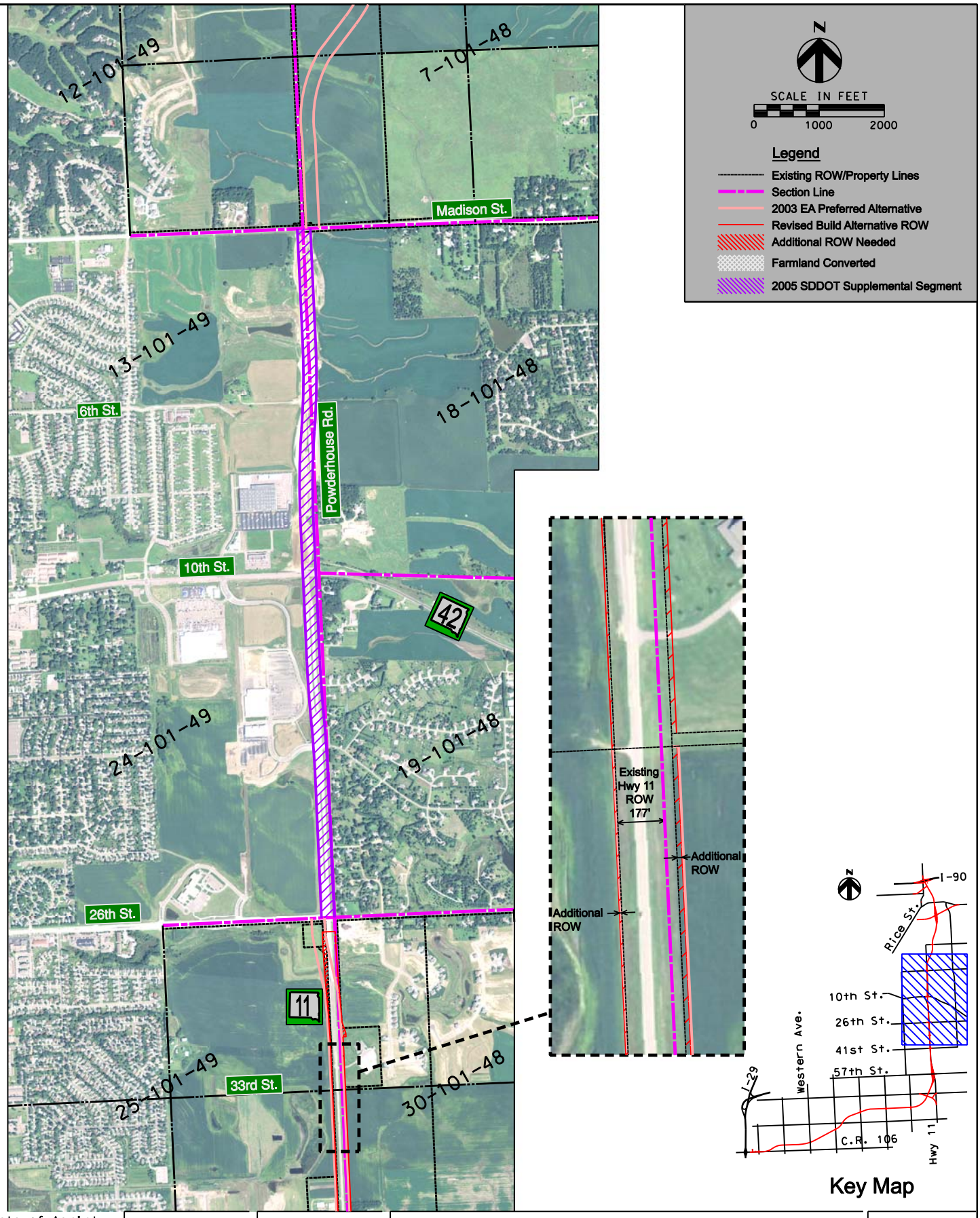
South Dakota DOT Connecting South Dakota and the Nation

HDR

Right-of-Way and Farmland Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 2-3c



Date of Aerial Photography: 2010

South Dakota DOT Connecting South Dakota and the Nation

HDR

Right-of-Way and Farmland Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 2-3d

CHAPTER 3
AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

This chapter includes a discussion of the existing social, economic, and environmental resources in the area of the ***Revised Build Alternative***. After detailing existing conditions for each affected resource, Chapter 3 will focus on the potential long-term impacts of the Revised Build Alternative with regards to human and natural environment resources as well as short-term impacts (typically 1 to 2 years once construction is complete). The discussion compares the potential impacts of the Revised Build Alternative to impacts previously identified in the 2003 EA Preferred Alternative. The comparison of impacts between the two build alternatives focuses on the area of the ***Revised Build Alternative***, which is from I-29 to 26th Street.

The discussion of impacts regarding the 2003 EA (City of Sioux Falls, 2003) and 2005 SDDOT Supplemental EA (SDDOT, 2005) is limited in extent but includes enough information to compare the differences in environmental and social impacts with the Revised Build Alternative. The previous NEPA documents included a detailed description of the affected environment and environmental impacts. Both documents are incorporated by reference in accordance with 40 Code of Federal Regulations (CFR) Section 1502.21. References to the documents in this Supplemental EA refer to items which are included in those documents and not included in this Supplemental EA.

Best Management Practices (BMPs) are proposed to lessen intensity and the duration of impacts for relevant affected resources. Although no mitigation measures are required to address significant impacts, mitigation as required by regulations (such as wetland mitigation) is noted in relevant resource sections. Section 3.22, Construction Impacts, addresses BMPs proposed for construction activities. Indirect impacts associated with the Project are discussed only for applicable resource sections and are included in Section 3.23.1, Indirect Impacts. The cumulative effects[1] of the Project, including known impacts of the projects in the No-Build Alternative and other reasonably foreseeable projects in or near the Study Area are discussed in Section 3.23.2, Cumulative Impacts.

3.1 LAND USE

3.1.1 Existing Conditions

The Study Area is located within Minnehaha and Lincoln Counties. The 2003 EA (City of Sioux Falls, 2003) describes the Study Area as primarily agricultural land use with scattered rural residences and commercial properties. Currently, the land use in the area is recent development of single family residences, multi-family residences, and commercial mixed with agricultural areas. The agricultural use in the Study Area includes commercial crops such as soybeans and

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

corn, with some small areas of pasture/grazing uses (See Figure 3-1). The land use within the Study Area also includes a recreational area, Harmodon Park (See Figure 3-1). Subsections of 3.20 contain further discussion of Harmodon Park.

Development adjacent to the Study Area is expected to continue as described in the Sioux Falls Comprehensive Development Plan: Shape Sioux Falls 2035 and Direction 2035: Sioux Falls MPO Long-Range Transportation Plan (City of Sioux Falls, 2009; Sioux Falls MPO, 2010). The Sioux Falls 2035 Comprehensive Development Plan indicates that future land use plans in the areas adjacent to the Revised Build Alternative include residential use with schools and parks strategically placed within the developments. Business parks are anticipated at intersections along the Revised Build Alternative (See Figure 3-1). The number of dwelling units in Sioux Falls was 82,500 in 2008 within the MPO area. Each year Sioux Falls adds 1,000 to 1,500 new dwelling units (Sioux Falls MPO, 2010).

3.1.2 Impacts of Alternatives

The need for continued development to support the increasing population of the City of Sioux Falls will cause an expansion into the rural and agricultural lands. This urban expansion into rural and agricultural lands could potentially cause conflicts, such as providing infrastructure and converting agricultural land to an urban land use. The City of Sioux Falls, along with Minnehaha and Lincoln Counties, have planned for land use conversion in the future to handle increased need for residential and commercial development based on regional growth accommodation within the Sioux Falls metropolitan area. The Modified 2003 EA Preferred Alternative and Revised Build Alternative are both consistent with the future land use designations for the City of Sioux Falls. The corridor would provide limited access ranging from approximately 1-mile spacing from I-29 to 41st Street and 0.5-mile spacing from 41st Street to 26th Street to meet the needs of the expected larger volumes of local and regional traffic. The exception to the 0.5-mile and 1-mile intersection spacing will be from I-29 east to Tallgrass Avenue where spacing will be less than 0.5-mile in order to maintain existing access (See Figure 2-1a through 2-1d).

3.2 SOCIAL ENVIRONMENT

3.2.1 Existing Conditions

As the City of Sioux Falls continues to grow, a major development issue will be the conflict of rural versus urban uses. Issues can arise when urban growth takes place in scattered areas near agricultural and rural residential properties. As the City of Sioux Falls continues to expand into rural areas within Minnehaha and Lincoln Counties, the need to follow the 2035 Comprehensive Development Plan and the 2035 MPO long range plans will become more critical (City of Sioux Falls, 2009; Sioux Falls MPO, 2010).

For analysis in the 2003 EA, the social environment was discussed and separated into four specific growth areas located along the corridor. The growth areas include Delapre Township Growth Area, Springdale Township Growth Area, Split Rock Township Growth Area, and Northeast Growth Area. See the 2003 EA and the Northern Segment Supplemental EA for further discussion of the planning issues and design considerations for each of these growth areas (City of Sioux Falls, 2003). For the Southern Segment of the Revised Build Alternative, the growth areas include:

- Delapre Township is located south of 57th Street and west of Western Avenue,
- Spring Lake Township is located east of Western Avenue and south of 57th Street extending to Harrisburg, and

- Split Rock Township is located between Sioux Falls and the Big Sioux River and extends south to 57th Street.

Since the 2003 EA analysis, additional development has occurred within the designated growth areas. Development has especially occurred from Tallgrass Avenue to Minnesota Avenue along 85th Street (See Figure 3-1). However, the analysis completed for the 2003 EA is still applicable to the Modified 2003 EA Preferred Alternative and Revised Build Alternative.

3.2.2 Impacts of Alternatives

The need for continued development to support the increasing population of the City of Sioux Falls will cause expansion into rural and agricultural lands. This urban expansion could potentially cause land use conflicts. The City of Sioux Falls, along with Minnehaha and Lincoln counties, have planned for land use conversion in the future responding to increased need for residential and commercial development (City of Sioux Falls, 2009; Sioux Falls MPO, 2010). The Modified 2003 EA Preferred Alternative and Revised Build Alternative are consistent with the future development of the City of Sioux Falls, and the alignment is shown in planning documentation. The corridor would provide controlled access for the expected larger volumes of local and regional traffic, and would improve traffic flow in developed areas.

3.3 PUBLIC FACILITIES, UTILITIES, AND SERVICES

3.3.1 Existing Conditions

Public facilities include buildings such as City Hall, libraries, auditoriums, schools, emergency response buildings, churches, and utilities such as communication, power, gas, water, and wastewater systems. The school districts located within the Study Area include Brandon Valley, Harrisburg, and Sioux Falls. The closest existing school location to the Revised Build Alternative is the Sioux Falls Christian School located on 69th Street east of Cliff Avenue (See Figure 3-1). The other existing schools are noted on Figure 3-1. Nine potential elementary school sites were recognized in the 2035 Comprehensive Development Plan, three are located within the Southern Segment Study Area (See Figure 3-1) (City of Sioux Falls, 2009).

In the future, police, fire, and emergency services must be included in discussions regarding long-range plans in order to continue to provide these services to the growing population of the City of Sioux Falls. Due to the population growth of Sioux Falls, the 2035 Comprehensive Development Plan proposes to build a fire station every four years. A fire station was programmed near the Study Area at 41st Street and SD 11 (See Figure 3-1). The future proposed fire stations that will be in close proximity to the Revised Build Alternative: South Cliff Avenue and 85th, and SD100 and Sycamore Avenue (See Figure 3-1). Police services and emergency services will also expand into the Study Area as development continues.

Several private utilities exist within or adjacent to the Study Area. Currently, there is little public utility infrastructure within the Study Area and the plan is to construct future public utilities along with the construction of SD100 to serve new development in the area.

3.3.2 Impacts of Alternatives

The Modified 2003 EA Preferred Alternative and Revised Build Alternative would not impact public buildings. For existing public buildings within the Study Area, any accesses closed due to the Revised Build Alternative will be provided alternative access will be provided through development and other transportation projects.. Future public buildings are being designed around the alignment of the Revised Build Alternative. SD100 would accommodate the expected larger volumes of local and regional traffic, and would improve traffic flow around the proposed school areas.

The Revised Build Alternative would cause temporary impacts to private utilities within the Study Area during construction and in order to minimize impacts, close coordination with utility companies will be necessary as the project progresses through design and into construction (See Appendix E for correspondence with utility companies).

3.4 RAILROADS

3.4.1 Existing Conditions

An active rail line exists within the Study Area (See Figure 3-2). The Modified 2003 EA Preferred Alternative and Revised Build Alternative intersect with the Burlington Northern and Santa Fe Railroad (BNSF) main rail line (See Appendix D for coordination with BNSF) The crossing of the BNSF main rail line is approximately 2,800 feet south of 69th Street and 2,700 feet east of Cliff Avenue in southern Sioux Falls.

Currently an Environmental Assessment is being completed by the City of Sioux Falls, SDDOT, and FHWA to study relocation of the existing rail switchyard currently located in downtown Sioux Falls (Railyard Relocation Project). The Railyard Relocation Project is currently identifying the study areas for the Project in area northeast of the city. The Railyard Relocation Project is mentioned in this document due to the BNSF alignment within the Study Area.

3.4.2 Impacts of Alternatives

The Modified 2003 EA Preferred Alternative was developed with grade separated crossings at each of the identified railroad locations. The Revised Build Alternative also incorporates a grade separated crossing of the BNSF rail line. In order to minimize impacts and delays on the rail lines during construction, the SDDOT will coordinate with the BNSF railroad during design and construction phases of the Project. The Southern Segment of the Revised Build Alternative does not conflict with the current plans for the Railyard Relocation Project.

3.5 BICYCLISTS AND PEDESTRIANS

3.5.1 Existing Conditions

The City of Sioux Falls has a well-developed system of recreational bicycle trails, which loop around the City following the Big Sioux River and Skunk Creek. The Sioux Falls MPO Bicycle Plan (Sioux Falls MPO, 2009), shows the following future routes that are adjacent to or within the Study Area:

- Improvement of SD115 from Harrisburg to Sioux Falls—ensures there are 8 foot-shoulders incorporated with project.
- Minnesota Avenue from SD100 to Ralph Rodgers Road- dedicated bicycle lanes.
- Cliff Avenue to Harrisburg to SD100- potentially side path, widened shoulders, or bike lanes.

The Revised Build Alternative includes one shared-use path that will accommodate pedestrian and bicyclist traffic. Figure 3-2 displays the proposed path and crossings for the Revised Build Alternative, as well as the future bike routes mentioned above. The Revised Build Alternative provides grade separated crossings at multiple locations along the corridor that will allow access to existing and future developments and the existing bike trail system. Access locations to future developments will be determined as development of the Project Area occurs.

3.5.2 Impact of Alternatives

The Modified 2003 EA Preferred Alternative provided for a 10-foot wide trail/sidewalk on both sides of the roadway and would accommodate bicyclists and pedestrians. The trail along the

Modified 2003 EA Alternative would interconnect with other recreational, transportation, and commercial areas along the corridor.

The Revised Build Alternative would provide approximately 10.5 miles of new 10-foot wide trail/sidewalk along the eastern/southern side of the main alignment. The trail design follows the guidelines set forward for the City of Sioux Falls trails including a 10-foot wide shared use path following natural drainage ways linking the SD100 trail to the existing trail system (City of Sioux Falls MPO, 2009). Exact locations of access points from developments to the SD100 trail/sidewalk will be determined during the final design phase.

3.6 VISUAL IMPACTS AND AESTHETICS

3.6.1 Existing Conditions

Visual landscape characteristics are objects that are either natural or manmade and that can be visually observed. Aesthetics can be based on individual human perception or on the contrast between one object and another object or group of objects. Objects affecting aesthetics can be of a fixed nature (such as traffic signal poles) or intermittent (such as moving vehicles). Assessing visual impacts for transportation projects involves evaluating the visual perspectives from the actual roadway and the landscape with the roadway.

The Study Area is located in a rural setting that is characterized primarily by agricultural farmland with recent development, mainly single-family residences (See Figure 3-1). Since the 2003 EA was completed, existing man-made features that have been added are as follows:

- Urban residences and developments.
- Public buildings and churches.

3.6.2 Impacts of Alternatives

The Modified 2003 EA Preferred Alternative and Revised Build Alternative would alter the natural landscape from a rural, agricultural setting to an urban limited access roadway. Both alternatives would have similar impacts due to the proximity of the alignments (See Figure 3-1). For both alternatives, the impacts on visual resources in the Study Area would be typical of what is normally associated with this type of highway project. Views of the roadway system would be comparable to other views of transportation systems in the Sioux Falls area, such as I-29, I-229, and I-90 (See Section 3.22 for how visual impacts during construction will be addressed).

3.7 ARCHEOLOGICAL AND HISTORIC RESOURCES

3.7.1 Existing Conditions

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies to determine whether their undertakings would have adverse impacts on historic properties that are listed on or are eligible for listing on the National Register of Historic Places (NRHP) and to afford the Advisory Council on Historic Places (ACHP) a reasonable opportunity to comment (Maryland Department of Transportation (MDDOT), 2003). In an effort to make this determination, archeological and historical resources were surveyed and their significance was evaluated.

The following Level III surveys were conducted for the Northern and Southern Segments of the Revised Build Alternative:

- In January 2007, a minimum of a 200-foot wide corridor was examined along nearly the entire length of the proposed route of the Revised Build Alternative; however landowner permission was not granted along several sections of the alignment. A total of

approximately 145 acres were surveyed (Augustana College Archeology Laboratory, 2007a).

- In May 2007, a second survey was initiated due to the design of the interchanges and project alterations (Augustana College Archeology Laboratory, 2007b). At a minimum, a 400-foot wide corridor was examined along nearly the entire length of the proposed route of the Revised Build Alternative. Landowner permission was not granted for the entire corridor. During this survey, approximately 1,230 acres were surveyed.
- In April 2010, a third survey was completed to survey areas that were previously not granted landowner permission for access. Approximately 135 acres were surveyed along the Study Area in Minnehaha and Lincoln Counties, South Dakota.
- In December 2010, a small additional area was also surveyed that was for a proposed drainage pipe south of 26th Street (Augustana College Archeology Laboratory, 2010).
- In August 2008 and November 2010, surveys were completed for the proposed borrow location (See Figure 1-2).
- In August 2011, an intensive ground survey was completed for the SD 11 Improvements (SARC, 2011).

During the Level III surveys, the following archeological sites were identified within the Southern Segment of the Revised Build Alternative. The exact locations of archeological sites are determined to be confidential, therefore are intentionally excluded from this document:

- Site 39LN80 is a historic, isolated find site consisting of one fragment of clear bottle glass, three fragments of plain white ware, and one fragment of amethyst bottle glass. No historic foundations or associated features were observed in the immediate vicinity of Site 39LN80. Site 39LN80 does not satisfy the specifications set forth for the NRHP, and therefore is recommended as not eligible for nomination to the NRHP.
- Site 39LN82 is a surficial isolated find site consisting of a single fragment of bifacially-worked, butterscotch-colored chert. Site 39LN82 does not satisfy the specifications set forth for the NRHP, and therefore is recommended as not eligible for nomination to the NRHP.
- Site 39LN83 is an isolated find site consisting of a single flake fragment of butterscotch-colored chert that exhibits retouch flaking on the lateral margin. Site 39LN83 lacks physical integrity, and therefore is recommended as not eligible for nomination to the NRHP.
- Site 39LN84 is an isolated find site consisting of a single gray chert flake fragment. For Site 39LN84, the NRHP eligibility status is considered under Criterion D, having yielded or having the potential to yield, information important in prehistory or history. Site 39LN84 lacks physical integrity and does not satisfy the specifications set forth in Criterion D; therefore this site is recommended as not eligible for nomination to the NRHP.
- Site 39LN85 is an isolated find site consisting of a single gray chert flake fragment. This site does not satisfy the specifications set forth in Criterion D, and therefore is recommended as not eligible for nomination to the NRHP.
- Site 39LN93 consists of a single Prehistoric period lithic artifact located on the surface of a field. Investigations at 39LN93 determined that the site is a Prehistoric period Isolated Find, therefore it is recommended that 39LN93 be considered Not Eligible to the NRHP (SARC, 2011).
- Site 39LN94 is an abandoned Historic period farmstead. For the site, a Section 106 determination of No Historic Properties Affected was recommended for this unevaluated

site, with the stipulation that the site is avoided by all construction related activities (SARC, 2011).

- Two railroad crossings were recorded during the Level III cultural resources evaluation within the Southern Segment of the Revised Build Alternative. The South Dakota State Historic Preservation Office (SD SHPO) considers all railroads in South Dakota eligible for nomination to the NRHP depending on the significance and integrity of the resource. These sites would be considered eligible for the NRHP due to its potential to yield, or having yielded, information important in history (Criterion D). These sites could also be eligible under Criterion A for its association with events that have made a significant contribution to the broad patterns of our history (i.e. railroad development):
    - The Chicago, Rock Island, and Pacific Railroad, Site 39LN2016, is no longer present due to the rail being removed in 1979.
    - The Chicago, Milwaukee, St. Paul, and Pacific Railroad, Site 39LN2007, is currently owned by BNSF.

The following potential historic structures, which the locations are not confidential, were also documented in the Southern Segment of the Revised Build Alternative:

- An occupied farmstead located at 47771 South 69th Street was evaluated for historic significance because relocation/acquisition would be required under the Revised Build Alternative. A separate evaluation for this farmstead was completed by an architectural historian to determine the eligibility of nomination to the NRHP for the following structures:
    - Structure A is the primary residence. The residence is a ranch-style house constructed in 1961. The residence is less than 50 years old and was determined to be not eligible for the NRHP (Kapler, 2007).
    - Structure B is the garage/workshop. The garage/workshop is an aluminum-sided building erected within the past two decades and due to being less than 50 years old was also determined to be not eligible for the NRHP (Kapler, 2007).
    - Structure C is the six-stall horse barn. The six-stall horse barn has been re-roofed with corrugated metal; therefore it does not retain its original integrity and is considered not eligible (Kapler, 2007).
    - Structure D is the two steel grain bins. Neither bin possesses a unique design style, superb craftsmanship, or distinctive and/or unique building materials that would make the structures eligible for the Register (Kapler, 2007).
    - Structure E is the small two-seated wooden outhouse. Unlikely to be 50 years old, and obviously not eligible under Register Criterion G. Under Register Criterion G, structures can possess exceptional significance and/or integrity to warrant inclusion to the Register for properties less than 50 years old. (Register Criterion G). The structure appears to be a typical two-seat outhouse found on many or most farmsteads throughout the Midwest. Consequently, this structure is not eligible for the NRHP (Kapler, 2007).
- Structures LN01700001 through LN01700007 are located on an abandoned farmstead that is comprised of seven standing structures. These structures are located 0.5 mile south of the intersection of Sycamore Avenue and 69th Street. This farmstead was previously documented in 1991. LN01700001 (primary residence), LN01700002 (farm garage), LN01700003 (Farm Privy), LN01700004 (Chicken Coop), LN01700005 (Farm Barn), LN01700006 (Farm Shed), and LN01700007 (Corn Crib) were determined to be not eligible. LN01700008 (Hog Shed) did not appear to have been documented during the 1991 survey; this additional component was documented during the current investigation and was determined to be not eligible.

- LN00000026 is three standing structures which include a schoolhouse, a garage, and a storage shed that are currently in use. These structures are located at 27014 Southeastern Avenue. The schoolhouse has been converted into a single-family dwelling. This site was documented in 1991 and has been determined to be not eligible for nominations to the NRHP.
- LN00000703 is a single-family residence with an attached garage that is recommended as not eligible (Haffermehl, 2007). The structure is located at 47779 57th Street East.
- MH000001671 is a modified two-car garage located at 3300 South Lisa Drive. The structure is an old chicken coop that has since been converted into a garage. Structure is recommended as not eligible to the NRHP (Haffermehl, 2007)

3.7.2 Impacts of Alternatives

The Modified 2003 EA Preferred Alternative intersected two historic railroad crossings (City of Sioux Falls, 2003).

SD SHPO reviewed the proposed Project for conformity with Section 106 of the National Historic Preservation Act. The following was stated by SHPO in a November 6, 2007, " The SHPO concurs with your determination of not eligible for the following sites/structures: structure #MH02000001, MH02000002, MH00001671, MH00001672, LN00000703, LN01700008, LN01700001, LN01700002, and Engverson Property Structures A, B, C, D, E; and sites 39LN80, 39LN82, 39LN83, 39LN84, 39LN85, 39MH294, 39MH148. SHPO does not concur with the determination that the affected portions of eligible properties 39MH2000, 39MH2003, 39MH145, 39LN2007 and 39LN2016 are non-contributing. However, we feel that the project does not adversely impact the historical characteristics of these sites. Therefore, the SHPO concurs with your determination of No Adverse Effect for this undertaking." On May 6, 2010, SDDOT requested that the SHPO provide a determination for the additional land parcels that were not originally investigated. On May 10, 2010, the SD SHPO concurred with a finding of "No Adverse Effect" for this undertaking. On September 8, 2011, the SD SHPO concurred with the 2011 report for the SD11 Improvements. The letter noted, "Therefore, we concur with your determination of No Historic Properties Affected for this undertaking provided site 39LN94 is avoided by all construction activities including borrow and staging areas." During final design, a note will be included in the plans that requires site 39LN94 to be avoided by all construction activities including borrow and staging. On September 15, 2011, SD SHPO concurred with No Historic Properties affected for the identified borrow area (See Appendix H).

If activities for the Project occur in areas not previously surveyed, additional documentation and coordination with FHWA and SHPO is required. If buried prehistoric or historic cultural materials are encountered during construction, work should cease in that area and the SD SHPO should be contacted immediately.

3.8 ECONOMIC RESOURCES

This section addresses the economic and social character of the Study Area. The source used for this socioeconomic analysis was the most recent available data from the 2010 U.S. Census Bureau. Additionally, the 2035 Comprehensive Development Plan and the 2035 MPO long range plans were utilized for applicable economic data (City of Sioux Falls, 2009; Sioux Falls MPO, 2010).

3.8.1 Existing Conditions

3.8.1.1 Population

The population of Sioux Falls has grown steadily since its incorporation as a village in 1876. Rapid growth transformed the city during the "Dakota Boom" decade of the 1880s, when the

population mushroomed from 2,100 to more than 10,100 to 1890. Population growth continued throughout the following decades and made Sioux Falls a regional urban center (City of Sioux Falls, 2009; Sioux Falls MPO, 2010). The City of Sioux Falls has experienced a steady growth of population. The City of Sioux Falls' population has grown from 100,836 in 1990 to 123,975 in 2000 (Sioux Falls MPO, 2009). The current and projected population in the City of Sioux Falls is shown in Table 3-1 (City of Sioux Falls, 2009; Sioux Falls MPO, 2010).

For the purpose of analyzing the Revised Build Alternative, population data of residents within the Study Area was analyzed at census tract level within the Study Area. The census analysis included Minnehaha County, Lincoln County, and the City of Sioux Falls. At the census tract level, the 2010 U.S. Census indicated a current population of 26,826 persons within the tracts that include the Revised Build Alternative corridor.

Table 3-1
Current and Future Population of the City of Sioux Falls

Year	City of Sioux Falls Total Population (Medium Projections)
2000	123,975
2005	141,000
2010	159,000
2015	178,000
2020	199,000
2035	272,000

Source: City of Sioux Falls, 2009; Sioux Falls MPO, 2010

3.8.1.2 Income and Employment

Employment has been projected to increase through population increases and job expansion. In the 2035 planning document, the Sioux Falls Metropolitan Planning Organization (MPO) area growth rate will be slightly higher than the national rate based on projections made by U.S. Department of Labor (Sioux Falls MPO, 2009). Sioux Falls has three primary employment centers: the northern industrial park area, downtown, and the southwestern commercial area (Sioux Falls MPO, 2009). Within the City of Sioux Falls, non-farm employment grew 13.4 percent from 1980 to 2008. The top industries that increased are finance, services, health/education, professional/business, trade (retail and wholesale), construction and mining (City of Sioux Falls, 2009).

The median household income in 2010 was approximately $47,466 for the City of Sioux Falls. This is above the 2000 statewide median household income of $45,904 (U.S. Bureau of Census, 2000).

3.8.2 Impacts of Alternatives

The Revised Build Alternative would require a total of approximately 239.8 acres of new roadway ROW from private landowners along approximately 10.4 miles of the main alignment and interchange. Relative to the land use consumption projections for the future growth of the City of Sioux Falls, the low projection for land is approximately 20,376 acres while the high projection is 32,191 acres (City of Sioux Falls, 2009). The commitment of the land to roadway ROW and the associated loss of tax revenue would not affect the ability of the surrounding area to be developed nor would it affect the ability to generate new jobs and City income via property and sales taxes.

The Revised Build Alternative would provide improved access to the area, thus increasing its attractiveness for homeowners, local business owners, employees, and consumers. One business

will be affected permanently by the Revised Build Alternative, Dakota Stone. Businesses adjacent to the I-29/County Road 106 Interchange and Frankman Motors, located on SD 11, will be impacted temporarily by construction. Three businesses along I-29/County Road 106 will also require minor acquisition of their property.

In comparison, the Modified 2003 Preferred Alternative would have required land acquisition or partial property taking from seven businesses located along County Road 106 including a gas station/restaurant, used car dealer, trucking company, fireworks distributor, carpet store, plumbing and heating contractor, and an antique merchandise store.

All ROW acquisitions and relocation impacts would be mitigated in conformance with the Uniform Relocation Assistance and Real Property Acquisition Act (UA) of 1970, as amended by the Surface Transportation Assistance Act of 1987 and as codified in 49 CFR 24, effective April 1989. SDDOT's Right of Way Program is responsible for acquiring the property necessary for highway purposes and performing services related to acquisition per the UA.

3.9 ENVIRONMENTAL JUSTICE

To comply with the regulations of Title VI of the 1964 Civil Rights Act (42 United States Code [USC] 2000d et seq.) and Executive Order 12898, Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations (59 Federal Register [FR] 7629), the potential impacts of the Build Alternatives were studied with respect to the demographic and socioeconomic composition of the Study Area.

3.9.1 Existing Conditions

The 2003 EA analyzed the demographic and socioeconomic composition of the Study Area using U.S. Census Bureau 2000 census data, the most recent comprehensive data available. An assessment of the demographics was completed for the four growth areas that were discussed in the 2003 EA. The growth areas include the Delapre Township Growth Area, Springdale Township Growth Area, Split Rock Township Growth Area, and Northeast Growth Area. Figure 6 of the 2003 EA shows the outline of each of the four growth areas and Table 3 of the 2003 EA provides the census data analyzed for these growth areas (City of Sioux Falls, 2003).

The 2003 EA completed an assessment of the demographics for each of the four growth areas: Delapre Township, Springdale Township, Split Rock Township, and Northeast (City of Sioux Falls, 2003). The Modified 2003 EA Preferred Alternative and the Revised Build Alternative are located within these four growth areas. To adequately evaluate any "significant" or "disproportionate" impacts on the minority populations and low-income populations, analysis at the census tract level was conducted. Block group data was utilized to identify the poverty level. The assessment of demographics was conducted for the Revised Build Alternative (See Table 3-2).

Table 3-2
Census Data for the Revised Build Alternative

Demographic Group	Revised Build Alternative[1]		Lincoln County		Minnehaha County		City of Sioux Falls	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Total Population	26,826	100	44,828	100	169,468	100	153,888	100
White	25,588	95	43,068	96	149,220	88	133,572	87
Black or African American	248	1	320	1	6,407	4	6,494	4
American Indian and Alaska Native	109	0	228	1	4,197	2	4,092	3
Asian	469	2	462	1	2,509	1	2,743	2
Native Hawaiian and other Pacific Islander	7	0	7	0	133	0	131	0
Other Race	90	0	116	0	3,114	2	3,021	2
Hispanic or Latino Race	359	1	553	1	6,982	4	6,827	4
Two or More Races	315	1	627	1	3,888	2	3,835	2
Persons Below Poverty[2] (%)	3.3		3.8		9.4		8.3	

[1] Racial demographic population data was taken from 2010 Census Tract data. 2010 Census Tracts for Lincoln County are 101.02, 101.08, 101.04, and 101.06. 2010 Census Tracts for Minnehaha County are 104.01 and 18.03.

[2] Poverty data was taken from the 2010 Census data, which is the most recent data available for the area. Block group information was utilized.

Several other socioeconomic factors such as median household income and percentage of persons below poverty level were evaluated to address low-income populations for the block groups included in part within the Revised Build Alternative Corridor. The results were compared to the City of Sioux Falls, Lincoln County, and Minnehaha County. The 2010 Census indicates the Study Area block groups have 3.3% of individuals living below the poverty level which is below the 8.3% poverty rate within the City of Sioux Falls, below the 3.8% poverty rate for Lincoln County and below the 9.4% poverty rate for Minnehaha County (U.S. Census Bureau, 2010). Block group 1 of Census Tract 101 has 5.2% of individuals living below the poverty level which is above the 3.8% for Lincoln County, but below the percentages for Minnehaha County and the City of Sioux Falls (U.S. Census Bureau, 2010).

3.9.2 Impacts of Alternatives

Although the Modified 2003 EA Preferred Alternative and Revised Build Alternative corridors include portions of census blocks that contain minority populations none of the percentages are in excess of the local benchmarks. Therefore, the Modified 2003 EA Preferred Alternative and

Revised Build Alternative would not have a disproportionate impact on minorities. Although the census block data indicate the presence of low-income residents, the proportion is below Lincoln County's, Minnehaha County's and the City of Sioux Falls' averages. The Revised Build Alternative is planned to minimize ROW acquisition and follow the existing roadway alignment to the maximum extent possible while avoiding constraints. Impacts to low-income residents are not disproportionate compared to any other group. Consequently, Environmental Justice populations would not be adversely affected to a significant extent. The improved access to industrial and commercial sites would benefit the local population regardless of minority or income status. No mitigation is recommended.

3.10 AIR QUALITY

3.10.1 Existing Conditions

The U.S. Environmental Protection Agency (USEPA) regulates air pollutants in part by primary and secondary National Ambient Air Quality Standards (NAAQS). South Dakota Department of Environment and Natural Resources (SDDENR) has adopted the Federal regulations by reference and operates a network of air monitors at various locations that track the concentration of particulate matter, one of the regulated pollutants. The Sioux Falls area is in attainment of primary and secondary regulatory standards for ambient air quality, with air quality monitoring results well below the standards (SDDENR, 2010b).

3.10.2 Impacts of Alternatives

The Modified 2003 EA Preferred Alternative and Revised Build Alternative would have no significant long-term impact on air quality. Transportation conformity rules[2] apply in designated non-attainment areas or areas that have maintenance plans for transportation-related criteria pollutants (40 CFR 93.102). The Study Area is located in an attainment area[3] for all criteria pollutants, and no maintenance plan is in effect (40 CFR 81.342). Therefore, the transportation conformity rules do not apply to the Study Area. Construction activities would cause air emissions during the short-term. These impacts are discussed in Section 3.22 and would be limited to the duration and type of certain construction activities. BMPs to limit air quality impacts are also noted in Section 3.22.

3.11 NOISE

3.11.1 Existing Conditions

Traffic noise consists of vehicular engine noise and tire noise from contact with the roadway surface. In general, noise can be defined as unwanted sound. Sound is produced by the vibration of sound pressure waves in the air, and sound pressure levels are expressed in units called decibels (dB). Sound is also composed of various frequencies.[4] The human ear is efficient at blocking out very low- and high-frequency sound. Frequencies to which the human ear does respond must be filtered out, or scaled, when evaluating traffic noise levels. The type of scale that best approximates the frequency response of the human ear is called the A-scale. Therefore,

---

[2] Transportation conformity is required by the Clean Air Act to ensure that Federally supported highway and transit project activities are consistent with (or conform to) the purpose of a state air quality implementation plan (SIP). If an area does not meet the USEPA air quality standards for any one of the criteria pollutants during a prescribed timeframe, it is designated a non-attainment area.

[3] The Clean Air Act and Amendments of 1990 define an "attainment area" as a locality where air pollution levels meet National Ambient Air Quality Standards for certain criteria air pollutants, including particulate matter, sulfur dioxide, ozone, nitrogen dioxide, carbon monoxide, and lead.

[4] Frequency refers to the number of sound waves produced in a given time period.

noise levels are measured as and reported in A-weighted decibels (dBA). Table 3-3 provides noise levels (in dBA) common to everyday activities.

Table 3-3
Common Noise Levels

Activity/Distance	Noise Level (dBA)
Rock band at 16 feet	110
Jet flyover at 1,000 feet	105
Gas lawn mower at 3 feet	95
Diesel truck at 50 feet	85
Diesel truck at 110 feet	80
Gas lawn mower at 100 feet	70
Normal speech at 3 feet	65
Birds chirping	50
Leaves rustling	40
Very quiet soft whisper	30
Threshold of hearing	0

FHWA has developed Noise Abatement Criteria (NAC) and procedures for use in the planning and design of highways. These criteria and procedures are set forth in 23 CFR 772. The NAC noise level is 67 dBA for residential receptors and 72 dBA for commercial receptors (See Table 3-4). Impacts occur when the predicted noise levels approach or exceed these levels or when they substantially exceed the existing noise levels. SDDOT has developed a Noise Analysis and Abatement Guidelines/Policy (SDDOT, May 1996) that defines "approach" as coming within 1 dBA of the NAC and "substantially exceed" as an increase of at least 15 dBA above existing noise levels. This policy, approved by FHWA and consistent with FHWA's procedures, was followed for this analysis.

Table 3-4
NAC, Hourly A-Weighted Sound Level

Activity Category	Hourly Noise Levels Leq (h) dBA	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, play grounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 (Exterior)	Developed lands, properties or activities not included in Categories A or B above
D	----	Undeveloped Lands
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

For the Revised Build Alternative, a noise study was performed as part of this Project. The purpose of the study was determining noise levels at the following fixed distances along the roadway, except the 57th Street Interchange, from the roadway centerline: 25, 50, 75, 100, 125,

150, 200, 225, 250, 275, 300, 325, 350, 375, 400, 450, 500, and 600 feet outside of the proposed ROW corridor (See Figures 3-3a thru 3-3g). In 2006 noise studies were completed that used the peak traffic volume for year 2025 (HDR, 2006a). The study was updated to analyze the noise levels utilizing the 2035 traffic volumes (HDR, 2011).

3.11.2 Impacts of Alternatives

The noise analysis of traffic subsequent to completion of Revised Build Alternative construction determined 66 dBA and 71 dBA contours. Figures 3-3a through 3-3g show the noise contours for the Revised Build Alternative. The 66 dBA and 71 dBA contours represent the threshold for traffic noise impacts on residential and commercial land uses, respectively.

The Revised Build Alternative would contribute to the increase of noise in the Study Area as the noise level will increase as agricultural land use is converted to residential, commercial, and other land uses. The noise analysis indicated the potential for noise impacts to the residential area in the northwest quadrant of the intersection of 41st Street and SD100. This determination was based on the predicted location of the 66 dBA noise contour generated by this study. In the attempt to mitigate these noise impacts, HDR modeled a noise barrier along the ROW between SD100 and the residences (See Appendix F). The modeled barrier was 767 feet long and averaged 15.19 feet in height, with a total cost of $512,632, at $44 per square foot. Of the ten residences located in the area, five received a benefit (a 5dBA or greater noise reduction) from the barrier. The calculated benefit to cost ratio for this barrier is $102,526 per benefited receptor, which is greater than the SDDOT economic benefit of $21,000 per benefited receptor (See Appendix F).

For the Revised Build Alternative, construction noise impacts and BMPs to minimize them are addressed in Section 3.22, Construction.

3.12 RELOCATIONS

3.12.1 Existing Conditions

A field survey was completed for the 2003 EA which identified businesses and residences within and adjacent to the Modified 2003 EA Preferred Alternative corridor. Businesses identified within the Modified 2003 EA Alternative corridor were located at the I-29/County Road 106 interchange and the I-90/N. Timberline Avenue interchange (City of Sioux Falls, 2003). A field survey for the Revised Build Alternative was completed in December 2006 and was verified utilizing 2010 aerials to confirm previously identified business locations and also to identify any additional businesses and residences located in the Study Area since 2003.

3.12.2 Impacts of Alternatives

Implementing the Modified 2003 EA Preferred Alternative would require the land acquisition and partial property takings from several commercial businesses. The businesses are located in the vicinity of the I-29/County Road 106 interchange at the western terminus of the project. The Modified 2003 EA Preferred Alternative would have resulted in land acquisitions and partial property takings from the following seven businesses: gas station/restaurant, used car dealer, trucking company, fireworks distributor, carpet store, plumbing and heating contractor, and an antique merchandise store (City of Sioux Falls, 2003).

The Revised Build Alternative would require partial acquisition, acquisition, or relocation of the following businesses and residences structures:

- A barn associated with the residence located at 27059 Western Avenue would be acquired and demolished, or relocated. Negotiations with the landowner would determine the final action to be taken with the barn (See Figure 2-3a).

- A farmstead located at 47771 South 69th Street would be affected by the Revised Build Alternative. The house and outhouse building would be acquired and demolished or moved off of the property. A garage/workshop, six-stall horse barn, and two steel grain bins are within the ROW corridor, but would not necessarily have to be demolished. Negotiations with the landowner would determine the final action to be taken with the house and other buildings on the property (See Figure 2-3c).
- A residence, located at 6000 E. 57th Street, would be relocated within the property or acquired due to the construction of an interchange at 57th Street and SD Highway 11. This residence has already been purchased by the SDDOT (See Figure 2-3c).
- The Dakota Stone business located at 27024 S. Minnesota Ave would be partially acquired. The main building is located within the proposed roadway and negotiations with the landowner would determine the action needed for this building (See Figure 2-3b).

The Revised Build Alternative will require ROW and temporary easements of business and residences along the corridor, which will not require the take of structures but of property. In comparison to the Modified 2003 EA Preferred Alternative, the Revised Build Alternative was shifted to property lines to minimize impacts to parcels. All ROW and relocation impacts would be mitigated in conformance with the Uniform Relocation Assistance and Real Property Acquisition Act (UA) of 1970, as amended by the Surface Transportation Assistance Act of 1987 and as codified in 49 CFR 24, effective April 1989. SDDOT's Right of Way Program is responsible for acquiring the property necessary for highway purposes and performing services related to acquisition per the UA.

3.13 FARMLAND

The Farmland Protection Policy Act of 1981 (7 CFR 658) requires that Federal projects minimize the conversion of farmland to non-agricultural uses. To the extent practicable, state and local farmland policies are to be considered. Specially classified farmlands receive particularly close scrutiny under this act.

3.13.1 Existing Conditions

3.13.1.1 Prime Farmland

The U.S. Department of Agriculture (USDA) defines prime farmland as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water)" (7 CFR 657). Prime farmland produces the highest yields with the least amount of energy and economic inputs. The USDA Natural Resources Conservation Service (NRCS) classifies land as prime farmland if it fits specific precipitation, soil temperature, pH, sodium, erosion, and other physical criteria. These lands are considered of the highest quality for agricultural protection. Prime farmland is present within portions of the proposed corridor for the Modified 2003 EA Preferred Alternative and Revised Build Alternative.

3.13.1.2 Unique Farmland

Unique farmland is land other than prime farmland that is used for the protection of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high-quality and/or large yields of a specific crop when treated and managed according to modern farming methods. Farmlands in the Study Area are dedicated to row crop production, hay, and pasture and are not considered unique farmlands.

3.13.2 Impacts of Alternatives

The 2003 EA Preferred Alternative would convert approximately 475 acres of agricultural land with the alignment. Of those 475 acres affected within the 2003 EA Preferred Alternative, approximately 282 acres of prime farmland and an additional 46 acres of statewide important farmland would have been affected. Farmland was not significantly impacted by the 2003 EA Preferred Alternative. Farmland acres that would have been converted by the southern segment of the 2003 EA Preferred Alternative, also referred to as the Modified 2003 EA Preferred Alternative, was approximately 187 acres. Due to the assumption that the Modified 2003 EA Preferred Alternative was a portion of the entire alignment, therefore would also not significantly impact farmland.

In accordance with the Farmland Protection Policy Act of 1981 (7 CFR 658), a USDA Farmland Conversion Impact Rating Form (See Form Natural Resources Conservation Service (NRCS) CPA-106 in Appendix G) was completed for the North and South Segment of the Revised Build Alternative. The main alignment of the Southern Segment of the Revised Build Alternative would directly convert 224 acres of agricultural land to roadway ROW and indirectly convert 34 acres (See Figures 2-3a through 2-3d). The SD 11 Improvements would not directly convert agricultural lands, due to construction occurring within the existing ROW (See Figure 2-3c).

Therefore, a total of 374 acres will be directly or indirectly converted by the Revised Build Alternative. Of the 374 acres converted, approximately 111 acres would be prime farmland and 161 acres would be statewide and local important farmland. The total acreage of farmland converted for the Revised Build Alternative, represents approximately 0.048 of the farmland within the counties (USDA, NRCS, October 2006). The USDA NRCS land evaluation for the Revised Build Alterative received a score of 58 out of possible 100, and the corridor assessment performed for the Revised Build Alternative received a score of 75 out of a possible 160. The total score for the Revised Build Alternative was 133 out of a possible 260. Combined scores of less than 160 points are considered to have no significant impacts on prime or important farmlands. The Revised Build Alternative will have no significant impact on prime and important farmland in Minnehaha and Lincoln counties.

3.14 WETLANDS AND OTHER WATERS OF THE U.S.

Wetlands and other waters of the U.S., including waterways, lakes, natural ponds, and impoundments, are regulated by the USACE under Section 404 of the Clean Water Act. A permit from USACE is required to authorize the discharge of dredged or fill material into waters of the U.S. The State of South Dakota also has regulatory jurisdiction over all waters within its boundaries (See Section 4.2, Required Permits, for a discussion of the permits required for the Project).

3.14.1 Existing Conditions

3.14.1.1 Wetlands

For the Revised Build Alternative, wetlands within the Project Area were reviewed through a desktop determination in accordance with the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, January 1987). Existing data and maps such as National Wetlands Inventory, USDA Soils Maps, and aerials were utilized to determine wetlands in the Study Area. The wetland areas classifications found within the Modified 2003 EA Preferred Alternative and Revised Build Alternative are comparable due to the proximity and location of the alternatives (See Figure 3-4a through 3-4g).

3.14.1.2 Waters of the U.S.

Waters of the U.S. include rivers, streams, intermittent streams, lakes, ponds, and impoundments. Waters of the U.S. are subject to USACE jurisdiction provided that the waterbody is susceptible to interstate or foreign commerce (33 CFR 328). Under current USACE policy, aside from the definition of waters of the U.S. in 33 CFR 328, waterbodies such as streams and intermittent streams are considered jurisdictional (that is, subject to USACE jurisdiction) if a definable bed and bank is present. The Waters of the U.S. identified within the Study Area are the Spring Creek and unnamed intermittent streams noted by the US Geological Survey National Hydrography Dataset (USGS NHD, 2011) (See Figure 3-4a through 3-4g).

3.14.2 Impacts of Alternatives

Approximately 59 acres of wetland was predicted to be impacted by the 2003 EA Preferred Alternative. Impacts to the National Wetlands Inventory wetlands were shown in the 2003 EA, Appendix B. During the 2003 EA, these impacts were planned to be mitigated utilizing an area wetland bank site being developed by the City of Sioux Falls (City of Sioux Falls, 2003). For the purposes of comparing the alternatives, Appendix B from the 2003 EA was utilized to calculate the NWI wetlands from 26th Street to I-29. The Northern Segment impacted approximately 0.3 acres of NWI wetlands; therefore the acreage is approximately 58.7 acres for the southern segment.

Within the Revised Build Alternative, approximately 50.7 acres of wetlands would be affected based on desktop determination of wetland boundaries and preliminary working limits. During the preliminary design of the Revised Build Alternative, the alignment was shifted when possible to avoid impacts to wetland areas and the impacts were determined for the Revised Build Alternative corridor (See Figure 3-4a through 3-4g). The wetland impacts for the Revised Build Alternative include the realignments of 69th Street, the improvements to SD 11, and the interchange at 57th Street. Wetland impacts are unavoidable because the wetlands extend for several hundred feet on either side of the proposed roadway (See Appendix I). The Revised Build Alternative would also require crossings, such as culverts, across the other waters of the U.S. in the Study Area, Spring Creek and the unnamed intermittent streams.

The wetland impacts for the proposed borrow site are not included within total acreage of impact for the Revised Build Alternative. The borrow site is a City of Sioux Falls project to construct a detention basin as part of their stormwater management plan. The site has already been permitted under USACE Individual Permit No. NWO-2011-0028-PIE. Therefore, no permit will be required for this Project to utilize the borrow site. The permanently and temporarily impacted wetland acres were mitigated by creating new and preserving existing wetlands on the west side of the City-owned parcel. For construction, the SDDOT intends to utilize the soil from the site to construct SD100 from 26th to 57th Street as well as the SD11 improvements.

A USACE Section 404 permit, with Section 401 Water Quality Certification from SDDENR, would be required for any fill activities in jurisdictional wetlands or waters of the U.S. A permit application would be submitted to USACE prior to commencement of construction activities for the Project. Formal wetland delineation will be conducted for the Revised Build Alternative to identify precise wetland and waters of the U.S. boundaries for submittal during the 404 permit application process.

During final design, impacts to wetlands and other waters of the U.S. would be minimized to the extent possible. For remaining wetlands and waters of the U.S. that cannot be avoided, mitigation measures would be undertaken. A mitigation concept would be prepared for the USACE Section 404/401 permit application, and a mitigation plan would be developed and coordinated with the resource agencies. For wetlands found not to be under USACE jurisdiction, FHWA regulations

(23 CFR 777.9) would apply and mitigation for permanent impacts to wetlands would be required. Mitigation will occur through the use of a mitigation bank.

A Section 10 permit is occasionally required in addition to Section 404 and 401 permits (discussed in Section 3.14) when work is being done in, over, or under a navigable water of the U.S. No waterways within the Study Area are designated as navigable; therefore a Section 10 permit would not be required. Section 3.22 also addresses impacts of construction in wetlands and other waters of the U.S., as well as mitigation for the impacts.

3.15 WATER QUALITY

3.15.1 Existing Conditions

Water resources within the Study Area include intermittent streams, perennial streams, and ponds. The largest hydrological feature within the Study Area is Spring Creek (See Figure 3-4d). Several unnamed intermittent streams are noted by the USGS NHD also occur throughout the Study Area (See Figures 3-4a thru 3-4g).

One intermittent stream flows southwest across I-29 and into Nine Mile Creek (See Figure 3-4a). Spring Creek and Nine Mile Creek were not noted in the 2010 SD DENR Integrated Water Quality Report. However, Spring Creek, Nine Mile Creek, and the intermittent streams that are located in the Study Area are tributaries to the Big Sioux River, which is listed for fecal coliform and total suspended solids (SDDENR, 2010).

Public water supplies in the City of Sioux Falls area rely on surface water and groundwater and residents in the Study Area who are not on a public system rely on private wells for potable water. Residents of Sioux Falls receive approximately 54 million gallons per day of potable water from the Sioux Falls Water Purification Plant (SFWPP) (City of Sioux Falls, 2011). For future water supply needs, the Lewis and Clark Rural Water System will be distributing water from the Missouri River to cities and rural areas throughout southeast South Dakota, northwest Iowa, and southwest Minnesota.

3.15.2 Impacts of Alternatives

For the Modified 2003 EA Preferred Alternative, South Dakota Surface Water Discharge program's storm water permit and Best Management Practices (BMPs) were proposed to control erosion and pollution. An Erosion Control Plan would be developed to include BMPs to be installed, staging, temporary storage and excess material, inspection, and maintenance schedule of BMPs and temporary seeding measures (City of Sioux Falls, 2003).

For the Revised Build Alternative, the amount of sedimentation from soil erosion would not increase substantially due to the General Permit for Storm Water Discharges Associated with Construction Activities requirements (See Section 3.22) that limit post construction erosion to preconstruction levels (typically achieved through reestablishment of vegetation, and structural devices such as berms and energy dissipation structures). BMPs would be implemented through the General Permit to minimize impacts to the Spring Creek, Nine Mile Creek, Big Sioux River, and unnamed intermittent streams. Also, the SDDENR noted in a letter dated April 29, 2011 requirements for the Project, these requirements have been included in Section 3.24, Future Actions (See Appendix H).

Potential impacts to aquifers during construction are discussed in Section 3.22. BMPs to minimize surface water and groundwater impacts during construction are also noted in Section 3.22.

3.16 FLOODPLAIN

Executive Order 11988, Floodplain Management (42 FR 26951), requires that Federal agencies identify potential floodplain encroachment of projects they fund and that they assess the impact of this encroachment on human health, safety, and welfare and on the natural and beneficial values of the floodplain. For purposes of the Executive Order, floodplain is synonymous with the 100-year floodplain.

FEMA requirements are enforced by local jurisdictions (cities and counties) in order to maintain participation in the FEMA National Flood Insurance Program. Local jurisdictions can note their own requirements beyond FEMA's requirements. The City of Sioux Falls, Minnehaha County, and Lincoln County participate in this program.

FEMA requires that construction within a floodway achieve a no-rise condition (that is, not increase the base 100-year flood elevation). Structures placed within a floodway may be designed in one of two manners to satisfy FEMA requirements. The first method is to design a structure that will not result in any increase in flood levels during the occurrence of the base (100-year) flood discharge. Alternatively, if it is not possible to obtain no-rise certification from FEMA, a Letter of Map Change (LOMC) may be obtained. This requires coordination among all affected parties, including the public. FEMA requirements for construction within the floodplain outside of the floodway are less stringent, allowing up to a 1-foot rise in the 100-year flood elevation.

3.16.1 Existing Conditions

The current Flood Insurance Study (FIS) for Minnehaha County including the City of Sioux Falls is dated September 2, 2009. The previous FIS was dated September 28, 1982. The FIS for Lincoln County became effective April 2, 2008. The previous FIS was dated October 1, 1986. The FIS maps were revised during the coordination for this EA. The Spring Creek floodplain boundaries are delineated in the Study Area and are shown on Figure 3-5 (FEMA, 2008).

3.16.2 Impacts of Alternatives

The Modified 2003 EA Preferred Alternative would require a crossing of the Spring Creek floodplain. The floodplain has been recently included in the FIS and therefore was not noted in the 2003 EA. The crossings required for the Modified 2003 EA Preferred Alternative would be similar to the Revised Build Alternative (City of Sioux Falls, 2003).

The Revised Build Alternative crosses Spring Creek floodplain in the vicinity of Cliff Avenue and the unnamed intermittent streams are located along 69th Street. The estimated area of encroachment of Spring Creek and its associated intermittent streams of the 100-year floodplain (Zone AE) is approximately 4.75 acres, while the floodway encroachment is 0.73 acres (See Figure 3-5).

During final design, coordination with the local floodplain authorities would be required for construction of the proposed crossings for the Revised Build Alternative across Spring Creek. As mentioned above, the City of Sioux Falls, Lincoln County, and Minnehaha County, as the local authorities for FEMA, would review the proposed design of the crossings and verify that either a no rise certificate or (Conditional Letter of Map Revision) CLOMR would be needed for the crossings in order to meet the regulatory requirements. The final analysis for a no rise certificate or LOMC will be required during final design of the Revised Build Alternative. Therefore, no potential impacts to structures were included in this Environmental Assessment and consideration of impacts will be required during the completion of a required process.

3.17 VEGETATION, FISH, & WILDLIFE

For the 2003 EA, early coordination with SDGFP and USFWS took place (City of Sioux Falls, 2003). Coordination for this Supplement to the Project was initiated through information mailed December 26, 2006 and May 17, 2010; responses from SDDGFP and USFWS are reproduced in Appendix H. This coordination was an effort to analyze the effects to the vegetation, fish, and wildlife located within the Study Area. In order to analyze the effects to the species in the Study Area, the existing habitats were determined. Table 3-5 identifies these habitats and lists the potential impacts to these areas.

Table 3-5
Habitat Types

Habitat Type	Impact Type	Comments
Agricultural Lands	Farmland areas will be directly impacted due to the acquisition of ROW. Minimal construction impacts outside the acquired ROW will occur with the Revised Build Alternative when compared to the Modified 2003 Preferred EA Alternative since minimal construction easements are required.	Agricultural lands include cropland and pasture land. See Section 3.13, Farmland, for a more detail discussion of the impact.
Wetlands	Direct impacts of wetland acres will be mitigated. The type of wetland varies within the Study Area. Before construction, a USACE 404 permit will be obtained for any required fill areas within the wetland acres.	Wetlands occur within the Study Area as drainageways, intermittent streams, and prairie potholes. For more detail discussion of the wetlands that exist within the Study Area, see Section 3.14.
Spring Creek and unnamed intermittent streams	The construction of a bridge or culvert for the crossing of Spring Creek and unnamed intermittent streams will temporarily impact the fish population. See Section 3.22, Construction, for the recommended BMPs to minimize this impact.	Spring Creek and the intermittent streams are tributaries to the Big Sioux River. Spring Creek and the intermittent streams provide habitat for several different fish populations.
Roadside Ditches	Existing and new roadside ditches will be maintained along SD100 corridor. The Revised Build Alternative and Modified 2003 EA have similar impacts.	Roadside ditches provide habitat such as grassland and in some cases wetland areas.

During early agency coordination, SDGFP noted that a bald eagle nest was observed along the Big Sioux River within the northern segment of the Study Area, which is not included in this Supplemental EA (USFWS 2007) (See Appendix H). No known nests are located within the Study Area of the southern segment of the Revised Build Alternative. The National Bald Eagle Management Guidelines[5] give activity-specific guidelines to avoid disturbing any bald eagles during projects. Depending upon proximity of the activity, several recommendations are made such as avoiding construction during the nesting season, landscape buffers, avoid clear cutting, etc. The construction of the Revised Build Alternative would not occur for several years and bald eagles will utilize several nest sites over the span of their lifetime. Therefore, the SDDOT will

[5] Since the removal of the bald eagle from the threatened and endangered list, the USFWS has clarified its regulations by implementing the Bald and Golden Eagle Protection Act and published a set of National Bald Eagle Management Guidelines.

notify the USFWS if a bald eagle nest is located within 1-mile of the project at time of construction.

Migratory birds[1] are known to use the Study Area for nesting, which occurs primarily between April 1st and July 15th. Migratory birds have the potential to nest on the ground within areas not regularly mowed as well as within trees, large shrubs and on bridge structures. As noted in a USFWS letter dated September 15, 2010, migratory bird habitat may be impacted by the Revised Build Alternative. Further coordination occurred with the USFWS on December 19, 2011 indicated that no migratory bird surveys are necessary in non-suitable habitat (See Appendix H). Therefore, surveys for migratory birds will occur in suitable areas that have not been mowed or cleared prior to April 1st to determine if there are current nests and to determine offsetting measures to compensate for impacts to migratory birds. SDDOT will coordinate with the USFWS to determine appropriate offsetting measures for impacts to migratory birds after potential impacts have been identified. Surveys will be conducted within the same year, but prior to construction start in order to capture the current conditions and address possible affects more concisely. PCN 00CP has been identified to be as the first segment of the Southern Segment to be constructed; therefore suitable migratory bird habitat has been identified for survey (See Figures 3-6a and 3-6b). If the vegetation in these areas has not been cleared prior to migratory bird nesting season, surveys will be completed within the suitable habitat areas. No habitat has been identified for other portions of the Study Area as habitat areas will likely change prior to construction for the remainder of the Southern Segment. Suitable habitat will be identified and surveyed prior to construction for the Southern Segment.

3.18 THREATENED OR ENDANGERED SPECIES

3.18.1 Existing Conditions

In accordance with Section 7(c) of the Endangered Species Act of 1973 (16 USC 1531 et seq.), informal consultation for the Project was initiated for the presence of threatened or endangered (T&E) species with the South Dakota Field Office of the USFWS and the SDGFP. State T&E species and species of management concern (designated species that require both control and protection) are regulated under South Dakota Statutes 34A-8 and 34A-8A, respectively. SDGFP maintains a list of species determined to be threatened or endangered within the State.

For the 2003 EA, early coordination with SDGFP and USFWS took place (City of Sioux Falls, 2003). Coordination for this Supplement to the Project was initiated through information mailed December 26, 2006; responses from SDGFP and USFWS are reproduced in Appendix H. In a letter dated January 30, 2007, USFWS stated that the list of threatened/endangered species has not changed from the coordination that took place in 2002 (City of Sioux Falls, 2003). Table 3-6 lists the threatened and endangered species potentially within the area. Species that require further discussion are listed in 3.18.2.

Table 3-6
Threatened and Endangered Species

Species	Status	Present in Study Area	Comments
Western Prairie Fringed Orchid (*Platanthera praeclara*)	Federal Threatened	Potentially	The Western Prairie Fringed Orchid occurs most often in remnant native prairies and meadows (USFWS, 2011). The Revised Build Alternative is located primarily in existing farmland and roadways, with

[1] Migratory birds are protected under the Migratory Bird Treaty Act (16 USC 703-712, as amended).

Species	Status	Present in Study Area	Comments
			scattered wetlands throughout. Currently, there are no known populations of this species in South Dakota (USFWS, 2011).
Topeka Shiner (*Notropis Topeka)*	Federal Endangered	Yes	Species is known to occur within Spring Creek and its intermittent streams at the Revised Build Alternative crossings. Species has potential to occur within unnamed tributary channel to Big Sioux River that is adjacent to the Project; the Revised Build Alternative does not cross an area of potential habitat. Species are also known to occur within Nine Mile Creek. The Revised Build Alternative crosses an intermittent tributary to Nine Mile Creek; the species are not known to inhabit this intermittent tributary. (See Figure 3-4a).
Pallid Sturgeon	Federal Threatened	No	Species is known to occur in the Big Sioux River which is located outside of the Study Area.
Lined Snake (*Tropidoclonion lineatum)*	State Endangered	No	Species is assumed to occur within Cactus Hills and surrounding area, no known documentation of this species within the Southern Segment of the Revised Build Alternative.
Peregrine Falcon (*Falco peregrinus)*	State Endangered	Potentially	The Study Area is within the migratory area of this species. See Section 3.17 for discussion of migratory birds.
Osprey (*Pandion haliaetus)*	State Threatened	Potentially	The Study Area is within the migratory area of this species. See Section 3.17 for discussion of migratory birds.
Blanding's Turtle (*Emydoidea blandingii*)	State Endangered	Potentially	This species is noted to exist in Minnehaha County, though not specifically found within the Study Area. If found within Study Area, SDDOT will contact USFWS.
Trout perch (*Percopsis omiscomaycus)*	State Threatened	Yes	Trout perch is assumed to occur in the Spring Creek and potentially in its intermittent tributaries within the Study Area.
Northern River Otter (*Lontra Canadensis)*	State Threatened	No	This species is noted to exist in the Big Sioux River, therefore, is not specifically found within Study Area.

3.18.2 Impacts of Alternatives

The following paragraphs discuss potential impacts from habitat disturbance and modification for the species that are present within the Study Area which could occur under the Revised Build Alternative. A comparison of impacts projected under the Modified 2003 EA Preferred Alternative and Revised Build Alternative are noted.

- Western prairie fringed orchid – Coordination with USFWS occurred regarding the Revised Build Alternative. As noted in a USFWS letter dated September 15, 2010, the larger associated project (SD100) will impact a larger area with some locations not previously developed (See Appendix H). The USFWS recommends consideration of additional future surveys for the Western prairie fringed orchid when conditions for detection improve. The SDDOT will conduct surveys for the Western prairie fringed orchid in areas with suitable habitat for the entire project corridor the season prior to construction. Coordination will take place with USFWS prior to the survey and results of the survey will be forwarded to USFWS and FHWA. Due to the timeline of the project, surveys conducted before construction will capture the conditions and any possible affects more concisely. PCN 00CP has been identified to be as the first segment of the Southern Segment to be constructed; therefore coordination occurred on December 19, 2011 with the USFWS. No suitable habitat is present in this segment, PCN 00CP, therefore surveys are not required.
- Topeka shiner - The Revised Build Alternative would include crossings over Spring Creek and its intermittent tributaries (See Figures 3-4d and 3-4e), similar to the crossings that would be required for the 2003 Modified EA Alternative. As noted from agency coordination, Spring Creek and its intermittent tributaries has the potential to be inhabited by Topeka shiners, a Federal endangered species. FHWA and SDDOT worked with USFWS to address impacts to T&E species under a Programmatic Biological Assessment (BA) for road projects administered/funded by SDDOT and FHWA that would cross streams in South Dakota. The Programmatic BA concluded that stream crossing projects were determined as may affect, likely to adversely affect the Topeka shiner (FHWA, 2008). As stated in the USFWS letters dated July 16, 2010 and September 15, 2010, "The Project meets criteria for inclusion under the August 11, 2008, programmatic biological opinion." Formal consultation under the programmatic BO took place when the SDDOT formally submitted the project to USFWS and the USFWS concurred on July 16, 2010 and September 15, 2010 (See Appendix H).

  For short-term impacts, the Special Provisions for minimization of impacts to Topeka shiner would be implemented as well as other BO requirements that may be implemented as part of a planned revision of the Programmatic BA and BO. Long-term impacts of the project will not occur due to the final design of the structures would be required to allow for fish passage as stated in the BA for the proposed crossings of Spring Creek. The selection of the structures will avoid degradation and fragmentation of the Topeka shiner's habitat. Due to the structure chosen, the Project will avoid a decline in the population size, distribution, or occupied area of the Topeka shiner. No critical habitat has been identified for the Topeka Shiner in South Dakota, therefore neither the Revised Build Alternative nor Modified 2003 EA Alternative will affect critical habitat.
- Trout perch - The trout perch is assumed to occur in Spring Creek and its unnamed tributaries (See Figures 3-4d and 3-4e) within the Revised Build and Modified 2003 EA Alternatives' Study Areas and could potentially be impacted by the proposed construction of a bridge over this river. The trout perch has the same management concerns as the Topeka shiner, and BMPs implemented to reduce impacts on the Topeka shiner would reduce potential impacts to the trout perch. Although trout perch may be temporarily affected during construction, no long-term adverse impacts are anticipated from either the Revised Build Alternative or Modified 2003 EA Alternative.

3.19 INVASIVE PLANTS

Invasive species coordination occurs under the FHWA guidance that followed the implementation of Executive Order (EO) 13112. The FHWA guidance calls upon 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 U.S. Department of Agriculture (USDA) South Dakota state-listed noxious weeds list was consulted to identify potential noxious species in the project area. The SDDOT works with the Weed and Pest Board regarding roadside management actions that are appropriate for control of noxious weeds within highway ROWs. The management actions include installation of weed free and approved plant materials, chemical and biological control, and Extension Service education and coordination efforts. The Modified 2003 EA Preferred Alternative and Revised Build Alternative will not be detrimental to the control efforts and would not increase the spread of invasive species due to the management actions during construction and follow-up maintenance.

3.20 SECTION 4(F) AND 6(F) RESOURCES

Section 4(f) states, in part, that, "It is the policy of the United States Government that special effort be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites" (49 USC 303).

Section 4(f) requires that the USDOT determine whether a proposed highway project would adversely affect a Section 4(f) resource. If a project will affect a Section 4(f) resource, all feasible and prudent ways of avoiding this impact must be evaluated. Section 4(f) resources are as follows:

- Public recreation areas
- Parks
- Wildlife and/or waterfowl refuges
- Significant historic properties, excluding those properties only eligible for listing on the NRHP under criterion D (These same resources are also considered under Section 106 of the NHPA.)

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965 was established to protect Federal investments and maintain high-quality recreation resources (Maryland Department of Transportation (MDDOT), 2003). The National Park Service administers Section 6(f), which protects parks and recreation areas that were acquired, developed, or rehabilitated, even in part, with the use of any Federal land and water grant funds. All Federal agencies must comply with Section 6(f) (16 USC 4601-4 to -11 et seq., as amended).

Section 6(f) states that no lands that have been paid for in part or in entirety by Federal land and water grants can be converted to non-park or non-recreation uses without the approval of the National Park Service. This approval will be granted only if the action is in compliance with the state recreation plan and an area of equal fair market value and usefulness is substituted for the land being removed from park and/or recreation use (16 USC 4601-4 to -11 et seq., as amended).

3.20.1 Existing Conditions

There are 76 city parks and recreation areas within the City of Sioux Falls area (City of Sioux Falls, 2011). Of the 76 city parks, three are located near the Study Area and one (Harmodon Park) is within the Study Area. All four of these recreation areas are protected under Section 4(f). The three other city-owned park and recreation areas are located at least 0.5 mile from the Study Area (See Figure 3-7):

- Dawley Site located at 5901 E. Rice Street, approximately 1-mile west of the Study Area.

- Arrowhead Park located at 1600 Riverbluff Road, approximately 2-miles east of the Study Area.
- Prairie Green Golf Course is a public golf course located at 69th Street and S. Doral Trail, approximately 0.5-mile north from the Study Area (City of Sioux Falls, 2011).
- Judee Estates Park Master Plan is located east of Cliff Avenue on 69th Street, just west of the railroad tracks. The site is currently planned to be a park area and is approximately 0.5 mile from the Study Area (City of Sioux Falls Parks and Recreation, 2011).
- Harmodon Park is a public (city-owned) park within the Study Area (See Figure 3-7) and is located southwest of the intersection of 41st Street and SD Highway 11. The use of this public city park land is recreational, and therefore Harmodon Park is considered to be protected as a Section 4(f) resource. Harmodon Park consists of 150 acres with 15 field baseball and softball sports complex and hosts state, regional, and national tournaments. No federal funding was utilized for Harmodon Park (Gildemaster, 2007) and therefore does not qualify as a Section 6(f) resource.

In addition to the City owned parks, the closest state recreation area is the Blood Run area which is a future state park area located approximately 2.5-miles from the Revised Build Alternative corridor. No wildlife or waterfowl refuges are in the vicinity of the Study Area.

Archeological and historical properties in the Study Area were discussed in Section 3.7, and would qualify as Section 4(f) resources unless they are only eligible under Criterion D. The following would qualify as Section 4(f) properties:

- The Chicago, Rock Island, and Pacific Railroad, Site 39LN2016
- Chicago, Milwaukee, St. Paul and Pacific Railroad, Site 39LN2007

3.20.2 Impacts of Alternatives

Section 4(f) protects certain properties (identified previously) from two types of impacts, as follows:

Direct Use. A direct use impact occurs when a property protected by Section 4(f) is permanently incorporated into a transportation facility or is temporarily occupied, causing effects that are considered adverse.

Constructive Use. A constructive use impact occurs when a project does not incorporate (or remove) a property protected by Section 4(f) but is so close to the property that the activities, features, or attributes of the property are substantially impaired. Five criteria are used to evaluate this type of impact:

- Noise
- Aesthetic characteristics of the property
- Property access
- Vibration
- Ecological intrusion, such as substantially diminished wildlife habitat

During the preliminary alignment analysis of SD100, several alignments options were developed with a primary goal of reducing encroachment of the park. Existing and proposed development, including the East Side Baptist Church, along the east side of the corridor eliminated the possibility of avoiding Harmodon Park. Therefore, the alignment was centered along SD Highway 11 to minimize the impacts to both Harmodon Park and development to the east.

The proposed impact area consists of ROW needs of the Revised Build Alternative based on preliminary design completed to date. The encroachment calculated from preliminary design requires a permanent encroachment of 1.17 acres for the Revised Build Alternative. The impact area also includes the preliminary temporary easement requirements where construction activities

would occur. Preliminary design has identified approximately 4.34 acres of temporary construction easement needed.

Also, the SD100 alignment would eliminate the current access road that exists on SD Highway 11 that allows traffic to enter and leave Harmodon Park. Due to safety concerns imposed by its proximity to the proposed 57th Street Interchange, this access road will be eliminated in accordance with the SDDOT SD100 Access and Noise Plan developed in February 2007. To accommodate access to Harmodon Park, the City began construction of a permanent entrance in May 2011. If construction of the access roadway from 57th Street is not finished before SD100, the SDDOT agrees to maintain the current access to Harmodon Park until the new park entrance is complete. To accommodate the construction of the park entrance road, the City owns the parcel south of Harmodon Park to build the park entrance. This parcel will be primarily for drainage and is currently not planned to be developed as part of Harmodon Park.

A coordination letter was sent to the City of Sioux Falls Parks and Recreation requesting their concurrence that the permanent encroachment of 1.17 acres and the temporary easement area of 4.34 acres will not impact the parks functionality or purpose. The City of Sioux Falls Parks and Recreation concurred with the determination with the Section 4(f) *de minimis* finding for SD100 (See Appendix L).

Therefore, the Revised Build Alternative would only cause a *de minimis*[6] impact. FHWA issued guidance on December 13, 2005, for determining *de minimis* impacts on Section 4(f) resources. This guidance came from an amendment of existing Section 4(f) legislation through adoption of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)[7] to simplify the processing and approval of projects that have only *de minimis* impacts on lands protected by Section 4(f).

None of the other City Park or recreation sites, County-owned recreational lands, State-owned recreation lands, or publicly owned lands considered as wildlife or waterfowl refuges would be directly impacted by the SD100 Project. No constructive use impacts are projected for these properties because their location is at least 0.5 mile or more from the SD100 impact area.

The Revised Build Alternative alignment will intersect two railroad crossings considered as Section 4(f) properties. However, as noted in Section 3.7.2, the Project would not alter characteristics that make the property eligible for the NRHP. The SD SHPO concurred that this undertaking would have "No Adverse Effect". Consequently a *de minimis* impact is also applicable to the effect of construction on current or abandoned historic railroad grades.

Because no Section 6(f) resources exist in the Study Area, the Revised Build Alternative would not impact Section 6(f) resources.

3.21 REGULATED MATERIALS

Properties where hazardous material spills or leaks have occurred may present risk to the purchaser of that property. Contaminated, or potentially contaminated, properties are a concern to transportation projects because of the associated liability of acquiring the property through

---

6 "Black's Law Dictionary (8th ed. 1999) defines *de minimis* as 1. Trifling, minimal. 2. (Of a fact or thing) so insignificant that a court may overlook it in deciding an issue or case. 3. *De Minimis Non Curat Lex*, The law does not concern itself with trifles." as cited in FHWA, December 19, 2005, Questions and Answers on the Application of the Section 4(f) *De Minimis* Impact Criteria.

7 Section 6009(a) of SAFETEA-LU, Public Law 109-59, amended existing Section 4(f) legislation at 23 United States Code (USC) 138 and 49 USC 303. SAFETEA-LU replaces the term "Section 4(f)" with "Section 303" (referring to 49 USC 303, the current section of the Federal code dealing with "Section 4(f)" issues). However, this *de minimis* impact finding retains the term "Section 4(f)" in keeping with current guidance from FHWA and the state transportation departments.

ROW, the potential cleanup costs, and the safety concerns related to exposure to contaminated soil, surface water, or groundwater.

3.21.1 Existing Conditions

For the purpose of this Supplement, both a file search and a field survey of the Revised Build Alternative were conducted to identify sites with recognized environmental conditions (RECs).[8] Environmental Data Resources, Inc. (EDR) was contracted to conduct a file search 0.25 mile from the center line on both sides of the Revised Build Alternative (EDR, 2006). HDR conducted a field survey to confirm locations of sites listed in the EDR report, listed in the 2003 EA and to identify other potential REC sites not listed. Most properties were visited on site, but some were only observed from a distance due to lack of permission for access, traffic restrictions, or other reasons. A review of both file searches and the field survey indicated the presence of the following RECs within the Study Area. Two locations, Laboratory of Clinical Medicine and Automated Fuel Systems, were noted in the 2003 EA but the survey was unable to confirm locations. Figure 3-8 shows the location of all identified sites within the Study Area.

EDR Listed Sites

The site numbers listed below are those assigned by EDR.

The intersection of I-29/ County Road 106 (Exit 73) is a commercial and industrial park. Several sites were listed on the EDR report:

- Site 1 is Howard's Corvettes and was also noted in the 2003 EA (City of Sioux Falls, 2003). The site is listed as having an underground storage tank (UST). The field survey was unable to locate this business. This site was also listed for a petroleum spill in December 1994. The spill event was closed by the SDDENR in January 1995 (SDDENR, 2006c).
- Site 2 is Larry's Truck Stop which is listed as having a UST. The field survey confirmed the location. This site was noted in the Modified 2003 EA Preferred Alternative (City of Sioux Falls, 2003). This gas station was the location of two diesel fuel spills, one in October 1991 (50 gallons) and one in June 1991 (30 gallons). The October 1991 reported spill event was closed in January 1993 with no further action required by the SDDENR. The June 1991 incident was closed in July 1991 with no further action required.

Sites Identified During the Field Survey (Not Identified During the EDR File Search)

Site 3 is located on a private residence located at 6000 E. 57th Street. An Above Ground Storage Tank (AST) (approximately 250-300 gallons) was observed on the site.

Site 4 is a group of three private residences located on the southwest side of the intersection of 57th Street and SD Highway 11. Two ASTs were observed by the residences during the field survey.

Site 5 is a private residence located at 47771 69th Street and has two ASTs. One AST was located on the west side and one was on the south side of the residence.

Site 6 is located on private property approximately 0.5 mile south of the intersection of Sycamore Avenue and 69th Street. The site included a refuse pile that appeared to have timbers and board refuse that could potentially contain hazardous materials.

Site 7 is a private residence located at 27002 S. Minnesota Avenue. An AST (approximately 250-300 gallons) was observed on the east side of the residence.

[8] According to the American Society for Testing and Materials, a REC is the presence or likely presence of hazardous substances or petroleum products that may release into structures on a property or into the ground, groundwater, or surface water of that property.

The intersection of I-29/ County Road 106 (Exit 73) is a commercial and industrial park. Sites identified during the survey included sites listed in the EDR report, listed in the 2003 EA, and sites observed in the field that were not included in the aforementioned lists. The last two sites were identified during a database search prior to the field survey:

- Site 8 is AAA Refrigeration and Appliance. The site was listed for the potential use and storage of hazardous materials. No releases or environmental events have been identified at this location (SDDENR, 2006c).
- Site 9 is Koehler Auto Sales. The site was listed for the potential use and storage of hazardous materials. No releases or environmental events have been identified at this location (SDDENR, 2006c).
- Site 10 represents the location of a transportation accident that occurred near the interstate exit. Ryder Truck Rental had a diesel spill of approximately 100 gallons in June 1989. SDDENR closed the case in September 1989 with no further action required (SDDENT, 2006c).
- Site 11 is the location of a chemical spill of approximately 120 gallons of paint that occurred at the interstate Exit 73. The SDDOT was the responsible party and the spill was reported in July 1993. The SDDENR closed this spill event in February 1994 with no further action required (SDDENR, 2006c). The field survey was unable to confirm this event.
- Site 12 is Frankman Motors located ¼ mile south of 57th Street along SD 11, is a car dealership that also has a mechanical shop that has the potential to store and use hazardous materials.

Table 3-7
Sites with Potential RECs in the Study Area

Map ID	Facility Name	Reason for Listing	Location	Field Survey Confirmed Location
EDR Listed Sites				
1	Howard's Corvettes	UST/SPILLS	I-29/ County Road 106 Exit 73	No
2	Larry's Truck Stop	UST/SPILLS	I-29/ County Road 106 Exit 73	Yes
Non EDR-Listed/ HDR Field Identified Sites				
3	Residence	AST	6000 E. 57th St. Sioux Falls, SD	Yes
4	Residences	AST	South west of the intersection of 57th Street and SD 11	Yes
5	Residence	AST	47771 69th Street Sioux Falls, SD	Yes
6	Refuse Pile	Potential to contain hazardous materials	2 miles north from the intersection of Sycamore Avenue and 85th Street	Yes
7	Residence	AST	27002 S. Minnesota Avenue Sioux Falls, SD	Yes
8	AAA Refrigeration and Appliance	Potential use/storage of hazardous materials	I-29/County Road 106 Exit 73	Yes

Map ID	Facility Name	Reason for Listing	Location	Field Survey Confirmed Location
9	Koehler Auto Sales	Potential use/storage of hazardous materials	I-29/County Road 106 Exit 73	Yes
10	Ryder Truck Rental	SPILLS	I-29/County Road 106 Exit 73	No
11	SDDOT	SPILLS	I-29/County Road 106 Exit 73	No
12	Frankman Motors	Potential use/storage of hazardous materials	1/4 Mile South of 57th St On SD 11	Yes
Notes: FINDS = Facility Index System; LUST = Leaking Underground Storage Tanks; RCRA = Resource Conservation and Recovery Act; SQG = Small Quantity Generator; SPILLS = South Dakota spills database;				

3.21.2 Impacts of Alternatives

The sites listed in Section 3.20.1 above are within or near the Revised Build Alternative corridor. The following description lists each site, identifies the potential for impact, and, if applicable, provides recommendations for further investigation:

- Site 1, Howard's Corvettes, is closed. An address search for this business was conducted and the search and field survey did not locate this business. If this business is located within the ROW of the Revised Build Alternative, the risk for contamination is likely minimal and the Project would not be affected by this REC site.
- Site 2, Larry's Truck Stop, is located approximately 50 feet from the proposed Revised Build Alternative ROW.
- Sites 3 and 5, two private residences, have ASTs that would be directly impacted by the Project. No contamination has been reported for the sites. If SDDOT purchases this land, the ASTs would be removed and the ground checked for visible contamination. Therefore, the risk for contamination from the RECs is likely minimal and the Project would not be affected by these REC sites.
- Site 4, Group of Residences, is located outside of the proposed ROW of the Revised Build Alternative (the closest residence is 100 feet from the ROW). The Project would not affect, nor be affected, by this REC site.
- Site 6, Refuse Pile, is within the proposed ROW for the Revised Build Alternative. At the time of construction, the contractor should be made aware of this site and should be alert for soil staining, buried drums, or USTs.
- Site 7, Residence, is approximately 760 feet from the proposed ROW of the Revised Build Alternative and would not affect, nor be affected, by the Project.
- Site 8, AAA Refrigeration and Appliance, is located approximately 20 feet outside of the proposed ROW of the Revised Build Alternative. Although in close proximity to the ROW, no known contamination occurs at the site. Consequently, the Project is not anticipated to affect, nor be affected, by this REC site.
- Site 9, Koehler Auto Sales, is located within the proposed ROW of the Revised Build Alternative. No known contamination has occurred at this REC site. Consequently, the Project is not anticipated to affect, nor be affected, by this REC site.
- Sites 10 and 11 will not affect the Project, because both spills were cleaned up and SDDENR indicated no further action was necessary.
- Site 12, Frankman Motors is located adjacent to the proposed ROW of the SD 11 improvements. No known contamination has occurred at this REC site. Consequently, the Project is not anticipated to affect, nor be affected, by this REC site.

In regards to REC, the Revised Build Alternative has one business, two residences, and a refuse pile that were identified during the survey that are located in the ROW. In comparison the Modified 2003 EA Preferred Alternative identified six sites within the ROW (City of Sioux Falls, 2003).

To avoid and/or minimize impacts from RECs in the Study Area, a construction BMP should be implemented. The contractor should be alert for large areas of soil staining, buried drums, or USTs, and coordinate with SDDOT and SDDENR if any obvious contamination is found prior to continuing work in those areas.

3.22 CONSTRUCTION

The impacts of construction would be temporary and limited to the period of construction. Noise impacts would occur, as well as impacts to air quality, visual resources, wetlands and other waters of the U.S., water quality, and fish and wildlife. In addition, there would be temporary impacts on travel patterns and accessibility. Because detailed discussion of construction impacts is not feasible until final design has been completed for the Build Alternatives, general practical precautions to minimize these impacts are discussed in the following list:

- Previously defined BMPs, in accordance with SDDOT construction manuals, would be used to mitigate construction-related noise impacts. An example of one BMP would be to limit construction to daylight hours, typically 6 a.m. to 6 p.m. This BMP would reduce noise levels in any neighboring residential areas during the evening and at night, the most sensitive timeframes for noise impacts.
- Emissions caused by vehicle delays, construction vehicles, and related equipment and activities generating dust would be minimized to the extent possible by implementing smooth traffic-flow patterns and water sprinkling. Therefore, the Project is not expected to change the attainment air quality status of the area.
- 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 Storm Water Pollution Prevention Plan (SWPPP). 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.
- A Section 404 permit and associated state 401 Water Quality Certification would be required from USACE and the State of South Dakota for any impacts on wetlands and other waters of the U.S. During preliminary design of the Revised Build Alternative, impacts to wetland areas were avoided and minimized when possible along the alignment. Any conditions of the permit regarding minimization and mitigation would be incorporated.
- The Revised Build Alternative requires crossings to be built over Spring Creek and intermittent streams. To protect the creeks and other water resources from runoff impacts, roadway construction would be conducted using current SDDOT and SDDENR policies.
- 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.
- Impacts on fisheries in the Spring Creek and intermittent streams would be reduced by implementation of BMPs to minimize impacts on the water quality of these streams (See Section 3.15, Water Quality). These BMPs would be employed during the project

construction. These BMPs would be implemented to minimize impacts to fish and wildlife habitat in the Study Area.

- The FHWA and SDDOT developed a special provision for construction practices in streams inhabited by the Topeka shiner. The special provision will employ BMPs for a stream-crossing structure in Spring Creek and its intermittent streams to minimize adverse impacts on the federally endangered Topeka shiner.

Construction-related impacts for the Project are not considered to be significant due to compliance with the SDDOT Construction Field Manual (SDDOT, 2004) or the most recent copy of the field manual at the time of construction.

3.23 INDIRECT AND CUMULATIVE IMPACTS

This section addresses potential indirect and cumulative impacts associated with the Project. Indirect and cumulative impacts are defined and addressed in the following subsections.

3.23.1 Indirect Impacts

Indirect impacts are unintentional project impacts (positive or negative) that would affect the socioeconomic and/or natural environment and would occur later in time or be farther removed in distance from the Study Area (40 CFR 1508.8).

3.23.1.1 Existing Development

Both the Modified 2003 EA Preferred Alternative and Revised Build Alternative would involve indirect impacts in the form of inconvenient access for existing residences within the Study Area. Access through the current road system is minimally restricted, but the proposed SD100 would restrict access points to approximately 1-mile from I-29/ County Road 106 interchange to 41st Street, and approximately 0.5 mile north of 41st Street to 26th Street. Both would result in similar impacts to the existing residences due to the proximity of the Modified 2003 EA Preferred Alternative and Revised Build Alternative. Although a decreased number of access points to the arterial system would cause existing residences additional travel, the delay for travel within the Study Area would be less than if the SD100 was not constructed.

3.23.1.2 Construction Impacts

Other short-term indirect impacts would potentially consist of increased traffic on adjacent roads as a result of construction of both the Modified 2003 EA Preferred Alternative and the Revised Build Alternative. Users may choose to use alternate routes to avoid the construction area, thereby temporarily increasing traffic on those alternate routes. Time of travel would likely be higher (a longer timeframe for trips) than current levels during the construction period. Any detours or road closures would be temporary in nature, and the short-term impact is not anticipated to be significant.

3.23.1.3 Future Land Use

Changes in future land use are often characterized as an indirect impact of a new transportation project. Future land use plans in the Study Area indicate that land use changes are anticipated to occur within and in the vicinity of the Study Area over the planning period of 2015 to 2035 regardless of the Project. In fact, development has occurred within the vicinity of 85th Street adjacent to the corridor. However, improved access to the Study Area may accelerate development in this area.

Section 3.1, Land Use, identifies direct impacts of the Project on land use within the Study Area.

3.23.2 Cumulative Impacts

Cumulative impacts are beneficial and/or adverse effects that would result when impacts from the Project are considered with impacts from other local or regional projects. CEQ's Regulations for Implementing the Procedural Provisions of NEPA define cumulative impacts as the following:

> The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7).

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. They may arise from single or multiple actions and result in additive or interactive effects. Before cumulative impacts can be evaluated, a proposed action must have advanced far enough in the planning process that its implementation is reasonably foreseeable. Reasonably foreseeable actions are not speculative, 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 and Direction 2035: Sioux Falls MPO Long-Range Transportation Plan (City of Sioux Falls, 2009; Sioux Falls MPO, 2010) and the South Dakota State Transportation Improvement Plan (STIP) 2011-2015 (SDDOT, 2010).

3.23.2.1 Past Actions

Past actions that have affected resources within the Study Area are as follows:

- Agricultural activity, especially the conversion of native prairie to cropland.
- Commercial and industrial development has occurred at the I-29/ County Road 106 Interchange.
- Small businesses along the corridor such as vehicle sales and landscaping.
- Residential development throughout the corridor.
- Other development, such as roads, utilities, and limited residential areas, has occurred in the area.

These past actions have resulted in an increase of impervious surfaces and impacts to water quality, wildlife, land use, farmland, and waters of the U.S. in the Study Area. In the past century and a half, development has dramatically changed the landscape of this part of South Dakota. However, groundwater resources are still utilized for potable water even with the introduction of pavements and other obstructions to groundwater recharge. The Project would involve the construction of drainage swales and drainage ponds when required or appropriate to help manage stormwater flow and groundwater recharge.

Farmland conversion and reduction of habitat continue primarily in metropolitan areas, but the State has set aside Waterfowl Production Areas and other habitats near metropolitan areas. Rural areas still provide adequate habitat for hunting, fishing, and conservation. Although wetlands have been reduced in the Sioux Falls area through past activities, current protections and requirements for replacement of wetlands will minimize and mitigate impacts.

The cumulative affects of these impacts are not significant in the Study Area.

3.23.2.2 Present Actions

Present actions within and near the Project corridor include continued residential development. Several areas along the Project corridor are in the process of being annexed or constructing residential developments. As result of continued development, impervious surfaces are being constructed. However, retention ponds and other 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, floodplains, wetlands, and Waters of the U.S. Impacts to most of 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 waters of the U.S. 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 SD100 Project would also cause long-term impacts to air and water qualities, floodplains, 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. Increase in traffic volumes would also have an impact on increased emissions in the Study Area. The conversion of cropland to urban development will also cause additional stormwater and less recharge to groundwater aquifers.

Present activities have the potential to affect cultural resource sites including buried archeological sites and aboveground historic sites. If projects use federal funds, the sites are afforded protection under Section 106 of the NHPA. The regulated material sites identified in Section 3.21, Regulated Materials, could be affected by current projects, as well as those in other properties outside the SD100 corridor.

Traffic congestion would increase in the area as agricultural and other rural lands are converted for urban uses. For example, a business or a neighborhood of residences would introduce commuters to or through an area, which causes more traffic than agricultural activities.

Considering the present activities and their limited impact and considering the plans governing the activities and the regulatory environment, cumulative impacts are not anticipated to be significant.

3.23.2.3 Reasonably Foreseeable Future Actions

As noted in Section 1.6, Other Projects, several projects would occur within the Study Area during the timeframe of construction of the SD100 Project. Reasonably foreseeable actions that may affect resources within the Study Area are as follows:

- Development of additional public services in the Study Area such as schools, fire stations, and libraries.
- Improvement and widening of arterials such as 41st, 57th, and Benson Road are planned to occur in the Study Area. 41st Street is planned to be improved from the existing Harmodon Park entrance to SD100. 57th Street is planned to be improved from Sycamore Avenue to SD100. Both projects are planned construction for 2012.
- Sanitary sewer lines are planned to be extended through the Study Area. The SD100 Project would intersect seven basin sanitary sewer projects proposed by the City of Sioux Falls.

Coordinated project planning would minimize future impacts so that the projects considered together would not produce significant cumulative impacts from stormwater and sedimentation transport to water resources.

Transportation projects in the Study Area would be coordinated with City of Sioux Falls, City of Brandon, Minnehaha and Lincoln Counties, Sioux Falls MPO, and as needed with SDDOT and FHWA. Traffic rerouting would be coordinated for multiple projects and would minimize traffic impacts.

Residential development of the Study Area would occur regardless of the Project. The City of Sioux Falls is anticipated to expand eastward toward the City of Brandon and southward toward the City of Harrisburg. This expanded growth is documented in the Sioux Falls Comprehensive

Development Plan: Shape Sioux Falls 2035 (City of Sioux Falls, 2009) and the Sioux Falls MPO Long-Range Transportation Plan (Sioux Falls MPO, 2010). One of the purposes of the Project is to adequately prepare the City of Sioux Falls to accommodate 2035 need for a transportation system consistent with the planning decisions and future construction of other public and private infrastructure investments. The City of Sioux Falls has the authority to manage the location and type of growth through the local zoning jurisdiction. The projected land use changes already account for residential and commercial development. The existing agricultural land within the Study Area is planned to be converted to commercial and residential use (City of Sioux Falls,2009; Sioux Falls MPO,2010).

Cumulatively, these developments would result in more air quality emissions, stormwater runoff, conversion of agricultural land, and loss of groundwater recharge area, however these are not considered significant. Air quality in the State of South Dakota is excellent. Stormwater retention basins would be constructed for various projects to minimize the potential of sediment and pollutant transportation to surface waters and to assist in retention of surface water to recharge groundwater resources. Conversion of agricultural lands would likely decrease the potential of nutrient loading of surface waters. No significant cumulative impacts are projected to occur with the Project in conjunction with other projects.

3.24 FUTURE ACTIONS

Mitigation and future actions were addressed by specific resource sections, but are summarized here to provide a consolidated discussion. For additional BMPs or mitigation required during construction, see Section 3.22, Construction. A summary which is beneficial to assure proper mitigation is being planned and would be conducted.

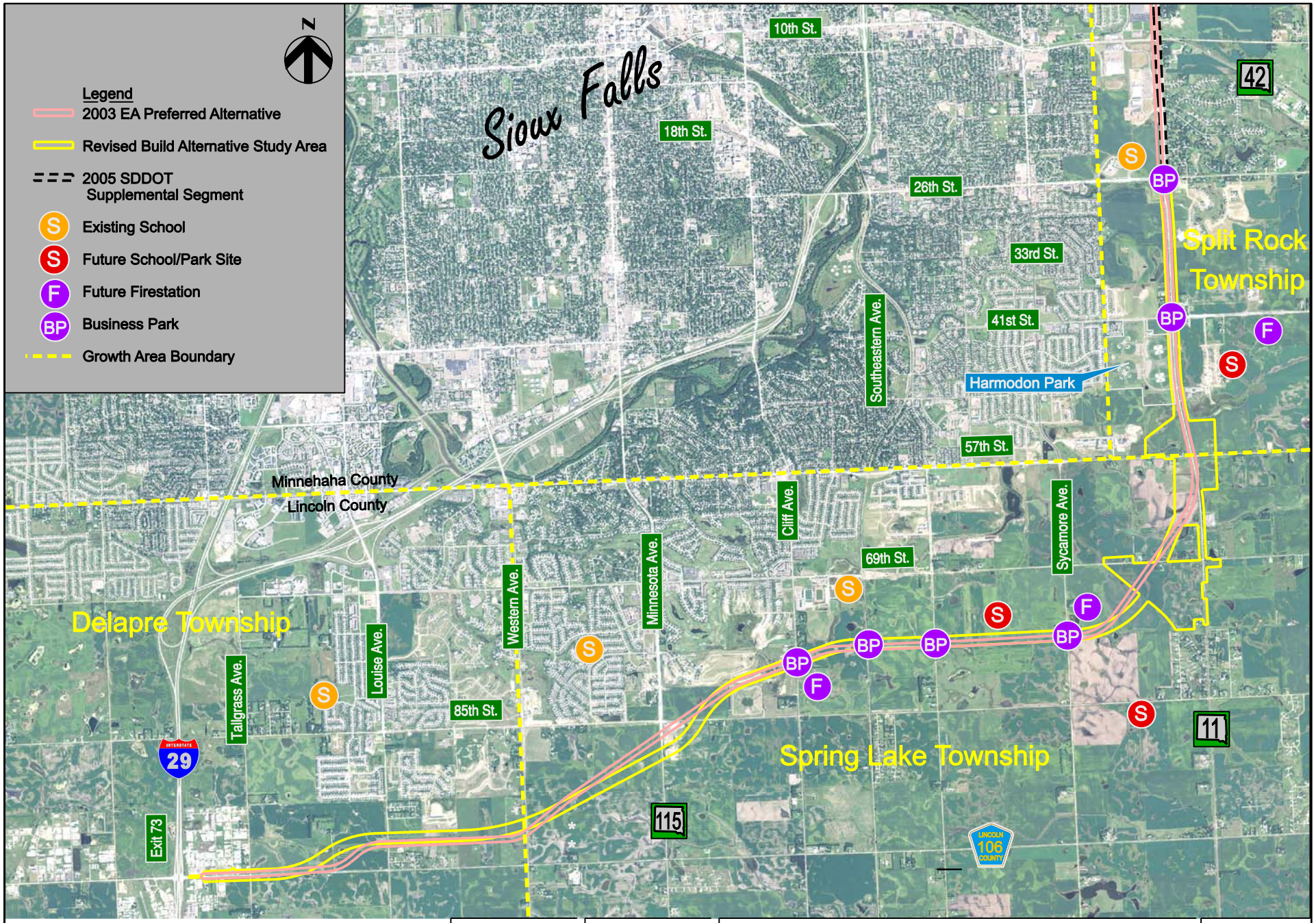
- If activities for the Project occur in areas not previously surveyed, additional documentation and coordination with FHWA and SHPO is required. If buried prehistoric or historic cultural materials are encountered during construction, work should cease in that area and the SD SHPO should be contacted immediately (See Section 3.7).
- Cultural Resource Site 39LN94 must be avoided by all construction activities including borrow and staging (See Section 3.7).
- All ROW and relocation impacts would be mitigated in conformance with the Uniform Relocation Assistance and Real Property Acquisition Act (UA) of 1970, as amended by the Surface Transportation Assistance Act of 1987 and as codified in 49 CFR 24, effective April 1989 (See Section 3.8 and 3.12).
- A formal delineation will need to be conducted to determine the boundaries of the wetlands and non-wetland Waters of the U.S. for the 404 permit application. Should it become necessary to modify or otherwise revise this preliminary finding with the completion of wetland delineation associated with the individual project's design phases, an updated Wetland Finding will be prepared and circulated for review and concurrence. This update will include a table of non-jurisdictional and jurisdictional wetlands including acres of wetlands being impacted at each wetland. A USACE Section 404 permit, with Section 401 Water Quality Certification if required, would be required for any fill activities in jurisdictional wetlands or waters of the U.S. (See Section 3.14).
- A mitigation concept would be prepared for the USACE Section 404/401 permit application, and a mitigation plan would be developed and coordinated with the resource agencies. For wetlands found not to be under USACE jurisdiction, Federal Highway Administration regulations (23 CFR 777.9) would apply and mitigation for permanent impacts to wetlands would be required. Wetland mitigation will be through the use of a mitigation bank (See Section 3.14 and Appendix I).

- A General Permit for Storm Water Discharges Associated with Construction Activities would be also required, which includes the preparation of a SWPPP (See Section 3.22). In order to comply with the General Permit, temporary drainage swales and drainage ponds will be considered and constructed if needed throughout the Project to help manage storm water flow during construction.
- Removal of vegetation shall be confined to those areas absolutely necessary to construction (SDDENR response letter dated April 29, 2011, See Appendix H).
- All fill material shall be free of substances in quantities, concentrations or combinations which are toxic to aquatic life (SDDENR response letter dated April 29, 2011, See Appendix H).
- All material identified in the application as removed waste material, material stockpiles, dredged or excavated material shall be placed for either temporary or permanent disposal in an upland site that is not a wetland, and measures taken to ensure that the material cannot enter the watercourse through erosion of any other means (SDDENR response letter dated April 29, 2011, See Appendix H).
- Methods shall be implemented to minimize the spillage of petroleum, oils and lubricants used in vehicles during construction activities. If a discharge does occur, suitable containment procedures such as banking or diking shall be used to prevent entry of these materials into the waterway (SDDENR response letter dated April 9, 2011, See Appendix H).
- As noted in Chapter 2, other "intersecting roads" not shown as having access to SD100 will not be allowed as right-in/right-out when respective segments of SD100 are constructed and are planned to be cul-de-sac. There are a few isolated farms that if the current access is still being used for same purpose when a segment of SD100 is constructed, this current access may be allowed as right-in/right-out until development occurs and/or land use changes. In the event development occurs prior to construction of a segment of SD100, the development will need to follow the SD100 Access & Noise Plan and Supplemental EA so that access is provided at shown intersections or to City streets that connect to these intersections.
- A Floodplain Development Permit from the local authorizes would be required for construction of the proposed crossings for the Revised Build Alternative across Spring Creek. The City of Sioux Falls, Lincoln County, and Minnehaha County, as the local authorities for FEMA, would review the proposed design of the crossings and verify that the rise in elevation of the floodplain would meet the regulatory requirements. Coordination would also occur with FHWA to submit the final FEMA documentation, no-rise certificate or CLOMR, of the crossings for the Revised Build Alternative (See Section 3.16).
- Migratory birds[1] are known to use the Study Area for nesting, which occurs primarily between April 1st and July 15th. Migratory birds have the potential to nest on the ground within areas not regularly mowed as well as within trees, large shrubs and on bridge structures. As noted in a USFWS letter dated September 15, 2010, migratory bird habitat may be impacted by the Revised Build Alternative. Further coordination occurred with the USFWS on December 19, 2011 indicated that no migratory bird surveys are necessary in non-suitable habitat (See Appendix H). Therefore, surveys for migratory birds will occur in suitable areas that have not been mowed or cleared prior to April 1st to determine if there are current nests and to determine offsetting measures to compensate

[1] Migratory birds are protected under the Migratory Bird Treaty Act (16 USC 703-712, as amended).

for impacts to migratory birds. SDDOT will coordinate with the USFWS to determine appropriate offsetting measures for impacts to migratory birds after potential impacts have been identified. Surveys will be conducted within the same year, but prior to construction start in order to capture the current conditions and address possible affects more concisely. PCN 00CP has been identified to be as the first segment of the Southern Segment to be constructed; therefore suitable migratory bird habitat has been identified for survey (See Figures 3-6a and 3-6b). If the vegetation in these areas has not been cleared prior to migratory bird nesting season, surveys will be completed within the suitable habitat areas. No habitat has been identified for other portions of the Study Area as habitat areas will likely change prior to construction for the remainder of the Southern Segment. Suitable habitat will be identified and surveyed prior to construction for the Southern Segment (See Section 3.17).

- SDDOT will also follow the guidelines outlined in the Bald and Golden Eagle Protection Act to avoid impacts during the construction of SD100 (See Section 3.17).
- Due to Topeka shiners being found in the Big Sioux River and its tributaries, construction completed in Spring Creek and its intermittent tributaries (See Figures 3-4d and 3-4e) would implement the recommended BMPs (USFWS, 2006). FHWA and SDDOT worked with USFWS to address impacts to T&E species under a BA for road projects administered/funded by SDDOT and FHWA that would cross streams in South Dakota. The Programmatic BA concluded that stream crossing projects are likely to adversely affect Topeka shiners (FHWA, 2004). The USFWS concurred with the FHWA determination in their BO (USFWS, 2008) and indicated that although adverse effects to Topeka shiners may occur, the proposed stream-crossing projects would not jeopardize the continued existence of this species. The BO included an incidental take statement to authorize take of Topeka shiners, provided the Special Provision (amended within the BO) is followed. Reasonable and prudent measures (RPM) of terms and conditions are included in the incidental take statement. During final design, the structure design must follow the BA requirements such as accommodating for fish passage. The special provision would employ BMPs for stream-crossing structures in Spring Creek and its intermittent tributaries to minimize adverse impacts on the federally endangered Topeka shiner (See Section 3.18).
- The SDDOT will conduct surveys for the Western prairie fringed orchid in areas with suitable habitat for the entire project corridor the season prior to construction. Coordination will take place with USFWS prior to the survey and results of the survey will be forwarded to USFWS and FHWA (See Section 3.18). PCN 00CP has been identified to be as the first segment of the Southern Segment to be constructed; therefore coordination occurred on December 19, 2011 with the USFWS. No suitable habitat is present in this segment, PCN 00CP, therefore surveys are not required.
- SDDOT will continue to work with the Weed and Pest Board to conduct management actions for the control of noxious weeds within highway ROWs.
- If construction of the access roadway to Harmodon Park from 57th Street is not finished before SD100, the SDDOT will maintain the current access to Harmodon Park until the new park entrance is complete.
- To avoid and/or minimize impacts to RECs in the Study Area, a construction BMP should be implemented. The contractor should be alert for the large areas of soil staining, buried drums, or USTs, and coordinate with SDDOT and SDDENR if any obvious contamination is found prior to continuing work in those areas,
- Perform follow up consultation with USFWS Section 7 updates (new T&E speices, changes to law, etc.) with each portion of the Project being designed.

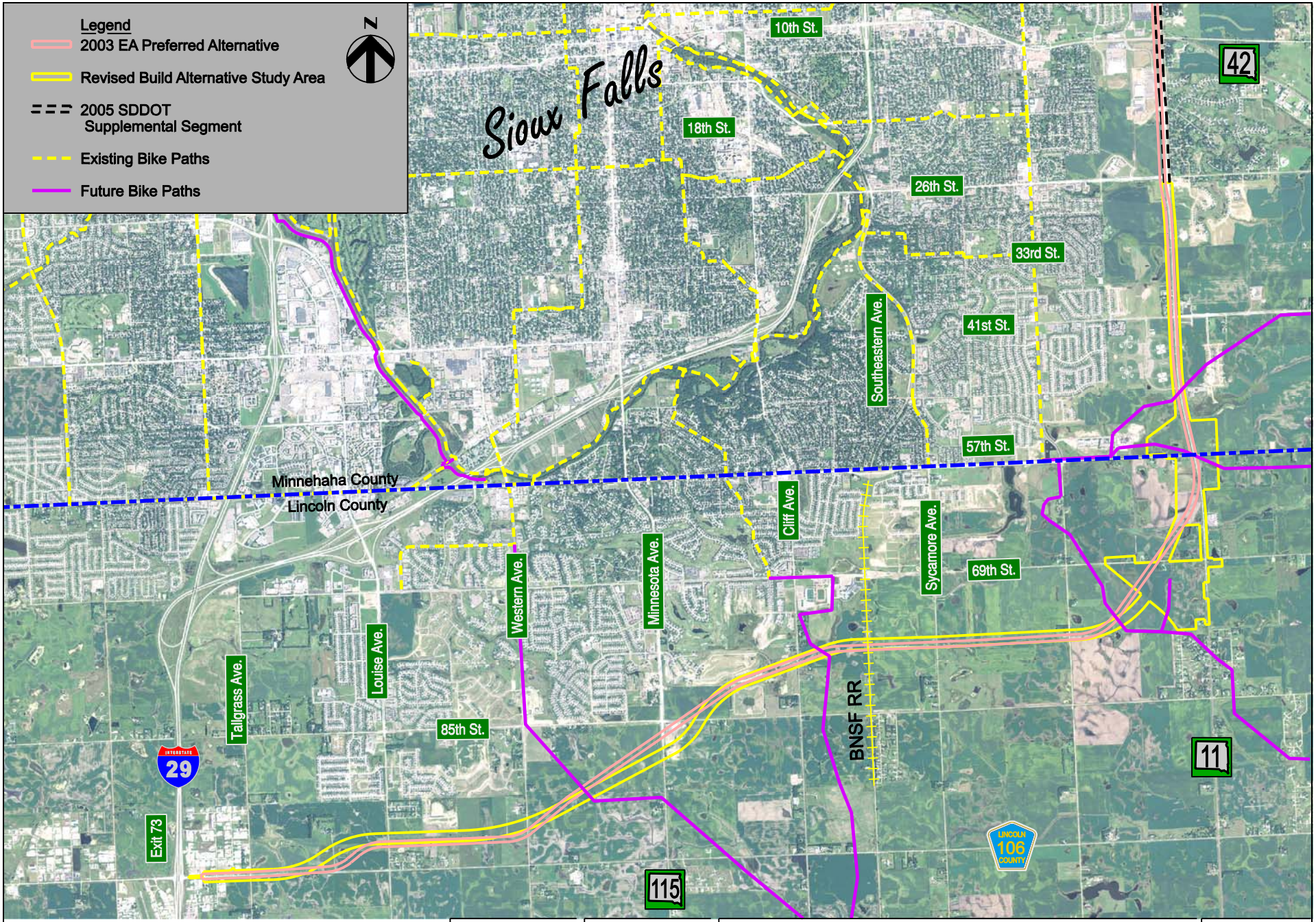


HDR

Land Use and Social Environment

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-1

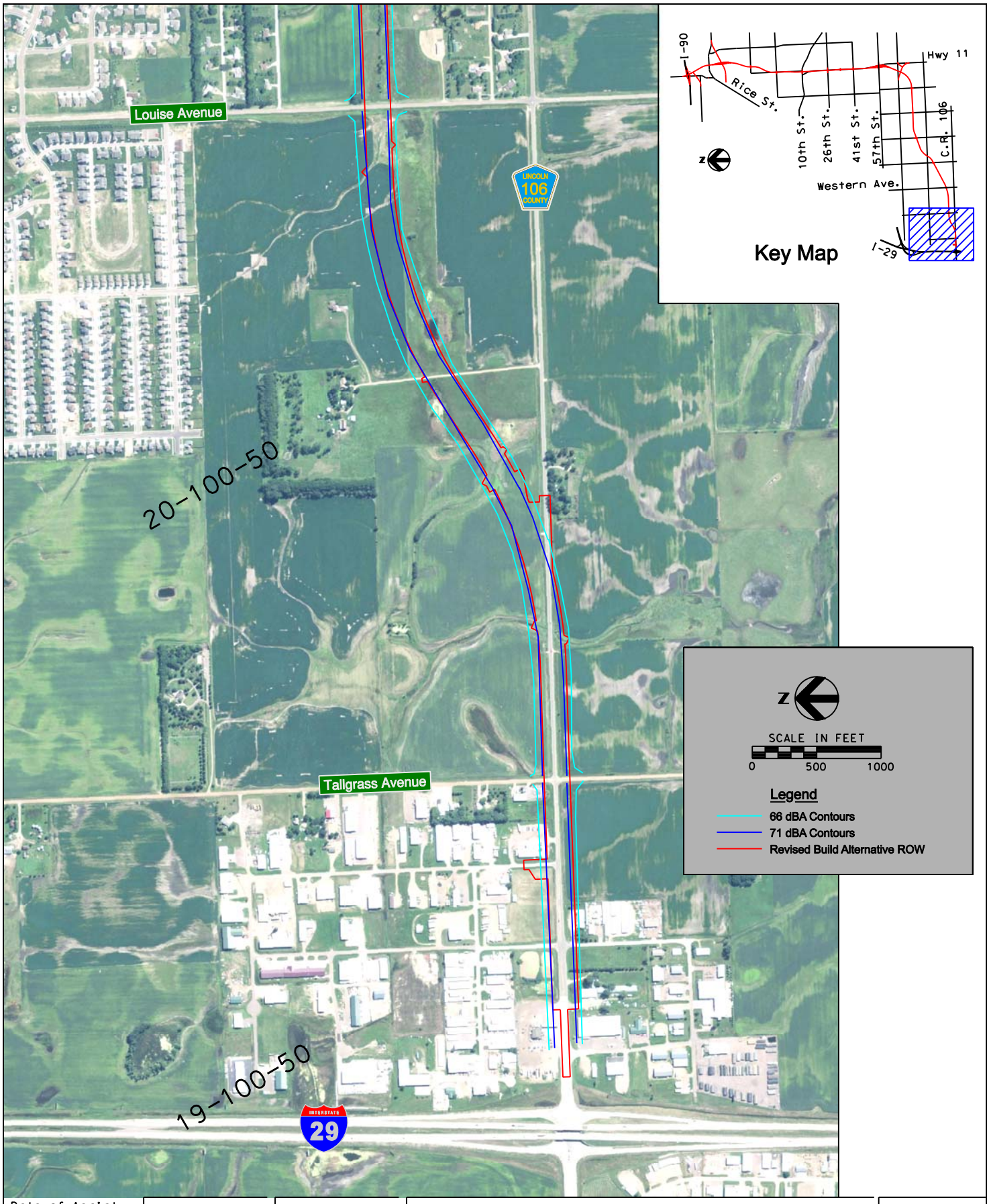


Date of Aerial Photography: 2010

Railroads and Bike Paths

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-2

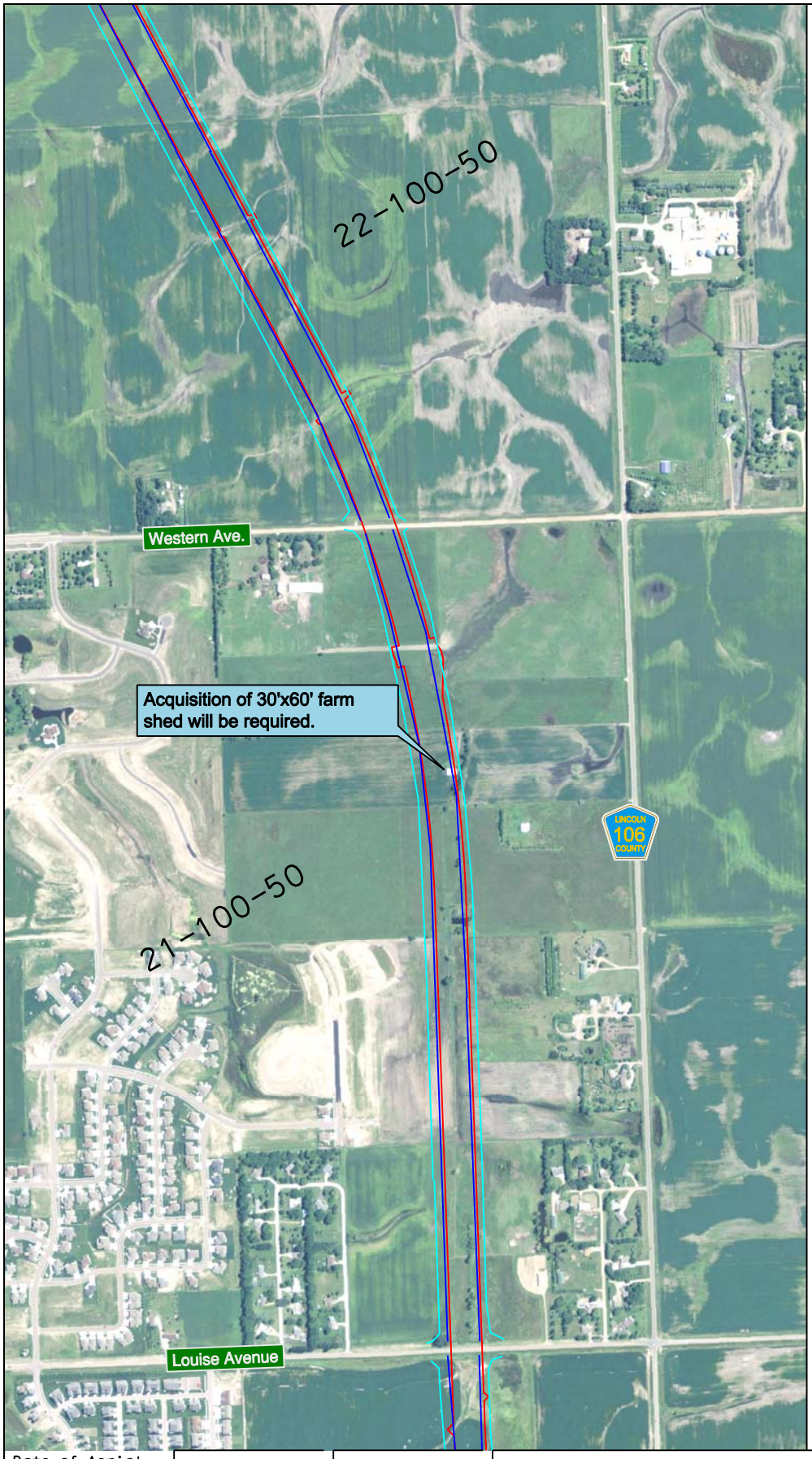


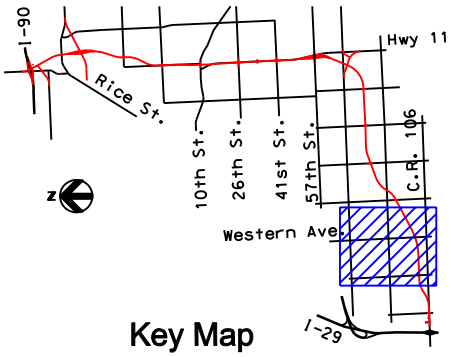
Date of Aerial Photography: 2010

Noise Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-3a





Key Map

SCALE IN FEET
0 500 1000

Legend

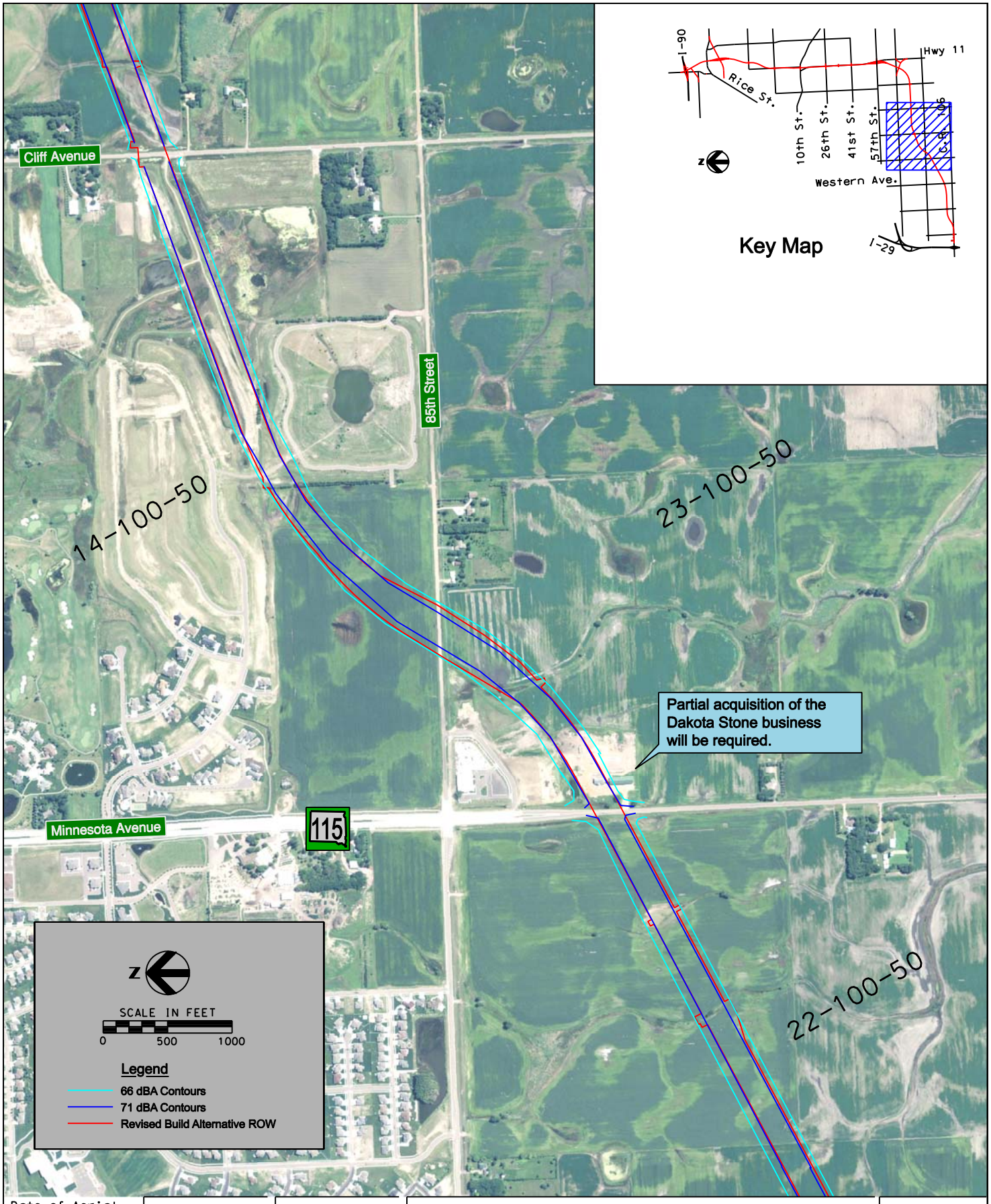
- 66 dBA Contours
- 71 dBA Contours
- Revised Build Alternative ROW

Date of Aerial Photography: 2010

Noise Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-3b

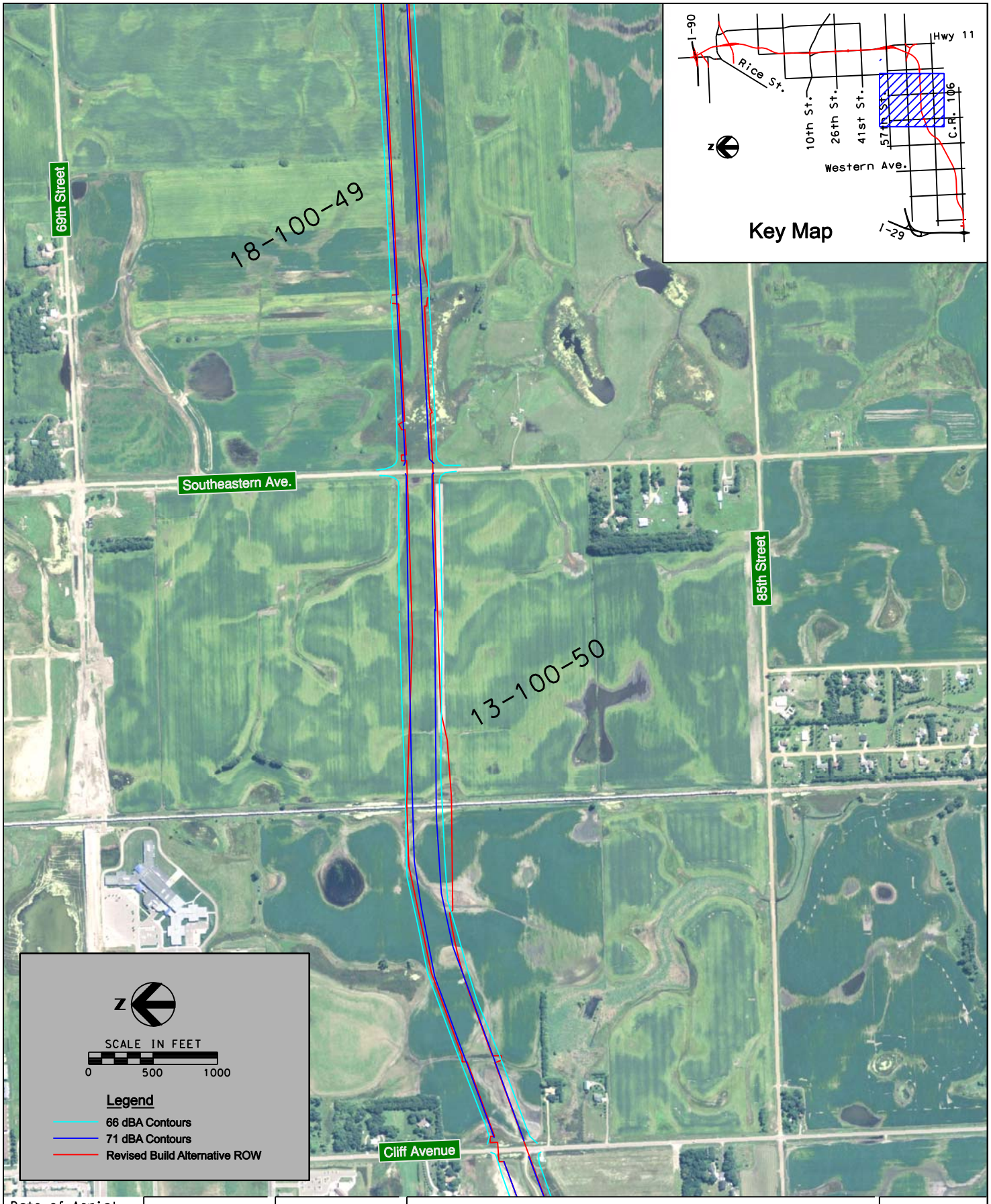


Date of Aerial Photography: 2010

Noise Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-3c

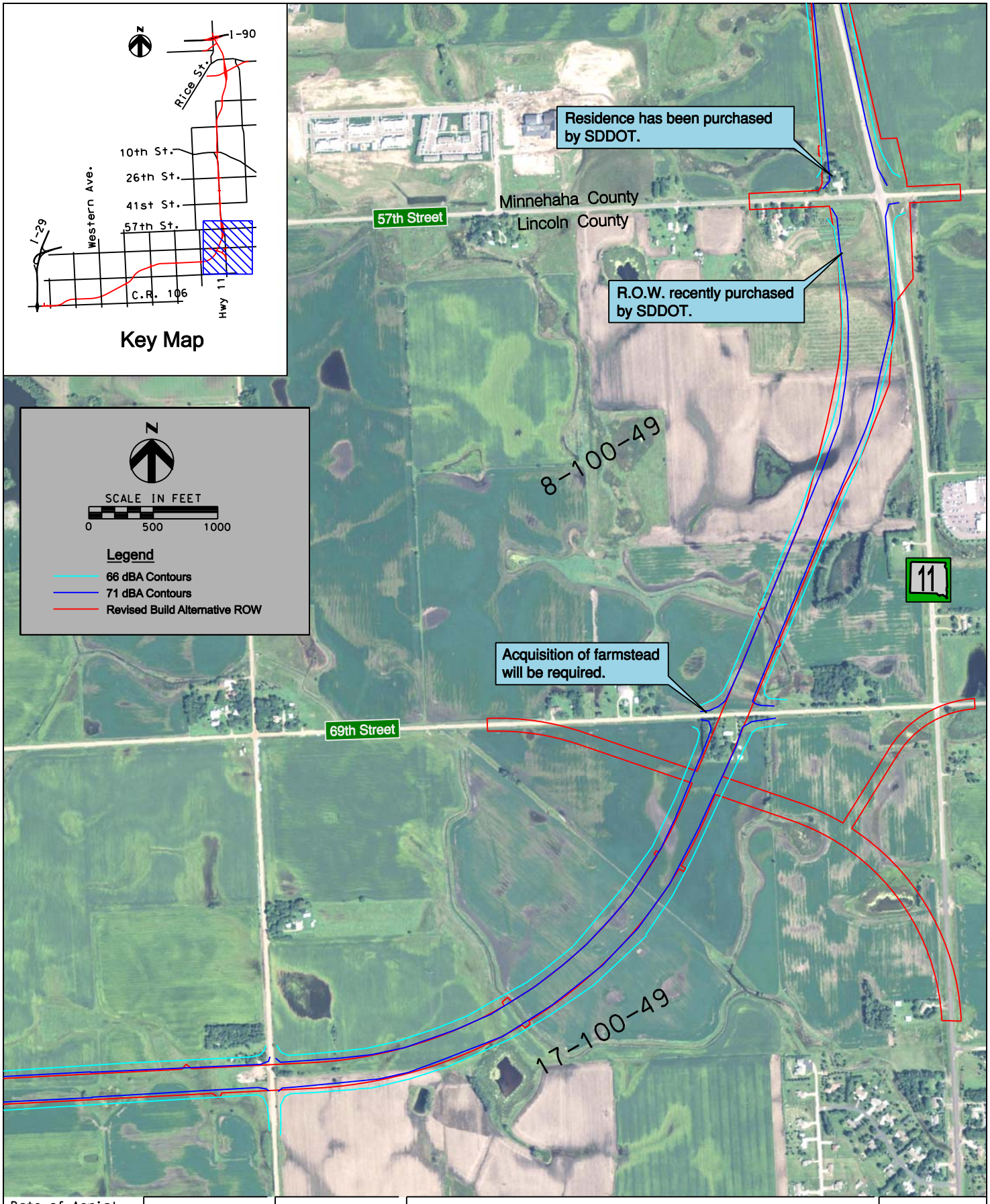


Date of Aerial Photography: 2010

Noise Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-3d

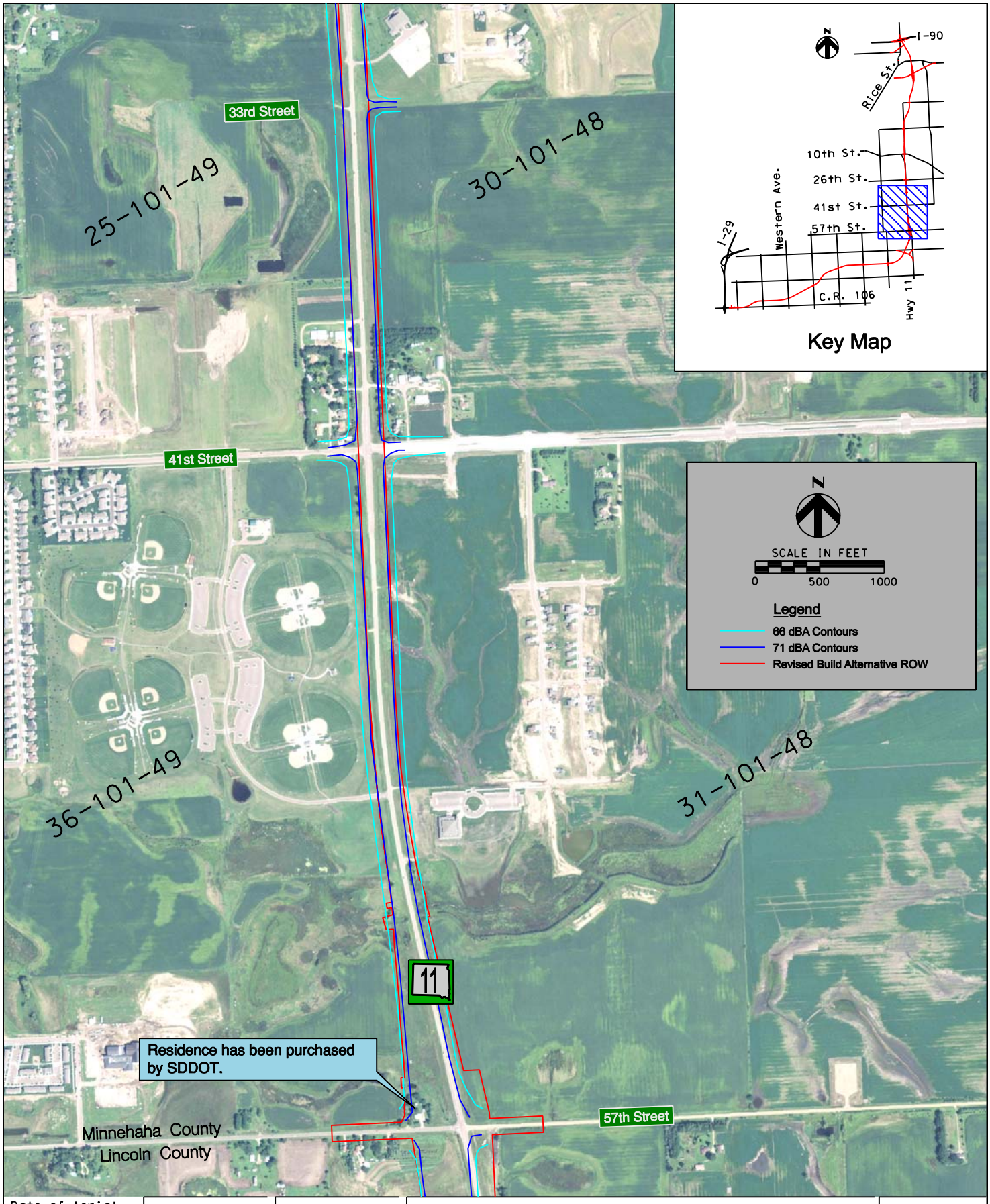


Date of Aerial Photography: 2010

Noise Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-3e

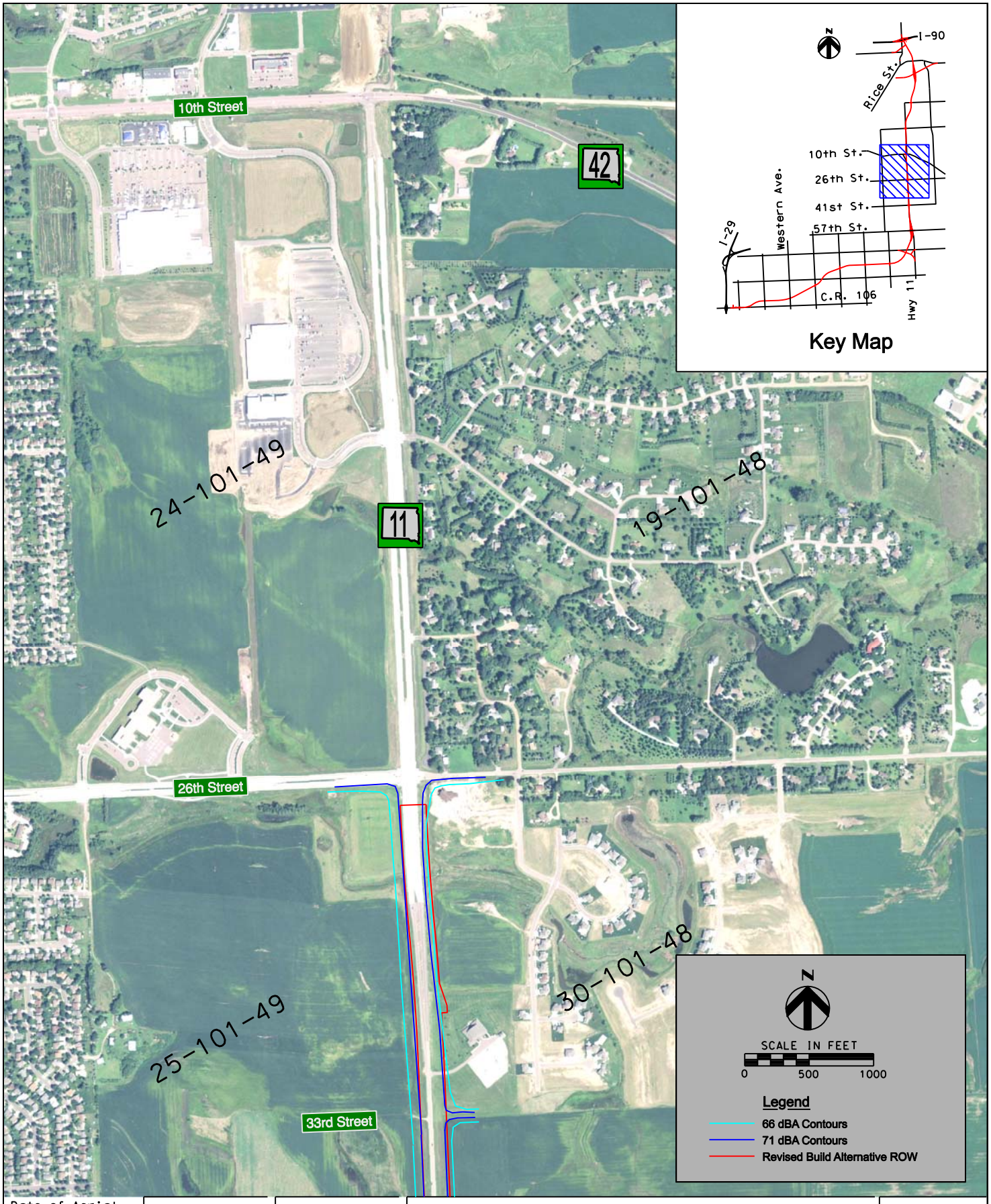


Date of Aerial Photography: 2010

Noise Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-3f

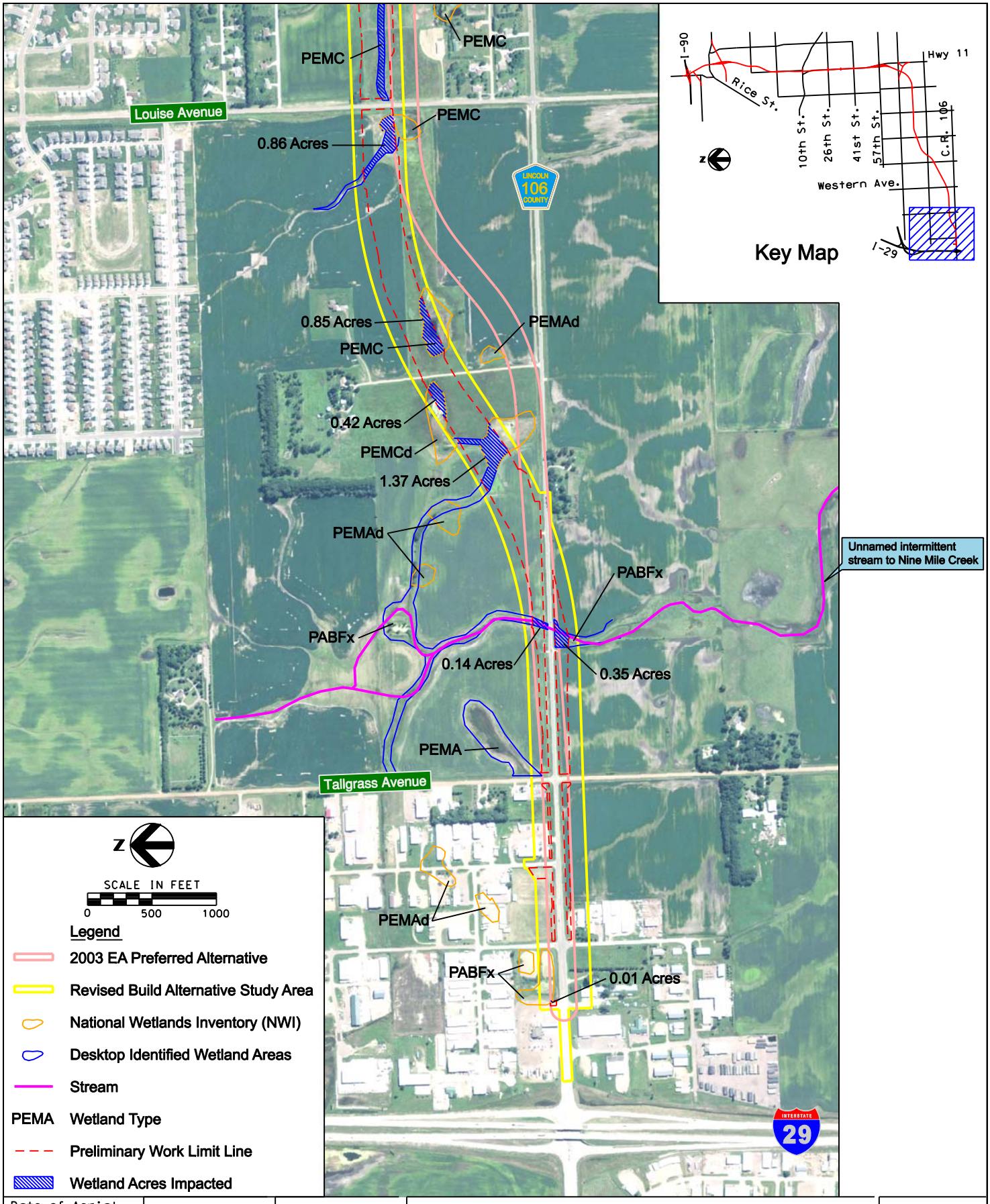


Date of Aerial Photography: 2010

Noise Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-3g

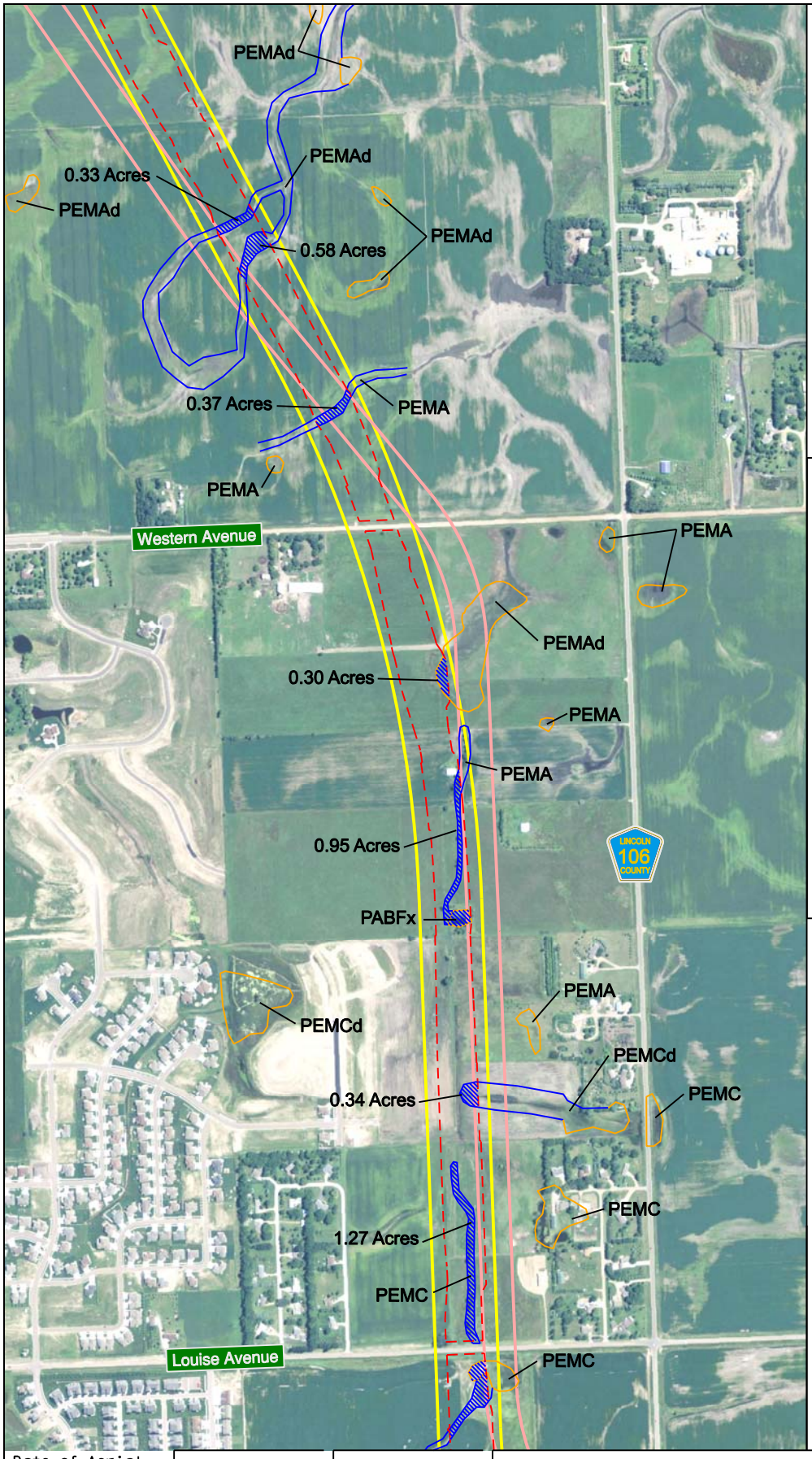


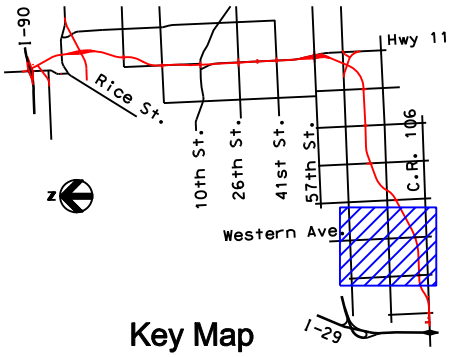
Date of Aerial Photography: 2010

Wetlands and Other Waters of the U.S.

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-4a





SCALE IN FEET
0 500 1000

Legend

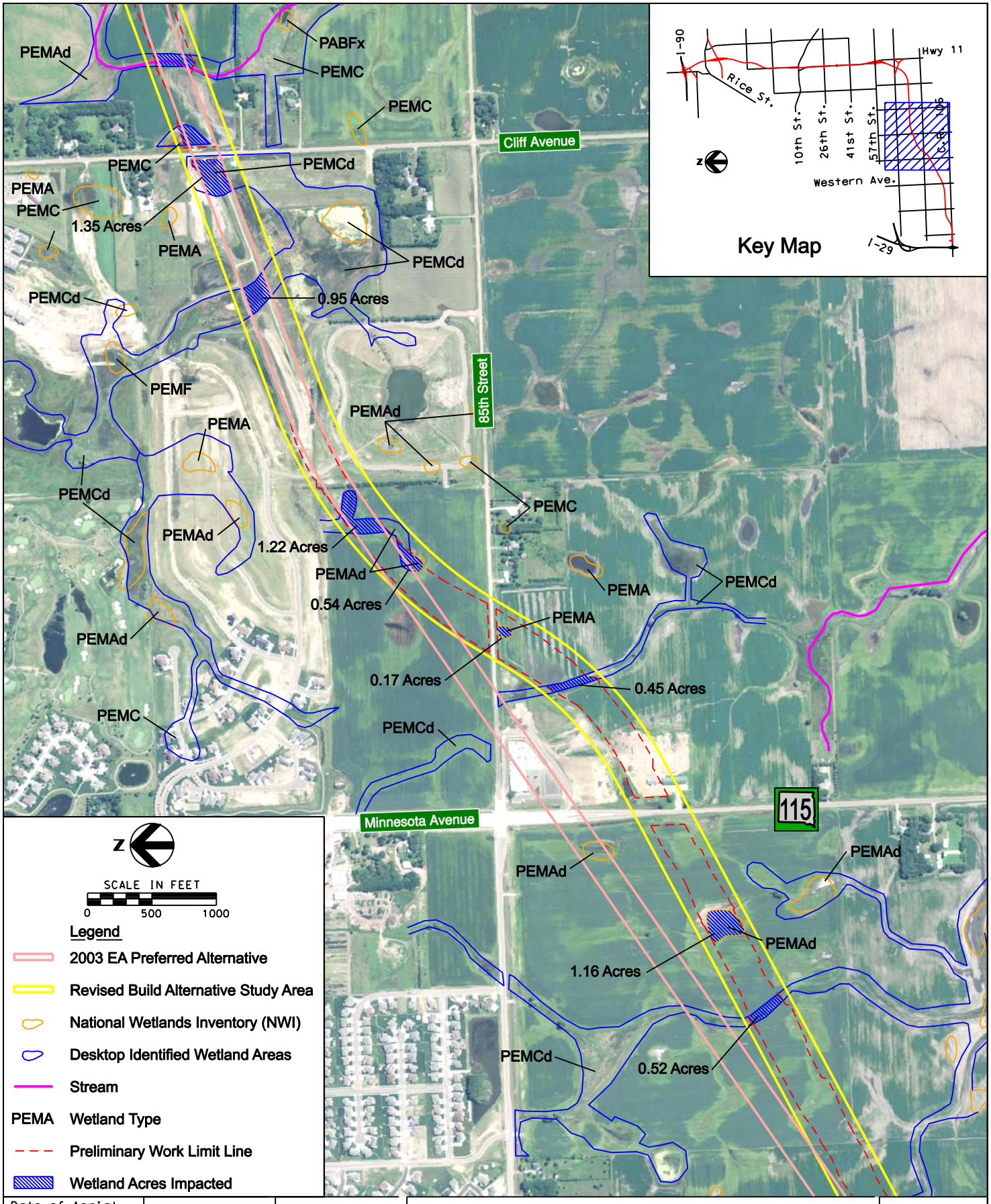
- 2003 EA Preferred Alternative
- Revised Build Alternative Study Area
- National Wetlands Inventory (NWI)
- Desktop Identified Wetland Areas
- Stream
- PEMA Wetland Type
- Preliminary Work Limit Line
- Wetland Acres Impacted

Date of Aerial Photography: 2010

Wetlands and Other Waters of the U.S.

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-4b

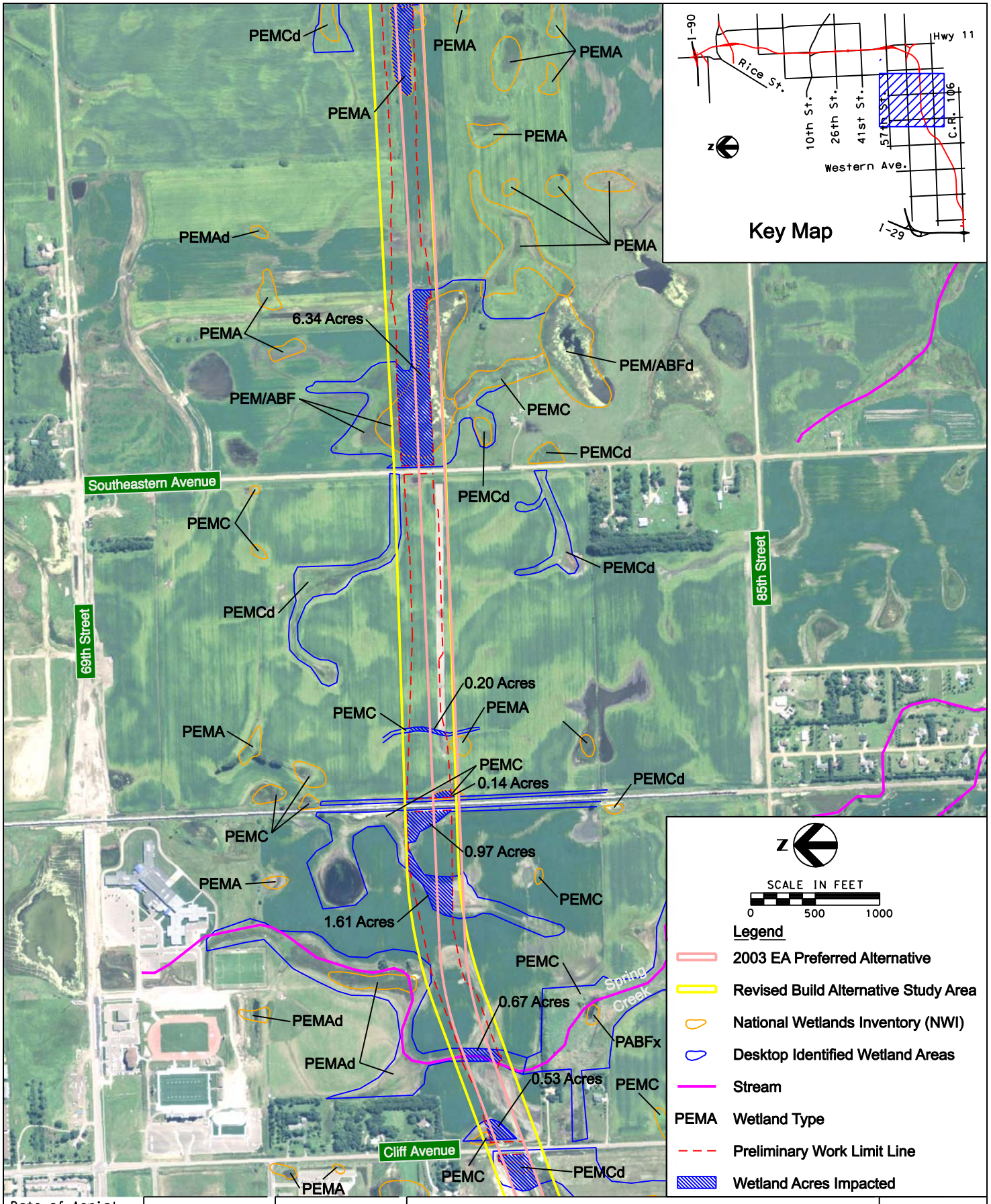


Date of Aerial Photography: 2010

Wetlands and Other Waters of the U.S.

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-4c

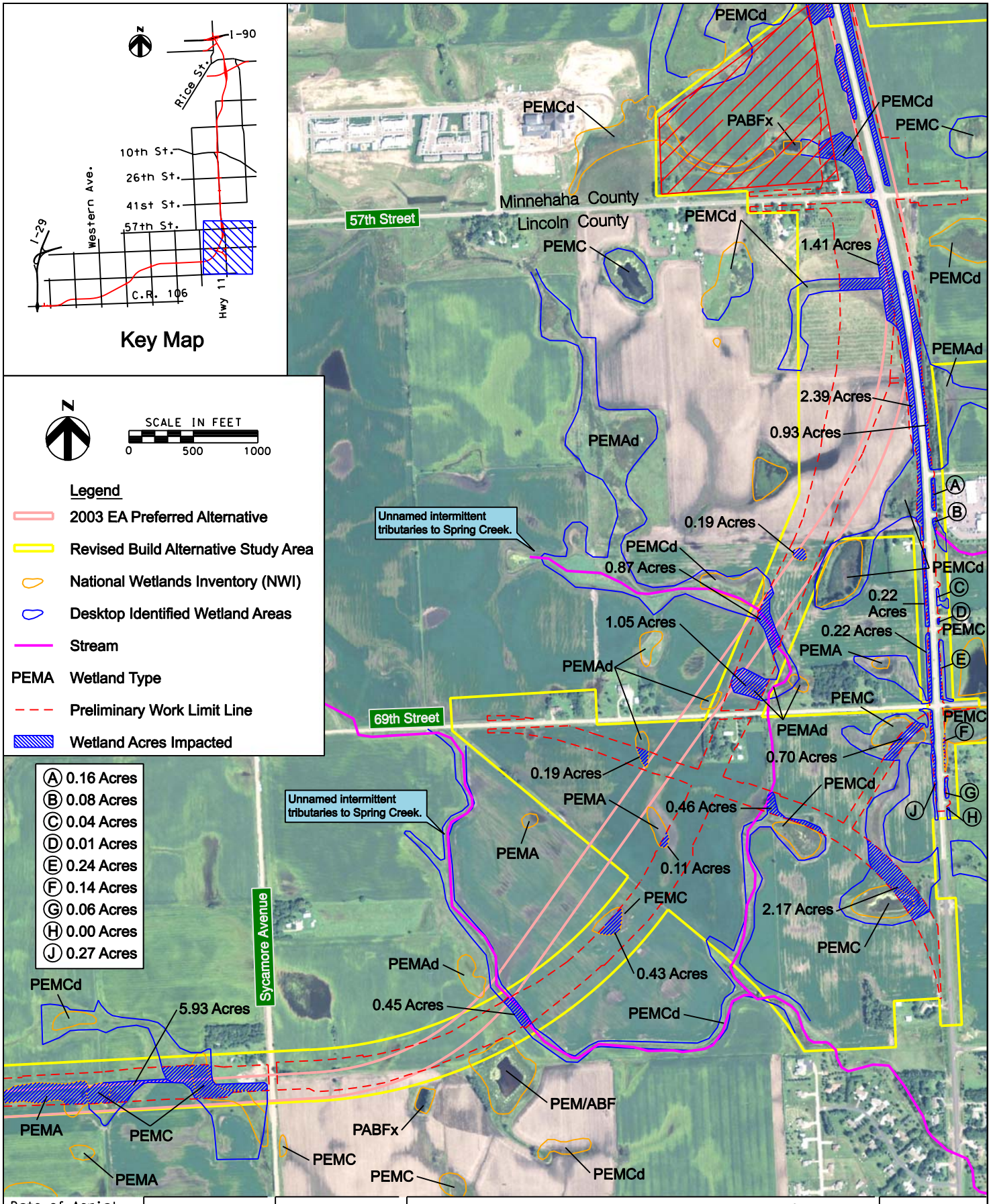


Date of Aerial Photography: 2010

Wetlands and Other Waters of the U.S.

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-4d

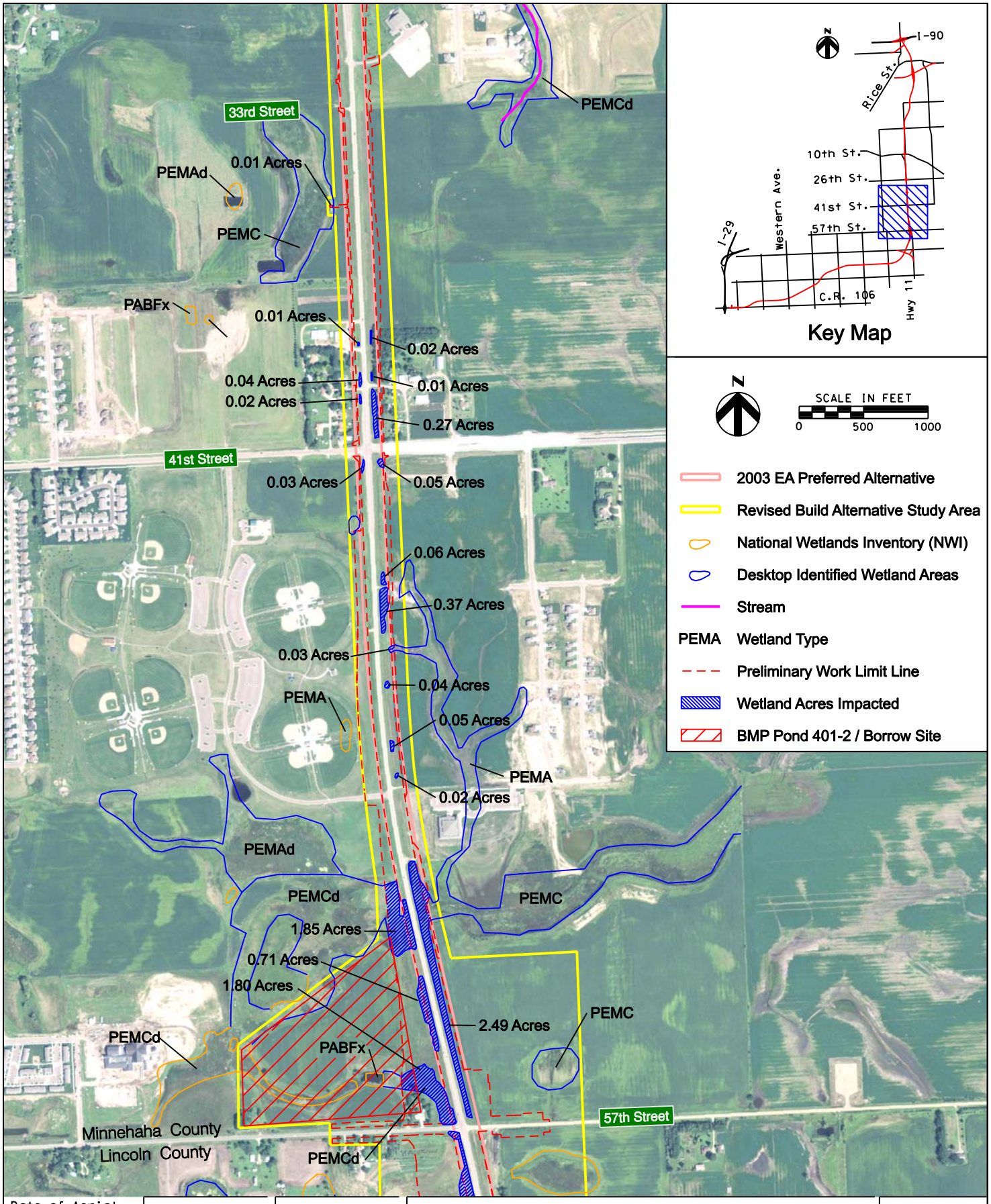


Date of Aerial Photography: 2010

Wetlands and Other Waters of the U.S.

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-4e

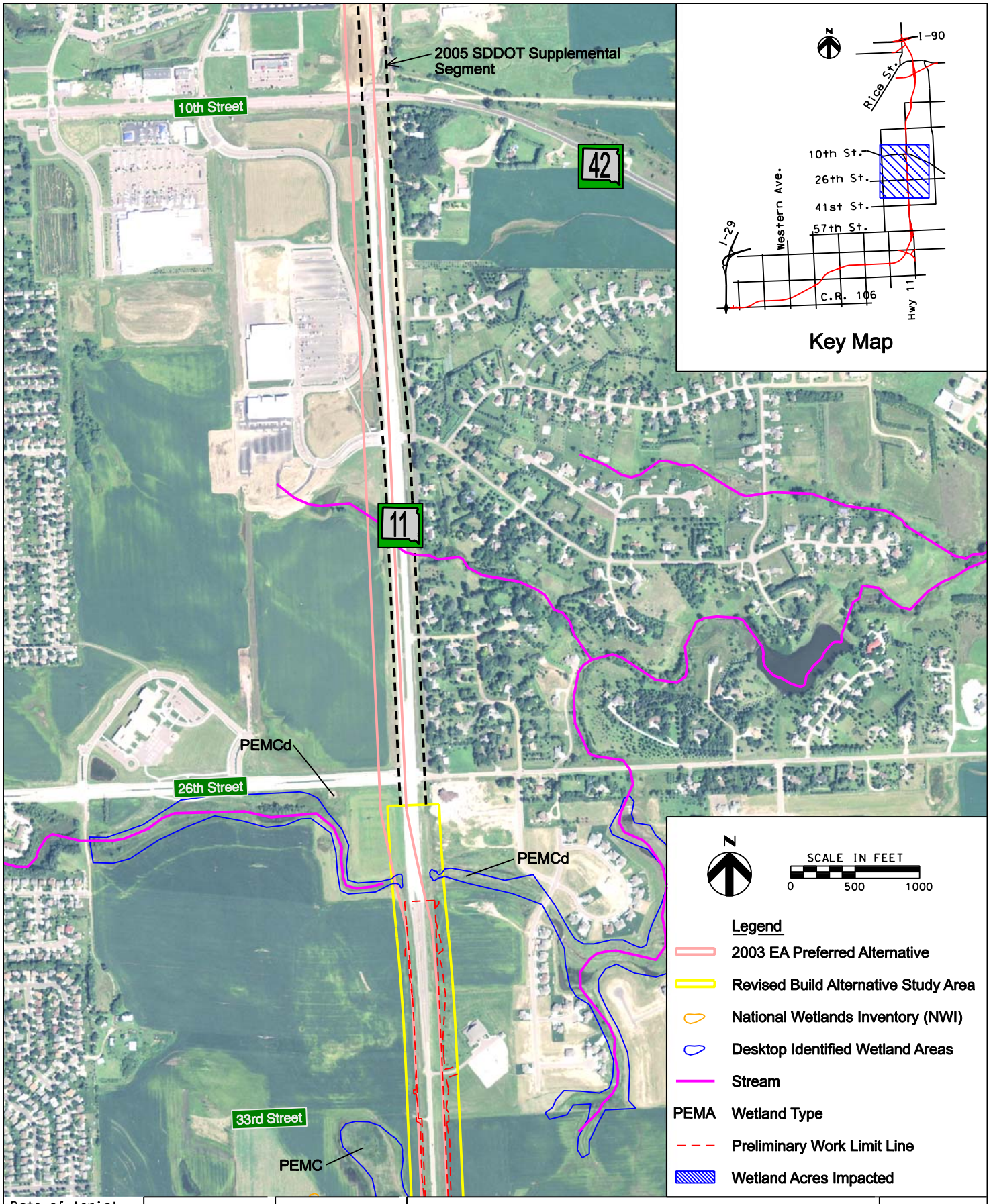


Date of Aerial Photography: 2010

Wetlands and Other Waters of the U.S.

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-4f

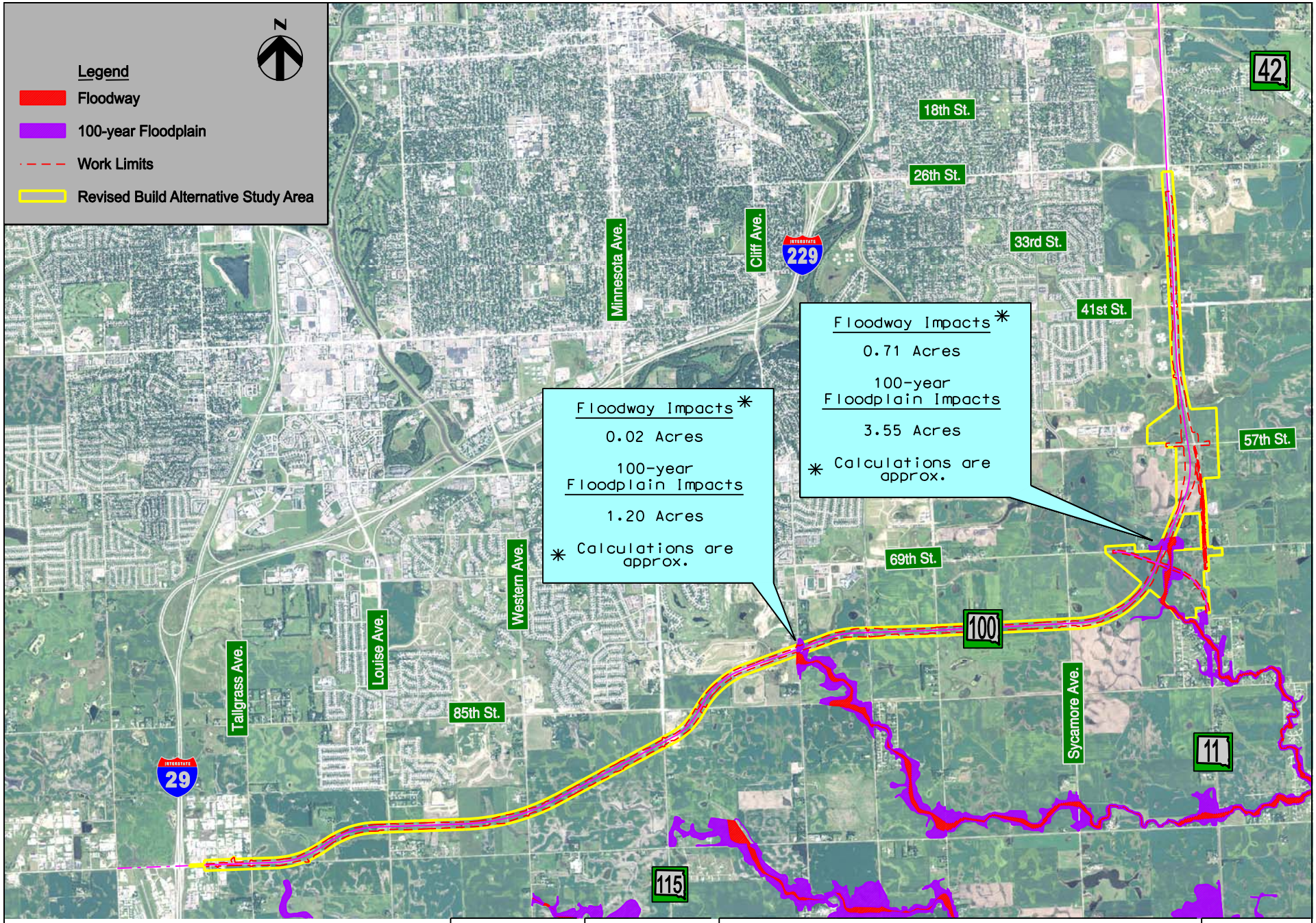


Date of Aerial Photography: 2010

Wetlands and Other Waters of the U.S.

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-4g

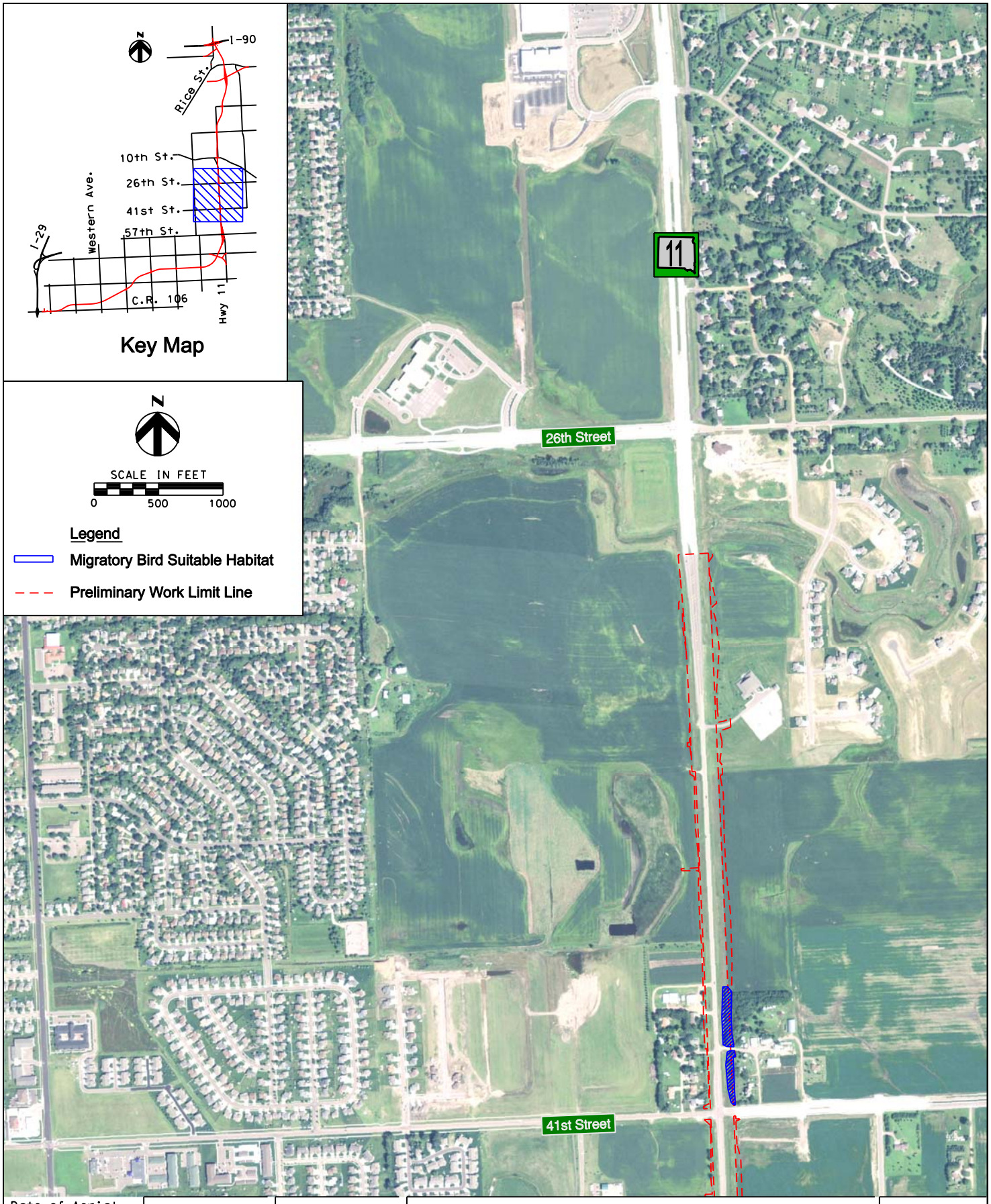


Date of Aerial Photography: 2010

Floodplain Impacts

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-5

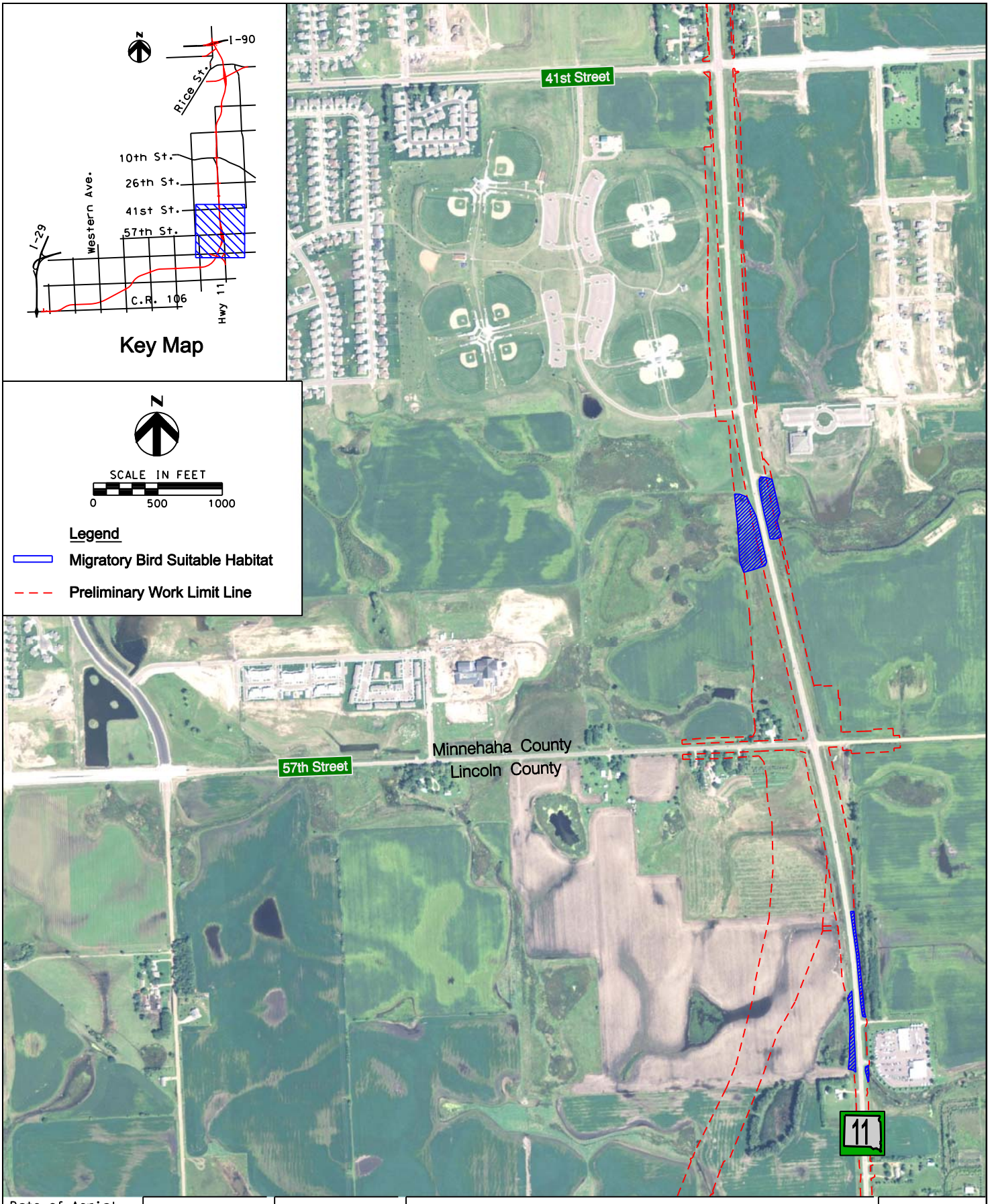


Date of Aerial Photography: 2010

Migratory Bird Suitable Habitat

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-6a

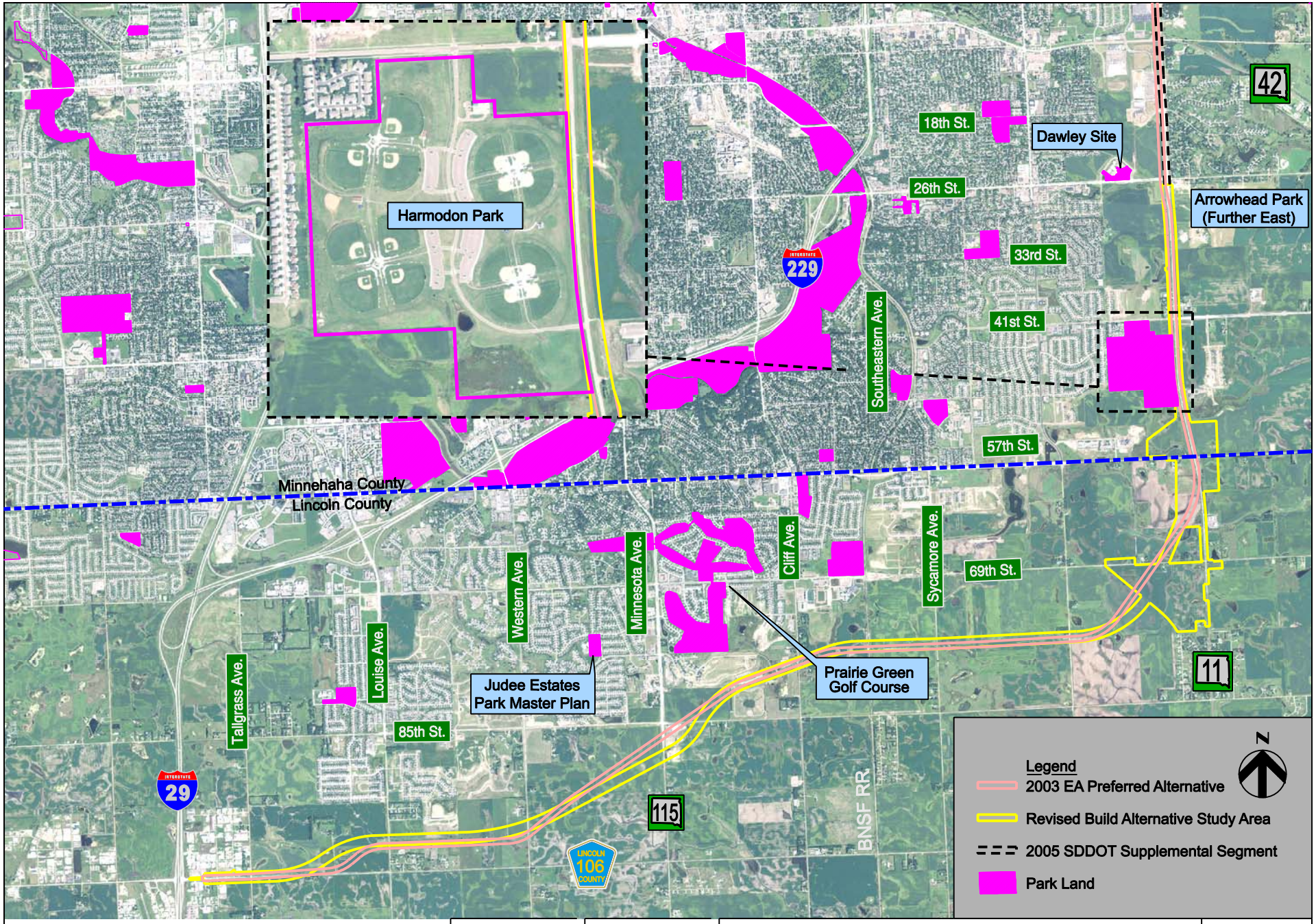


Date of Aerial Photography: 2010

Migratory Bird Suitable Habitat

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-6b

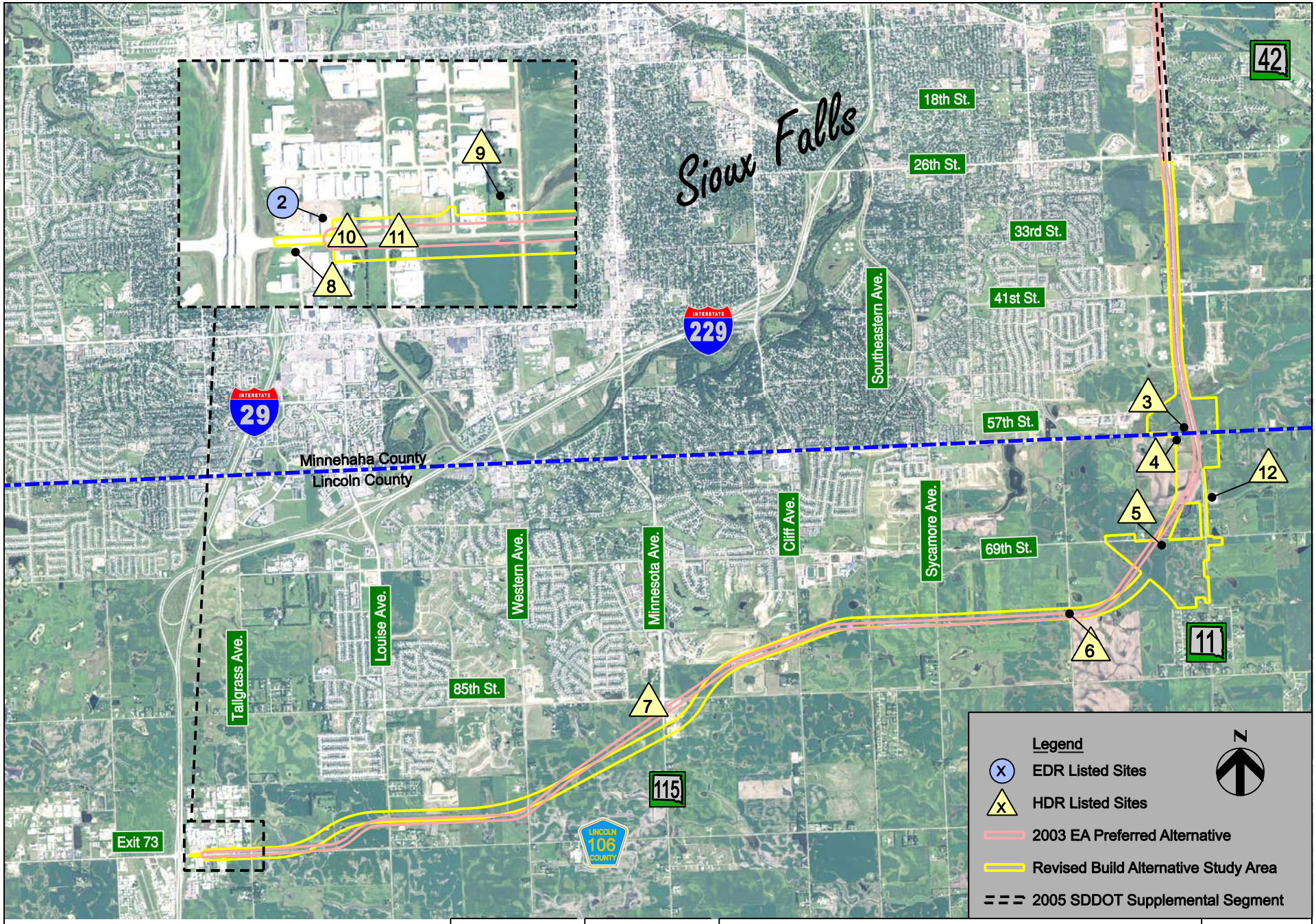


Date of Aerial Photography: 2010

Parks and Recreation Areas

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-7



Date of Aerial Photography: 2010

Regulated Materials Sites

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 3-8

CHAPTER 4
DISPOSITION OF THE EA

4.1 DOCUMENT DISPOSITION

This Supplemental EA documents the analysis of the Project in accordance with NEPA. The full range of potential environmental impacts was studied in detail for the Revised Build Alternative, as reported herein. Active and early public involvement was encouraged by various means during the process of developing concepts and analyzing potential environmental impacts. The Draft Supplemental EA was provided for public and agency comment (refer to Chapter 5.0, Comments and Coordination). This Supplemental EA concludes that the Project is necessary for improved traffic capacity in the foreseeable future. The Revised Build Alternative, which accounts for engineering and environmental constraints as well as public opinion, was received at the public meetings and the public hearing as the Preferred Alternative.

4.2 REQUIRED PERMITS

4.2.1 Section 404 of the Clean Water Act

A Section 404 permit from USACE would be required for impacts on wetlands and other waters of the U.S. within the Study Area (see Chapter 3, Affected Environment and Environmental Consequences). A desktop determination was completed for the Project. During final design, formal wetland delineations will need to be completed to determine the boundaries of the wetlands and other waters of the U.S. USACE requires prior authorization for discharges of dredged or fill material into waters of the U.S. (33 USC 1344). Upon submittal of the Section 404 permit application, USACE determines the type of permit required (individual, nationwide, or no permit required) and if a permit is required provides conditions for the permit as necessary.

4.2.2 Section 401, Water Quality Certification

As part of the Section 404 permit process, Section 401, Water Quality Certification, must be obtained from SDDENR. This certifies that the permitted action will not violate State water quality standards (33 USC 1341). The certification must be provided or waived before USACE can issue a Section 404 permit. Any specific conditions required for compliance with the State's water quality standards would be specified in the Section 401 certification and in the permit conditions of the issued Section 404 permit.

4.2.3 Section 402, National Pollutant Discharge Elimination System

SDDENR administers the Federal NPDES and issues general permits for stormwater discharges for construction activities (33 USC 1342). The purpose of the NPDES program is to improve water quality by reducing or eliminating contaminants in stormwater. Disturbance of more than 1 acre requires an NPDES permit. Because the project would involve disturbance of over 1 acre, SDDOT will submit a Notice of Intent (NOI) prior to construction to SDDENR for coverage under the General Stormwater Permit for Construction Activities.

4.2.4 Threatened and Endangered Species Act

Formal consultation with the USFWS in accordance with Section 7 of the Endangered Species Act has occurred (16 U.S.C. 1531, et seq.). Coordination with SDDGFP has also taken place. Informal consultation occurred through a request for information on the Study Area. The USFWS responded verbally with a list of potentially affected species. Based on review of species

and Study Area, the USFWS noted that the Spring Creek and its intermittent tributaries have been identified as possible Topeka shiner habitat. Formal coordination took place between USFWS and SDDOT and a determination of effect for the threatened and endangered species was completed. Coordination between the SDDOT and USFWS is included in Appendix H.

4.2.5 Floodplain Permit

A no rise certificate or CLOMR will be required for construction of the proposed crossings for the Revised Build Alternative across the designated floodplains and floodways (See Figure 3-5). The City of Sioux Falls, Lincoln County, and Minnehaha County, as the local authorities for FEMA, would review the proposed design of the crossings and verify the rise in elevation of the floodplain would meet the regulatory requirements.

CHAPTER 5
COMMENTS AND COORDINATION

This chapter describes the efforts and events included for agency coordination, tribal coordination, and public involvement during the development of this Supplemental EA.

5.1 AGENCY COORDINATION

During preparation of the 2003 EA, early agency coordination with Federal, State and local government agencies was initiated on November 13, 2001 to commence the analysis of the Eastside Corridor Study Area. Written responses can be found in Appendices B thru F in the 2003 EA (City of Sioux Falls, 2003).

The SD100 Supplemental EA Project commenced with early agency coordination on December 26, 2006 through letters to Federal and State agencies as well as local government agencies. Agency coordination letters were also sent to coordinate the additional study area for the SD 11 Improvements.

Federal and State agencies that were consulted regarding the Revised Build Alternative include:

- South Dakota Division of Emergency Management
- U.S. Department of Agriculture Natural Resources Conservation Service
- South Dakota Department of Game, Fish, and Parks
- U.S. Fish & Wildlife Service – South Dakota Field Office
- U.S. Army Corps of Engineers
- South Dakota Department of Environment and Natural Resources
- South Dakota State Historical Society

Appendix H contains agency coordination letters received through the development of this Supplemental EA. Six responses were received; Table 5-1 summarizes these agency responses.

Agency coordination letters were sent on April 26, 2011 to coordinate the SD 11 Improvements (See Appendix H). The agencies the coordination letter was sent to were U.S. Fish and Wildlife Service, SD Game, Fish, and Parks, Emergency Management, and SD Department of Environmental and Natural Resources. See Table 5-1 and Appendix H for their responses.

Table 5-1
Agency Responses

Agency	Date	Response
Department of Public Safety-Emergency Management	January 3, 2007	FEMA has partnered with the City of Sioux Falls, Minnehaha County, and Lincoln County to prepare a new Flood Insurance Study. The study has not yet been adopted.
	February 2, 2012	Most municipalities and county governments in that area do participate in the NFIP and will need to ensure that any proposed project impacting floodplain or floodway will be completed in compliance of the flood damage prevention ordinances and meet the NFIP regulations for floodplain management.
United States Department of Agriculture- Natural Resources Conservation Service	January 4, 2007	The proposed changes in the corridor alignment will not result in a significant change in the impact on prime and important farmland from the EA approved alignment.
South Dakota Department of Game, Fish and Parks	January 29, 2007	This alignment shift will aid in the avoidance of a great portion of the Cactus Hills area, but we maintain our earlier position that the development of Cactus Hills area would not occur if not for the establishment of the road. We recommend crossing the Big Sioux River perpendicular to the channel. We also suggest that a wetland mitigation banking site be located, approved, constructed, and utilized for this project.
	July 26, 2010	We are recommending that the South Dakota Department of Transportation implement their Best Management Practices for Topeka shiners.
	September 28, 2010	It appears that this area potentially lies within the known area occupied by the lined snake….this project appears to avoid the better quality habitat.
	May 9, 2011	It appears there are some minor potential impacts to wetlands along this segment. We do not anticipate further impacts if the alignment and plans remain as indicated in the preliminary documentation.
U.S. Fish and Wildlife Service	January 30, 2007	While additional wetland acres may be impacted on portions of the proposed new alignment, it appears that the Cactus Hills area on the northeastern end of the project may sustain less impact as the proposed new road is moved farther east. The majority of comments submitted by this office in numerous past correspondences have not changed, including the list of threatened/endangered species potentially occurring in the project area.
	May 17, 2010	The project meets the criteria for inclusion under the August 11, 2008, programmatic biological opinion: "Stream-Crossing Projects Administered/Funded by the South Dakota Department of Transportation and the Federal Highway Administration."

Agency	Date	Response
U.S. Fish and Wildlife Service	September 15, 2010	We recommend considerations of future surveys for the Western prairie fringed orchid when conditions for detection improved, and we encourage that, particularly in light of the alignment change.
	June 10, 2011	Our office has submitted numerous correspondences on this project, including information relative to wetland impacts, the Cactus Hills area, migratory birds, federally listed species, and more; those comments remain relevant to the overall project.
U.S. Army Corps of Engineers	February 2, 2007	We have received an application and provided authorization to SDDOT for one phase of this project. It appears that the project under your consideration for a supplemental EA will involve discharge of dredged or fill material into waters of the US and would require Department of Army authorization.
South Dakota Department of Environment and Natural Resources	February 9, 2007	Best Management Practices (BMP) for sediment and erosion control should be incorporated into the planning, design, and construction of this project. A Surface Water Discharge (SWD) permit may be required if any construction dewatering should occur as a result of this project. A General Storm Water Permit for Construction Activities may also be required.
	April 29, 2011	This office has no objection to the project, which would not result in any violations of applicable statues or regulations provided the Department of Transportation and/or its contractor(s) comply with the following requirements (See Appendix H).
South Dakota State Historical Society	November 6, 2007	The SHPO concurs with your determination of No Historic Properties Affected for this undertaking.
	May 6, 2010	Based upon the information provided to the SHPO on May 10, 2010, this office concurs with your agency's determination of "No Adverse Effect" for this undertaking.
	September 8, 2011	SHPO concurs with your determination of No Historic Properties Affected for this undertaking provided Site 39LN94 is avoided by all construction activities including all borrow and staging areas.
	September 15, 2011	No Historic Properties Affected from the borrow area.

5.2 TRIBAL CONSULTATION

For the 2003 EA, the City of Sioux Falls prepared and sent a memorandum to nine American Indian Sioux Tribes to initiate the SD100 Project. The memorandum notified the tribal parties that a cultural resources reconnaissance survey was being prepared for the Project. The

memorandum explained that if significant findings were uncovered during this survey or during the construction of SD100, the tribal parties would be notified. No written or oral comments were received (City of Sioux Falls, 2003).

In 2007, the FHWA prepared and sent early coordination letters to seven American Indian Tribes that may have an interest in the initiation of the SD100 Supplemental EA Project. In 2011, the SDDOT also sent a coordination letter out regarding SD 11 Improvements.

The tribal parties that were consulted regarding the Project are:

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

Appendix H contains the tribal coordination letter sent from FHWA and the letter received from Flandreau-Santee Sioux Tribe with no objections to the project.

5.3 PUBLIC INVOLVEMENT

5.3.1 2003 EA

An open house was held on February 22, 2001 to update the public on the EA progress since the initial public involvement activities that introduced the SD100 Project. An August 2001 public meeting and hearing was held to present the 2003 EA Preferred Alternative. For the presentation of the Draft EA, open houses were held in March 2002 and November 2002. Summarized comments received during these meetings can be found in Appendix D of the 2003 EA (City of Sioux Falls, 2003).

5.3.2 EA Supplement

A public open house was held on February 7, 2006 to initiate the ROW phase for the Modified 2003 EA Preferred Alternative. Invitations to the public open house were sent to all landowners within the Project Area (See Appendix J). A total of 193 people attended the public open house. During and following the open house, several comments were received regarding the design speed and safety of the Modified 2003 EA Alternative.

A total of 20 written comments were received from landowners and attendants of the public open house. Comments and issues identified in the written comments were similar to those expressed informally at the meetings and included:

Five requests for additional information such as ROW booklets, an overview of the presentation, and alignment maps.

Eight letters that expressed concern for access to the Eastside Corridor from their properties.

Two letters expressed concern for 45 mph assigned speed limit for the Modified 2003 EA Preferred Alternative. The letters requested consideration of a higher posted speed limit until development adjacent to the corridor occurs.

One letter suggested that the southern segment of the SD100 should be constructed earlier to accommodate the Harrisburg traffic.

Four letters stated concern with traffic congestion due to the Modified 2003 EA Preferred Alternative. The concerns were for the angle of the corridor alignment in regards to intersecting roads and difficult turning movements, therefore causing congestion.

After receiving the comments from the public, the Modified 2003 EA Preferred Alternative was proposed to be shifted in several locations. The reasons for the alignment shifts included flattening of curves to increase safety, improve safety at intersections, reduce environmental impacts, and reduce construction costs. The alignment that resulted from these shifts to the Modified 2003 EA Preferred Alternative is the Revised Build Alternative.

5.3.3 Public Hearing

A public hearing was held on January 17, 2007 at the Sioux Falls Convention Center from 5:30 pm to 7:30 pm. Landowners were notified of the public hearing through an announcement in the local newspaper, mailed invitations, and the City of Sioux Falls website (See Appendix K). The purpose of the public hearing was to discuss the SD100 and also the Railyard Relocation Project. A total of 192 people attended the public hearing. See Figure 5-1 for the landowner attendance.

The goals of discussing the SD100 at the public hearing were to present a Revised Build Alternative to the public and to gather public input. A presentation was given to inform the public of the alignment shifts to the Modified 2003 EA Preferred Alternative, which resulted in the development of the Revised Build Alternative. The analysis of noise impacts for the alternatives was shown, along with the planned typical sections. A proposed speed limit change which would change the speed limit along segments of SD100 from 45 mph assigned for the Modified 2003 EA Preferred Alternative to 55 mph limit assigned for the Revised Build Alternative was discussed. At the end of the presentation, comments were encouraged.

A variety of visual displays were available at the meeting, including boards with text and graphics showing the Revised Build Alternative and the Modified 2003 EA Preferred Alternative. A handout that summarized the study process, Project purpose and need, and the alternatives carried forward was also available.

Throughout the course of the Project, correspondence received from the public was logged, and, if requested, a response was sent to the specific public entity or individual.

The following summarizes the informal[1] comments received from landowners at the meetings:

- Most comments were generally supportive of the Project, but expressed concern for access to the SD100 from their properties.
- Several questions regarding the construction schedule were discussed.
- Several farmers wanted to know how access would be provided to their properties.
- Utility companies viewed the SD100 alignment to plan for future relocation.
- Several members of a planned church located at 57th Street and SD Highway 11 were concerned with access to their church.

A total of 15 written comments were received from the public hearing. The majority of comments were supportive of the Project. Comments and issues identified in the written comments were similar to those expressed informally at the meetings and included:

- Support for the Project and a desire to have it proceed as quickly as possible.

[1] Informal comments are those that were expressed to staff at the meeting/hearing but were not submitted as oral or written testimony.

- Five letters regarding access to the SD100.
- Three letters regarding development property affected by the 57th Street and SD100 interchange.
- Two letters concerned with pedestrian/bicycle access around Harmodon Park, also a request to locate the proposed bike path to the west of SD100. Connectivity to existing Sioux Falls trails would be easier with the path on the west side of SD100.
- Three letters concerned with the alternatives crossing their properties.

By seeking public involvement proactively and receiving public input for the design team to take into consideration, better decisions and positive community support are ultimately achieved.

5.3.4 Public Meeting

A public meeting was held on November 22, 2011 at the Gloria Dei Lutheran Church 5:30 pm to 7:00 pm. Landowners were notified of the public hearing through an announcement in the local newspaper and mailed invitations (See Appendix M). The purpose of the public hearing was to discuss the Supplemental EA and proposed Section 4(f) *de minimis* impact finding. A total of 63 people attended the public hearing.

The goals of discussing the SD100 at the public hearing were to present to the public and gather public input for the Revised Build Alternative and the proposed *de minimis* impact to Harmodon Park. A presentation was given to inform the public (See Appendix M). At the end of the presentation, comments were encouraged.

Visual displays of the Revised Build Alternative were available at the meeting. A handout that summarized the Project was provided (See Appendix M).

The following summarizes the informal[2] comments received from landowners at the meetings:

- Several questions regarding the construction schedule were discussed.
- One developer asked to tie their bicycle system to the bike path for SD100.
- Several comments regarding the construction timeline of the Northern Segment.

Comments and issues identified in the written comments were similar to those expressed informally at the meetings and included:

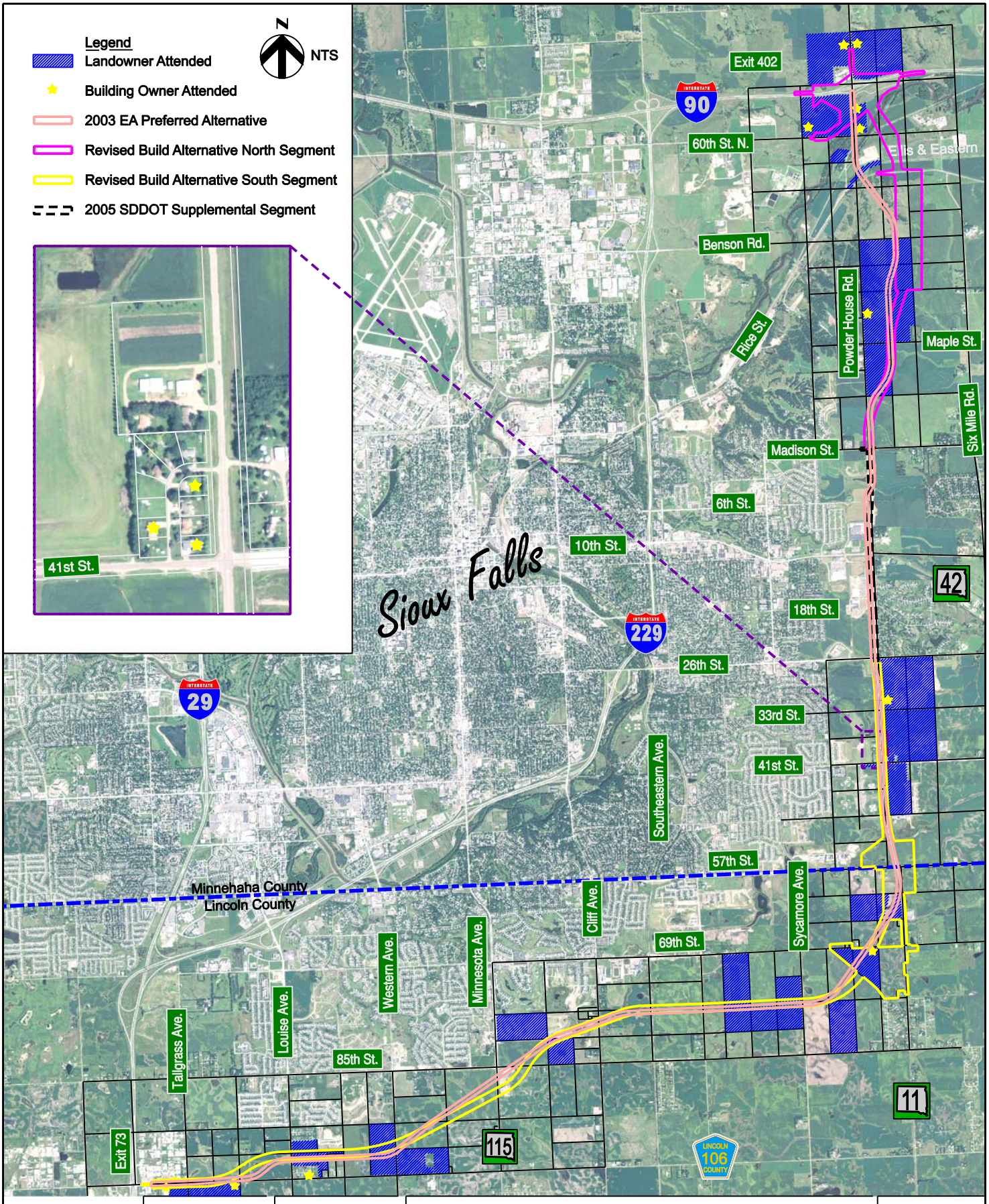
- Do you know when the bid letting for this project (SD100) will be?
- I was unable to attend the community meeting last evening, and am involved with a group that is contemplating the purchase of land in the area of 57th Street and SD100. Can you enlighten me as to what is involved with the above and/or provide me with a copy of any report you might have?

5.4 FUTURE PUBLIC INVOLVEMENT

Following the 30 day comment period, SDDOT and the FHWA will make the determination as to the adequacy of the environmental documentation. If further documentation is necessary, it could be accomplished by preparing an EIS or by revising the EA, whichever is appropriate.

[2] Informal comments are those that were expressed to staff at the meeting/hearing but were not submitted as oral or written testimony.

If the environmental review process finds the project will not result in any significant environmental impacts, SDDOT will prepare a "Negative Determination" finding. SDDOT will then prepare a request for a Finding of No Significant Impact (FONSI) that will be submitted to the FHWA. If the FHWA agrees that the FONSI is appropriate, it will issue a FONSI.



South Dakota DOT
Connecting South Dakota and the Nation

HDR

January 2007 Public Hearing Attendance

Eastside Corridor (SD100) - I-29 to South of 26th Street

Figure 5-1

CHAPTER 6
REFERENCES

7 CFR 657. Prime and Unique Farmlands.

7 CFR 658. Farmland Protection Policy Act of 1981.

23 CFR 772. Procedures for Abatement of Highway Traffic Noise and Construction Noise.

23 CFR 777.9. Mitigation of Impacts.

33 CFR 328. Definition of Waters of the United States.

40 CFR 81.342. Attainment Status Designations, South Dakota.

40 CFR 93.102. Transportation Conformity Rule.

40 CFR 1500-1508. Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA.

40 CFR 1508.7. Cumulative impact.

40 CFR 1508.8. Effects.

42 FR 26951. May 24, 1977. Executive Order 11988, Floodplain Management.

59 FR 7629. February 11, 1994. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.

16 USC 661-667e. Fish and Wildlife Coordination Act of 1934, as amended.

16 USC 703-712. Migratory Bird Treaty Act of 1918, as amended.

16 USC 1531 et seq. Endangered Species Act of 1973, as amended.

16 USC 3801-3862. Food Security Act of 1985.

16 USC 4601-4 to -11 et seq., as amended. Land and Water Conservation Fund Act of 1965.

33 USC 1341. Certification.

33 USC 1342. National Pollutant Discharge Elimination System.

33 USC 1344. Permits for Dredged or Fill Material.

42 USC 2000d et seq. Title VI of the Civil Rights Act of 1964.

42 USC 4601 et seq. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

49 USC 303. Section 4(f).

American Association of State Highway and Transportation Officials Standard Specifications for Highway Bridges, 17th Edition.

ARSD Article 74:51, Surface Water Quality. January 1999.

Ashton, Diane E. and Eileen M. Dowd. 1991. Fragile legacy. Endangered, threatened and rare animals of South Dakota. South Dakota Department of Game, Fish and Parks, Report No. 91-04. Jamestown, ND: Northern Prairie Wildlife Research Center Online. http://www.npwrc.usgs.gov/resource/wildlife/sdrare/index.htm (Version 08DEC97).

Augustana College Archeology Laboratory, 2007a. A Level III Cultural Resources Evaluation of the Proposed South Dakota Department of Transportation Eastside Highway Corridor (SD100) Realignment Project , Minnehaha and Lincoln Counties, South Dakota. February.

Augustana College Archeology Laboratory, 2007b. A Level III Cultural Resources Evaluation of the Proposed South Dakota Department of Transportation Eastside Highway Corridor (SD100) Realignment Project Alterations, Minnehaha and Lincoln Counties, South Dakota. July.

Augustana College Archeology Laboratory, 2010. A Level III Cultural Resources Evaluation of the Proposed South Dakota Department of Transportation Eastside Highway Corridor (SD100) Realignment Project Alterations, Minnehaha and Lincoln Counties, South Dakota. December.

City of Sioux Falls, 2003. Sioux Falls East Side Corridor Final Environmental Assessment. Minnehaha and Lincoln Counties, South Dakota. March 20.

City of Sioux Falls, December 2009. Shape Sioux Falls 2035: Sioux Falls Comprehensive Development Plan. http://www.siouxfalls.org/Planning/shape.aspx

City of Sioux Falls, 2011. Water Purification, Viewed on April 29, 2011. http://www.siouxfalls.org/PublicWorks/purification

City of Sioux Falls Parks and Recreation, 2011. Viewed on May 3, 2011. http://www.siouxfallsparks.org/ContactUs/public_parks?all_locations

Cowardin, Lewis M., Virginia Carter, and Edward T. LaRoe, 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. U.S. Department of the Interior, Washington D.C. December.

Department of Public Safety-Emergency Management, 2007. Comment Response Letter from Michelle Saxman, NFIP State Coordinator. January 3.

EDR, December 2006. DataMap Area Study.

Environmental Laboratory, 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi. January.

FEMA, 2008. Q3 Flood Data. National Flood Insurance Program, Flood Boundary and Floodway Map, Lincoln County, South Dakota. April 2.

FEMA, 2009. Q3 Flood Data. National Flood Insurance Program, Flood Boundary and Floodway Map, City of Sioux Falls, South Dakota Minnehaha County. September 2.

FEMA, 2003. Letters of Map Change (LOMC). January 30. http://www.msc.fema.gov/lomc.shtml.

FHWA, 1995. Highway Traffic Noise Analysis and Abatement Policy and Guidance. Office of Environment and Planning, Noise and Air Quality Branch. Washington, D.C. June.

FHWA, 2008. South Dakota Department of Transportation and Federal Highway Administration Section 7 Programmatic Biological Assessment. FHWA, South Dakota Division Office, Pierre, South Dakota. January 5.

Florida Department of Transportation, 2002. Quality Level of Service Handbook.

Gates, Natalie, 2007. USFWS. Personal communication regarding location of bald eagles. May 31.

Gildemaster, Diane, 2007. City of Sioux Falls Parks and Recreation. Personal communication regarding city owned recreational property. April 24.

Haffermehl, Louise. 2007. Historic Structure eligibility to NRHP.

HDR, 2011. SD100 Noise Study- Update. May.

Kapler, Todd. 2007. Evaluation of Historic Structures for farmstead located at 47771 South 69th Street. July.

MDDOT, 2003. "Section 4f. Introduction: Related Statutes." http://www.section4f.com/rel_statutes.htm.

SEH, 2001. Sioux Falls East Side Corridor Scoping Memorandum. October 2001.

SEH, 2002a. Sioux Falls East Side Corridor Environmental Assessment. Botanical Survey for Rare, Threatened, or Endangered Species Sioux Falls, South Dakota. September 2002.

SEH, 2002b. Faunal Survey for Rare, Threatened, or Endangered Species with Special Emphasis on the Lined Snake (*Tropidoclonion lineatum*). Sioux Falls East Side Corridor Environmental Assessment. October 2002.

SDDENR, 2006a. Air Quality Monitoring Sites. http://www.state.sd.us/denr/DES/AirQuality/Monitoring/state-mo.htm

SDDENR, 2006b. First Occurrence of Aquifer Materials in the Sioux Falls, South Dakota, Metropolitan Growth Area. http://jurassic2.sdgs.usd.edu/pubs/pdf/AM-23_20061106.pdf

SDDENR, 2006c. South Dakota Environmental Events Database. http://www.state.sd.us/denr/DES/Ground/dataspil.htm

SDDENR, 2010a. South Dakota TMDL Schedules and Summaries. http://denr.sd.gov/dfta/wp/tmdlpage.aspx#Fecal

SDDENR, 2010b. South Dakota Annual Ambient Air Monitoring Network Plan 2010.

SDDGFP, 2006d. South Dakota Wildlife Action Plan 2006-2008. http://www.sdgfp.info/Wildlife/Diversity/Comp_Plan.htm

SDDGFP, 2006e. Fragile Legacy, Rare Animals of South Dakota. South Dakota Department of Game, Fish & Parks Wildlife Division, Pierre, SD.

SDDGFP, 2001. Comment Response Letter from Doug Backlund, Resource Biologist. November 21.

SDDGFP, 2003. Topeka Shiner Management Plan for the State of South Dakota.

SDDGFP, 2007. Comment Response Letter from Leslie Petersen, Aquatic Resource Coordinator. January 29.

SDDGFP, 2010. Comment Response Letter from Leslie Murphy, Aquatic Resource Coordinator. July 26.

SDDGFP, 2010. Comment Response Letter from Eileen Dowd Stukel, Wildlife Diversity Coordinator. September 26.

SDDOT, 2004. Construction Field Manual: Construction Site Management and Erosion and Sediment Control. http://www.sddot.com/docs/manuals/Erosionsedicontrolconstman.pdf

SDDOT, 2005. Re-evaluation and Supplement for the Sioux Falls East Side Corridor Environmental Assessment, PO11 (17)71 Minnehaha County PCEMS 6922, SD11 from SD 42 south 1.4 miles, P1157 (01) Minnehaha County PCEMS H017, Powderhouse Road from SD 42 north 1.1 miles to Madison Street. September 22.

SDDOT, 2010. Statewide Transportation Improvement Plan 2011 to 2015.

SDDOT, 1996. Noise Analysis and Abatement Guidelines/Policy. May.

Sioux Falls MPO, 1995. Sioux Falls Regional Transportation Study. Prepared by HDR Engineering Inc., BRW Inc., and R.F. Sayre & Associates.

Sioux Falls MPO, 2005. Year 2025 Long-Range Transporation Plan. September 2005. http://www.siouxfalls.org/Planning/transportation/long_range_transportation.aspx

Sioux Falls MPO, 2009. Sioux Falls MPO Bicycle Plan

Sioux Falls MPO, 2010. Direction 2035: Sioux Falls MPO Long-Range Transportation Plan. November 18, 2010.

Sioux Falls Planning and Building Services, 2007. 2006 Annual Report. Sioux Falls Development Summary. http://www.siouxfalls.org/Planning/resources/2006_annual_report.aspx

State Archaeological Research Center (SARC), 2011. Intensive Cultural Resources Survey for Proposed Improvements to a Segment of SD Highway 11 in Lincoln County near Sioux Falls, South Dakota: SDDOT Project No. EM-P 0011(49)68, PCN 00CP.

U.S. Census Bureau, 2000. 2000 Census Lookup. http://factfinder.census.gov

U.S. Census Bureau, 2005. 2005 Census Lookup. http://factfinder.census.gov

U.S. Census Bureau, 2010. 2010 Census Lookup. http://factfinder2.census.gov/main.html

USDA National Agricultural Statistics Service, 2006. 2002 Census of Agriculture. September. www.fedstats.gov

USDA NRCS, 2007. South Dakota State-listed Noxious Weeds. May. http://plants.usda.gov/java/noxious?rptType=State&statefips=46&sort=sciname&format=Print

USDA NRCS, 2010. Comment Response from Dan Shurtliff for Deanna Peterson, State Soil Scientist. April 23.

USEPA, 2006. Total Maximum Daily Loads, 2004 Section 303 (d) List Fact Sheets for South Dakota. http://oaspub.epa.gov/waters/state_rept.control?p_state=SD

USFWS. 2008. Biological Opinion. Stream-Crossing Projects Administered/Funded by the South Dakota Department of Transportation and the Federal Highway Administration. Mountain-Prairie Region 6 South Dakota Ecological Services Office, Pierre, South Dakota. April 28.

USFWS, 2006. Mountain-Prairie Region South Dakota Ecological Services Field Office. http://southdakotafieldoffice.fws.gov/

USFWS, 2007. Comment Response Letter from Scott Larson for Pete Gober, Field Supervisor. January 30.

USFWS, 2010. Comment Response Letter from Scott Larson, Field Supervisor. July 16.

USFWS, 2010. Comment Response Letter from Scott Larson, Field Supervisor. September 15.

USFWS, 2011. Mountain-Prairie Region South Dakota Ecological Services Field Office. http://www.fws.gov/southdakotafieldoffice/SpeciesByCounty.pdf

USGS, 2011. GIS National Hydrography Dataset (NHD)- South Dakota.